

ENGINEERING
TOMORROW

Danfoss

Quick Selection Catalogue

Products and technologies for all
your application needs,
today and **tomorrow**

REFRIGERATION & AIR CONDITIONING

Automatic Controls | Electronic Controllers | Compressors and Condensing Units

Easy

selection of future-
proof solutions and
components.

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T2 / TE2, Thermostatic expansion valves

T2 / TE2 thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems. T2 / TE2 valves are supplied as a parts programme, with separate thermostatic element/valve body and orifice assembly.

Available as angleway valves with flare x flare or flare x solder connections, with internal and external equalisation.

Features T2 / TE2



Laser-welded power element in stainless steel

- long diaphragm life
- high pressure tolerance and working pressure
- high corrosion resistance

Flare or solder outlet

Flare or solder pressure equalization

Interchangeable orifice assembly with dirt protection strainer

Stainless steel capillary tube and bulb:

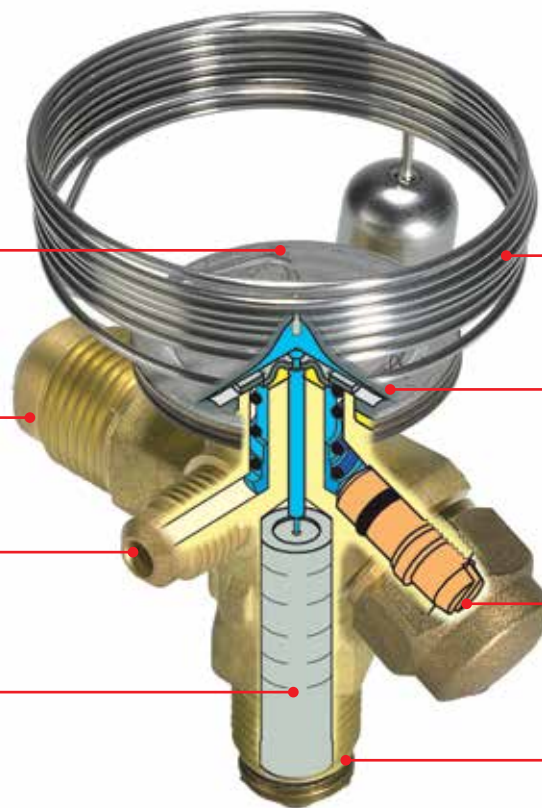
- high corrosion resistance
- high strength and vibration resistance

Laser-engraved label

Easy adjustment of superheat setting

Flare inlet

Solder adaptor available as an option



Facts

Applications:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration

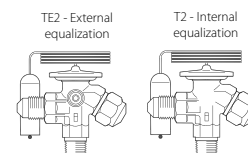
- Applicable to R134a, R404A / R507, R407C, R407F, R407A, R448A, R449A, R452A and R513A
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Large temperature range
- Equally applicable to freezing, refrigeration and air conditioning applications

- Interchangeable orifice assembly
 - easy stocking
 - easy capacity matching
 - better service
- Can be supplied with MOP (Max. Operating Pressure)
- Protects the compressor motor against excessive evaporating pressure during normal operation
- Valves for special temperature ranges and refrigerants can be supplied
- Flare / solder adaptor can be supplied

Technical data and ordering



Thermostatic element + Orifice



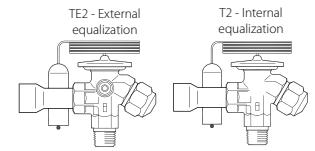
T2 / TE2

Thermostatic element with bulb strap (flare x flare)

Type	Refrigerant	Range		MOP		Pressure equalization Flare		Connection flare inlet x outlet		Code no. Multi pack
		[°C]	[°F]	[°C]	[°F]	[mm]	[in]	[mm]	[in]	
T2	R407C	-40 - 10	-40 - 50	-	-	-	-	10 x 12	3/8 x 1/2	068Z3496
TE2		-40 - 10	-40 - 50	15	60	-	-	10 x 12	3/8 x 1/2	068Z3516
		-40 - 10	-40 - 50	-	-	6	1/4	10 x 12	3/8 x 1/2	068Z3501
		-40 - 10	-40 - 50	15	60	6	1/4	10 x 12	3/8 x 1/2	068Z3517
T2	R134a	-40 - 10	-40 - 50	-	-	-	-	10 x 12	3/8 x 1/2	068Z3346
		-40 - 10	-40 - 50	15	60	-	-	10 x 12	3/8 x 1/2	068Z3347
		-40 - -5	-40 - 25	0	32	-	-	10 x 12	3/8 x 1/2	068Z3393
		-40 - -15	-40 - 5	-10	14	-	-	10 x 12	3/8 x 1/2	068Z3369
TE2		-40 - 10	-40 - 50	-	-	6	1/4	10 x 12	3/8 x 1/2	068Z3348
		-40 - 10	-40 - 50	15	60	6	1/4	10 x 12	3/8 x 1/2	068Z3349
		-40 - -5	-40 - 25	0	32	6	1/4	10 x 12	3/8 x 1/2	068Z3392
		-40 - -15	-40 - 5	-10	14	6	1/4	10 x 12	3/8 x 1/2	068Z3370
T2	R404A / R507	-40 - 10	-40 - 50	-	-	-	-	10 x 12	3/8 x 1/2	068Z3400
		-40 - 10	-40 - 50	15	60	-	-	10 x 12	3/8 x 1/2	068Z3402
		-40 - -5	-40 - 25	0	32	-	-	10 x 12	3/8 x 1/2	068Z3406
		-40 - -15	-40 - 5	-10	14	-	-	10 x 12	3/8 x 1/2	068Z3408
		-60 - -25	-75 - -15	-	-	-	-	10 x 12	3/8 x 1/2	068Z3401
		-60 - -25	-75 - -15	-20	-5	-	-	10 x 12	3/8 x 1/2	068Z3410
TE2		-40 - 10	-40 - 50	-	-	6	1/4	10 x 12	3/8 x 1/2	068Z3403
		-40 - 10	-40 - 50	15	60	6	1/4	10 x 12	3/8 x 1/2	068Z3405
		-40 - -5	-40 - 25	0	32	6	1/4	10 x 12	3/8 x 1/2	068Z3407
		-40 - -15	-40 - 5	-10	14	6	1/4	10 x 12	3/8 x 1/2	068Z3409
		-60 - -25	-75 - -15	-	-	6	1/4	10 x 12	3/8 x 1/2	068Z3404
		-60 - -25	-75 - -15	-20	-5	6	1/4	10 x 12	3/8 x 1/2	068Z3411
T2	R407F / R407A	-40 - 10	-40 - 50	-	-	-	-	10 x 12	3/8 x 1/2	068Z3715
TE2		-40 - 10	-40 - 50	-	-	6	1/4	10 x 12	3/8 x 1/2	068Z3714
T2	R448A / R449A	-40 - 10	-40 - 50	-	-	-	-	-	3/8 x 1/2	068Z3727
TE2		-40 - 10	-40 - 50	-	-	6	1/4	10 x 12	3/8 x 1/2	068Z3728

¹⁾ For R407C plants, please select valves from the dedicated R407C program
Capillary tube: 1.5 m / 59 in

Technical data and ordering



T2 / TE2

Thermostatic element with bulb strap (flare x solder)

Type	Refrigerant	Range		MOP		Pressure equalization solder		Connection inlet (Flare) × outlet (Solder)		Code no. Multi pack		
		[°C]	[°F]	[°C]	[°F]	[mm]	[in]	[mm]	[in]			
T2	R407C	-40 – 10	-40 – 50	–	–	–	–	10 × 12	–	068Z3502		
		-40 – 10	-40 – 50	15	60	–	–	–	3/8 × 1/2	068Z3329		
		-40 – 10	-40 – 50	15	60	–	–	10 × 12	–	068Z3514		
TE2		-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068Z3446		
		-40 – 10	-40 – 50	–	–	6	–	10 × 12	–	068Z3503		
		-40 – 10	-40 – 50	15	60	–	1/4	–	3/8 × 1/2	068Z3447		
T2	R134a	-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068Z3383		
		-40 – 10	-40 – 50	–	–	–	–	10 × 12	–	068Z3384		
		-40 – 10	-40 – 50	15	60	–	–	–	3/8 × 1/2	068Z3387		
TE2		-40 – 10	-40 – 50	15	60	–	–	10 × 12	–	068Z3388		
		-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068Z3385		
		-40 – 10	-40 – 50	–	–	6	–	10 × 12	–	068Z3386		
T2	R404A / R507	-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068Z3389		
		-40 – 10	-40 – 50	15	60	–	1/4	–	3/8 × 1/2	068Z3390		
		-40 – 10	-40 – 50	15	60	6	–	10 × 12	–	068Z3390		
TE2		-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068Z3414		
		-40 – 10	-40 – 50	–	–	–	–	10 × 12	–	068Z3435		
		-40 – 10	-40 – 50	15	60	–	–	–	3/8 × 1/2	068Z3416		
	-40 – 10	-40 – 50	15	60	–	–	10 × 12	–	068Z3423			
	-40 – 15	-40 – -5	-10	-15	–	–	–	3/8 × 1/2	068Z3429			
	-40 – 15	-40 – -5	-10	-15	–	–	10 × 12	–	068Z3436			
T2	R404A / R507	-60 – -25	-75 – -15	–	–	–	–	–	3/8 × 1/2	068Z3418		
		-60 – -25	-75 – -15	–	–	–	–	10 × 12	–	068Z3425		
		-60 – -25	-75 – -15	-20	-5	–	–	–	3/8 × 1/2	068Z3420		
		-60 – -25	-75 – -15	-20	-5	–	–	10 × 12	–	068Z3427		
		TE2	-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068Z3415	
			-40 – 10	-40 – 50	–	–	6	–	10 × 12	–	068Z3422	
-40 – 10	-40 – 50		15	60	–	1/4	–	3/8 × 1/2	068Z3417			
-40 – 10	-40 – 50		15	60	6	–	10 × 12	–	068Z3424			
-40 – 15	-40 – -5		-10	-15	–	1/4	–	3/8 × 1/2	068Z3430			
-40 – 15	-40 – -5		-10	-15	6	–	10 × 12	–	068Z3437			
T2	R404A / R507	-60 – -25	-75 – -15	–	–	–	1/4	–	3/8 × 1/2	068Z3419		
		-60 – -25	-75 – -15	–	–	6	–	10 × 12	–	068Z3426		
		-60 – -25	-75 – -15	-20	-5	–	1/4	–	3/8 × 1/2	068Z3421		
		-60 – -25	-75 – -15	-20	-5	6	–	10 × 12	–	068Z3428		
		T2	R407F / R407A	-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068Z3716
		TE2		-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068Z3713
T2	R448A / R449A	-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068Z3729		
TE2		-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068Z3730		
T2	R452A	-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068Z3806		
TE2		-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068Z3807		
T2		-40 – 10	-40 – 50	–	–	–	–	10 × 12	–	068Z3808		
TE2		-40 – 10	-40 – 50	–	–	6	–	10 × 12	–	068Z3809		

¹⁾ For R407C plants, please select valves from the dedicated R407C program
Capillary tube: 1.5 m / 59 in

Technical data and ordering

T2 / TE2

Orifice assembly for flare version

Range: -40 – 10 °C / -40 – 50 °F



Type	Orifice	R407C		R134a		R513A		R404A / R507		R407A		R407F		R448A		R449A		R452A		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
T2 / TE2	0X	0.92	0.26	0.68	0.19	0.58	0.16	0.64	0.18	0.88	0.25	1	0.28	0.9	0.26	0.88	0.25	0.69	0.20	068-2002
	00	1.8	0.51	1.2	0.34	1	0.29	1.3	0.37	1.7	0.49	2	0.56	1.8	0.51	1.7	0.49	1.3	0.38	068-2003
	01	3.5	1	2.1	0.59	1.8	0.51	2.6	0.75	3.4	1	3.9	1.1	3.5	1	3.4	0.97	2.7	0.78	068-2010
	02	4.8	1.4	2.6	0.73	2.2	0.62	3.7	1	4.7	1.3	5.4	1.5	4.8	1.4	4.6	1.3	3.8	1.1	068-2015
	03	8.1	2.3	4.3	1.2	3.7	1	6.3	1.8	8	2.3	9.2	2.6	8.1	2.3	7.9	2.3	6.4	1.8	068-2006
	04	12.4	3.5	6.4	1.8	5.4	1.5	9.9	2.8	12.4	3.5	14.3	4.1	12.6	3.6	12.1	3.5	10.0	2.9	068-2007
	05	16.5	4.7	8.4	2.4	6.9	2	13	3.7	16.3	4.6	19	5.4	16.3	4.6	15.7	4.5	12.6	3.6	068-2008
	06	19.7	5.6	10.1	2.9	8.6	2.5	15.5	4.4	19.6	5.6	22.9	6.5	19.8	5.7	19.1	5.5	15.8	4.5	068-2009

The rated capacity is based on:

Evaporating temperature $t_e = 4.4\text{ °C} / 40\text{ °F}$

Condensing temperature $t_c = 38\text{ °C} / 100\text{ °F}$

Refrigerant temperature ahead of valve $t_i = 37\text{ °C} / 98\text{ °F}$

T2 / TE2

Orifice assembly for solder adaptor version

Range: -40 – 10 °C / -40 – 50 °F



Type	Orifice	R407C		R134a		R513A		R404A / R507		R407A		R407F		R448A		R449A		R452A		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
T2 / TE2	0X	0.92	0.26	0.68	0.19	0.58	0.16	0.64	0.18	0.88	0.25	1	0.28	0.9	0.26	0.88	0.25	0.69	0.20	068-2089
	00	1.8	0.51	1.2	0.34	1	0.29	1.3	0.37	1.7	0.49	2	0.56	1.8	0.51	1.7	0.49	1.3	0.38	068-2090
	01	3.5	1	2.1	0.59	1.8	0.51	2.6	0.75	3.4	1	3.9	1.1	3.5	1	3.4	0.97	2.7	0.78	068-2091
	02	4.8	1.4	2.6	0.73	2.2	0.62	3.7	1	4.7	1.3	5.4	1.5	4.8	1.4	4.6	1.3	3.8	1.1	068-2092
	03	8.1	2.3	4.3	1.2	3.7	1	6.3	1.8	8	2.3	9.2	2.6	8.1	2.3	7.9	2.3	6.4	1.8	068-2093
	04	12.4	3.5	6.4	1.8	5.4	1.5	9.9	2.8	12.4	3.5	14.3	4.1	12.6	3.6	12.1	3.5	10.0	2.9	068-2094
	05	16.5	4.7	8.4	2.4	6.9	2	13	3.7	16.3	4.6	19	5.4	16.3	4.6	15.7	4.5	12.6	3.6	068-2095
	06	19.7	5.6	10.1	2.9	8.6	2.5	15.5	4.4	19.6	5.6	22.9	6.5	19.8	5.7	19.1	5.5	15.8	4.5	068-2096

The rated capacity is based on:

Evaporating temperature $t_e = 4.4\text{ °C} / 40\text{ °F}$

Condensing temperature $t_c = 38\text{ °C} / 100\text{ °F}$

Refrigerant temperature ahead of valve $t_i = 37\text{ °C} / 98\text{ °F}$



Solder adaptor without orifice assembly

Connection – ODF solder	Code no.
1/4 in	068-2062
6 mm	068-2063
6 mm	068-4101 ¹⁾
3/8 in	068-2060
10 mm	068-2061
10 mm	068-4100 ¹⁾

¹⁾ Including filter.

Filter as accessories



Filter type	Code no.
For flare connection	068-0003
For solder adaptor	068-0015

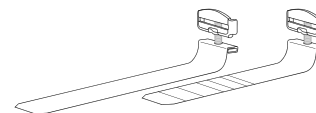
The solder adaptor is for use with thermostatic expansion valves T2 and TE2.

When the solder adaptor is fitted correctly it meets the sealing requirements of DIN 8964. The flare orifice in T2 and TE2 can be used with a solder adaptor when the orifice filter is replaced with a specific filter intended for solder adaptors. Only in this way the sealing requirements of DIN 8964 can be fulfilled.

Solder adaptors for filter driers (FSA) must not be used on the T2 inlet.

Bulb strap as accessories

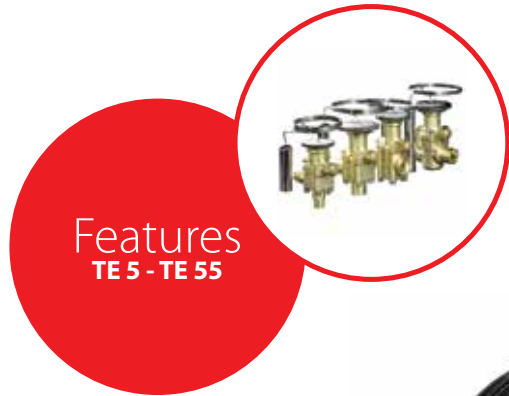
Type	Length [mm]	Max. diameter of suction line		Code no.
		[mm]	[in]	
T2 / TE2	110	28	1 1/8	068U3507
Accessories	190	50	2	068U3508



TE 5 – TE 55, Thermostatic expansion valves

TE 5 – TE 55 thermostatic expansion valves regulate the injection of refrigerant liquid into evaporators for medium sized plants. Injection is controlled by the refrigerant superheat. Therefore the valves are especially suitable for liquid injection in “dry” evaporators where the superheat at the evaporator outlet should always be kept constant. TE 5 – TE 55 valves are supplied as parts programme,

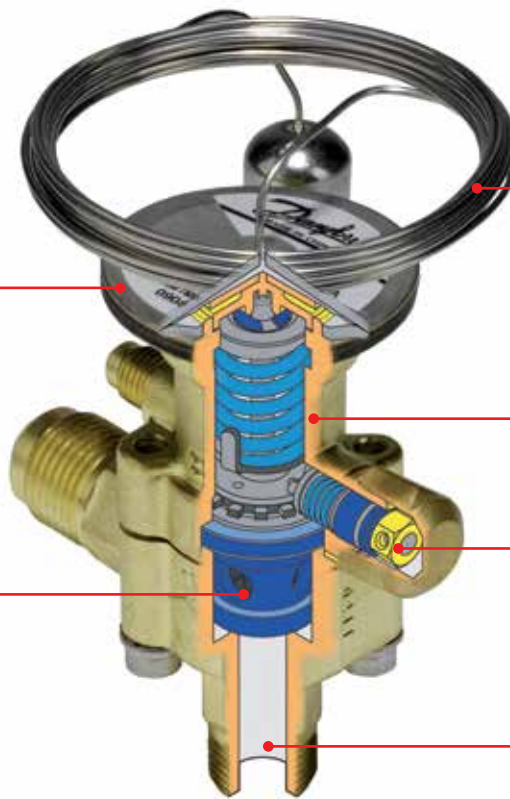
built up of three main components - thermostatic element, orifice assembly, and valve body with connections, and have external pressure equalization.



Laser-welded power element in stainless steel

- longer diaphragm life
- high pressure tolerance and working pressure
- high corrosion resistance

To ensure long operating life, the valve cone and seat are made of a special alloy with particularly good wear qualities



Stainless steel capillary tube and bulb

- high corrosion resistance
- high strength and vibration resistance

Large parts programme ensures minimal stocks

Easy adjustment of superheat setting

More connection possibilities

- solder x solder
- flare x flare
- flanges
- straightway or angleway

Facts

Applications:

- Air conditioning system
- Chiller
- Cold room
- Freezer
- Other refrigeration systems

- Applicable to R134a, R404A, R507, R407A, R407F, R407C, R448A, R449A, R452A and R513A

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

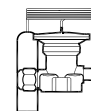
- Interchangeable orifice assembly designed for:
 - easy storage
 - easy capacity matching
 - better service

- Wide operating range:
 - 40 – 10 °C / -40 – 50 °F
 - 60 – -25 °C / -75 – -15 °F
- TE 55 has balanced port design
- Available with MOP (Max. Operating Pressure)
- Wide capacity range, rated capacity:
 - R448A / R449A : 9 – 225 kW / 2.5 – 64 TR
 - R407F: 11 – 250 kW / 3 – 71 TR
 - R404A / R507: 7 – 183 kW / 2 – 52 TR
- Maximum Working Pressure PS / MWP: 28 bar / 400 psig

Technical data and ordering



Element for expansion valve + Orifice + Valve body

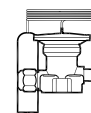


TE 5 – TE 55, R404A / R507

Element for expansion valve - including bulb strap

Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3342
	-40 – 10	-40 – 50	–	–	–	1/4	Solder ODF	3	118	067B3380
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067B3238
	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067B3357
	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067B3358
	-40 – -15	-40 – 5	-10	15	–	1/4	Solder ODF	3	118	067B3384
	-60 – -25	-75 – -15	–	–	6	1/4	Flare	3	118	067B3344
	-60 – -25	-75 – -15	–	–	6	–	Solder ODF	3	118	067B3392
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	3	118	067B3343
TE 12	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067B3347
	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067B3348
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	3	118	067B3349
	-60 – -25	-75 – -15	–	–	6	1/4	Flare	3	118	067B3368
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	5	197	067B3346
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	5	197	067B3350
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3352
	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067B3351
	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067B3353
TE 20	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	3	118	067B3354
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	5	197	067B3356
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	5	197	067B3355
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067G3302
	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067G3303
TE 55	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067G3304
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	3	118	067G3305
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	5	197	067G3301
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	5	197	067G3306

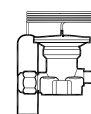
Technical data and ordering



TE 5 – TE 55, R134a

Element for expansion valve - including bulb strap

Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3297
	-40 – 10	-40 – 50	–	–	–	1/4	Solder ODF	3	118	067B3430
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067B3298
TE 12	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3232
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067B3233
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	5	197	067B3363
TE 20	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3292
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067B3293
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	5	197	067B3370
TE 55	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067G3222
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067G3223
	-40 – 10	-40 – 50	–	–	6	1/4	Flare	5	197	067G3230



TE 5 – TE 55, R407C

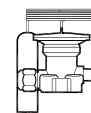
Element for expansion valve - including bulb strap

Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	-	-	6	1/4	Flare	3	118	067B3278
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067B3277
TE 12	-40 – 10	-40 – 50	-	-	6	1/4	Flare	3	118	067B3366
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	3	118	067B3367
TE 20	-40 – 10	-40 – 50	-	-	6	1/4	Flare	5	197	067B3371
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	5	197	067B3372
TE 55	-40 – 10	-40 – 50	-	-	6	1/4	Flare	5	197	067G3240
	-40 – 10	-40 – 50	15	60	6	1/4	Flare	5	197	067G3241

Technical data and ordering

TE 5 – TE 55, R407F / R407A

Element for expansion valve - including bulb strap



Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3501
	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067B3502
	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067B3503
	-40 – 10	-40 – 50	–	–	–	1/4	Solder ODF	3	118	067B3504
TE 12	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3532
	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067B3531
	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067B3533
TE 20	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3561
	-40 – -5	-40 – 25	0	32	6	1/4	Flare	3	118	067B3560
TE 55	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3562
	-40 – -15	-40 – 5	-10	15	6	1/4	Flare	3	118	067G3500

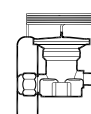
On systems charged with R407A, static superheat(SS) will be different from standard 4K/ 7.2 °F.

For range -40 – 10 °C / -40 – 50 °F, SS = 2.7 K / 4.9 °F.

For range -40 – -5 °C / -40 – 25 °F and range -40 – -15 °C / -40 – 5 °F, SS = 2.8K / 5.0 °F.

TE 5 – TE 55, R448A / R449A

Element for expansion valve - including bulb strap

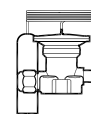


Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3252
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	3	118	067B3600
TE 12	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B2512
TE 20	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3294
TE 55	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067G3219

On systems charged with R449A, static superheat(SS) will be 2.7 K / 4.9 °F

TE 5 – TE 55, R452A

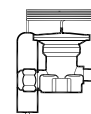
Element for expansion valve - including bulb strap



Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3601
	-60 – -25	-75 – -15	-20	-5	6	1/4	Flare	3	118	067B3602
TE 12	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3652
TE 20	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3680
TE 55	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067G3600

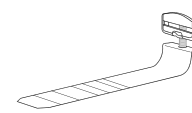
TE 5 – TE 55, R513A

Element for expansion valve - including bulb strap



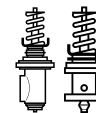
Type	Range		MOP		Pressure equalization			Capillary tube		Code no. Multi pack
	[°C]	[°F]	[°C]	[°F]	[mm]	[in]	Type	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3603
TE 12	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3651
TE 20	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067B3681
TE 55	-40 – 10	-40 – 50	–	–	6	1/4	Flare	3	118	067G3601

Bulb strap supplied separately as spare part



Max. diameter of suction line		Quantity / box	Code no. Industrial pack
[mm]	[in]		
53	2 1/8	40 pcs	067N0557
78	3 1/8	40 pcs	067N0559

Technical data and ordering



TE 5 – TE 55

Orifice assembly - Rated capacity

Type	Orifice	R407F		R407A		R448A/R449A		R452A		R404A/R507		R513A		R134a		R407C		Code no. Multi pack
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TE 5	0.5	11	3	9	2.5	9	2.5	7	2	7	2	5	1.5	5	1.5	11	3	067B2788
	01	18	5	18	5	18	5	14	4	14	4	11	3	11	3	18	5	067B2789
	02	28	8	25	7	25	7	21	6	19	5.5	14	4	16	4.5	25	7	067B2790
	03	35	10	32	9	32	9	28	8	25	7	18	5	21	6	32	9	067B2791
	04	46	13	42	12	46	13	39	11	35	10	25	7	28	8	46	13	067B2792
TE 12	05	70	20	56	16	53	15	46	13	49	14	30	8.5	35	10	53	15	067B2708
	06	95	27	74	21	70	20	63	18	63	18	39	11	49	14	74	21	067B2709
	07	113	32	95	27	91	26	81	23	81	23	53	15	63	18	91	26	067B2710
TE20	08	141	40	127	36	123	35	84	24	84	24	74	21	77	22	116	33	067B2771 ¹⁾
	09	158	45	148	42	141	40	98	28	102	29	81	23	91	26	134	38	067B2773 ¹⁾
TE 55	9B	123	35	109	31	113	32	84	24	84	24	70	20	74	21	109	31	067G2705 ¹⁾
	10	172	49	165	47	155	44	116	33	127	36	98	28	109	31	162	46	067G2701
	11	186	53	183	52	169	48	127	36	137	39	106	30	120	34	176	50	067G2704
	12	208	59	200	57	186	53	141	40	151	43	116	33	134	38	190	54	067G2707
	13	250	71	243	69	225	64	172	49	183	52	144	41	165	47	232	66	067G2710

The rated capacity is based on:

Evaporating temperature $t_e = 4.4\text{ °C} / 40\text{ °F}$

Condensing temperature $t_c = 38\text{ °C} / 100\text{ °F}$

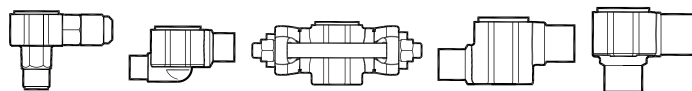
Refrigerant temperature ahead of valve $t_1 = 37\text{ °C} / 98\text{ °F}$

¹⁾ Recommend to use orifice no. 9B as alternative for orifice no. 08 and 09 on TE 55 when selecting the valve to work in range $-60\text{ -- }-25\text{ °C} / -75\text{ -- }-15\text{ °F}$. Please contact Danfoss for more information.

Technical data and ordering

TE 5 - TE 55

Valve body



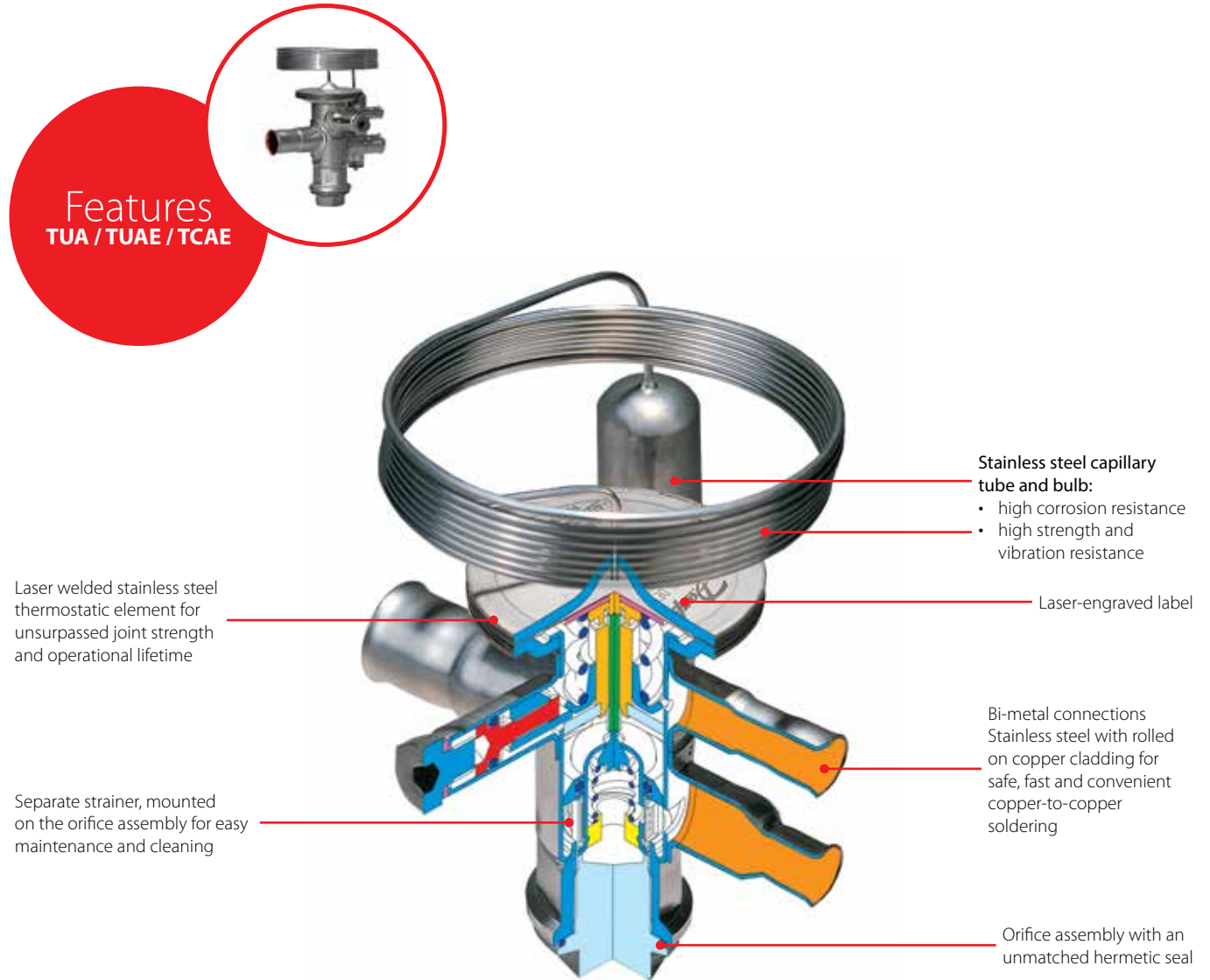
Type	Connection / Flow direction	Connection Type	Connection inlet x outlet		Code no. Multi pack
			[mm]	[in]	
TE 5	Flare angleway	–	12 × 16	1/2 × 5/8	067B4013
	Solder angleway	ODF × ODF	–	1/2 × 5/8	067B4009
	Solder angleway	ODF × ODF	–	1/2 × 7/8	067B4010
	Solder angleway	ODF × ODF	–	5/8 × 7/8	067B4011
	Solder angleway	ODF × ODM	–	7/8 × 1 1/8	067B4034
	Solder angleway	ODF × ODF	12 × 16	–	067B4004
	Solder angleway	ODF × ODF	12 × 22	–	067B4005
	Solder angleway	ODF × ODF	16 × 22	–	067B4012
	Solder angleway	ODF × ODM	22 × 28	–	067B4037
	Solder straightway	ODF × ODF	–	1/2 × 5/8	067B4007
	Solder straightway	ODF × ODF	–	1/2 × 7/8	067B4008
	Solder straightway	ODF × ODF	–	5/8 × 7/8	067B4032
	Solder straightway	ODF × ODM	–	7/8 × 1 1/8	067B4033
	Solder straightway	ODF × ODF	12 × 16	–	067B4002
	Solder straightway	ODF × ODF	12 × 22	–	067B4003
	Solder straightway	ODF × ODF	16 × 22	–	067B4035
	Solder straightway	ODF × ODM	22 × 28	–	067B4036
	TE 12	Solder angleway	ODF × ODF	–	5/8 × 7/8
Solder angleway		ODF × ODM	–	7/8 × 1 1/8	067B4023
Solder angleway		ODF × ODM	22 × 28	–	067B4017
Solder straightway		ODF × ODF	–	5/8 × 7/8	067B4020
Solder straightway		ODF × ODM	–	7/8 × 1 1/8	067B4021
Solder straightway		ODF × ODM	22 × 28	–	067B4016
Solder flanges		ODF × ODF	–	5/8 × 7/8	067B4025
Solder flanges		ODF × ODF	–	7/8 × 1	067B4026
Solder flanges		ODF × ODF	16 × 22	–	067B4027
TE 20	Solder flanges	ODF × ODF	22 × 25	–	067B4015
	Solder angleway	ODF × ODM	–	7/8 × 1 1/8	067B4023
	Solder angleway	ODF × ODM	22 × 28	–	067B4017
	Solder straightway	ODF × ODM	–	7/8 × 1 1/8	067B4021
TE 55	Solder straightway	ODF × ODM	22 × 28	–	067B4016
	Solder angleway	ODM × ODM	–	1 1/8 × 1 3/8	067G4004
	Solder angleway	ODM × ODM	28 × 35	–	067G4002
	Solder straightway	ODM × ODM	–	1 1/8 × 1 3/8	067G4003
Solder straightway	ODM × ODM	28 × 35	–	067G4001	

ODF = internal diameter
ODM = External diameter

TUA / TUAE / TCAE, Thermostatic expansion valves

TUA / TUAE / TCAE stainless steel thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems. Valves are compact in design, light weight and have steel / copper bi-metal connections for fast soldering. They are supplied as parts programme, with separate thermostatic element

/ valve body, and orifice assembly. TUA has internal equalization, TUAE / TCAE external equalization. TUA / TUAE / TCAE are straightway valves, and have adjustable superheat setting.



Facts

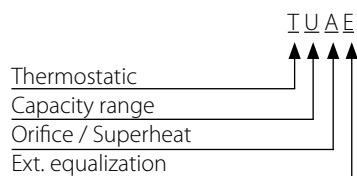
Applications:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Ice cube machines
- Transport refrigeration
- Applicable to R134a, R404A, R407C, R507 and R410A

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- The use of stainless steel makes the valves light and strong
- Bi-metal connections for safe, fast and convenient soldering
- Stainless steel capillary tube for superior strength and ductility
- Allen key superheat setting screw is convenient and space-saving compared to the standard screwdriver adjustment used in most conventional valves
- Can be supplied with MOP (Max. Operating Pressure) Protects the compressor motor against excessive evaporating pressure during normal operation
- Valves for special temperature ranges can be supplied
- 4 K / 7.2 °F opening superheat
- Bi-flow function (TUAE: only orifice 1 – 8, TCAE: Only orifice 1 and 2)

Technical data



Orifice / Superheat

	Interchangeable	Adjustable
A	YES	YES
B	NO	YES
C	NO	NO

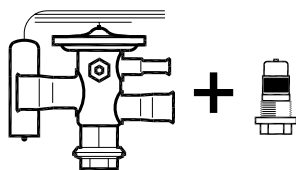
N = -40 °C – 10 °C / -40 – 50 °F

NM = -40 °C – -5 °C MOP 0 °C / -40 – 25 °F MOP 32 °F

NL = -40 °C – -15 °C with MOP - 10 °C / -40 – 5 °F MOP 14 °F

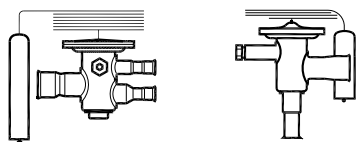
B = -60 °C – -25 °C / -75 – -15 °F

TUA
TUAE
TCAE



Thermostatic valve + Orifice

TUB
TUBE
TUC
TUCE
TCBE
TCCE



Thermostatic valve including Orifice

Valve types **TUB / TUBE / TUC / TUCE** and **TCBE / TCCE** can be replaced by **TUA / TUAE** and **TCAE** types

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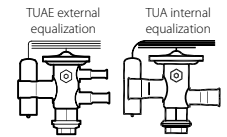
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Technical data and ordering



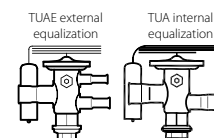
TUA / TUAE - Solder

Thermostatic element with bulb strap

Type	Refrigerant	Range		MOP		Ext. pressure equalization		Solder connections inlet × outlet		Code no.
		[°C]	[°F]	[°C]	[°F]	[mm]	[in]	[mm]	[in]	
TUA	R134a / R513A	-40 – 10	-40 – 50	–	–	–	–	–	1/4 × 1/2	068U2204
		-40 – 10	-40 – 50	–	–	–	–	6 × 12	–	068U2200
		-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068U2205
		-40 – 10	-40 – 50	–	–	–	–	10 × 12	–	068U2201
		-40 – 10	-40 – 50	15	60	–	–	–	1/4 × 1/2	068U2212
		-40 – 10	-40 – 50	15	60	–	–	6 × 12	–	068U2208
		-40 – 10	-40 – 50	15	60	–	–	–	3/8 × 1/2	068U2213
TUAE		-40 – 10	-40 – 50	–	–	–	1/4	–	1/4 × 1/2	068U2206
		-40 – 10	-40 – 50	–	–	6	–	6 × 12	–	068U2202
		-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068U2207
		-40 – 10	-40 – 50	–	–	6	–	10 × 12	–	068U2203
		-40 – 10	-40 – 50	15	60	–	1/4	–	1/4 × 1/2	068U2214
		-40 – 10	-40 – 50	15	60	–	1/4	–	3/8 × 1/2	068U2215
		-40 – 10	-40 – 50	15	60	6	–	10 × 12	–	068U2211
TUA	R404A / R507	-40 – 10	-40 – 50	–	–	–	–	–	1/4 × 1/2	068U2284
		-40 – 10	-40 – 50	–	–	–	–	6 × 12	–	068U2280
		-40 – 10	-40 – 50	–	–	–	–	–	3/8 × 1/2	068U2285
		-40 – 10	-40 – 50	–	–	–	–	10 × 12	–	068U2281
		-40 – 10	-40 – 50	15	60	–	–	–	1/4 × 1/2	068U2292
		-40 – 10	-40 – 50	15	60	–	–	–	3/8 × 1/2	068U2293
		-60 – -25	-75 – -15	–	–	–	–	–	1/4 × 1/2	068U2308
		-60 – -25	-75 – -15	–	–	–	–	–	3/8 × 1/2	068U2309
		-40 – -5	-40 – 25	0	32	–	–	–	1/4 × 1/2	068U2300
		-40 – -5	-40 – 25	0	32	–	–	6 × 12	–	068U2296
		-60 – -25	-75 – -15	-20	-5	–	–	–	1/4 × 1/2	068U2316
		-60 – -25	-75 – -15	-20	-5	–	–	6 × 12	–	068U2312
		-60 – -25	-75 – -15	-20	-5	–	–	–	3/8 × 1/2	068U2317
		-40 – 10	-40 – 50	–	–	–	1/4	–	1/4 × 1/2	068U2286
-40 – 10	-40 – 50	–	–	6	–	6 × 12	–	068U2282		
-40 – 10	-40 – 50	–	–	–	1/4	–	3/8 × 1/2	068U2287		
-40 – 10	-40 – 50	–	–	6	–	10 × 12	–	068U2283		
TUAE	-40 – 10	-40 – 50	15	60	–	1/4	–	3/8 × 1/2	068U2295	
	-40 – -5	-40 – 25	0	32	–	1/4	–	3/8 × 1/2	068U2303	
	-40 – -5	-40 – 25	0	32	6	–	10 × 12	–	068U2299	
	-60 – -25	-75 – -15	-20	-5	–	1/4	–	1/4 × 1/2	068U2318	
	-60 – -25	-75 – -15	-20	-5	–	1/4	–	3/8 × 1/2	068U2319	
	-60 – -25	-75 – -15	-20	-5	6	–	10 × 12	–	068U2315	

Capillary tube: 1.5 m / 59 in

Technical data and ordering



TUA / TUAE - Solder

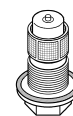
Thermostatic element with bulb strap

Type	Refrigerant	Range		MOP		Ext. pressure equalization		Solder connections inlet x outlet		Code no.
		[°C]	[°F]	[°C]	[°F]	[mm]	[in]	[mm]	[in]	
TUA	R407C	-40 - 10	-40 - 50	15	60	-	-	-	1/4 x 1/2	068U2332
		-40 - 10	-40 - 50	15	60	-	-	-	3/8 x 1/2	068U2333
		-40 - 10	-40 - 50	-	-	-	-	-	1/4 x 1/2	068U2324
		-40 - 10	-40 - 50	-	-	-	-	6 x 12	-	068U2320
		-40 - 10	-40 - 50	-	-	-	-	-	3/8 x 1/2	068U2325
-40 - 10		-40 - 50	-	-	-	-	10 x 12	-	068U2321	
TUAE		-40 - 10	-40 - 50	-	-	-	1/4	-	1/4 x 1/2	068U2326
		-40 - 10	-40 - 50	-	-	6	-	6 x 12	-	068U2322
		-40 - 10	-40 - 50	-	-	-	1/4	-	3/8 x 1/2	068U2327
		-40 - 10	-40 - 50	-	-	6	-	10 x 12	-	068U2323
	-40 - 10	-40 - 50	15	60	6	-	6 x 12	-	068U2330	
TUA	R410A	-40 - 10	-40 - 50	15	60	-	1/4	-	3/8 x 1/2	068U2335
TUAE		-40 - 10	-40 - 50	15	60	6	-	10 x 12	-	068U2331
TUA		-40 - 10	-40 - 50	-	-	-	-	-	3/8 x 1/2	068U2414
TUAE		-40 - 10	-40 - 50	-	-	-	1/4	-	3/8 x 1/2	068U1714
TUAE	-40 - 10	-40 - 50	-	-	6	-	10 x 12	-	068U2780	

Capillary tube: 1.5 m / 59 in

TUA / TUAE

Orifice assembly with filter and gasket

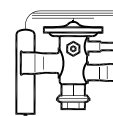


Valve	Orifice no.	Bleed	R134a		R404A / R507		R407C		R410A		R513A		R448A		R449A		Code no.
			[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TUA / TUAE	0	-	0.42	0.12	0.48	0.14	0.66	0.19	0.99	0.28	0.36	0.10	0.63	0.18	0.61	0.17	068U1030
	1	-	0.61	0.18	0.71	0.20	0.94	0.27	1.3	0.38	0.53	0.15	0.93	0.26	0.90	0.25	068U1031
	1	15%	0.61	0.18	0.71	0.20	0.94	0.27	1.3	0.38	0.53	0.15	0.93	0.26	0.90	0.25	068U1131
	2	-	0.72	0.21	0.87	0.25	1.1	0.32	1.7	0.48	0.62	0.18	1.1	0.32	1.1	0.31	068U1032
	2	15%	0.72	0.21	0.87	0.25	1.1	0.32	1.7	0.48	0.62	0.18	1.1	0.32	1.1	0.31	068U1132
	3	-	0.94	0.27	1.1	0.32	1.5	0.42	2.1	0.60	0.82	0.23	1.4	0.41	1.4	0.40	068U1033
	3	15%	0.94	0.27	1.1	0.32	1.5	0.42	2.1	0.60	0.82	0.23	1.4	0.41	1.4	0.40	068U1133
	4	-	1.6	0.46	2	0.57	2.5	0.72	4.1	1.2	1.4	0.39	2.5	0.72	2.4	0.69	068U1034
	4	15%	1.6	0.46	2	0.57	2.5	0.72	4.1	1.2	1.4	0.39	2.5	0.72	2.4	0.69	068U1134
	5	-	2.1	0.61	2.7	0.76	3.4	0.96	5.3	1.5	1.8	0.53	3.4	0.96	3.2	0.92	068U1035
	5	15%	2.1	0.61	2.7	0.76	3.4	0.96	5.3	1.5	1.8	0.53	3.4	0.96	3.2	0.92	068U1135
	6	-	3.4	0.95	4.2	1.1	5.3	1.5	8.5	2.4	2.9	0.82	5.3	1.5	5.1	1.4	068U1036
	6	15%	3.4	0.95	4.2	1.1	5.3	1.5	8.5	2.4	2.9	0.82	5.3	1.5	5.1	1.4	068U1136
	7	-	4.4	1.3	5.6	1.6	7	2	11.2	3.2	3.8	1.1	7.0	2.0	6.7	1.9	068U1037
	7	15%	4.4	1.3	5.6	1.6	7	2	11.2	3.2	3.8	1.1	7.0	2.0	6.7	1.9	068U1137
	8	-	6.5	1.9	8	2.3	10.2	2.9	15.8	4.5	5.6	1.6	10.1	2.9	9.8	2.8	068U1038
	8	15%	6.5	1.9	8	2.3	10.2	2.9	15.8	4.5	5.6	1.6	10.1	2.9	9.8	2.8	068U1138
	9 ¹⁾	-	9	2.6	11.3	3.2	14	4	23.1	6.6	7.7	2.2	13.9	4.0	13.6	3.9	068U1039
	9 ¹⁾	15%	9	2.6	11.3	3.2	14	4	23.1	6.6	7.7	2.2	13.9	4.0	13.6	3.9	068U1139

The rated capacity is based on:
 Evaporating temperature $t_e = 4.4\text{ °C} / 40\text{ °F}$
 Liquid temperature $t_l = 37\text{ °C} / 98\text{ °F}$
 Condensing temperature $t_c = 38\text{ °C} / 100\text{ °F}$

¹⁾ TUAE with orifice no. 9 cannot be used for Biflow operation.

Technical data and ordering



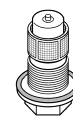
TCAE

Thermostatic element, with bulb strap

Type	Refrigerant	Range		MOP		Ext. pressure equalization		Solder connection inlet x outlet		Code no.
		[°C]	[°F]	[°C]	[°F]	[mm]	[in]	[mm]	[in]	
TCAE	R134a / R513A	-40 - 10	-40 - 50	-	-	-	1/4	-	3/8 x 5/8	068U4292
		-40 - 10	-40 - 50	-	-	-	1/4	-	1/2 x 5/8	068U4293
		-40 - 10	-40 - 50	-	-	6	-	10 x 16	-	068U4296
		-40 - 10	-40 - 50	-	-	6	-	12 x 16	-	068U4297
		-40 - 10	-40 - 50	15	59	-	1/4	-	1/2 x 5/8	068U4295
		-40 - 10	-40 - 50	15	59	6	-	12 x 16	-	068U4299
TCAE	R404A / R507	-40 - 10	-40 - 50	-	-	-	1/4	-	3/8 x 5/8	068U4304
		-40 - 10	-40 - 50	-	-	-	1/4	-	1/2 x 5/8	068U4305
		-40 - 10	-40 - 50	-	-	6	-	10 x 16	-	068U4308
		-40 - 10	-40 - 50	-	-	6	-	12 x 16	-	068U4309
		-40 - 10	-40 - 50	15	59	-	1/4	-	1/2 x 5/8	068U4307
		-40 - 10	-40 - 50	15	59	6	-	10 x 16	-	068U4310
		-40 - -5	-40 - 25	0	32	-	1/4	-	1/2 x 5/8	068U4313
		-40 - -5	-40 - 25	0	32	6	-	10 x 16	-	068U4314
		-40 - -5	-40 - 25	0	32	6	-	12 x 16	-	068U4315
		-60 - -25	-75 - -15	-	-	-	1/4	-	1/2 x 5/8	068U4317
		-60 - -25	-75 - -15	-	-	6	-	12 x 16	-	068U4321
		-60 - -25	-75 - -15	-20	68	-	1/4	-	1/2 x 5/8	068U4319
		-60 - -25	-75 - -15	-20	68	6	-	10 x 16	-	068U4322
		TCAE	R407C	-40 - 10	-40 - 50	-	-	-	1/4	-
-40 - 10	-40 - 50			-	-	-	1/4	-	1/2 x 5/8	068U4325
-40 - 10	-40 - 50			-	-	6	-	10 x 16	-	068U4328
-40 - 10	-40 - 50			-	-	6	-	12 x 16	-	068U4329
-40 - 10	-40 - 50			15	59	-	1/4	-	3/8 x 5/8	068U4326
-40 - 10	-40 - 50			15	59	-	1/4	-	1/2 x 5/8	068U4327
-40 - 10	-40 - 50			15	59	6	-	12 x 16	-	068U4331
TCAE	R410A			-40 - 10	-40 - 50	-	-	-	1/4	-
		-40 - 10	-40 - 50	-	-	-	1/4	-	1/2 x 5/8	068U4337
		-40 - 10	-40 - 50	-	-	6	-	12 x 16	-	068U4341
		-40 - 10	-40 - 50	15	59	-	1/4	-	1/2 x 5/8	068U4339
		-40 - 10	-40 - 50	15	59	6	-	12 x 16	-	068U4343

Capillary tube: 1.5 m / 59 in

Technical data and ordering



TCAE

Orifice assembly with filter and gasket

Type	Orifice no.	Bleed	R134a		R404A / R507		R407C		R410A		R448A		R449A		R513A		Code no.
			[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TCAE	1	–	13	3.7	13	3.7	17.8	5.1	21.2	6	17.6	5.0	16.9	4.8	11.5	3.3	068U4100
	1	15%	13	3.7	13	3.7	17.8	5.1	21.2	6	17.6	5.0	16.9	4.8	11.5	3.3	068U4097
	2	–	14.9	4.3	15.1	4.3	20.4	5.8	24.5	7	20.3	5.8	19.3	5.5	13.2	3.8	068U4101
	2	15%	14.9	4.3	15.1	4.3	20.4	5.8	24.5	7	20.3	5.8	19.3	5.5	13.2	3.8	068U4098
	3 ¹⁾	–	18.6	5.3	18.9	5.4	25.2	7.2	30.6	8.7	25.1	7.1	23.9	6.8	16.5	4.7	068U4102
	3 ¹⁾	15%	18.6	5.3	18.9	5.4	25.2	7.2	30.6	8.7	25.1	7.1	23.9	6.8	16.5	4.7	068U4099

The rated capacity is based on:

Evaporating temperature, $t_e = 4.4\text{ °C} / 40\text{ °F}$

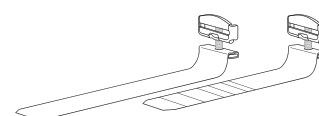
Liquid temperature, $t_l = 37\text{ °C} / 98\text{ °F}$

Condensing temperature, $t_c = 38\text{ °C} / 100\text{ °F}$

¹⁾ TCAE with orifice no. 3 cannot be used for Biflow operation.

Bulb strap (delivered with the valve) and accessories

Type	Length		Max. diameter of suction line		Code no.
	[mm]	[in]	[mm]	[in]	
TCAE	110	4 ⁵ / ₁₆	28	1 ¹ / ₈	068U3507
Accessories	190	7 ³ / ₈	50	2	068U3508



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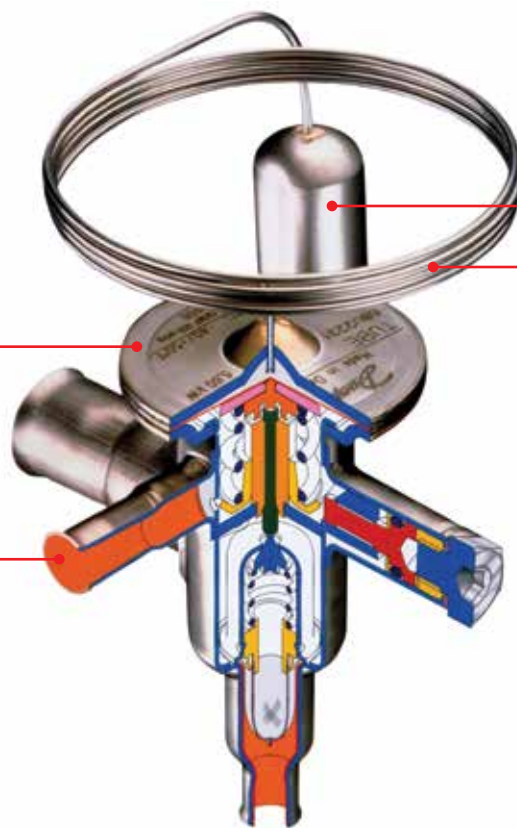
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TUB / TUBE / TCBE, Thermostatic expansion valves

TUB / TUBE / TCBE stainless steel thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems. Valves are compact in design, light weight and have steel / copper bi-metal connections for fast soldering.

TUB has internal equalization, TUBE / TCBE external equalization. TUB / TUBE and TCBE are available in straightway or angleway versions, have a fixed orifice and adjustable superheat.



Laser welded stainless steel thermostatic element for unsurpassed joint strength and operational lifetime

Bi-metal connections
Stainless steel with rolled on copper cladding for safe, fast and convenient copper-to-copper soldering

Stainless steel capillary tube and bulb:

- high corrosion resistance
- high strength and vibration resistance

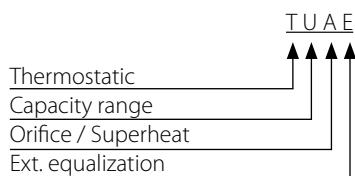
Facts

Applications:

- Traditional refrigeration
 - Heat pump systems
 - Air conditioning units
 - Liquid coolers
 - Ice cube machines
 - Transport refrigeration
 - Applicable to R134a, R404A, R407C, R507 and R410A
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- The use of stainless steel makes the valves light and strong
- Bi-metal connections for safe, fast and convenient soldering
- Stainless steel capillary tube for superior strength and ductility
- Allen key superheat setting screw is convenient and space-saving compared to the standard screwdriver adjustment used in most conventional valves
- Can be supplied with MOP (Max. Operating Pressure) - protects the compressor motor against excessive evaporating pressure during normal operation
- Valves for special temperature ranges can be supplied
- 4 K / 7.2 °F opening superheat
- Bi-flow function
- Can be supplied as non adjustable OEM versions

Technical data



Orifice / Superheat

	Interchangeable	Adjustable
A	YES	YES
B	NO	YES
C	NO	NO

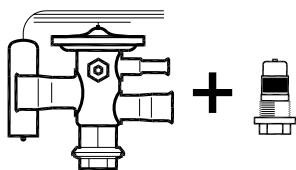
Range N = -40 – 10 °C / -40 – 50 °F

Range NM = -40 – -5 °C with MOP / -40 – 25 °F with MOP

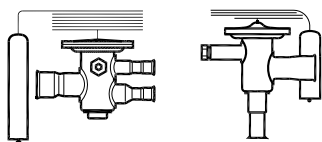
Range NL = -40 – -15 °C with MOP / -40 °C – 5 °F with MOP

Range B = -60 – -25 °C with MOP / -75 – -15 °F with MOP

TUA
TUA E
TCAE



TUB
TUBE
TUC
TUCE
TCBE
TCCE



Valve types **TUB / TUBE / TUC / TUCE** and **TCBE / TCCE** can be replaced by **TUA / TUA E** and **TCAE** types.

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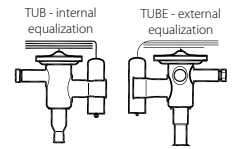
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Technical data and ordering



TUB / TUBE

Thermostatic element, angle way, with bulb strap

Type	Refrigerant	Orifice no. ²⁾	Range		Rated capacity Q _{nom.} ¹⁾		Ext. pressure equalization		Connection inlet × outlet		Code no.	
			[°C]	[°F]	[kW]	[TR]	[mm]	[in]	[mm]	[in]		
TUB	R407C	1	-40 – 10	-40 – 50	0.94	0.27	–	–	6 × 12	–	068U1901	
		3	-40 – 10	-40 – 50	1.5	0.42	–	–	6 × 12	–	068U1903	
		4	-40 – 10	-40 – 50	2.5	0.72	–	–	6 × 12	–	068U1904	
		5	-40 – 10	-40 – 50	3.4	0.96	–	–	6 × 12	–	068U1905	
		6	-40 – 10	-40 – 50	5.3	1.5	–	–	6 × 12	–	068U1906	
		7	-40 – 10	-40 – 50	7	2	–	–	10 × 12	–	068U1907	
		8	-40 – 10	-40 – 50	10.2	2.9	–	–	10 × 12	–	068U1908	
		9	-40 – 10	-40 – 50	14	4	–	–	10 × 12	–	068U1909	
		TUBE	2	-40 – 10	-40 – 50	1.1	0.32	6	–	6 × 12	–	068U1912
3			-40 – 10	-40 – 50	1.5	0.42	6	–	6 × 12	–	068U1913	
4			-40 – 10	-40 – 50	2.5	0.72	6	–	6 × 12	–	068U1914	
5			-40 – 10	-40 – 50	3.4	0.96	–	1/4	–	1/4 × 1/2	068U1935	
5			-40 – 10	-40 – 50	3.4	0.96	6	–	6 × 12	–	068U1915	
6			-40 – 10	-40 – 50	5.3	1.5	–	1/4	–	1/4 × 1/2	068U1936	
6			-40 – 10	-40 – 50	5.3	1.5	6	–	6 × 12	–	068U1916	
7			-40 – 10	-40 – 50	7	2	–	1/4	–	3/8 × 1/2	068U1937	
7			-40 – 10	-40 – 50	7	2	6	–	10 × 12	–	068U1917	
8			-40 – 10	-40 – 50	10.2	2.9	–	1/4	–	3/8 × 1/2	068U1938	
TUB	R410A	8	-40 – 10	-40 – 50	10.2	2.9	6	–	10 × 12	–	068U1918	
		9	-40 – 10	-40 – 50	14	4	–	1/4	–	3/8 × 1/2	068U1939	
		9	-40 – 10	-40 – 50	14	4	6	–	10 × 12	–	068U1919	
		TUBE	1	-40 – 10	-40 – 50	1.34	0.38	–	–	–	1/4 × 1/2	068U1958
			2	-40 – 10	-40 – 50	1.7	0.48	–	–	–	1/4 × 1/2	068U1959
		3	-40 – 10	-40 – 50	2.1	0.60	–	–	–	1/4 × 1/2	068U1960	
		4	-40 – 10	-40 – 50	4.1	1.2	–	–	–	1/4 × 1/2	068U1961	
5		-40 – 10	-40 – 50	5.3	1.5	–	–	–	1/4 × 1/2	068U1962		
6		-40 – 10	-40 – 50	8.5	2.4	–	–	–	1/4 × 1/2	068U1963		
7		-40 – 10	-40 – 50	11.2	3.2	–	1/4	–	3/8 × 1/2	068U1973		
TUBE		8	-40 – 10	-40 – 50	15.8	4.5	–	1/4	–	3/8 × 1/2	068U1974	
	9	-40 – 10	-40 – 50	23.1	6.6	–	1/4	–	3/8 × 1/2	068U1975		

¹⁾ The rated capacity is based on:

Evaporating temperature: $t_e = 4.4\text{ °C} / 40\text{ °F}$

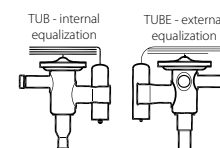
Condensing temperature: $t_c = 38\text{ °C} / 100\text{ °F}$

Liquid temperature: $t_l = 37\text{ °C} / 98\text{ °F}$

²⁾ TUBE with orifice 0 and 9 and all TUB (internal pressure equalization) cannot be used for biflow operation.

For R407C plants, please select valves from the dedicated R407C program.

Technical data and ordering



02

03

TUB / TUBE

Thermostatic element, angle way, with bulb strap

Type	Refrigerant	Orifice no. ²⁾	Range		Rated capacity Q _{nom.} ¹⁾		Ext. pressure equalization		Connection inlet × outlet		Code no.
			[°C]	[°F]	[kW]	[TR]	[mm]	[in]	[mm]	[in]	
TUB	R290	0	-40 – 10	-40 – 50	0.64	0.18	–	–	–	1/4 × 3/8	068U3701
		1	-40 – 10	-40 – 50	0.94	0.27	–	–	–	1/4 × 3/8	068U3702
TUBE		2	-40 – 10	-40 – 50	1.12	0.32	–	1/4	–	1/4 × 3/8	068U3703
		3	-40 – 10	-40 – 50	1.46	0.42	–	1/4	–	1/4 × 3/8	068U3704
		4	-40 – 10	-40 – 50	2.55	0.72	–	1/4	–	1/4 × 3/8	068U3705
		5	-40 – 10	-40 – 50	3.39	0.96	–	1/4	–	1/4 × 3/8	068U3706
		6	-40 – 10	-40 – 50	5.33	1.51	–	1/4	–	1/4 × 3/8	068U3707
		7	-40 – 10	-40 – 50	7.03	2	–	1/4	–	1/4 × 3/8	068U3708
		8	-40 – 10	-40 – 50	10.2	2.91	–	1/4	–	3/8 × 1/2	068U3709
TUB		9	-40 – 10	-40 – 50	14.3	4.05	–	1/4	–	3/8 × 1/2	068U3710
		0	-40 – 10	-40 – 50	0.64	0.18	–	–	6 × 12	–	068U3712
TUBE		1	-40 – 10	-40 – 50	0.94	0.27	–	–	6 × 12	–	068U3713
		2	-40 – 10	-40 – 50	1.12	0.32	6	–	6 × 12	–	068U3714
		3	-40 – 10	-40 – 50	1.46	0.42	6	–	6 × 12	–	068U3715
		4	-40 – 10	-40 – 50	2.55	0.72	6	–	6 × 12	–	068U3716
		5	-40 – 10	-40 – 50	3.39	0.96	6	–	6 × 12	–	068U3717
		6	-40 – 10	-40 – 50	5.33	1.51	6	–	6 × 12	–	068U3718
		7	-40 – 10	-40 – 50	7.03	2	6	–	6 × 12	–	068U3719
TUB		8	-40 – 10	-40 – 50	10.2	2.91	6	–	10 × 12	–	068U3720
		9	-40 – 10	-40 – 50	14.3	4.05	6	–	10 × 12	–	068U3721
TUBE	1	-40 – 10	-40 – 50	0.94	0.27	–	–	–	1/4 × 1/2	068U3731	
	2	-40 – 10	-40 – 50	1.12	0.32	–	–	–	1/4 × 1/2	068U3732	
	3	-40 – 10	-40 – 50	1.46	0.42	–	–	–	1/4 × 1/2	068U3733	
TUBE	4	-40 – 10	-40 – 50	2.55	0.72	–	–	–	1/4 × 1/2	068U3735	
	5	-40 – 10	-40 – 50	3.39	0.96	–	1/4	–	1/4 × 1/2	068U3734	

¹⁾ The rated capacity is based on:

Evaporating temperature: $t_e = 4.4 \text{ °C} / 40 \text{ °F}$

Condensing temperature: $t_c = 38 \text{ °C} / 100 \text{ °F}$

Liquid temperature: $t_l = 37 \text{ °C} / 98 \text{ °F}$

²⁾ TUBE with orifice 0 and 9 and all TUB (internal pressure equalization) cannot be used for biflow operation.

For R407C plants, please select valves from the dedicated R407C program.

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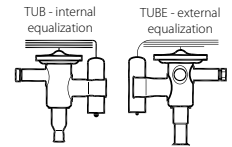
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Technical data and ordering



TUB / TUBE

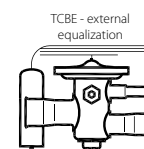
Thermostatic element, angle way, with bulb strap

Type	Refrigerant	Orifice no. ²⁾	Range		Rated capacity Q _{nom.} ¹⁾		Ext. pressure equalization		Connection inlet x outlet		Code no.
			[°C]	[°F]	[kW]	[TR]	[mm]	[in]	[mm]	[in]	
TUB	R134a / R513A	0	-40 - 10	-40 - 50	0.42	0.12	-	-	-	1/4 x 1/2	068U2660
		1	-40 - 10	-40 - 50	0.61	0.17	-	-	-	1/4 x 1/2	068U2027
		1	-40 - 10	-40 - 50	0.61	0.17	-	-	6 x 12	-	068U2000
		2	-40 - 10	-40 - 50	0.72	0.20	-	-	-	1/4 x 1/2	068U2028
		2	-40 - 10	-40 - 50	0.72	0.20	-	-	6 x 12	-	068U2001
		3	-40 - 10	-40 - 50	0.95	0.27	-	-	-	1/4 x 1/2	068U2029
		3	-40 - 10	-40 - 50	0.95	0.27	-	-	6 x 12	-	068U2002
		4	-40 - 10	-40 - 50	1.6	0.46	-	-	-	1/4 x 1/2	068U2030
		4	-40 - 10	-40 - 50	1.6	0.46	-	-	6 x 12	-	068U2003
		5	-40 - 10	-40 - 50	2.1	0.61	-	-	-	1/4 x 1/2	068U2031
		5	-40 - 10	-40 - 50	2.1	0.61	-	-	6 x 12	-	068U2004
		TUBE	R134a / R513A	6	-40 - 10	-40 - 50	3.4	0.95	-	-	-
6	-40 - 10			-40 - 50	3.4	0.95	-	-	6 x 12	-	068U2005
1	-40 - 10			-40 - 50	0.61	0.17	6	-	6 x 12	-	068U2009
2	-40 - 10			-40 - 50	0.72	0.20	6	-	6 x 12	-	068U2010
3	-40 - 10			-40 - 50	0.95	0.27	-	1/4	-	1/4 x 1/2	068U2020
3	-40 - 10			-40 - 50	0.95	0.27	6	-	6 x 12	-	068U2011
4	-40 - 10			-40 - 50	1.6	0.46	-	1/4	-	1/4 x 1/2	068U2021
4	-40 - 10			-40 - 50	1.6	0.46	6	-	6 x 12	-	068U2012
5	-40 - 10			-40 - 50	2.1	0.61	-	1/4	-	1/4 x 1/2	068U2022
5	-40 - 10			-40 - 50	2.1	0.61	6	-	6 x 12	-	068U2013
6	-40 - 10			-40 - 50	3.4	0.95	-	1/4	-	1/4 x 1/2	068U2023
6	-40 - 10			-40 - 50	3.4	0.95	6	-	6 x 12	-	068U2014
TUB	R404A / R507	7	-40 - 10	-40 - 50	4.4	1.3	-	1/4	-	3/8 x 1/2	068U2024
		7	-40 - 10	-40 - 50	4.4	1.3	6	-	10 x 12	-	068U2015
		8	-40 - 10	-40 - 50	6.5	1.9	-	1/4	-	3/8 x 1/2	068U2025
		8	-40 - 10	-40 - 50	6.5	1.9	6	-	10 x 12	-	068U2016
		9	-40 - 10	-40 - 50	9	2.6	-	1/4	-	3/8 x 1/2	068U2026
		9	-40 - 10	-40 - 50	9	2.6	6	-	10 x 12	-	068U2017
		1	-40 - 10	-40 - 50	0.71	0.20	-	-	-	1/4 x 1/2	068U2094
		1	-40 - 10	-40 - 50	0.71	0.20	-	-	6 x 12	-	068U2076
		2	-40 - 10	-40 - 50	0.87	0.25	-	-	-	1/4 x 1/2	068U2095
		2	-40 - 10	-40 - 50	0.87	0.25	-	-	6 x 12	-	068U2077
		3	-40 - 10	-40 - 50	1.1	0.32	-	-	-	1/4 x 1/2	068U2096
		3	-40 - 10	-40 - 50	1.1	0.32	-	-	6 x 12	-	068U2078
TUBE	R404A / R507	4	-40 - 10	-40 - 50	2	0.57	-	-	-	1/4 x 1/2	068U2097
		4	-40 - 10	-40 - 50	2	0.57	-	-	6 x 12	-	068U2079
		5	-40 - 10	-40 - 50	2.7	0.76	-	-	-	1/4 x 1/2	068U2098
		5	-40 - 10	-40 - 50	2.7	0.76	-	-	6 x 12	-	068U2080
		6	-40 - 10	-40 - 50	4.2	1.2	-	-	-	1/4 x 1/2	068U2099
		1	-40 - 10	-40 - 50	0.71	0.20	-	1/4	-	1/4 x 1/2	068U2103
		2	-40 - 10	-40 - 50	0.87	0.25	-	1/4	-	1/4 x 1/2	068U2104
		2	-40 - 10	-40 - 50	0.87	0.25	6	-	6 x 12	-	068U2086
		3	-40 - 10	-40 - 50	1.1	0.32	-	1/4	-	1/4 x 1/2	068U2105
		3	-40 - 10	-40 - 50	1.1	0.32	6	-	6 x 12	-	068U2087
		4	-40 - 10	-40 - 50	2	0.57	-	1/4	-	1/4 x 1/2	068U2106
		4	-40 - 10	-40 - 50	2	0.57	6	-	6 x 12	-	068U2088
5	-40 - 10	-40 - 50	2.7	0.76	-	1/4	-	1/4 x 1/2	068U2107		
5	-40 - 10	-40 - 50	2.7	0.76	6	-	6 x 12	-	068U2089		
6	-40 - 10	-40 - 50	4.2	1.2	-	1/4	-	1/4 x 1/2	068U2108		
6	-40 - 10	-40 - 50	4.2	1.2	6	-	6 x 12	-	068U2090		
7	-40 - 10	-40 - 50	5.6	1.6	-	1/4	-	3/8 x 1/2	068U2109		
7	-40 - 10	-40 - 50	5.6	1.6	6	-	10 x 12	-	068U2091		
8	-40 - 10	-40 - 50	8	2.3	-	1/4	-	3/8 x 1/2	068U2110		
8	-40 - 10	-40 - 50	8	2.3	6	-	10 x 12	-	068U2092		
9	-40 - 10	-40 - 50	11.3	3.2	-	1/4	-	3/8 x 1/2	068U2111		
9	-40 - 10	-40 - 50	11.3	3.2	6	-	10 x 12	-	068U2093		

¹⁾ The rated capacity is based on:
 Evaporating temperature, t_e = 4.4 °C / 40 °F
 Liquid temperature, t_l = 37 °C / 98 °F
 Condensing temperature, t_c = 38 °C / 100 °F

²⁾ TUBE with orifice 0 and 9 and all TUB (internal pressure equalization) cannot be used for biflow operation.

Capillary tube: 0.8 m / 31 in



TCBE

Thermostatic element, Straight way, with bulb strap

Type	Refrigerant	Orifice no.	Range		MOP		Rated capacity $Q_{nom.}^{1)}$		Pressure equalization		Connection inlet x outlet		Code no.
			[°C]	[°F]	[°C]	[°F]	[kW]	[TR]	[mm]	[in]	[mm]	[in]	
TCBE	R134a / R513A	1	-40 - 10	-40 - 50	-	-	13	3.7	-	1/4	-	1/2 x 5/8	068U4217
		2	-40 - 10	-40 - 50	-	-	14.9	4.3	-	1/4	-	1/2 x 5/8	068U4218
		3	-40 - 10	-40 - 50	-	-	18.6	5.3	-	1/4	-	1/2 x 5/8	068U4219
TCBE	R404A / R507	1	-40 - 10	-40 - 50	-	-	13	3.7	6	-	12 x 16	-	068U4225
		1	-40 - 10	-40 - 50	15	60	13	3.7	6	-	10 x 16	-	068U4244
		2	-40 - 10	-40 - 50	-	-	15.1	4.3	-	1/4	-	1/2 x 5/8	068U4234
		2	-40 - 10	-40 - 50	-	-	15.1	4.3	6	-	12 x 16	-	068U4226
		2	-40 - 10	-40 - 50	15	60	15.1	4.3	6	-	12 x 16	-	068U4246
		3	-40 - 10	-40 - 50	-	-	19.8	5.4	-	1/4	-	1/2 x 5/8	068U4235
		3	-40 - 10	-40 - 50	-	-	19.8	5.4	6	-	12 x 16	-	068U4231
TCBE	R407C	3	-40 - 10	-40 - 50	15	60	19.8	5.4	6	-	12 x 16	-	068U4247
		1	-40 - 10	-40 - 50	-	-	17.8	5.1	-	1/4	-	3/8 x 5/8	068U4248
		1	-40 - 10	-40 - 50	-	-	17.8	5.1	-	1/4	-	1/2 x 5/8	068U4249
		1	-40 - 10	-40 - 50	15	60	17.8	5.1	-	1/4	-	1/2 x 5/8	068U4253
		1	-40 - 10	-40 - 50	-	-	17.8	5.1	6	-	10 x 16	-	068U4256
		1	-40 - 10	-40 - 50	-	-	17.8	5.1	6	-	12 x 16	-	068U4257
		1	-40 - 10	-40 - 50	15	60	17.8	5.1	6	-	10 x 16	-	068U4260
		1	-40 - 10	-40 - 50	15	60	17.8	5.1	6	-	12 x 16	-	068U4261
		2	-40 - 10	-40 - 50	-	-	20.4	5.8	-	1/4	-	1/2 x 5/8	068U4250
		2	-40 - 10	-40 - 50	15	60	20.4	5.8	-	1/4	-	1/2 x 5/8	068U4254
		2	-40 - 10	-40 - 50	-	-	20.4	5.8	6	-	12 x 16	-	068U4258
		2	-40 - 10	-40 - 50	15	60	20.4	5.8	6	-	12 x 16	-	068U4262
		3	-40 - 10	-40 - 50	-	-	25.2	7.2	-	1/4	-	1/2 x 5/8	068U4251
3	-40 - 10	-40 - 50	-	-	25.2	7.2	6	-	12 x 16	-	068U4259		
3	-40 - 10	-40 - 50	15	60	25.2	7.2	6	-	12 x 16	-	068U4263		
TCBE	R410A	1	-40 - 10	-40 - 50	-	-	21.2	6	-	1/4	-	3/8 x 5/8	068U4264
		1	-40 - 10	-40 - 50	-	-	21.2	6	-	1/4	-	1/2 x 5/8	068U4265
		1	-40 - 10	-40 - 50	-	-	21.2	6	6	-	12 x 16	-	068U4273
		2	-40 - 10	-40 - 50	-	-	24.5	7	-	1/4	-	1/2 x 5/8	068U4266
		2	-40 - 10	-40 - 50	15	60	24.5	7	-	1/4	-	1/2 x 5/8	068U4270
		2	-40 - 10	-40 - 50	-	-	24.5	7	6	-	12 x 16	-	068U4274
		3	-40 - 10	-40 - 50	-	-	30.6	8.7	-	1/4	-	1/2 x 5/8	068U4267
		3	-40 - 10	-40 - 50	-	-	30.6	8.7	6	-	12 x 16	-	068U4275
TCBE	R290	3	-40 - 10	-40 - 50	15	60	30.6	8.7	6	-	12 x 16	-	068U4279
		1	-40 - 10	-40 - 50	-	-	19.1	5.43	-	1/4	-	3/8 x 5/8	068U4383
		1	-40 - 10	-40 - 50	-	-	19.1	5.43	6	-	10 x 16	-	068U4386
		2	-40 - 10	-40 - 50	-	-	22.2	6.3	-	1/4	-	1/2 x 5/8	068U4384
		2	-40 - 10	-40 - 50	-	-	22.2	6.3	6	-	12 x 16	-	068U4387
		3	-40 - 10	-40 - 50	-	-	27.9	7.93	-	1/4	-	1/2 x 5/8	068U4385
		3	-40 - 10	-40 - 50	-	-	27.9	7.93	6	-	12 x 16	-	068U4388

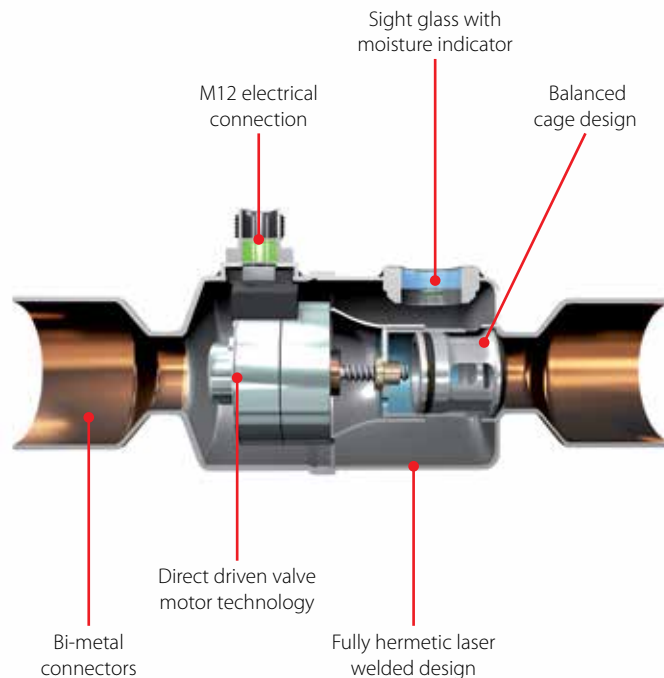
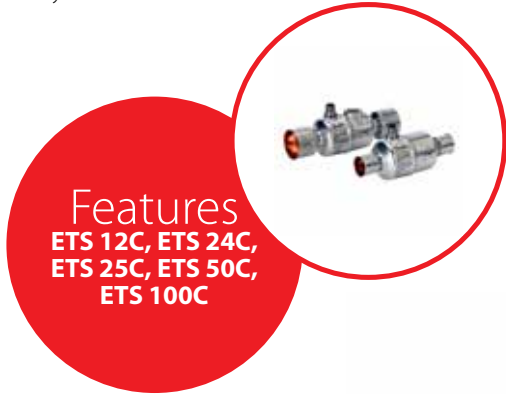
¹⁾ The rated capacity is based on:
 Evaporating temperature, $t_e = 4.4\text{ °C} / 40\text{ °F}$
 Liquid temperature, $t_l = 37\text{ °C} / 98\text{ °F}$
 Condensing temperature, $t_c = 38\text{ °C} / 100\text{ °F}$

Capillary tube: 0.8 m / 31 in

ETS 12C / ETS 24C / ETS 25C / ETS 50C / ETS 100C, Electric expansion valves

ETS Colibri® is an electric stepper motor valve. The valve has been designed for precise liquid injection into evaporators for air conditioning and refrigeration applications. The valves are compact, lightweight and in-line design. The valve in-line design includes balanced cage and slider assembly operated by the direct driven motor technology. This ensures solenoid tight shut-off in both flow directions, thus providing smooth operation of the system.

The valve incorporates a powerful bi-polar motor which precisely controls flow regulation. ETS Colibri® valves are compatible with electronic control solutions from Danfoss and other manufacturers.



Facts

Applications:

- Air Conditioning
 - Chillers, heat pumps
 - Roof top and ducted split systems
 - VRF and other split systems
 - Close control cooling
- Refrigeration
 - Cold Rooms, Food retail and Transport
- Applicable to R410A, R404A, R507, R134a, R407A, R407B, R407C, R407F, R32, R290, R1234ze, R1234yf, R449A, R449B, R452A, R1270, R600, R600a, R23, R227, R417A,

R444B, R447A, R448A, R454B, R422A, R422D, R427A, R502, R513A, R413A, R438A, R450A, R455B, R454C, R454A, R452B, L40*)
 For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Precise control of liquid injection
- Linear Flow characteristic
- Higher MOPD and MWP
- ETS Colibri® approvals:

- CE, REACH, UL, LLC CDC EURO TYSK, EAC, ATEX II 3G Ex nA T6 (applied for)
- Supports variety of refrigerants, approved for oil free applications
- Fast opening/closing time of 4 sec.
- Solenoid tight shut-off
- Sight glass / moisture indicator
- Compact, lightweight and in-line design
- Bi-metal connectors allows fast and improved brazing process
- Internal and external corrosion resistant
- Manufactured according to ISO/TS16949

*) R-number allocation by ASHRAE is pending

Technical data and ordering

ETS Colibri®

Technical data

Refrigerant oil	POE, PVE, All mineral oils, ester oils and supports oil free
Complies with PED	Yes, Fluid group 1*) and group 2.
MOPD	40 bar / 580 psi
Max. working pressure PS/MWP	50 bar(g) / 725 psi(g)
Refrigerant temperature range (measured at the inlet of the valve)	-40 – 70 °C / -40 – 158 °F
Ambient temperature	-40 – 70 °C / -40 – 158 °F
Capacity control range	10% - 100% of total opening degree
Initial opening	5% = 30 full steps
Environmental transport / storage temperature and humidity	Max. +75 °C / 167 °F, Humidity: <100% RH
Material of construction	Body: Stainless Steel / Connector: Bimetal (stainless steel and copper)
Sightglass / moisture indicator	Type N moisture indicator

*) Variants with connector size 1-1/8 in. and smaller.

Electrical data

Motor enclosure	IP67
Stepper motor type	Bi-polar - permanent magnet
Step mode	Microstepping (recommended), 2 phase full step or half step
Phase current	800 mA peak / 600 mA RMS
Holding current	No permanent holding current needed. Max. 20% permanent holding current allowed with refrigerant flow through valve. For optimal performance, driver should keep 100% current on coils 10ms after last step
Phase resistance	10 Ω ±10% at 20 °C / 68 °F
Inductance	14 mH ±25%
Duty cycle	100% possible, requiring refrigerant flow through valve. Less than 50% over 120 sec period recommended
Nominal Power consumption	7.44 W RMS at 20 °C (total, both coils)
Total number of full steps	600
Step rate	Current control driver: a. Step type: Microstep (1/4th or higher): 160 full steps/sec. recommended b. Step type: Full step or Half steps: 50 full steps/sec. recommended Emergency close : 250 full steps/sec. OEMs with 3rd party controller, please contact Danfoss.
Step translation	0.0167 mm / step
Full travel time	3.75 at 160 steps/sec
Opening stroke	10 mm / 0.4 in.
Reference position	Overdriving against the full close position
Overdriving performance	1% (6 full steps) Overdrive is recommended for optimum performance 628 steps in closing direction recommended for initialisation Overdriving in open position not recommended
Electrical connection	According to EN 61076-2-101
Compatible controllers / driver	Danfoss EKE 1A, EKE 1B, EKE 1C, MCX061V, MCX152V Certain third party controllers / drivers. Contact Danfoss for details

Technical data and ordering

ETS Colibri®

Ordering - Without sight glass



Type	K _v value	C _v value	Rated capacity ¹⁾										Connection		Code no. single pack
			R410A		R407C		R1234ze		R134a		R290		ODF × ODF (A × B)		
			[m ³ /h]	[gpm]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
ETS 12C	0.60	0.69	105	29.8	95.1	27.0	53.6	15.2	68.0	19.0	91.0	26.0	1/2 × 1/2	–	034G7500
	0.60	0.69	105	29.8	95.1	27.0	53.6	15.2	68.0	19.0	91.0	26.0	5/8 × 5/8	16 × 16	034G7501
	0.60	0.69	105	29.8	95.1	27.0	53.6	15.2	68.0	19.0	91.0	26.0	7/8 × 7/8	22 × 22	034G7502
ETS 24C	1.20	1.39	170	48.5	155	44.0	87.3	24.8	111	31.5	149	42.0	1/2 × 1/2	–	034G7900
	1.20	1.39	170	48.5	155	44.0	87.3	24.8	111	31.5	149	42.0	5/8 × 5/8	16 × 16	034G7901
	1.20	1.39	170	48.5	155	44.0	87.3	24.8	111	31.5	149	42.0	7/8 × 7/8	22 × 22	034G7902

Ordering - With sight glass



Type	K _v value	C _v value	Rated capacity ¹⁾										Connection		Code no. single pack
			R410A		R407C		R1234ze		R134a		R290		ODF × ODF (A × B)		
			[m ³ /h]	[gpm]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
ETS 25C	1.20	1.39	170	48.5	155	44.0	87.3	24.8	111	31.5	149	42.0	7/8 × 7/8	22 × 22	034G7602
ETS 50C	2.50	2.89	323	92.0	294	83.5	166	47.1	210	59.7	282	80.0	7/8 × 7/8	22 × 22	034G7700
	2.50	2.89	323	92.0	294	83.5	166	47.1	210	59.7	282	80.0	7/8 × 1 1/8	22 × 28	034G7701
	2.50	2.89	323	92.0	294	83.5	166	47.1	210	59.7	282	80.0	1 1/8 × 1 1/8	28 × 28	034G7702
	2.50	2.89	323	92.0	294	83.5	166	47.1	210	59.7	282	80.0	1 1/8 × 1 3/8	28 × 35	034G7703
ETS 100C	5.00	5.78	635	181	577	164	325	92.5	413	117	554	157	1 1/8 × 1 1/8	28 × 28	034G7800
	5.00	5.78	635	181	577	164	325	92.5	413	117	554	157	1 1/8 × 1 3/8	28 × 35	034G7801
	5.00	5.78	635	181	577	164	325	92.5	413	117	554	157	1 3/8 × 1 3/8	35 × 35	034G7802
	5.00	5.78	635	181	577	164	325	92.5	413	117	554	157	1 5/8 × 1 5/8	–	034G7803

¹⁾ The above estimated capacities, are based on the following conditions:

Evaporating temperature t_e: 5 °C / 40 °F

Liquid temperature t_l: 28 °C / 82 °F

Condensing temperature t_c: 32 °C / 90 °F

Full stroke opening in normal flow direction.

Capacity is ± 10% in full open state in reverse flow direction.

Note: for fast and precise selection of valve, use Danfoss' CoolSelector2® software. You can download it from <http://coolselector.danfoss.com>

M12 angle cable

Specification

Jacket	PVC - black
Cable outer sheath	Oil - resistant
Water proof rating	IP 67
Operating temperature range	-40 – 80 °C
Wire type	Twisted pair, cross section 20 AWG / 0.5 mm ²
Cable outer diameter	7.0 mm
Minimum bending radius	10 x cable diameter
Cable combustibility / test	Flame retardant / VW-1 / CSA FT - 1
M12 standard	EN 61076-2-101
Reference standard	UL style 2464 and DIN VDE 0812
LVD directive	2014/35/EU
Approval	CE, RoHS, UL, EAC, LLC CDC EURO TYSK

Ordering



Cable	Cable length (L)	Insulation	Packing format	Code no.
PVC - Black	2 m / 6.6 ft	SR-PVC	Single pack	034G7073
	8 m / 26.2 ft	SR-PVC	Single pack	034G7074

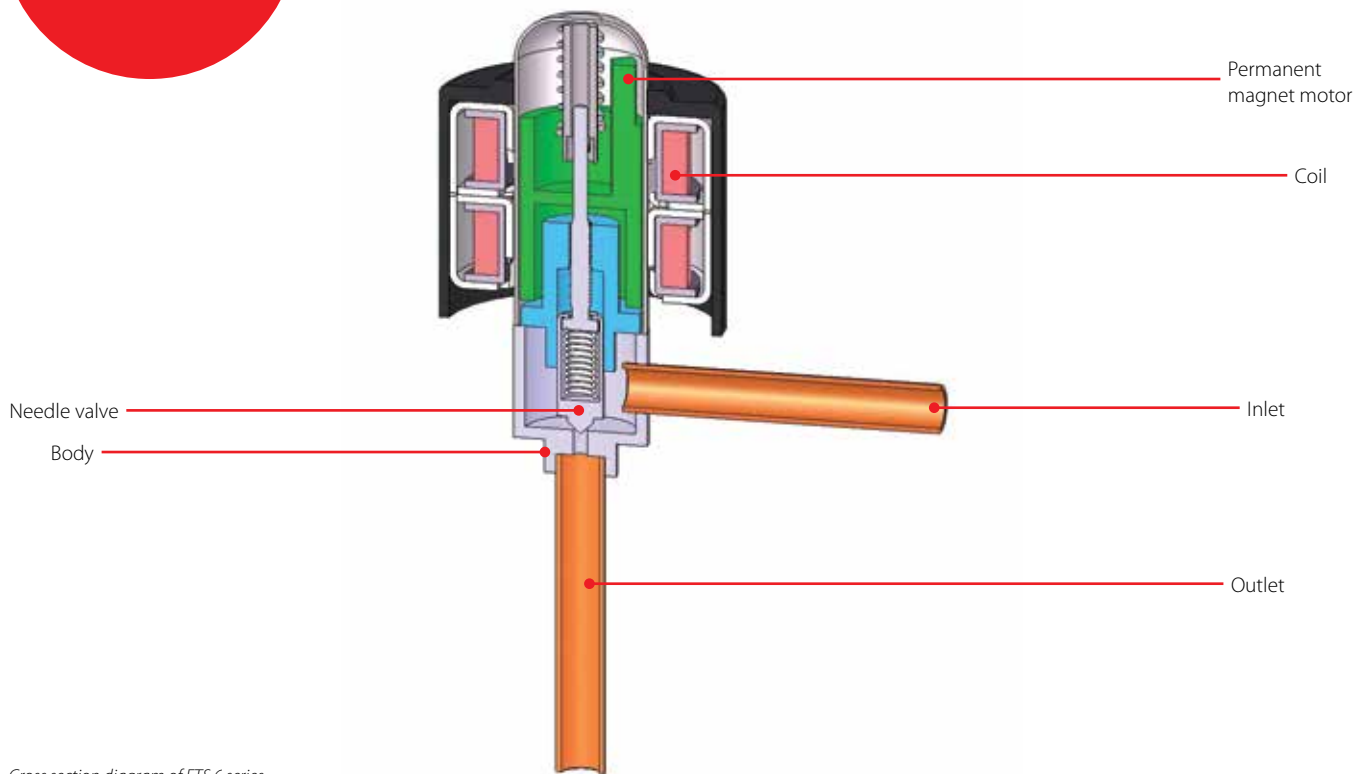
Caution: M12 angle cable is not approved for flammable applications.

ETS 6, Electric expansion valve

ETS 6 are compact and lightweight electric expansion valves. Bi-flow operation is possible for heat pump systems. The valve operation is by means of a unipolar motor, which can be controlled by a number of controllers from Danfoss or third party vendors.

With a Danfoss EKE 1A, EKE 1B, EKE 1C and EIM 336 (current drivers) and an AKS sensor, an accuracy better than ± 0.5 K can be obtained.

Features ETS 6



Cross section diagram of ETS 6 series
* Refers to refrigerant flow in cooling mode

Facts

Applications:

- Heat pumps
 - Modular air-cooled chillers
 - VRF
 - Multi split
 - Inverter mini split
 - Bus air conditioning
 - IT cooling
 - Applicable to R410A, R407C, R404A, R507, R134a, R448A, R449A, R452A
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Precision flow control
- Proven know-how and high reliability
- Power saving design that enables energy efficiency
- Compact and lightweight hermetic design with removable coil

- Bi-flow operation for reversible systems
- Controller: Danfoss supplies electronic controller EKE 1 Series, temperature sensors and transmitters

Technical data and ordering

ETS 6

Technical data

Maximum working pressure	47 bar / 681 psig
Refrigerant oil	All mineral oils and ester oils (to lubricate ETS 6 valve)
Ambient temperature	-30 – 70 °C / -22 – 158 °F
Fluid temperature	-30 – 70 °C / -22 – 158 °F
Durability	- Tested for 60 Million total pulses supplied to the valve during partially open valve, which is comparable to 150.000 cycles if the valve is operated between 100 to 300 pulses open - Tested for 30.000 full stroke cycles including 20 pulse overdrive at each closure
Ambient humidity	95% RH or less
Modulation	Permanent magnet type direct operating stepper motor
Excitation method	1 – 2 phase
Electrical connection	JST XHP-6 and JST XHP-5
Excitation speed	min 30 pps (pulses per second) to max. 90 pps, recommended 31.3 pps
Operating range	0 – 480 pulses, no holding power required (NOTE: do not apply more than 520 pulses)
Full motion transit time	e.g. 16 second at 30 pps, 6 second at 80 pps
Installation position	With coil on the upper side and the valve / coil assembly within $\pm 15^\circ$ of the vertical axis.
Liquid line solenoid valve	If a liquid line solenoid valve is used, it must be installed in such a way that it does not create liquid hammering in the ETS 6 valve.
Max. coil winding temperature	115 °C / 239 °F
Approvals	EAC, LLC CDC EURO TYSK, CE, UL, RoHS, CQC

ETS 6 - Valve excl. coil

Valve ordering

Type	Orifice no.	Nominal capacity [kW]				Connection (solder)		Valve tube configuration	MWP [bar]	MOPD [bar]	Max. Reverse Pressure ¹⁾ [bar]	Flow direction charact.	Code no.
		R134a	R404A / R507	R407C	R410A	A [mm]	B [mm]						
ETS 6 – 08	08	1.2	1.1	1.6	1.8	6.35	7.94	90°	47	35	20	Bi-flow	034G5095
ETS 6 – 10	10	2	1.8	2.7	3.1	7.94	7.94	90°	47	35	35	Bi-flow	034G5005
ETS 6 – 14	14	4.5	4.1	5.9	6.8	7.94	7.94	90°	47	35	20	Bi-flow	034G5015
ETS 6 – 18	18	8.1	7.3	10.6	12.1	6.35	6.35	90°	47	35	28	Bi-flow	034G5026
ETS 6 – 25	25	15.3	13.8	20.1	23	7.94	7.94	90°	47	35	22	Bi-flow	034G5035
ETS 6 – 32	32	22.5	20.3	29.6	33.9	7.94	7.94	90°	47	28	12 ²⁾	Bi-flow	034G5055
ETS 6 – 40	40	30.6	27.6	40.2	46	7.94	7.94	90°	47	21	7	Bi-flow	034G5065

The Rated capacity is based on:

Evaporating temperature t_e : 5 °C, Condensing temperature t_c : 38 °C, Subcooling t_{sub} : 0 K, Superheat SH: 0 K

¹⁾ Max. Reverse Pressure = Pressure at which the valve can still close tightly in reverse direction.

²⁾ Please contact Danfoss if higher maximum reverse pressure valve is required.

ETS 6 - Valve excl. coil

Valve ordering

Type	Orifice no.	Nominal capacity [TR]				Connection (solder)		Valve tube configuration	MWP [psig]	MOPD [psig]	Max. Reverse Pressure ¹⁾ [psig]	Flow direction charact.	Code no.
		R134a	R404A / R507	R407C	R410A	A [in]	B [in]						
ETS 6 – 08	08	0.341	0.312	0.454	0.511	1/4	1/4	90°	681	507	290	Bi-flow	034G5095
ETS 6 – 10	10	0.57	0.51	0.77	0.88	5/16	5/16	90°	681	507	507	Bi-flow	034G5005
ETS 6 – 14	14	1.28	1.16	1.68	1.93	5/16	5/16	90°	681	507	290	Bi-flow	034G5015
ETS 6 – 18	18	2.30	2.07	3.01	3.44	1/4	1/4	90°	681	507	406	Bi-flow	034G5026
ETS 6 – 25	25	4.35	3.92	5.72	6.54	5/16	5/16	90°	681	507	319	Bi-flow	034G5035
ETS 6 – 32	32	6.40	5.77	8.42	9.64	5/16	5/16	90°	681	406	174	Bi-flow	034G5055
ETS 6 – 40	40	8.70	7.85	11.43	13.08	5/16	5/16	90°	681	305	101	Bi-flow	034G5065

The Rated capacity is based on:

Evaporating temperature t_e : 41 °F, Condensing temperature t_c : 100 °F, Subcooling t_{sub} : 32 °F, Superheat SH: 32 °F

¹⁾ Max. Reverse Pressure = Pressure at which the valve can still close tightly in reverse direction.

Please contact Danfoss if higher maximum reverse pressure valve is required.

Technical data and ordering

Coil for ETS 6



Ordering

Model No.	Voltage (current)	Enclosure	Insulation	Cable length [m]	Connector	Code no.
			class			
Coil ordering for ETS 6, Single pack						
ETS 6 Coil	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))	0.7	JST XHP-6	034G5105
				0.7	JST XHP-5	034G5115
				1.5	JST XHP-5	034G5145
				2.0	JST XHP 5 1	034G5185
				3.0	JST XHP-5	034G5135
				0.6	AMP UPC- 6	034G5175

Related products

Electronic control

Type EKE 1A, EKE 1B, EKE 1C and EIM 336 (current drivers)

Temperature sensors and pressure transmitters

Type AKS

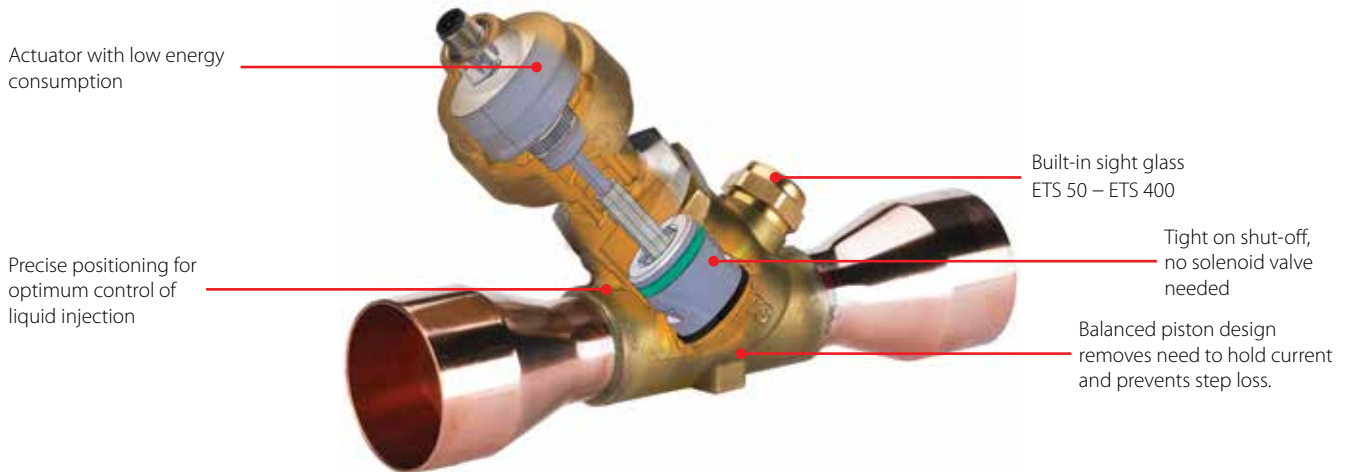
ETS 12.5 – ETS 400, Electric expansion valves

ETS 12.5 - ETS 400 are electric expansion valves for precise liquid injection in evaporators for air conditioning and refrigeration applications.

The valve piston and linear positioning design is fully balanced, providing bi-flow feature as well as solenoid tight shut function in both flow directions.

ETS valves are operated with a current or voltage driver such as Danfoss Controllers EKE 1A, EKE 1B, EKE 1C, MCX.

Features ETS 12.5 - 400



Facts

Applications:

- Heat pumps
 - Refrigeration
 - Air conditioning
 - Chillers
 - Applicable to R134a, R404A, R407A, R407C, R407F, R422B, R422D, R438A, R448A, R449A, R450A, R452A, R507, R513A, R410A, R1234ze. Special ETS versions for systems with R744 (CO₂) are available.
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.*

- Balanced design (ETS 12.5 – ETS 400) providing bi-flow operation as well as solenoid tight shut-off function in both flow directions
- Lower energy consumption
- ETS 50 and ETS 100 feature improved process and productivity due to waterless brazing i.e. soldering without wet cloth for cooling
- ETS 50 to ETS 400 are all designed with built-in sight glass with moisture indicator
- Internal and external corrosion resistant design
- Precise positioning for optimum control of liquid injection
- ETS 12.5, ETS 25, ETS 50, ETS 100 provide working pressure of 45.5 bar / 660 psig and ETS 250, ETS 400 provide 34 bar / 493 psig
- EKE 1 Series and MCX are examples of Danfoss controllers with drivers matching ETS requirements
- Equipped with M12 connector for cable connection (cable and connector assemblies as accessories)
- Approvals: CE, REACH, LLC CDC EURO TYSK, EAC

Technical data and ordering

ETS 12.5 – ETS 400

Technical data

Refrigerant oil	All mineral oils and ester oils Full life time of ETS can only be ensured if oil is present in the system
PED compliance	Yes
MOPD normal flow	33 bar / 479 psig
MOPD reverse flow	ETS 12.5, ETS 25, ETS 50, ETS 100: 33 bar / 479 psig ETS 250, ETS 400: 10 bar / 145 psig
Max. working pressure (PS / MWP)	ETS 12.5, ETS 25, ETS 50, ETS 100: 45.5 bar / 660 psig ETS 250, ETS 400: 34 bar / 493 psig
Refrigerant temperature range	-40 – 65 °C / -40 – 150 °F
Ambient temperature	-40 – 60 °C / -40 – 150 °F
Material of construction	ETS 50, ETS 100: Body and AST enclosure in brass, connections in bi-metal (stainless steel / copper) ETS 12.5, ETS 250, ETS 400: Body and AST enclosure in brass, connections in copper

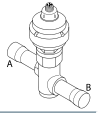
ETS 12.5 – ETS 400

Electrical data

Motor enclosure	IP67
Stepper motor type	Bi-polar - permanent magnet
Step mode	2 phase full step
Phase resistance	52 Ω ±10%
Phase inductance	85 mH
Holding current	Depends on application. Full current allowed (100% duty cycle)
Step angle	7.5° (motor) 0.9° (lead screw) Gearing ratio 8.5:1
Nominal voltage	(Constant voltage drive) 12 V DC -4% / 15%, 150 steps / second
Phase current	(Using chopper drive) 100 mA RMS -4% / 15%
Max. total power	Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2)
Step rate	150 steps / sec (constant voltage drive) 0-300 steps / sec 300 recommended (chopper current drive)
Total steps	ETS 12.5, ETS 25, ETS 50 2625 (160 / 0) steps ETS 100 3530 (160 / 0) steps ETS 250, ETS 400 3810 (160 / 0) steps
Full travel time	ETS 12.5, ETS 25, ETS 50 17 / 8.5 seconds (voltage / current) ETS 100 23 / 11.5 seconds (voltage / current) ETS 250 and ETS 400 25.4 / 12.7 seconds (voltage / current)
Lifting height	ETS 12.5, ETS 25, ETS 50 13 mm / 0.5 in ETS 100 16 mm / 0.63 in ETS 250 and ETS 400 17.2 mm / 0.68 in
Reference position	Overdriving against the full close position
Electrical connection	M12 connector
Compatible controller/driver	Danfoss EKE 1A, EKE 1B, EKE 1C, MCX Certain third party controllers / drivers. Contact Danfoss for details

Technical data and ordering

ETS 12.5 / ETS 25 - Valve included actuator (without sight glass)

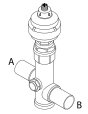


Ordering

Type	Rated capacity ¹⁾								Connection			Code no.
	R410A		R407C		R134a		R404A		ODF × ODF (A × B)			
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]		
Straightway, Single pack												
ETS 12.5	70	20	63	18	45	13	43	12	1/2 × 1/2	–		034G4209
	70	20	63	18	45	13	43	12	–	12 × 12		034G4208
	70	20	63	18	45	13	43	12	5/8 × 5/8	16 × 16		034G4210
	70	20	63	18	45	13	43	12	7/8 × 7/8	22 × 22		034G4211
ETS 25	144	41	129	37	93	27	88	25	1/2 × 1/2	–		034G4201
	144	41	129	37	93	27	88	25	–	12 × 12		034G4200
	144	41	129	37	93	27	88	25	5/8 × 5/8	16 × 16		034G4202
	144	41	129	37	93	27	88	25	7/8 × 7/8	22 × 22		034G4203
Angleway, Single pack												
ETS 12.5	70	20	63	18	45	13	43	12	1/2 × 1/2	–		034G4213
	70	20	63	18	45	13	43	12	–	12 × 12		034G4212
	70	20	63	18	45	13	43	12	5/8 × 5/8	16 × 16		034G4214
	70	20	63	18	45	13	43	12	7/8 × 7/8	22 × 22		034G4215
ETS 25	144	41	129	37	93	27	88	25	1/2 × 1/2	–		034G4205
	144	41	129	37	93	27	88	25	–	12 × 12		034G4204
	144	41	129	37	93	27	88	25	5/8 × 5/8	16 × 16		034G4206
	144	41	129	37	93	27	88	25	7/8 × 7/8	22 × 22		034G4207

¹⁾ The rated capacity is based on:
 Evaporating temperature t_e : 5 °C / 41 °F
 Liquid temperature t_l : 28 °C / 82 °F
 Condensing temperature t_c : 32 °C / 90 °F
 Full stroke opening in normal flow direction.

ETS 50 / ETS 100 - Valve included actuator (with sight glass)

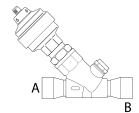


Ordering

Type	Rated capacity ¹⁾								Connection			Code no.
	R410A		R407C		R134a		R404A		ODF × ODF (A × B)			
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	[TR]	
ETS 50	262	75	240	69	170	48	161	46	7/8 × 7/8	22 × 22		034G1708
	262	75	240	69	170	48	161	46	7/8 × 1 1/8	22 × 28		034G1705
	262	75	240	69	170	48	161	46	1 1/8 × 1 1/8	28 × 28		034G1706
	262	75	240	69	170	48	161	46	1 1/8 × 1 3/8	28 × 35		034G1704
ETS 100	488	140	447	128	316	91	300	86	1 1/8 × 1 1/8	28 × 28		034G0507
	488	140	447	128	316	91	300	86	1 1/8 × 1 3/8	28 × 35		034G0501
	488	140	447	128	316	91	300	86	1 3/8 × 1 3/8	35 × 35		034G0508
	488	140	447	128	316	91	300	86	1 5/8 × 1 5/8	–		034G0505

¹⁾ The rated capacity is based on:
 Evaporating temperature t_e : 5 °C / 41 °F
 Liquid temperature t_l : 28 °C / 82 °F
 Condensing temperature t_c : 32 °C / 90 °F
 Full stroke opening in normal flow direction.

ETS 250 / ETS 400 - Valve included actuator (with sight glass)



Ordering

Type	Rated capacity ¹⁾						Connection			Code no.
	R407C		R134a		R404A		ODF × ODF (A × B)			
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	Single pack	
ETS 250	1212	349	874	252	828	239	1 1/8 × 1 1/8	28 × 28		034G2600
	1212	349	874	252	828	239	1 3/8 × 1 3/8	35 × 35		034G2601
	1212	349	874	252	828	239	1 5/8 × 1 5/8	–		034G2602
	1212	349	874	252	828	239	–	42 × 42		034G2611
ETS 400	1933	556	1394	402	1320	381	1 5/8 × 1 5/8	–		034G3500
	1933	556	1394	402	1320	381	2 1/8 × 2 1/8	54 × 54		034G3501

¹⁾ The rated capacity is based on:
 Evaporating temperature t_e : 5 °C / 41 °F
 Liquid temperature t_l : 28 °C / 82 °F
 Condensing temperature t_c : 32 °C / 90 °F
 Full stroke opening in normal flow direction.

Technical data and ordering



Ordering

Cable	Cable length (L)	Insulation	Packing format	Code no.
PVC - Black	2 m / 6.6 ft	SR-PVC	Single pack	034G7073
	8 m / 26.2 ft	SR-PVC	Single pack	034G7074

Caution: M12 angle cable is not approved for flammable applications.

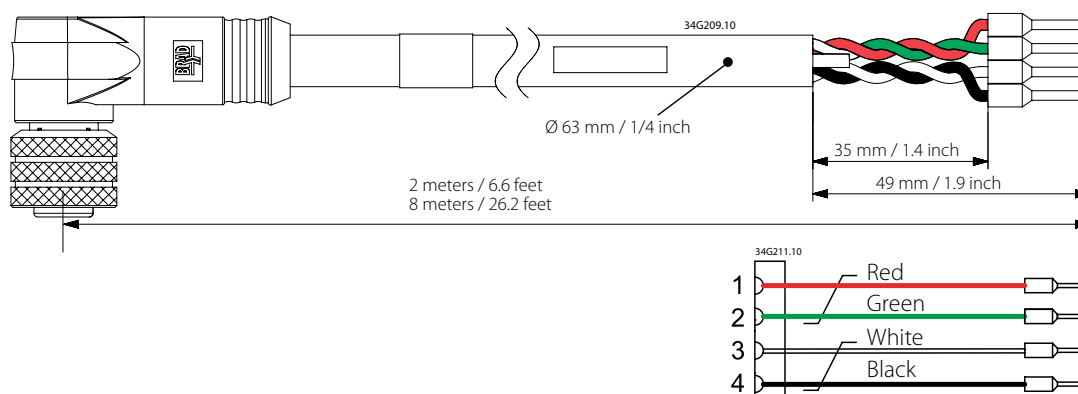
M12 angle cable

Specification

Jacket	PVC - black
Cable outer sheath	Oil - resistant
Water proof rating	IP 67
Operating temperature range	-40 – 80 °C
Wire type	Twisted pair, cross section 20 AWG / 0.5 mm ²
Cable outer diameter	7.0 mm
Minimum bending radius	10 x cable diameter
Cable combustibility / test	Flame retardant / VW-1 / CSA FT - 1
M12 standard	EN 61076-2-101
Reference standard	UL style 2464 and DIN VDE 0812
LVD directive	2014/35/EU
Approval	CE, RoHS, UL, EAC, LLC CDC EURO TYSK

Accessory

Type	Description	Type designation	Code no.
			single pack
AST-G service driver	Hand held driver for installation and servicing.	AST-G driver	034G0013



Related products

Electronic control

Type EKE 1A, EKE 1B, EKE 1C or MCX

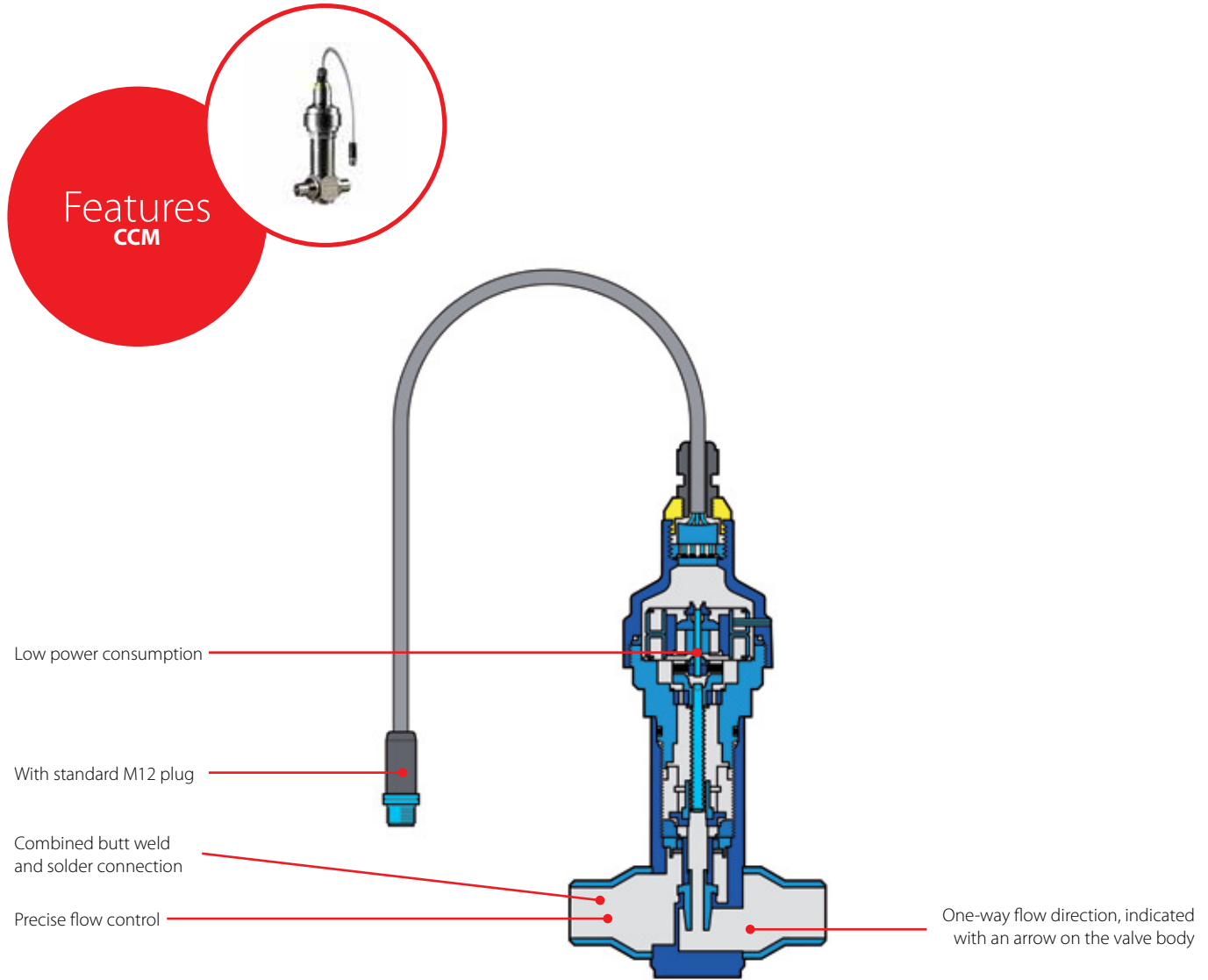
Temperature sensors and pressure transmitters

Type AKS

CCM, Electric expansion valve

CCM are electric expansion valves designed specifically for operation in R744 (CO₂) systems with working pressures of up to 90 bar / 1305 psig and an MOPD up to 50 bar / 725 psig. CCM functions both as an expansion valve, and as a gas bypass valve with back-pressure regulation in subcritical applications.

The pressure rating allows for operation in environments where system standby capability is required without the need for auxiliary cooling systems during servicing or power outages.

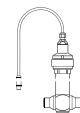


Facts

Application:

- Gas bypass in a transcritical R744 booster system
- Expansion valve for R744
- Up to 90 bar / 1305 psig working pressure to accommodate R744 system pressures during standstill conditions
- Precise positioning for optimal control of intermediate pressures in transcritical R744 systems or liquid injection in heat exchangers
- MOPD up to 50 bar / 725 psig
- Combined stainless steel butt weld / solder connections for installation in copper piped systems (K65 alloy or standard) as well as steel piped systems
- Standard M12 connector for simple and flexible connection to the motor driver
- For manual operation and service of the CCM, an AST-g service driver is available
- UL recognised

Technical data and ordering



CCM

Technical data

Parameter	CCM
Compatibility	R744 (CO ₂)
MOPD	50 bar / 725 psig
Max. working pressure (PS / MWP)	90 bar / 1305 psig
Refrigerant temperature range	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-40 – 60 °C / -40 – 140 °F
Material specification	Stainless steel

CCM

Electrical data

Parameter	CCM
Motor enclosure	IP67
Stepper motor type	Bi-polar - permanent magnet
Step mode	2 phase full step
Phase resistance	52 Ω ± 10%
Phase inductance	85 mH
Holding current	Depends on application Full current allowed (100% duty cycle)
Step angle	7.5° (motor) 0.9° (lead screw) Gearing ratio 8.5:1
Nominal voltage	(Constant voltage drive) 12 V DC -4% / 15%, 150 steps / second
Phase current	(Using chopper drive) 100 mA RMS -4% / 15%
Max. total power	Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2)
Step rate	150 steps / second. (constant voltage drive) 0–300 steps / second. 300 recommended (chopper current drive)
Total steps	CCM 10, CCM 20, CCM 30 2625 (160 / 0) steps CCM 40 3530 (160 / 0) steps
Full travel time	CCM 10, CCM 20, CCM 30 17 / 8.5 second. (voltage / current) CCM 40 23 / 11.5 second. (voltage / current)
Lifting height	CCM 10, CCM 20, CCM 30 13 mm / 0.51 in CCM 40 16 mm / 0.63 in
Reference position	Overdriving against the full close position
Electrical connection	4 wire 0.5 mm ² / 20 AWG, 0.3 m / 12 in long cable
Total stroke	13 mm / 16 mm / 0.51 in / 0.63 in

Stepper motor switch sequence:

CCM			Connector
	4	Black	4
	3	White	3
	2	Green	2
	1	Red	1
	Connection 1	Wire colour	Connection 2
		Pin out	

Stepper motor switch sequence:

STEP	Coil I		Coil II	
	Red	Green	White	Black
1	+	-	+	-
↑ CLOSING ↑	2	+	-	+
	3	-	+	+
	4	-	+	-
	1	+	-	-
				↓ OPENING ↓

Technical data and ordering

Valve included actuator

Ordering

Type	Connections (Combi)		K _v value ²⁾ [m ³ /h]	C _v value ²⁾ [gpm]	Code no. single pack
	Weld ¹⁾ [in]	Solder ODF × ODF [in]			
CCM 10	1/2 × 1/2	5/8 × 5/8	0.7	0.81	027H7188
CCM 20	3/4 × 3/4	7/8 × 7/8	1.6	1.87	027H7187
CCM 30	1 × 1	1 1/8 × 1 1/8	2.4	2.78	027H7186
CCM 40	1 × 1	1 1/8 × 1 1/8	4.2	4.87	027H7185

¹⁾ OD according to EN 10220.

²⁾ The K_v/C_v value is the water flow in [m³/h] / [gpm] at a pressure drop across the valve of 1 bar. p = 1000 kg/m³ / 62.4 lb/ft³.

Accessories

Type	Description	Code no.
M12 Cable	Cable with M12 connector - 2 m / 6.6 ft, Insulation - SR-PVC	034G7073
	Cable with M12 connector - 8 m / 26.2 ft, Insulation - SR-PVC	034G7074
AST-G	Manual valve driver for service	034G0013

Spare parts

Type	Description	Code no.
AST	Actuator for CCM R744 valve	027H7184
	O-ring spare part kit for CCM / CCMT (2 O-rings)	027H7230

Related products

Electronic control

Type EKE 1-series (EKE 1A, EKE 1B and EKE 1C)

Temperature sensors and pressure transmitters

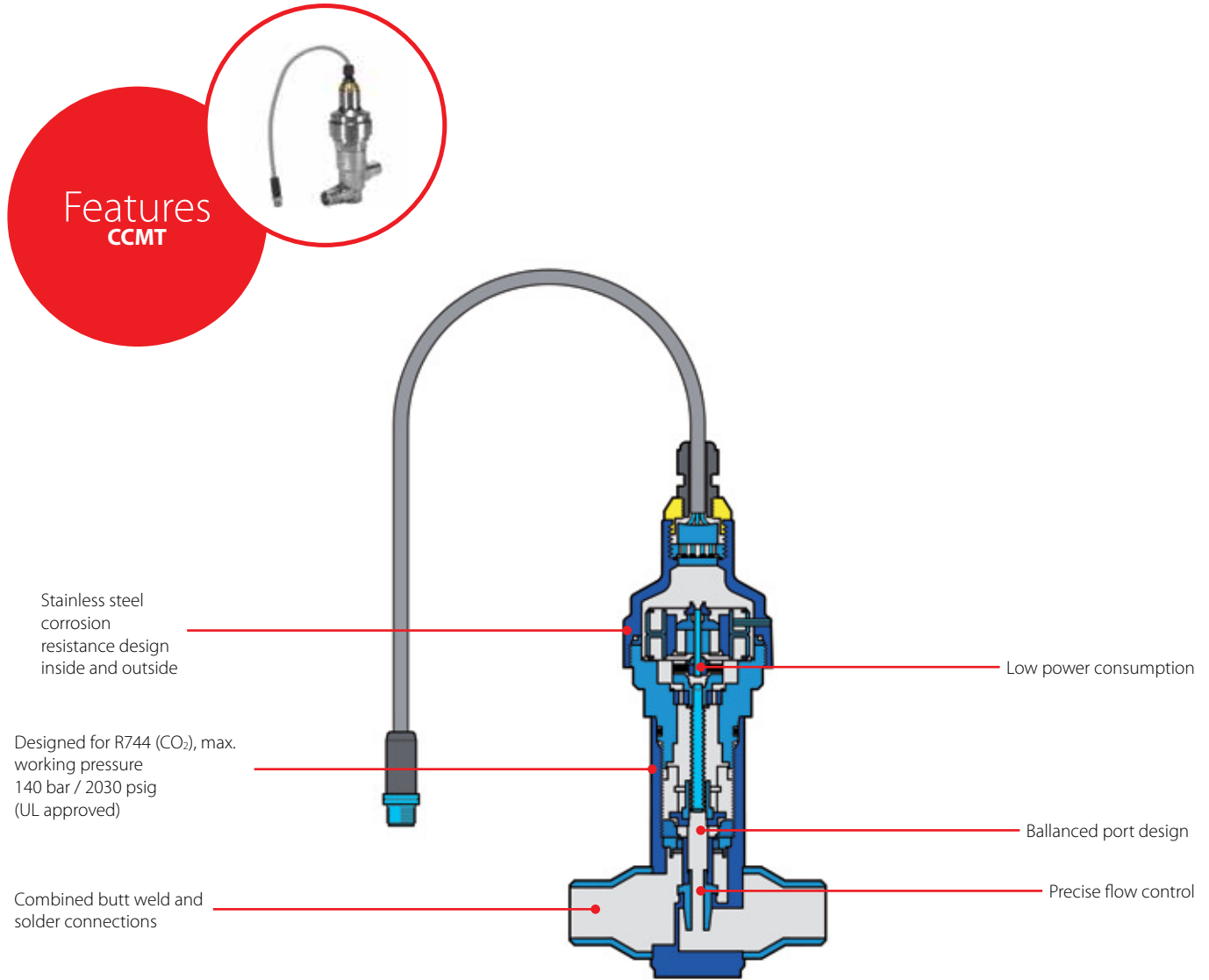
Type AKS

Lined writing area for notes

CCMT, Electric expansion valve

CCMT are electric expansion valves designed specifically for operation in R744 (CO₂) systems. CCMT is used as an expansion valve, as a pressure regulator for the gas cooler or as a gas bypass valve with back-pressure regulation in transcritical or subcritical applications.

Designed for R744 systems with maximum working pressure of 140 bar / 2031 psig. Applicable to R744 (CO₂) and other common refrigerants. CCMT is compatible with oil types PAG, POE and PVE.



Facts

Application:

- High pressure valve
- Gas bypass in a transcritical R744 booster system
- Liquid expansion for R744, R744 cascades or R744 evaporators
- Designed for R744 systems with maximum working pressure of 140 bar
- UL approved
- Applicable to R744 and other common refrigerants. The CCMT is compatible with the oil types PAG, POE and PVE
- Regulating cone ensures optimum regulating accuracy, particularly at part load
- Patented cone and balance design
- The PEEK seat provides excellent valve tightness and robustness
- Combined butt weld and sold connections
- Top part with built-in strainer
- MOPD up to 90 bar / 1305 psi
- Standard M12 connector for simple and flexible connection to the motor drive
- Low weight and compact design
- Easy to service
- Insert easily taken out by removing top part
- For manual operation and service of the CCMT an AST-g service driver is available

Technical data and ordering

CCMT

Technical data

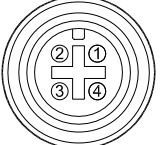
Parameter	CCMT
Compatibility	R744 (CO ₂) and other refrigerants Not applicable for flammable refrigerants and Ammonia
MOPD	90 bar / 1305 psig
Max. working pressure (PS / MWP)	140 bar / 2030 psig
Refrigerant temperature range	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-40 – 60 °C / -40 – 140 °F
PED compliance	Fluid group II / Article 4, Paragraph 3
Material specification	Stainless steel
Step rate	max. 150 steps / second (constant voltage drive) max. 300 steps / second (chopper current drive)
Total steps	CCMT 2, CCMT 4, CCMT 8: 1100 steps
Full travel time	CCMT 2, CCMT 4, CCMT 8: 5 second at 220 steps / second
Reference position	Overdriving against the full close position
Approval	CE, UL, RoHS

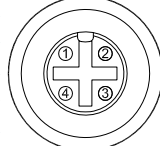
CCMT

Electrical data

Parameter	CCMT
Stepper motor type	Bi-polar - permanent magnet
Motor enclosure	IP67
Step mode	2 phase full step
Phase resistance	52 Ω ± 10%
Phase inductance	85 mH
Holding current	Voltage driver: Depends on application Current controller: Full current allowed
Nominal voltage	(Constant voltage drive) 12 V DC -4% / 15%, 150 steps / second
Phase current	(Using chopper drive) 100 mA RMS -4% / 15%
Max. total power	Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2)
Electrical connection	4 wire 0.5 mm ² , 0.3 m / 1 ft long cable

Stepper motor switch sequence:

CCMT			Connector
	4	Black	4
	3	White	3
	2	Green	2
	1	Red	1
	Connection 1	Wire colour	Connection 2
		Pin out	



Stepper motor switch sequence:

	STEP	Coil I		Coil II	
		Red	Green	White	Black
↑ CLOSING ↑	1	+	-	+	-
	2	+	-	-	+
	3	-	+	-	+
	4	-	+	+	-
	1	+	-	+	-
					↓ OPENING ↓

Technical data and ordering

Valve incl. actuator

Ordering

Type	Connections (Combi)		K _v value ²⁾ [m ³ /h]	C _v value ²⁾ [gpm]	Max. working pressure		Code no.
	Weld ¹⁾ [in]	Solder ODF × ODF [in]			[bar]	[psig]	
Standard							
CCMT 2	1/2 × 1/2	5/8 × 5/8	0.17	0.20	140	2030	027H7200
CCMT 4	1/2 × 1/2	5/8 × 5/8	0.45	0.52	140	2030	027H7201
CCMT 8	1/2 × 1/2	5/8 × 5/8	0.80	0.93	140	2030	027H7202

¹⁾ OD according to EN 10220.

²⁾ The K_v/C_v value is the water flow in [m³/h] / [gpm] at a pressure drop across the valve of 1 bar. p = 1000 kg/m³ / 62.4 lb/ft³.

Accessories

Type	Description	Code no.
M12 Cable	Cable with M12 connector - 2 m / 6.6 ft, Insulation - SR-PVC	034G7073
	Cable with M12 connector - 8 m / 26.2 ft, Insulation - SR-PVC	034G7074
AST-G	Manual valve driver for service	034G0013
EKE 1A	Superheat controller / driver	080G5300
EKE 1B	Superheat controller / driver	080G5350
EKE 1C	Superheat controller / driver	080G5400
MMIGRS2	Remote display for EKE 1 series	080G0294

Spareparts

Type	Description	Code no.
	O-ring spare part kit for CCM / CCMT (2 O-rings)	027H7230

Related products

Electronic control

Type EKE 1-series (EKE 1A, EKE 1B and EKE 1C)

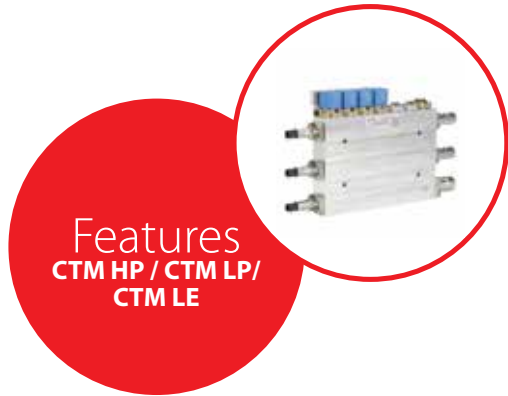
Temperature sensors and pressure transmitters

Type AKS

CTM – Multi Ejector Solution™ for R744 (CO₂)

Danfoss Multi Ejector makes CO₂ refrigeration systems economically competitive with the HFC systems at all ambient temperatures by improving COP in comparison to standard booster and parallel compressor systems.

Multi Ejector can be installed in any climate delivering lower energy consumption than i.e. R404A. It removes the CO₂ equator entirely.



Fully integrated solution not requiring any additional components like check valves or motorized ball valves.

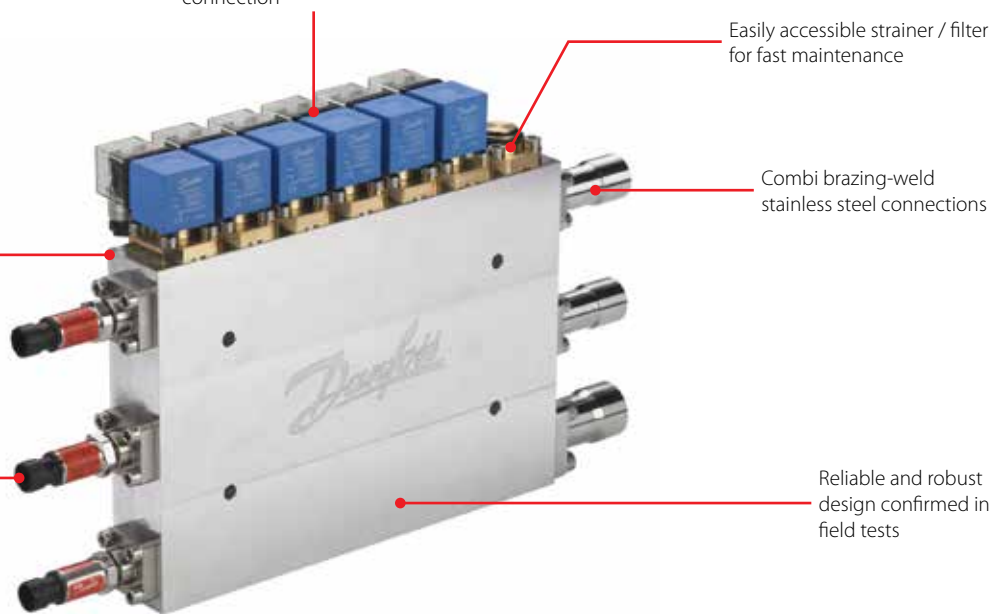
CTM 6: Danfoss MBS 8250 pressure transmitters integrated

230 V AC and 110 – 120 V AC
50 / 60Hz Coils with DIN spade connection

Easily accessible strainer / filter for fast maintenance

Combi brazing-weld stainless steel connections

Reliable and robust design confirmed in field tests



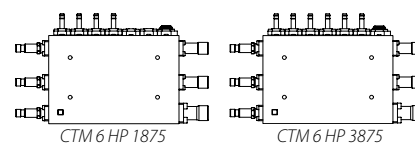
Facts

- Multi Ejector types:
 - CTM 6 HP for CO₂ systems with parallel compression to lift a part of the gas from MT suction and mix it with the gas coming from the gas cooler at medium pressure level
 - CTM 6 LP for CO₂ booster systems to lift a part of the gas from MT suction and mix it with the gas coming from the gas cooler at medium pressure level
 - CTM 1 and CTM 2 Liquid Ejector for CO₂ booster and parallel compression systems to pump the CO₂ liquid from the low point in the suction accumulator back to the receiver resulting even in 5 bar pressure lift after mixing with gas coming from the gas cooler
- Lower first cost compared to standard booster and parallel compression systems due to lower swept volume of compressors (i.e. smaller compressors or less number of compressors).
- CTM 6 HP and LP enables 15 – 35% savings on compressor swept volume, compared to booster systems without Multi Ejector systems
- CTM 1 – 2 Liquid Ejectors enables 5 – 10% savings on compressor swept volume, compared to standard booster systems
- Improved COP, enhanced operation of parallel compressors and/or lower swept volume to the MT compressors, resulting in lower energy consumption
- Less compressors and higher efficiency on the systems, leads to shorter payback time
- Fully integrated solution not requiring any additional components like check valves or motorized ball valves
- Fully serviceable - wide range of spare parts and accessories.
- The combination of Multi Ejector and the AK-PC 782A ensure an easy setup and commissioning, robust control of the system that ensures many years of problem free operation.
- CE (PED) approved and UL Recognized
- Maximum working pressure: 140 bar / 2031 psi

Technical data and ordering

Multi Ejector CTM 6 HP (High Pressure)

Ordering



Type	Capacity - Mass flow ¹⁾		Code no. Single pack
	[kg/h]	[lb/h]	
CTM 6 HP 1875	1875	4134	032F5673
CTM 6 HP 3875	3875	8543	032F5674

¹⁾ R744 at 90 bar / 35 °C

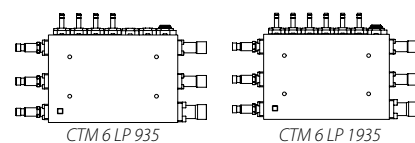
²⁾ R744 at 1305 psi / 95 °F

(HP = High Pressure lift)

(The above code numbers are without coils which should be ordered separately – see coil ordering below).

Multi Ejector CTM 6 LP (Low Pressure)

Ordering



Type	Capacity - Mass flow ¹⁾		Code no. Single pack
	[kg/h]	[lb/h]	
CTM 6 LP 935	935	2061	032F5678
CTM 6 LP 1935	1935	4266	032F5679

¹⁾ R744 at 90 bar / 35 °C

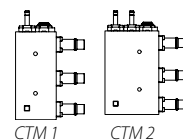
²⁾ R744 at 1305 psi / 95 °F

(LP = Low Pressure lift)

(The above code numbers are without coils which should be ordered separately – see coil ordering below).

Multi Ejector CTM 1 and CTM 2 LE (Liquid Ejector)

Ordering



Type	Capacity - Mass flow ¹⁾		Code no. Single pack
	[kg/h]	[lb/h]	
CTM 1 LE 200	200	441	032F5683
CTM 1 LE 400	400	882	032F5684
CTM 2 LE 600	600	1323	032F5685

¹⁾ R744 at 90 bar / 35 °C

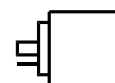
²⁾ R744 at 1305 psi / 95 °F

(LE = Liquid Ejector)

(The above code numbers are without coils which should be ordered separately – see coil ordering below).

Coils

Ordering



Type	Voltage [V]	Frequency / Power consumption				Code no. Single pack with DIN plug ¹⁾
		[Hz]	[W]	[Hz]	[W]	
AS230CS	230	50	8	60	7	042N7601
AZ120CS	110 - 120	50	8.5	60	7	042N4202

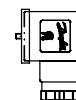
¹⁾ The three pins on the coil can be fitted with spade tabs, 6.3 mm wide (to DIN 46247). The two current carrying pins can also be fitted with spade tabs, 4.8 mm wide. Max. lead cross section: 1.5 mm².

Voltage variation: V AC -15% - 10%,

If DIN plug is used (DIN 43650) the leads must be connected in the socket. The socket is fitted with a Pg 11 screwed entry for 6 – 12 mm.

Accessories

Ordering



Type	Voltage [V]	Frequency [Hz]	Code no. Single pack
DIN plug	Max. 250	50 / 60	042N0156

¹⁾ Only for AS230CS.

Spare parts

Please refer to the Data Sheet where you will find list of Spare Parts - individual ejectors, strainer, o-rings, connectors.

AKV 10P / AKV 10PS, Electric expansion valves

AKV 10P and AKV10PS are electric operated expansion valves designed for refrigerating plants. The AKV 10P and AKV 10PS valves are normally controlled by a controller from Danfoss range of ADAP- KOOL® controllers, that ensures a precise liquid injection into evaporators.

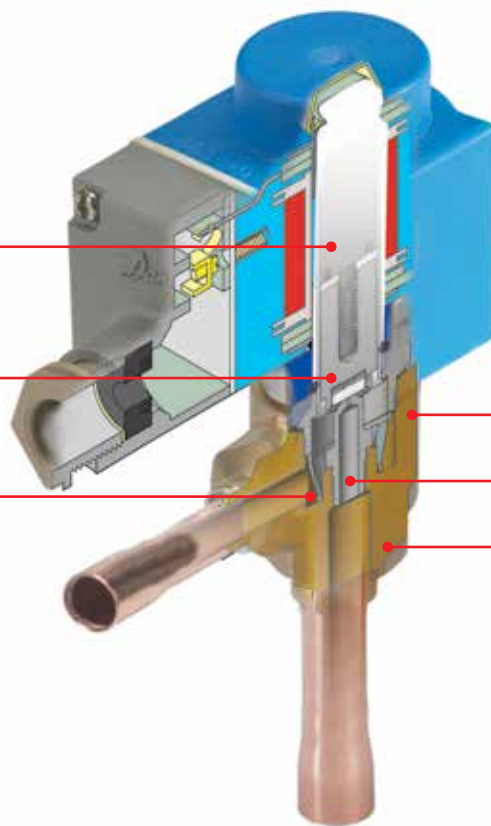
AKV 10P and AKV10PS valves are fully serviceable valves and are supplied as a parts programme with separate valve body and coil (with terminal box, cable or DIN plug).



Normally closed
Solenoid tight shut-off valve

Superior valve technology
that provides soft pulse
operation

Fully serviceable valve



Internal and external
corrosion resistant

Replaceable filter
and orifice assembly

Both expansion valve
and solenoid valve

Facts

Applications:

- Traditional refrigeration
- Cold rooms
- Water chillers
- Applicable to R744, R23, R134a, R404A, R407A, R407C, R407F, R410A, R422B, R422D, R448A, R449A, R449B, R450A, R452A, R507, R513A

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Precise control of liquid injection
- The AKV 10P/10PS valves cover a capacity range from 0.2 – 12.5 kW / 0.06 – 3.55 TR (404A / R507) and are divided into 8 capacity ranges
- Supports variety of refrigerants
- Solenoid tight shut-off
- Fully serviceable valve
- Superior valve technology that provides soft pulse operation

- Approvals: REACH, UL, LLC CDC EURO TYSK, EAC
- The AKV 10P/10PS valves are supplied as a parts programme, as follows:
 - separate valve incl. exchangeable orifice
 - separate coil
- The valve requires no adjustment
- Manufactured according to ISO/TS16949

Technical data and ordering

AKV 10P / AKV 10PS,

Direct operated Valve

Valve type	AKV 10P0 to AKV 10P7
Working principle	PWM (Pulse-width modulation)
Recommended period of cycle time	6 Seconds
Regulation range (Capacity range)	10 – 100%
Connection type	Solder
Evaporating temperature	-60 – 60 °C / -76 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 122 °F
MOPD, AKV 10P0 to AKV 10P6	35 bar / 508 psig
MOPD, AKV 10P7	18 bar / 261 psi
Min. OPD, AKV 10P0 to AKV 10P7	0 bar / 0 psi
Filter, replaceable	Internal 100 µm
Max. working pressure	90 barg / 1305 psig
MAP (Max. Abnormal Pressure)	1305 psig
COT (Continuous Operation Temperature)	140 °F

Note: It is recommended to selected Servo operated AKV 10PS valves for those application where higher MOPD (with low coil power) and high dampening is required.

Servo operated Valve

Valve type	AKV 10PS4 to AKV 10PS7
Working principle	PWM (Pulse-width modulation)
Recommended period of cycle time	6 Seconds
Regulation range (Capacity range)	10 – 100%
Connection type	Solder
Evaporating temperature	-60 – 60 °C / -76 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 122 °F
MOPD	35 bar / 508 psig
Min. OPD, AKV 10PS4 to AKV 10PS7	0.1 bar / 1.45 psi
Filter, replaceable	Internal 53 µm
Max. working pressure	90 barg / 1305 psig
MAP (Max. Abnormal Pressure)	1305 psig
COT (Continuous Operation Temperature)	140 °F
Recommended Danfoss Filter	ELIMINATOR® Hermetic filter drier, type DML / DMSC

Note: It is recommended to selected Servo operated AKV 10PS valves for those application where higher MOPD (with low coil power) and high dampening is required.

Technical data and ordering

AKV 10P / AKV 10PS

AKV 10P - Rated capacity

Valve type / orifice no.	R744 ²⁾				R407A ¹⁾		R404A/R507 ¹⁾		K _v value	C _v value	Connection size Solder ODF/ODF		Code no. Single pack	Code no. Industrial pack 16 pcs. pr. pack
	Refrig.	Freezing	Refrig.	Freezing	[kW]	[TR]	[kW]	[TR]			[m ³ /h]	[gpm]		
	[kW]	[kW]	[TR]	[TR]										
AKV 10P0	0.44	0.69	0.13	0.20	0.34	0.10	0.21	0.06	0.003	0.0035	3/8 × 1/2	–	068F5210	068F5230
AKV 10P0	0.44	0.69	0.13	0.20	0.34	0.10	0.21	0.06	0.003	0.0035	–	10 × 12	068F5200	068F5220
AKV 10P1	1.17	1.84	0.33	0.53	0.90	0.26	0.8	0.23	0.09	0.104	3/8 × 1/2	–	068F5211	068F5231
AKV 10P1	1.17	1.84	0.33	0.53	0.90	0.26	0.8	0.23	0.09	0.104	–	10 × 12	068F5201	068F5221
AKV 10P2	2.06	3.25	0.59	0.93	1.59	0.45	1.3	0.37	0.016	0.021	3/8 × 1/2	–	068F5212	068F5232
AKV 10P2	2.06	3.25	0.59	0.93	1.59	0.45	1.3	0.37	0.016	0.021	–	10 × 12	068F5202	068F5222
AKV 10P3	3.14	4.97	0.90	1.41	2.43	0.69	2.0	0.57	0.024	0.028	3/8 × 1/2	–	068F5213	068F5233
AKV 10P3	3.14	4.97	0.90	1.41	2.43	0.69	2.0	0.67	0.024	0.028	–	10 × 12	068F5203	068F5223
AKV 10P4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	3/8 × 1/2	–	068F5214	068F5234
AKV 10P4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	–	10 × 12	068F5204	068F5224
AKV 10P5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	3/8 × 1/2	–	068F5215	068F5235
AKV 10P5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	–	10 × 12	068F5205	068F5225
AKV 10P6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	3/8 × 1/2	–	068F5216	068F5236
AKV 10P6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	–	10 × 12	068F5206	068F5226
AKV 10P7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	1/2 × 5/8	–	068F5217	–
AKV 10P7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	–	12 × 16	068F5207	–

AKV 10PS- Rated capacity

Valve type / orifice no.	R744 ²⁾				R407A ¹⁾		R404A/R507 ¹⁾		K _v value	C _v value	Connection size Solder ODF/ODF		Code no. Single pack	Code no. Industrial pack 16 pcs. pr. pack
	Refrig.	Freezing	Refrig.	Freezing	[kW]	[TR]	[kW]	[TR]			[m ³ /h]	[gpm]		
	[kW]	[kW]	[TR]	[TR]										
AKV 10PS4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	3/8 × 1/2	–	068F4044	068F5184
AKV 10PS4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	–	10 × 12	068F4034	068F5174
AKV 10PS5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	3/8 × 1/2	–	068F4045	068F5185
AKV 10PS5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	–	10 × 12	068F4035	068F5175
AKV 10PS6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	3/8 × 1/2	–	068F4046	068F5186
AKV 10PS6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	–	10 × 12	068F4036	068F5176
AKV 10PS7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	1/2 × 5/8	–	068F4047	–
AKV 10PS7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	–	10 × 16	068F4037	–

¹⁾ Rated capacities are based on:

Condensing temperature $t_c = 38\text{ }^\circ\text{C} / 100\text{ }^\circ\text{F}$

Liquid temperature $t_l = 37\text{ }^\circ\text{C} / 98\text{ }^\circ\text{F}$

Evaporating temperature $t_e = 4\text{ }^\circ\text{C} / 39\text{ }^\circ\text{F}$

²⁾ Rated capacities are based on:

Condensing temperature $t_c = 0\text{ }^\circ\text{C} / 32\text{ }^\circ\text{F}$

Evaporating temperature Refrig. $t_e = -10\text{ }^\circ\text{C} / 14\text{ }^\circ\text{F}$

Evaporating temperature Freezing. $t_e = -30\text{ }^\circ\text{C} / -22\text{ }^\circ\text{F}$

Subcooling = $1\text{ }^\circ\text{C} / 1.8\text{ }^\circ\text{F}$

C_v value is calculated from K_v value in above table

Spare part ordering - Single pack

Kit	Description	Code no.
Kit 1	Orifice kit direct operated AKV 10P0-3	068F5151
Kit 2	orifice kit direct operated AKV 10P4-7	068F5152
Kit 3	Armature kit direct operated AKV 10P0-7	068F5153
Kit 4	Filter kit direct operated AKV 10P	068F5154
Kit 5	Orifice kit servo operated AKV 10PS4-7	068F5155
Kit 6	Filter kit servo operated AKV 10PS	068F5156
Kit 7	Armature kit servo operated AKV 10PS4-7	068F5161

Coolselector^{®2}



Valve sizing using calculation software

It is strongly recommended to use Coolselector^{®2} to find the correct valve for your application. The software can be downloaded from the Danfoss website. When using the calculation software it is recommended to choose a valve that is between 50% and 75% loaded at the nominal capacity. In addition, the liquid velocity in the line leading to the valve should not exceed 1m/s (3ft/s).

You can download it from <http://coolselector.danfoss.com>

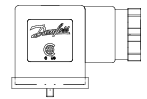
Technical data and ordering

AKV 10P / AKV 10PS

Standard coil for AKV 10P/ AKV 10PS



Coil type	MOPD (Max. Operation Pressure Differential)						
	Voltage	Frequency	Power consumption	Connection	Multi pack Code no.	Industrial pack Code no.	
	[V AC]	[Hz]	[W]			Code no.	Pcs. per pack
BE230CS	230	50	17	terminal box	018F6732	-	50
BE230CS	230	50	17	DIN plugs	018F6193	-	50
BF230CS	230	50	17	1 m cable	018F6282	018F8232	24
BF230CS	230	50	17	3 m cable	-	018F8290	12
BF230CS	230	50	17	8 m cable	018F4961	018F8291	6
BE240CS	240	60	15	terminal box	018F6713	-	-
BE240CS	240	60	15	terminal box	018F6814	-	-
BE240CS	240	60	15	1 m cable	018F6264	-	-
BG110BS	240	60	15	terminal box	018F6813	-	-



Accessories (coil)

Type	Voltage	Frequency	Quantity	Code no.
	[V]	[Hz]	[Pcs]	Multi pack
DIN plug	Max. 250	50 / 60	100	042N0156

Single pack = 1 product in a box with installation guide

Multi pack = box with x pieces single pack (can be split)

Industrial pack = x pieces in one box (cannot be split)

AKV 10P / AKV 10PS

UL coil for AKV 10P / AKV 10PS

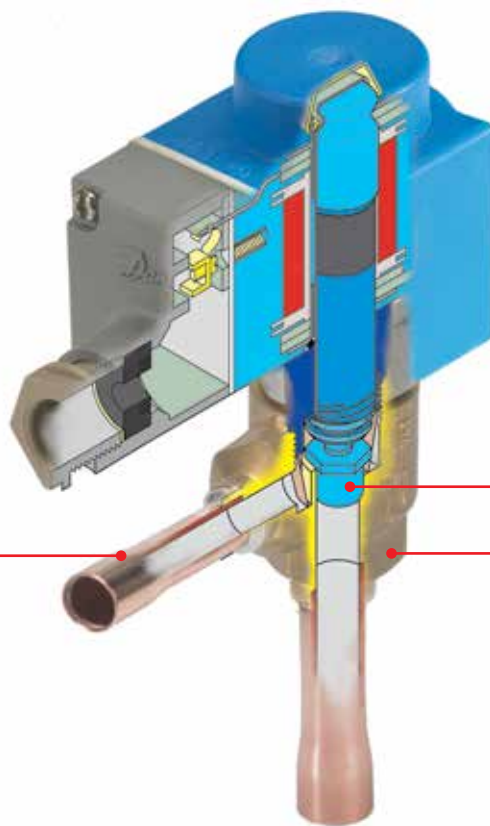
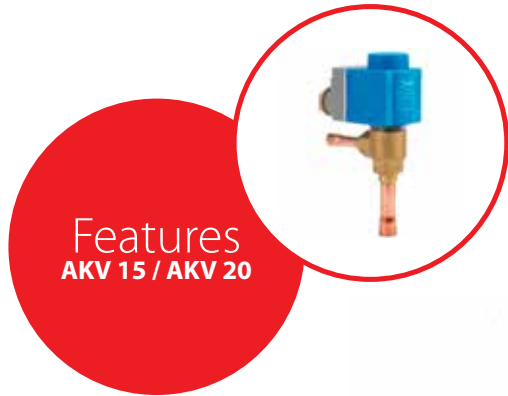


Coil type	Wire length		Voltage	Frequency	Power consumption	Multi pack Code no.
	[in]	[cm]				
Junction box NEMA 2 for AKV 10P / AKV 10PS						
BJ024CS	-	-	24	50 / 60	14	018F4100
BJ120CS	-	-	110	50	16	018F4110
BJ120CS	-	-	120	60	15	018F4120
BJ240CS	-	-	208 - 240	60	14	018F4120
BJ240CS	-	-	230	50	17	018F4120
Conduit boss NEMA 4 for AKV 10P / AKV 10PS						
BX024CS	18	46	24	50 / 60	14	018F4102
BX024CS	71	180	24	50 / 60	14	018F4103
BX024CS	98	250	24	50 / 60	14	018F4104
BX120CS	18	46	110	50	16	018F4112
BX120CS	18	46	120	60	15	018F4112
BX120CS	36	91	110	50	16	018F4113
BX120CS	36	91	120	60	15	018F4113
BX120CS	71	180	110	50	16	018F4114
BX120CS	71	180	120	60	15	018F4114
BX120CS	98	250	110	50	16	018F4115
BX120CS	98	250	120	60	15	018F4115
BX240CS	18	46	208 - 240	60	14	018F4122
BX240CS	98	250	230	50	17	018F4122
BX240CS	18	46	208 - 240	60	14	018F4123
BX240CS	98	250	230	50	17	018F4123

AKV 15 / AKV 20, Electric expansion valves

AKV are electrically operated expansion valves designed for refrigeration plants. The AKV valves are designed for use with a controller from Danfoss' range of ADAP-KOOL® controllers.

The AKV valves are supplied as a parts programme with separate valve body and coil (with terminal box, cable or DIN plug). AKV has an exchangeable orifice.



Available with ODF solder connections (AKV 15 and AKV 20 – straightway,

The orifice assembly is replaceable

Both expansion valve and solenoid valve

Facts

Applications:

- Traditional refrigeration
- Cold rooms
- Water chillers

- Applicable to R744, R407C, R404A / R507, R410A, R134a, R23, R407F, R422B, R422D, R448A, R449A, R449B, R450A, R452A, R513A

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications

- The AKV valves are supplied as a parts programme, as follows:
 - separate valve incl. exchangeable orifice
 - separate coil
- The valve requires no adjustment

- The AKV 15 valves cover a capacity range from 14 – 85 kW / 3.98 – 24.1 TR (404A / R507) and are divided into 4 capacity ranges
- The AKV 20 valves cover a capacity range from 56 – 530 kW / 15.9 – 150 TR (404A / R507) and are divided into 5 capacity ranges.

Technical data and ordering

AKV

Technical data

Valve type	AKV 15	AKV 20
Tolerance of coil voltage	10% / -15%	10% / -15%
Enclosure to IEC 529	IP67	IP67
Working principle	PWM	PWM
Recommended period of time	6 Seconds	6 Seconds
Capacity (404A / R507)	14 – 85 kW / 3.98 – 24.1 TR	56 – 530 kW / 15.9 – 150 TR
Regulation range (Capacity range)	10 – 100%	10 – 100%
Connection	Solder	Solder or weld
Evaporating temperature	-50 – 60 °C / -58 – 140 °F	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-40 – 120 °F / -40 – 50 °C	-40 – 120 °F / -40 – 50 °C
Leak of valve seat	<0.02% of Kv value / Cv value	<0.02% of Kv value / Cv value
MOPD	22 bar / 318 psig	18 bar / 260 psig
Filter, replaceable	External 100 µm	External 100 µm
Max. working pressure	AKV 15 – 1,2,3 PS / MWP = 42 bar g / 610 psig AKV 15 – 4 PS / MWP = 28 bar g / 400 psig	PS / MWP = 28 bar g / 400 psig

Ordering

AKV 15 - Valve excluded coil

Valve type	Rated capacity ¹⁾						Kv value [m ³ /h]	Cv value [gpm]	Connections	
	R134a		R404A / R507		R407C				Solder ODF	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]			Inlet × outlet [in]	Code no.
Solder ODF [in]										
AKV 15 – 1	21.2	6.02	19.6	5.57	25.2	7.16	0.25	0.28	3/4 × 3/4	068F5000
AKV 15 – 2	33.8	9.61	31.4	8.92	40.4	11.4	0.40	0.46	3/4 × 3/4	068F5005
AKV 15 – 3	53	15.1	49.4	14.0	63	18.1	0.63	0.72	7/8 × 7/8	068F5010
AKV 15 – 4	84	24.0	78	22.2	101	28.7	1.0	1.15	1 1/8 × 1 1/8	068F5015
Solder ODF [mm]										
AKV 15 – 1	21.2	6.02	19.6	5.57	25.2	7.16	0.25	0.28	18 × 18	068F5001
AKV 15 – 2	33.8	9.61	31.4	8.92	40.4	11.4	0.40	0.46	18 × 18	068F5006
AKV 15 – 3	53	15.1	49.4	14.0	63	18.1	0.63	0.72	22 × 22	068F5010
AKV 15 – 4	84	24.0	78	22.2	101	28.7	1.0	1.15	28 × 28	068F5016

AKV 20 - Valve excluded coil

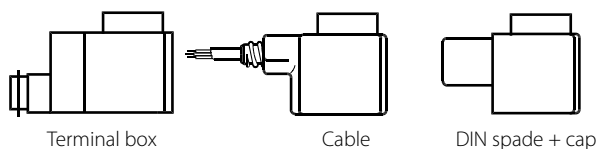
Solder ODF [in]										
AKV 20 – 1	84	24.0	78	22.2	101	28.7	1.0	1.15	1 3/8 × 1 3/8	042H2020
AKV 20 – 2	135	38.3	125	35.5	170	48.3	1.6	1.85	1 3/8 × 1 3/8	042H2022
AKV 20 – 3	212	60	196	55	252	71	2.5	2.89	1 5/8 × 1 5/8	042H2024
AKV 20 – 4	338	96	314	89	404	114	4.0	4.62	2 1/8 × 2 1/8	042H2027
AKV 20 – 5	533	151	494	140	637	181	6.3	7.28	2 1/8 × 2 1/8	042H2029
Solder ODF [mm]										
AKV 20 – 1	84	24.0	78	22.2	101	28.7	1.0	1.15	35 × 35	042H2020
AKV 20 – 2	135	38.3	125	35.5	170	48.3	1.6	1.85	35 × 35	042H2022
AKV 20 – 3	212	60	196	55	252	71	2.5	2.89	42 × 42	042H2025
AKV 20 – 4	338	96	314	89	404	114	4.0	4.62	54 × 54	042H2027
AKV 20 – 5	533	151	494	140	637	181	6.3	7.28	54 × 54	042H2029
Weld [in]										
AKV 20 – 1	84.6	24.0	78	22.2	101	28.7	1.0	1.15	1 1/4 × 1 1/4	042H2021
AKV 20 – 2	135	38.3	125	35.5	170	48.3	1.6	1.85	1 1/4 × 1 1/4	042H2023
AKV 20 – 3	212	60	196	55	252	71	2.5	2.89	1 1/4 × 1 1/4	042H2026
AKV 20 – 4	338	96	314	89	404	114	4.0	4.62	1 1/2 × 1 1/2	042H2028
AKV 20 – 5	533	151	494	140	637	181	6.3	7.28	2 × 2	042H2030

¹⁾ The Rated capacity is based on:
 Evaporating temperature t_e: 5 °C / 41 °F
 Liquid temperature t_l: 28 °C / 82 °F
 Condensing temperature t_c: 32 °C / 90 °F

Technical data and ordering

Coils for AKV valves

Ordering



	Connection	Valve size and orifice no.			Code no.
		AKV 15 – 1 AKV 15 – 2 AKV 15 – 3 AKV 15 – 4	AKV 20 – 1 AKV 20 – 2 AKV 20 – 3	AKV 20 – 4 AKV 20 – 5	
DC coils					
220 V DC 20 W, standard	Terminal box	+	+	+	018F6851
100 V DC 18 W, special	Terminal box	+	+	+	018F6780
230 V DC 18 W, special	Terminal box	+	+	+	018F6781 ¹⁾
	DIN spade + cap	+	+	+	018F6991 ¹⁾
230 V DC 18 W, special	2.5 m / 8.2 ft cable	+	+	+	018F6288 ¹⁾
	4.0 m / 13.0 ft cable	+	+	+	018F6278 ¹⁾
	8.0 m / 26.0 ft cable	+	+	+	018F6279 ¹⁾

¹⁾ Recommended for commercial refrigeration plant.

	Connection	Valve size and orifice no.			Code no.
		AKV 15 – 1 AKV 15 – 2 AKV 15 – 3 AKV 15 – 4	AKV 20 – 1 AKV 20 – 2 AKV 20 – 3	AKV 20 – 4 AKV 20 – 5	
AC coils					
240 V AC 10 W, 50 Hz	Terminal box	+	–	–	018F6702
	DIN spade + cap	+	–	–	018F6177
240 V AC 10 W, 60 Hz	Terminal box	+	–	–	018F6713
240 V AC 12 W, 50 Hz	Terminal box	+	+	–	018F6802
230 V AC 10 W, 50 Hz	Terminal box	+	–	–	018F6701
	DIN spade + cap	+	–	–	018F6176
230 V AC 10 W, 60 Hz	Terminal box	+	–	–	018F6714
	DIN spade + cap	+	–	–	018F6189
230 V AC 10 W, 50 / 60 Hz	Terminal box	+	–	–	018F6732
	DIN spade + cap	+	–	–	018F6193
230 V AC 12 W, 50 Hz	Terminal box	+	+	–	018F6801
230 V AC 12 W, 60 Hz	Terminal box	+	+	–	018F6814
230 V AC 20 W, 50 Hz	Terminal box	+	+	+	018F6905
115 V AC 10 W, 50 Hz	Terminal box	+	–	–	018F6711
115 V AC 10 W, 60 Hz	Terminal box	+	–	–	018F6710
	DIN spade + cap	+	–	–	018F6185
110 V AC 12 W, 50 Hz	Terminal box	+	+	–	018F6811
110 V AC 12 W, 60 Hz	Terminal box	+	+	–	018F6813
24 V AC 10 W, 50 Hz	Terminal box	+	–	–	018F6707
	DIN spade + cap	+	–	–	018F6182
24 V AC 10 W, 60 Hz	Terminal box	+	–	–	018F6715
24 V AC 12 W, 50 Hz	Terminal box	+	+	+	018F6807
24 V AC 12 W, 60 Hz	Terminal box	+	+	+	018F6815
24 V AC 20 W, 50 Hz	Terminal box	+	+	+	018F6903
24 V AC 20 W, 60 Hz	Terminal box	+	+	+	018F6906

Related products

Electric suction modulating valves

Type AK-CC 550 / EKC 315 / EKC 414A

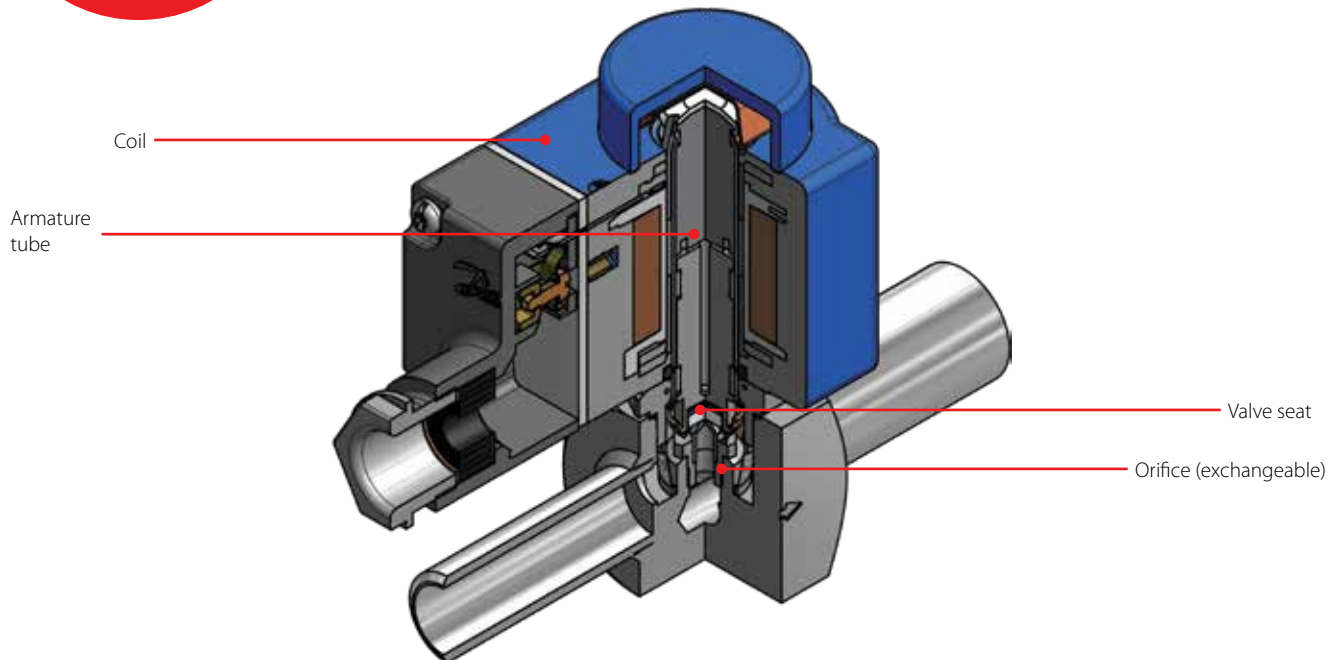
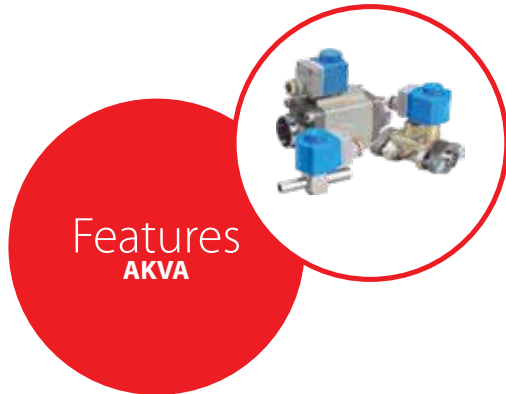
Temperature sensors and pressure transmitters

Type AKS

AKVA, Electric expansion valve

AKVA are electric expansion valves designed for ammonia refrigerating plants. The AKVA valves can be used for flooded evaporation (high / low pressure), pump separators and direct expansion.

The AKVA valves are normally controlled by a controller from Danfoss' range of ADAP-KOOL® controllers.



Facts

- Applicable to R717, R744, R134a, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502 and R507
- The valve requires no adjustment
- Wide regulation range
- Replaceable orifice assembly
- Wide range of coils for DC and AC
- Quick reaction in whole range of stated capacity
- In some applications AKVA can be used both as expansion valve and solenoid valve
- The AKVA 10 valves cover a capacity range from 4 kW to 100 kW (R 717) and are divided up into 8 capacity ranges
- The AKVA 10 valve bodies are made in stainless steel and have weld connections.
- The AKVA 15 valves have flange connections
- The valve covers a capacity range from 125 kW to 500 kW (R 717) and are divided up into 4 capacity ranges
- The AKVA 20 valves cover a capacity range from 500 kW to 3150 kW (R 717) and are divided up into 5 capacity ranges
- The AKVA 20 valve has weld connections

Technical data and ordering

AKVA

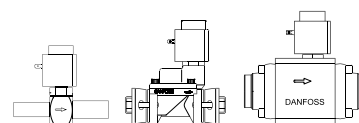
Technical data

	AKVA 10	AKVA 15	AKVA 20
Tolerance of coil voltage	10 / -15%	10 / -15%	10 / -15%
Enclosure to IEC 529	IP67	IP67	IP67
Working principle (Pulse-width modulation)	PWM	PWM	PWM
Recommend period of time	6 seconds	6 seconds	6 seconds
Capacity (R717)	4 – 100 kW	125 – 500 kW	500 – 3150 kW
Regulation range	10 – 100%	10 – 100%	10 – 100%
Connection	Weld	Weld	Weld
Media temperature	- 50 – 60 °C	- 40 – 60 °C	- 40 – 60 °C
Ambient temperature	- 50 – 50 °C	- 40 – 50 °C	- 40 – 50 °C
Leak of valve seat	< 0.02% of K _v value	< 0.02% of K _v value	< 0.02% of K _v value
MOPD	18 bar	22 bar	18 bar
Strainer	Internal 100 µm replaceable	external 100 µm *)	external 100 µm *)
Max. working pressure	PS = 42 bar g	PS = 42 bar g	PS = 42 bar g

*) On plants with ammonia and similar industrial plant a strainer must be mounted in front of AKVA 15 and AKVA 20. AKVA 10 has built-in strainer and external strainer is not necessary. See the sections FIA and FIA SS for more information on available Danfoss strainers.

AKVA

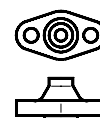
Ordering valve excluding coil



Valve type	Rated capacity ¹⁾		K _v value [m ³ /h]	Connections - inlet x outlet [in]	Code no.
	[kW]	[TR]			
AKVA 10 - 1	4	1.1	0.010	3/8 x 1/2	068F3261
	4	1.1	0.010	1/2 x 3/4	068F3281
AKVA 10 - 2	6.3	1.8	0.015	3/8 x 1/2	068F3262
	6.3	1.8	0.015	1/2 x 3/4	068F3282
AKVA 10 - 3	10	2.8	0.022	3/8 x 1/2	068F3263
	10	2.8	0.022	1/2 x 3/4	068F3283
AKVA 10 - 4	16	4.5	0.038	3/8 x 1/2	068F3264
	16	4.5	0.038	1/2 x 3/4	068F3284
AKVA 10 - 5	25	7.1	0.055	3/8 x 1/2	068F3265
	25	7.1	0.055	1/2 x 3/4	068F3285
AKVA 10 - 6	40	11.4	0.103	3/8 x 1/2	068F3266
	40	11.4	0.103	1/2 x 3/4	068F3286
AKVA 10 - 7	63	17.9	0.162	1/2 x 3/4	068F3267
AKVA 10 - 8	100	28.4	0.251	1/2 x 3/4	068F3268
AKVA 15 - 1	125	35	0.25	Flange	068F5020 ²⁾
AKVA 15 - 2	200	60	0.40	Flange	068F5023 ²⁾
AKVA 15 - 3	300	90	0.63	Flange	068F5026 ²⁾
AKVA 15 - 4	500	140	1.0	Flange	068F5029 ²⁾
AKVA 20 - 1	500	140	1.0	1 1/4 x 1 1/4	042H2101
AKVA 20 - 2	800	240	1.6	1 1/4 x 1 1/4	042H2102
AKVA 20 - 3	1250	350	2.5	1 1/4 x 1 1/4	042H2103
AKVA 20 - 4	2000	600	4.0	1 1/2 x 1 1/2	042H2104
AKVA 20 - 5	3150	900	6.3	2 x 2	042H2105

¹⁾ Rated capacities are based on
Condensing temperature t_c = 32 °C
Liquid temperature t_l = 28 °C
Evaporating temperature t_e = 5 °C

²⁾ Incl. bolts and gaskets but without flanges



AKVA 15

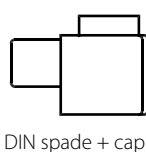
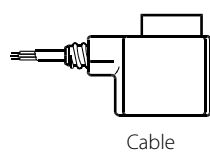
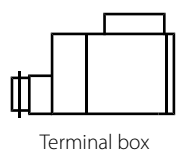
Ordering flange set for AKVA 15

Valve type	Connection		Code no.
	[in]		
AKVA 15 - 1 to 4	3/4		027N1220
	1		027N1225

Technical data and ordering

AKVA

Ordering coils



Valve size and orifice no.					
AKVA 10-1	AKVA 10-6	AKVA 10-7 AKVA 10-8	AKVA 15-1 AKVA 15-2 AKVA 15-3 AKVA 15-4	AKVA 20-1 AKVA 20-2 AKVA 20-3	AKVA 20-4 AKVA 20-5
AKVA 10-2					
AKVA 10-3					
AKVA 10-4					
AKVA 10-5					

DC coils	Connection							Code no.
220 V DC 20 W, standard	Terminal box	+	+	+	+	+	+	018F6851
100 V DC 18 W, special	Terminal box	+	+	+	+	+	+	018F6780
230 V DC 18 W, special	Terminal box	+	+	+	+	+	+	018F6781 ¹⁾
	DIN spade	+	+	+	+	+	+	018F6991 ¹⁾
230 V DC 18 W, special	2.5 m / 8.2 ft cable	+	+	+	+	+	+	018F6288 ¹⁾
	4.0 m / 13.0 ft cable	+	+	+	+	+	+	018F6278 ¹⁾
	8.0 m / 26.0 ft cable	+	+	+	+	+	+	018F6279 ¹⁾

¹⁾ Recommended for commercial refrigeration plant.

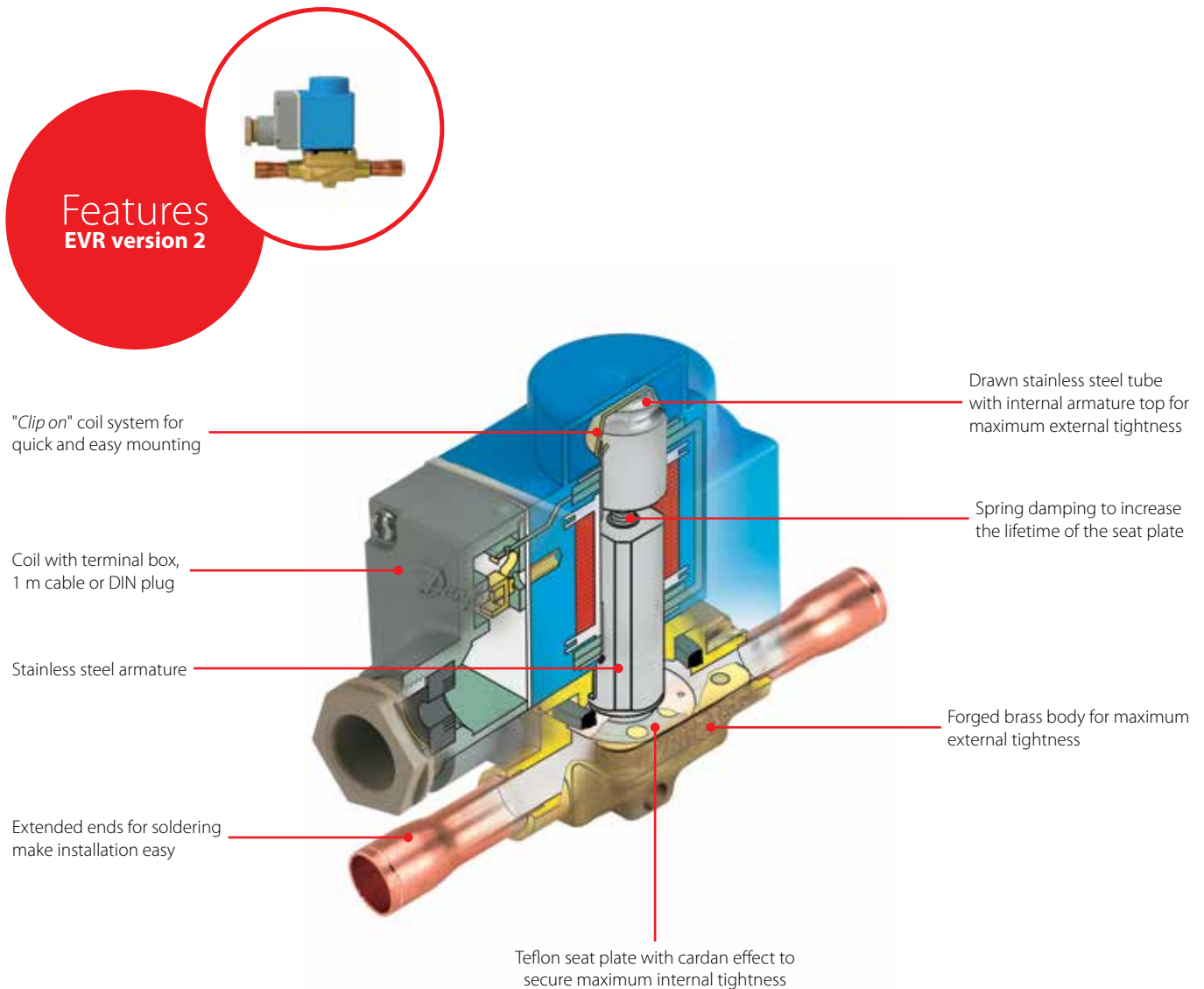
AC coils	Connection							Code no.
240 V AC 10 W, 50 Hz	Terminal box	+	+	-	+	-	-	018F6702
	DIN spade + cap	+	+	-	+	-	-	018F6177
240 V AC 10 W, 60 Hz	Terminal box	+	+	-	+	-	-	018F6713
240 V AC 12 W, 50 Hz	Terminal box	+	+	+	+	+	-	018F6802
220 V AC 10 W, 50 Hz	Terminal box	+	+	-	+	-	-	018F6701
	DIN spade + cap	+	+	-	+	-	-	018F6176
220 V AC 10 W, 60 Hz	Terminal box	+	+	-	+	-	-	018F6714
	DIN spade + cap	+	+	-	+	-	-	018F6189
230 V AC 10 W, 50 / 60 Hz	Terminal box	+	+	-	+	-	-	018F6732
	DIN spade + cap	+	+	-	+	-	-	018F6193
220 V AC 12 W, 50 Hz	Terminal box	+	+	-	+	+	-	018F6801
220 V AC 12 W, 60 Hz	Terminal box	+	+	-	+	+	-	018F6814
230 V AC 20 W, 50 Hz	Terminal box	+	+	+	+	+	+	018F6905
115 V AC 10 W, 50 Hz	Terminal box	+	+	-	+	-	-	018F6711
115 V AC 10 W, 60 Hz	Terminal box	+	+	-	+	-	-	018F6710
	DIN spade + cap	+	+	-	+	-	-	018F6185
110 V AC 12 W, 50 Hz	Terminal box	+	+	-	+	+	-	018F6811
110 V AC 12 W, 60 Hz	Terminal box	+	+	-	+	+	-	018F6813
24 V AC 10 W, 50 Hz	Terminal box	+	-	-	+	-	-	018F6707
	DIN spade + cap	+	-	-	+	-	-	018F6182
24 V AC 10 W, 60 Hz	Terminal box	+	-	-	+	-	-	018F6715
24 V AC 12 W, 50 Hz	Terminal box	+	-	-	+	+	+	018F6807
24 V AC 12 W, 60 Hz	Terminal box	+	-	-	+	+	+	018F6815
24 V AC 20 W, 50 Hz	Terminal box	+	+	+	+	+	+	018F6903
24 V AC 20 W, 60 Hz	Terminal box	+	+	+	+	+	+	018F6906

Quick Selection Notes:

EVR version 2, Solenoid valve

EVR v2 solenoid valves are direct or servo operated solenoid valves for liquid, suction and hot gas lines with most refrigerants, including flammable refrigerants. They are suitable for condensing units and power packs in all refrigeration, freezing and air conditioning applications.

The valves can be delivered as normally open or normally closed valves and with or without manual operation. EVR v2 valves are available with flare, solder or flange connections.



Facts

Application:

- Food service and Cold rooms
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration
- Complete programme of valves and coils for every application
- Wide range of coils for AC and DC
- Wide range of connection types and sizes
- Normally open or normally closed
- With or without manual operation
- High reliability and durability due to maximum internal and external tightness

- Applicable to R134a, R404A / R507, R410A, R407A, R32, R290, R600, R600a, R1234yf, R1234ze, R404A, R407A, R407C, R407F, R125, R152A, R448A, R449A, R452A, and R450A
- EVR 2 – EVR 22 with solder connections and without manual stem are suitable for use with the flammable refrigerants R152A, R32, R290, R600, R600a, R1234yf, and R1234ze
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Temperature range: -40 – 105 °C / -40 – 221 °F
- Media temperature: -40 – 105 °C / -40 – 221 °F
Max. 130 °C / 266 °F during defrosting
- Max. working pressure (PS / MWP):
- EVR v2 solder and flare connections: 45.2 bar / 655 psi
- EVR v2 flange connections: 32 bar / 460 psi
- MOPD up to 38 bar / 550 psi
- 100% test of functionality, internal / external leakage and electrical characteristics

Technical data and ordering

EVR v2

Technical data

Type	Opening differential pressure with standard coil Δp [bar]		
	Min.	Max. (= MOPD) liquid	
		AC coil 10 W	DC coil 20 W
EVR 2 NC	0.00	38	33
EVR 3 NC	0.00	38	18
EVR 4 NC	0.03	38	28
EVR 6 NC	0.03	38	28
EVR 6 NO	0.03	21	21
EVR 8 NC	0.03	38	28
EVR 10 NC	0.03	38	20
EVR 10 NO	0.03	21	21
EVR 15 NC	0.03	38	20
EVR 15 NO	0.03	21	21
EVR 18 NC	0.03	38	20
EVR 20 NC	0.03	38	20
EVR 20 NO	0.03	19	19
EVR 22 NC	0.03	38	20
EVR 22 NO	0.03	19	19
EVR 25 NC	0.20	38	17
EVR 32 NC	0.20	38	17
EVR 40 NC	0.20	38	17

For higher MODP 12 W and 20 W AC coils are available on request.

Technical data and capacities

EVR v2

Rated capacity [kW] – Liquid

Type	R134a	R404A / R507	R410A	R32	R290	R600a
EVR 2	2.79	2.04	2.96	4.23	3.36	3.38
EVR 3	5.02	3.68	5.32	7.61	6.05	6.09
EVR 4	12.66	9.26	13.41	19.17	15.23	15.33
EVR 6	16.56	12.12	17.55	25.09	19.93	20.07
EVR 8	19.73	14.44	20.90	29.88	23.74	23.90
EVR 10	34.80	25.47	36.88	52.71	41.88	42.17
EVR 15	53.60	39.23	56.79	81.18	64.49	64.94
EVR 18	70.16	51.36	74.35	106.26	84.43	85.01
EVR 20	111.29	81.46	117.93	168.56	133.92	134.85
EVR 22	126.92	92.90	134.49	192.23	152.73	153.79
EVR 25	138.06	101.06	146.30	–	–	–
EVR 32	235.89	172.66	249.96	–	–	–
EVR 40	341.15	249.71	361.49	–	–	–

Rated capacity [kW] – Suction vapour

Type	R134a	R404A / R507	R410A	R32	R290	R600a
EVR 2	0.24	0.29	0.42	0.54	0.41	0.23
EVR 3	0.44	0.52	0.75	0.96	0.73	0.41
EVR 4	1.10	1.32	1.90	2.43	1.85	1.03
EVR 6	1.44	1.72	2.48	3.18	2.42	1.35
EVR 8	1.71	2.05	2.96	3.78	2.88	1.60
EVR 10	3.02	3.62	5.22	6.67	5.09	2.83
EVR 15	4.65	5.57	8.03	10.28	7.83	4.36
EVR 18	6.09	7.30	10.52	13.45	10.26	5.70
EVR 20	9.66	11.57	16.68	21.34	16.27	9.04
EVR 22	11.02	13.20	19.02	24.34	18.55	10.31
EVR 25	11.79	14.25	20.58	–	–	–
EVR 32	20.14	24.35	35.16	–	–	–
EVR 40	29.12	35.21	50.85	–	–	–

Rated capacity [kW] – Hot gas

Type	R134a	R404A / R507	R410A	R32	R290	R600a
EVR 2	1.04	1.10	1.65	2.18	1.54	0.94
EVR 3	1.87	1.99	2.98	3.92	2.76	1.70
EVR 4	4.70	5.01	7.50	9.86	6.96	4.28
EVR 6	6.16	6.56	9.81	12.91	9.11	5.61
EVR 8	7.33	7.81	11.68	15.37	10.85	6.68
EVR 10	12.94	13.78	20.61	27.12	19.14	11.78
EVR 15	19.93	21.22	31.74	41.77	29.48	18.14
EVR 18	26.08	27.77	41.55	54.67	38.59	23.75
EVR 20	41.37	44.05	65.91	86.72	61.21	37.67
EVR 22	47.18	50.24	75.17	98.91	69.81	42.96
EVR 25	67.73	72.12	107.91	–	–	–
EVR 32	115.75	123.24	184.40	–	–	–
EVR 40	167.43	178.27	266.74	–	–	–

Rated liquid and suction vapor capacity is based on:

Evaporating temperature $t_e = -10\text{ °C}$

Liquid temperature ahead of valve $t_l = 25\text{ °C}$

Pressure drop in valve $\Delta p = 0.15\text{ bar}$

Rated hot gas capacity is based on:

Condensing temperature $t_c = 40\text{ °C}$

Pressure drop across valve $\Delta p = 0.8\text{ bar}$

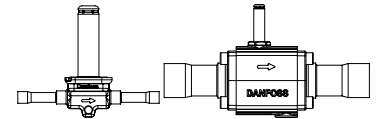
Hot gas temperature $t_h = 65\text{ °C}$

Subcooling of refrigerant $\Delta t_{sub} = 4\text{ K}$

Technical data and ordering

EVR v2 solder connection, Normally Closed (NC) - separate valve bodies

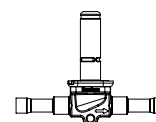
Ordering



Type	Current type	Connection size		Manual operation	K _v value [m ³ /h]	Code no.
		[mm]	[in]			
EVR 2	AC / DC	–	1/4	No	0.15	032F1201
	AC / DC	–	1/4	No	0.15	032F7100
	AC / DC	6	–	No	0.15	032F1202
EVR 3	AC / DC	–	1/4	No	0.26	032F1206
	AC / DC	–	3/8	No	0.26	032F1204
	AC / DC	6	–	No	0.26	032F1207
EVR 4	AC / DC	10	–	No	0.26	032F1208
	AC / DC	–	3/8	No	0.70	032L7110
	AC / DC	–	3/8	No	1.0	032L1212
EVR 6	AC / DC	–	3/8	Yes	0.87	032L7116
	AC / DC	10	–	No	1.0	032L1213
	AC / DC	12	–	No	1.0	032L1236
	AC / DC	–	1/2	No	1.0	032L1209
	AC / DC	–	1/2	Yes	0.87	032L7144
	AC / DC	–	5/8	No	1.0	032L7117
EVR 8	AC / DC	–	1/2	No	1.15	032L7121
	AC / DC	–	1/2	Yes	1.09	032L7148
	AC / DC	–	5/8	No	1.15	032L7122
EVR 10	AC / DC	–	3/8	No	1.47	032L7125
	AC / DC	12	–	No	2.2	032L1218
	AC / DC	–	1/2	No	2.2	032L1217
	AC / DC	–	1/2	Yes	2.2	032L1188
	AC / DC	16	5/8	No	2.2	032L1214
	AC / DC	–	5/8	Yes	2.2	032L7149
EVR 15	AC / DC	16	5/8	No	3.3	032L1228
	AC / DC	16	5/8	Yes	3.3	032L1227
	AC / DC	22	7/8	No	3.3	032L1225
EVR 18	AC / DC	–	7/8	Yes	3.9	032L1004
	AC / DC	–	7/8	No	6.0	032L1240
	AC / DC	–	7/8	Yes	6.0	032L1254
EVR 20	AC / DC	–	1 1/8	No	6.0	032L1244
	AC / DC	28	–	No	6.0	032L1245
	AC / DC	–	1 1/8	No	6.0	032L1244
	AC / DC	–	1 1/8	Yes	6.0	032L1245
EVR 22	AC / DC	–	1 1/8	No	6.0	032L1244
	AC / DC	–	1 1/8	Yes	6.0	032L1245
	AC / DC	–	1 3/8	No	6.0	032L3267
EVR 25	AC / DC	–	1 1/8	Yes	9.8	032L2200
	AC / DC	–	1 1/8	No	9.8	032L2201
	AC / DC	28	–	Yes	9.8	032L2205
	AC / DC	28	–	No	9.8	032L2206
	AC / DC	–	1 3/8	Yes	9.8	032L2207
	AC / DC	–	1 3/8	No	9.8	032L2208
EVR 32	AC / DC	35	1 3/8	Yes	16.7	032L1105
	AC / DC	35	1 3/8	No	16.7	032L1106
	AC / DC	–	1 5/8	Yes	16.7	032L1103
	AC / DC	–	1 5/8	No	16.7	032L1104
	AC / DC	42	–	Yes	16.7	032L1107
	AC / DC	42	–	No	16.7	032L1108
	AC / DC	–	2 1/8	No	16.7	032L1180
	AC / DC	–	2 1/8	Yes	16.7	032L1181
EVR 40	AC / DC	–	1 5/8	Yes	24.2	032L1109
	AC / DC	–	1 5/8	No	24.2	032L1110
	AC / DC	42	–	Yes	24.2	032L1113
	AC / DC	42	–	No	24.2	032L1114
	AC / DC	–	2 1/8	Yes	24.2	032L1111
AC / DC	–	2 1/8	No	24.2	032L1112	

Technical data and capacities

EVR v2 solder connection, Normally Open (NO) - separate valve bodies

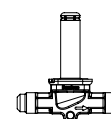


Ordering

Type	Current type	Connection size		Manual operation	K _v value [m ³ /h]	Code no.
		[mm]	[in]			
EVR 6	AC / DC	–	3/8	No	1.0	032L1290
	AC / DC	10	–	No	1.0	032L1295
EVR 10	AC / DC	–	1/2	No	2.2	032L1291
	AC / DC	12	–	No	2.2	032L1296
EVR 15	AC / DC	16	5/8	No	3.3	032L1299
	AC / DC	–	7/8	No	3.3	032L3270
EVR 20	AC / DC	–	7/8	No	6.0	032L1260
	AC / DC	–	1 1/8	No	6.0	032L1269
	AC / DC	28	–	No	6.0	032L1279
EVR 22	AC	–	1 3/8	No	6.0	032L3268

The normal range of coils can be used for the NO valves, with the exception of the double frequency versions of 110 V, 50/60 Hz and 220 V, 50/60 Hz.

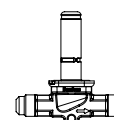
EVR v2 flare connection, Normally Closed (NC) - separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	K _v value [m ³ /h]	Code no.
		[mm]	[in]			
EVR 2	AC	6	1/4	No	0.15	032F8056
EVR 3	AC / DC	6	1/4	No	0.26	032F8107
	AC / DC	10	3/8	No	0.26	032F8116
EVR 6	AC / DC	10	3/8	No	1.0	032L8072
	AC / DC	12	1/2	No	1.0	032L8079
EVR 10	AC / DC	12	1/2	No	2.2	032L8095
	AC / DC	16	5/8	No	2.2	032L8098
EVR 15	AC / DC	16	5/8	Yes	3.3	032L8100
	AC / DC	16	5/8	No	3.3	032L8101

EVR v2 flare connection, Normally Open (NO) - separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	K _v value [m ³ /h]	Code no.
		[mm]	[in]			
EVR 6	AC / DC	10	3/8	No	1.0	032L8085
EVR 10	AC / DC	12	1/2	No	2.2	032L8090

The normal range of coils can be used for the NO valves, with the exception of the double frequency versions of 110 V, 50/60 Hz and 220 V, 50/60 Hz.

Valve bodies are supplied without flare nuts.

Separate flare nuts:

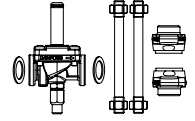
- 6 mm or 1/4 in, code no. **011L1101**
- 10 mm or 3/8 in, code no. **011L1135**
- 12 mm or 1/2 in, code no. **011L1103**
- 16 mm or 5/8 in, code no. **011L1167**

Technical data and ordering

EVR v2 flange connection, Normally Closed (NC) - separate valve bodies

Ordering

Type	Current type	Connection	Manual operation	Code no.
EVR 15	AC / DC	Flanges	No	032L1224
	AC / DC	Flanges	Yes	032L1234
EVR 20	AC / DC	Flanges	No	032L1243
	AC / DC	Flanges	Yes	032L1253



EVR v2 flange sets, Normally Closed (NC) - separate valve bodies

Ordering

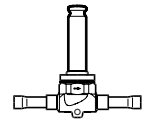
Type	Connection size		Connection type			Code no.
	[mm]	[in]	Solder		Weld	
			[mm]	[in]	[in]	
EVR 15	–	1/2	–	–	Yes	027N1115
	–	5/8	Yes	–	–	027L1117
	16	–	–	Yes	–	027L1116
	–	3/4	–	–	Yes	027N1120
	–	7/8	Yes	–	–	027L1123
	22	–	–	Yes	–	027L1122
EVR 20	–	3/4	–	–	Yes	027N1220
	–	7/8	Yes	–	–	027L1223
	22	–	–	Yes	–	027L1222
	–	1	–	–	Yes	027N1225
	–	1 1/8	Yes	–	–	027L1229
	28	–	–	Yes	–	027L1228

Example:

EVR 15 without manual operation - code no. **032L1224**.

1/2 in weld flange set. - code no. **027N1115**.

+ coil with terminal box, 220 V, 50 Hz, - code no. **018F6701**.



EVRC solder connection, Normally Closed (NC) - separate valve bodies

Ordering

Type	Current type	Connection size		Manual operation	K _v value [m ³ /h]		Code no.
		[mm]	[in]		Flow in arrow direction	Flow against arrow direction	
EVRC 15	AC / DC	16	5/8	No	2.7	2.5	032L1255
EVRC 20	AC / DC	22	7/8	No	3.6	5.0	032L1258

Technical data and ordering

EVR v2

Technical data

Type	Opening differential pressure with UL listed or standard coil Δp [psi]		
	Min.	Max. (= MOPD) liquid	
		UL listed AC coil 14 - 17 W	Standard DC coil 20 W
EVR 2 NC	0	550	478
EVR 3 NC	0	550	261
EVR 4 NC	0.44	550	406
EVR 6 NC	0.44	550	406
EVR 6 NO	0.44	305	305
EVR 8 NC	0.44	550	406
EVR 10 NC	0.44	550	290
EVR 10 NO	0.44	305	305
EVR 15 NC	0.44	550	290
EVR 15 NO	0.44	305	305
EVR 18 NC	0.44	550	290
EVR 20 NC	0.44	550	290
EVR 20 NO	0.44	305	305
EVR 22 NC	0.44	550	290
EVR 22 NO	0.44	305	305
EVR 25 NC	2.9	450	246
EVR 32 NC	2.9	450	246
EVR 40 NC	2.9	450	246

Technical data and capacities

EVR v2

Rated capacity [TR] – Liquid

Type	R134a	R404A / R507	R410A	R32	R290	R600a
EVR 2	0.85	0.59	0.86	1.25	1.03	1.06
EVR 3	1.54	1.07	1.55	2.26	1.85	1.91
EVR 4	3.87	2.68	3.9	5.69	4.65	4.81
EVR 6	5.07	3.51	5.11	7.44	6.08	6.3
EVR 8	6.03	4.18	6.08	8.87	7.25	7.5
EVR 10	10.64	7.38	10.73	15.64	12.78	13.24
EVR 15	16.39	11.37	16.53	24.09	19.68	20.39
EVR 18	21.46	14.88	21.64	31.53	25.77	26.69
EVR 20	34.04	23.6	34.32	50.01	40.87	42.33
EVR 22	38.82	26.92	39.14	57.04	46.61	48.28
EVR 25	55.72	38.64	56.18	–	–	–
EVR 32	95.23	66.03	96.01	–	–	–
EVR 40	137.75	95.51	138.88	–	–	–

Rated capacity for liquid is based on:

Pressure drop across valve: 3 psi

Liquid temperature: 100 °F

Subcooling: 10 °F

Evaporating temperature: 40 °F

Superheat: 0 °F

Rated capacity [TR] – Suction vapour

Type	R134a	R404A / R507	R410A	R32	R290	R600a
EVR 2	0.06	0.06	0.09	0.12	0.09	0.06
EVR 3	0.11	0.12	0.17	0.22	0.17	0.1
EVR 4	0.27	0.29	0.42	0.55	0.42	0.26
EVR 6	0.35	0.38	0.55	0.72	0.55	0.34
EVR 8	0.41	0.46	0.66	0.86	0.66	0.4
EVR 10	0.73	0.8	1.16	1.51	1.16	0.71
EVR 15	1.13	1.24	1.79	2.32	1.79	1.1
EVR 18	1.47	1.62	2.34	3.04	2.34	1.44
EVR 20	2.34	2.57	3.71	4.82	3.71	2.28
EVR 22	2.67	2.93	4.23	5.5	4.24	2.61
EVR 25	3.5	3.9	5.65	–	–	–
EVR 32	5.99	6.66	9.65	–	–	–
EVR 40	8.66	9.63	13.96	–	–	–

Rated capacity for Suction vapour is based on:

Pressure drop across valve: 1 psi (EVR 25, EVR 32, EVR 40: 2 psi)

Liquid temperature: 100 °F

Subcooling: 10 °F

Evaporating temperature: 40 °F

Superheat: 0 °F

Rated capacity [TR] – Hot gas

Type	R134a	R404A / R507	R410A	R32	R290	R600a
EVR 2	0.17	0.18	0.25	0.33	0.25	0.16
EVR 3	0.30	0.32	0.46	0.59	0.44	0.29
EVR 4	0.76	0.82	1.16	1.48	1.12	0.73
EVR 6	0.99	1.07	1.51	1.94	1.46	0.95
EVR 8	1.18	1.27	1.80	2.31	1.74	1.13
EVR 10	2.09	2.25	3.18	4.07	3.07	2.00
EVR 15	3.22	3.46	4.89	6.26	4.73	3.08
EVR 18	4.21	4.53	6.40	8.20	6.19	4.03
EVR 20	6.69	7.18	10.16	13.01	9.81	6.4
EVR 22	7.62	8.19	11.59	14.83	11.19	7.3
EVR 25	10.94	11.76	16.63	–	–	–
EVR 32	18.70	20.09	28.42	–	–	–
EVR 40	27.05	29.06	41.11	–	–	–

Rated capacity for Hot gas is based on:

Pressure drop across valve: 3 psi

Condensing temperature: 10 °F

Subcooling: 10 °F

Hot gas temperature: 40 °F

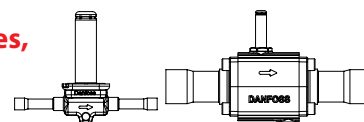
Evaporating temperature: 40 °F

Superheat: 0 °F

Technical data and ordering

EVR v2 solder ODF connections, Normally Closed (NC) - separate valve bodies, UL listed

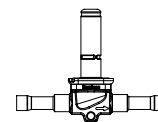
Ordering



Type	Current type	Connection size		Manual operation	Code no.
		[mm]	[in]		
EVR 2	AC / DC	1/4	-	No	032F1201
	AC / DC	1/4	-	No	032F7100
	AC / DC	-	6	No	032F1202
EVR 3	AC / DC	1/4	-	No	032F1206
	AC / DC	3/8	-	No	032F1204
	AC / DC	-	6	No	032F1207
EVR 4	AC / DC	-	10	No	032F1208
	AC / DC	3/8	-	No	032L7110
	AC / DC	3/8	-	No	032L1212
EVR 6	AC / DC	3/8	-	Yes	032L7116
	AC / DC	-	10	No	032L1213
	AC / DC	-	12	No	032L1236
	AC / DC	1/2	-	No	032L1209
	AC / DC	1/2	-	Yes	032L7144
	AC / DC	5/8	-	No	032L7117
EVR 8	AC / DC	1/2	-	No	032L7121
	AC / DC	1/2	-	Yes	032L7148
	AC / DC	5/8	-	No	032L7122
EVR 10	AC / DC	3/8	-	No	032L7125
	AC / DC	-	12	No	032L1218
	AC / DC	1/2	-	No	032L1217
	AC / DC	1/2	-	Yes	032L1188
	AC / DC	5/8	16	No	032L1214
	AC / DC	5/8	-	Yes	032L7149
EVR 15	AC / DC	5/8	16	No	032L1228
	AC / DC	5/8	16	Yes	032L1227
	AC / DC	7/8	22	No	032L1225
EVR 18	AC / DC	7/8	-	Yes	032L1004
EVR 20	AC / DC	7/8	-	No	032L1240
	AC / DC	7/8	-	Yes	032L1254
	AC / DC	1 1/8	-	No	032L1244
	AC / DC	-	28	No	032L1245
EVR 22	AC / DC	1 1/8	-	No	032L7145
	AC / DC	1 1/8	-	Yes	032L7137
	AC / DC	1 3/8	-	No	032L3267
EVR 25	AC / DC	1 1/8	-	Yes	032L2200
	AC / DC	1 1/8	-	No	032L2201
	AC / DC	-	28	Yes	032L2205
	AC / DC	-	28	No	032L2206
	AC / DC	1 3/8	-	Yes	032L2207
EVR 32	AC / DC	1 3/8	-	No	032L2208
	AC / DC	1 3/8	35	Yes	032L1105
	AC / DC	1 3/8	35	No	032L1106
	AC / DC	1 5/8	-	Yes	032L1103
	AC / DC	1 5/8	-	No	032L1104
	AC / DC	-	42	Yes	032L1107
	AC / DC	-	42	No	032L1108
	AC / DC	2 1/8	-	No	032L1180
EVR 40	AC / DC	2 1/8	-	Yes	032L1181
	AC / DC	1 5/8	-	Yes	032L1109
	AC / DC	1 5/8	-	No	032L1110
	AC / DC	-	42	Yes	032L1113
	AC / DC	-	42	No	032L1114
	AC / DC	2 1/8	-	Yes	032L1111
	AC / DC	2 1/8	-	No	032L1112

Technical data and capacities

EVR v2 flare connections, Normally Closed (NC) - separate valve bodies

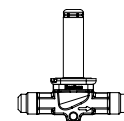


Ordering

Type	Current type	Connection size		Manual operation	Code no.
		[mm]	[in]		
EVR 6	AC / DC	–	3/8	No	032L1290
	AC / DC	10	–	No	032L1295
EVR 10	AC / DC	–	1/2	No	032L1291
	AC / DC	12	–	No	032L1296
EVR 15	AC / DC	16	5/8	No	032L1299
	AC / DC	–	7/8	No	032L3270
EVR 20	AC / DC	–	7/8	No	032L1260
	AC / DC	–	1 3/8	No	032L1269
	AC / DC	28	–	No	032L1279
EVR 22	AC	–	1 3/8	No	032L3268

The normal range of coils can be used for the NO valves, with the exception of the double frequency versions of 110 V, 50/60 Hz and 220 V, 50/60 Hz.

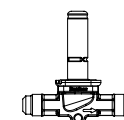
EVR v2 flare connections, Normally Closed (NC) - separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	Code no.
		[mm]	[in]		
EVR 2	AC / DC	6	1/4	No	032F8056
EVR 3	AC / DC	6	1/4	No	032F8107
	AC / DC	10	3/8	No	032F8116
EVR 6	AC / DC	10	3/8	No	032L8072
	AC / DC	12	1/2	No	032L8079
EVR 10	AC / DC	12	1/2	No	032L8095
	AC / DC	16	5/8	No	032L8098
EVR 15	AC / DC	16	5/8	Yes	032L8100
	AC / DC	16	5/8	No	032L8101

EVR v2 flare connection, Normally Open (NO) - separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	Code no.
		[mm]	[in]		
EVR 6	AC / DC	10	3/8	No	032L8085
EVR 10	AC / DC	12	1/2	No	032L8090

The normal range of coils can be used for the NO valves, with the exception of the double frequency versions of 110 V, 50/60 Hz and 220 V, 50/60 Hz.

Valve bodies are supplied without flare nuts.

Separate flare nuts:

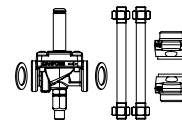
- 6 mm or 1/4 in, code no. **011L1101**
- 10 mm or 3/8 in, code no. **011L1135**
- 12 mm or 1/2 in, code no. **011L1103**
- 16 mm or 5/8 in, code no. **011L1167**

Technical data and ordering

EVR v2 flange connection, Normally Closed (NC) - separate valve bodies

Ordering

Type	Current type	Connection	Manual operation	Code no.
EVR 15	AC / DC	Flanges	No	032L1224
	AC / DC	Flanges	Yes	032L1234
EVR 20	AC / DC	Flanges	No	032L1243
	AC / DC	Flanges	Yes	032L1253



EVR v2 flange sets, Normally Closed (NC) - separate valve bodies

Ordering

Type	Connection size		Connection type			Code no.
	[mm]	[in]	Solder		Weld	
			[mm]	[in]	[in]	
EVR 15	–	1/2	–	–	Yes	027N1115
	–	5/8	Yes	–	–	027L1117
	16	–	–	Yes	–	027L1116
	–	3/4	–	–	Yes	027N1120
	–	7/8	Yes	–	–	027L1123
	22	–	–	Yes	–	027L1122
EVR 20	–	3/4	–	–	Yes	027N1220
	–	7/8	Yes	–	–	027L1223
	22	–	–	Yes	–	027L1222
	–	1	–	–	Yes	027N1225
	–	1 1/8	Yes	–	–	027L1229
	28	–	–	Yes	–	027L1228

Example:

EVR 15 without manual operation - code no. **032L1224**.

1/2 in weld flange set. - code no. **027N1115**.

+ coil with terminal box, 220 V, 50 Hz, - code no. **018F6701**.

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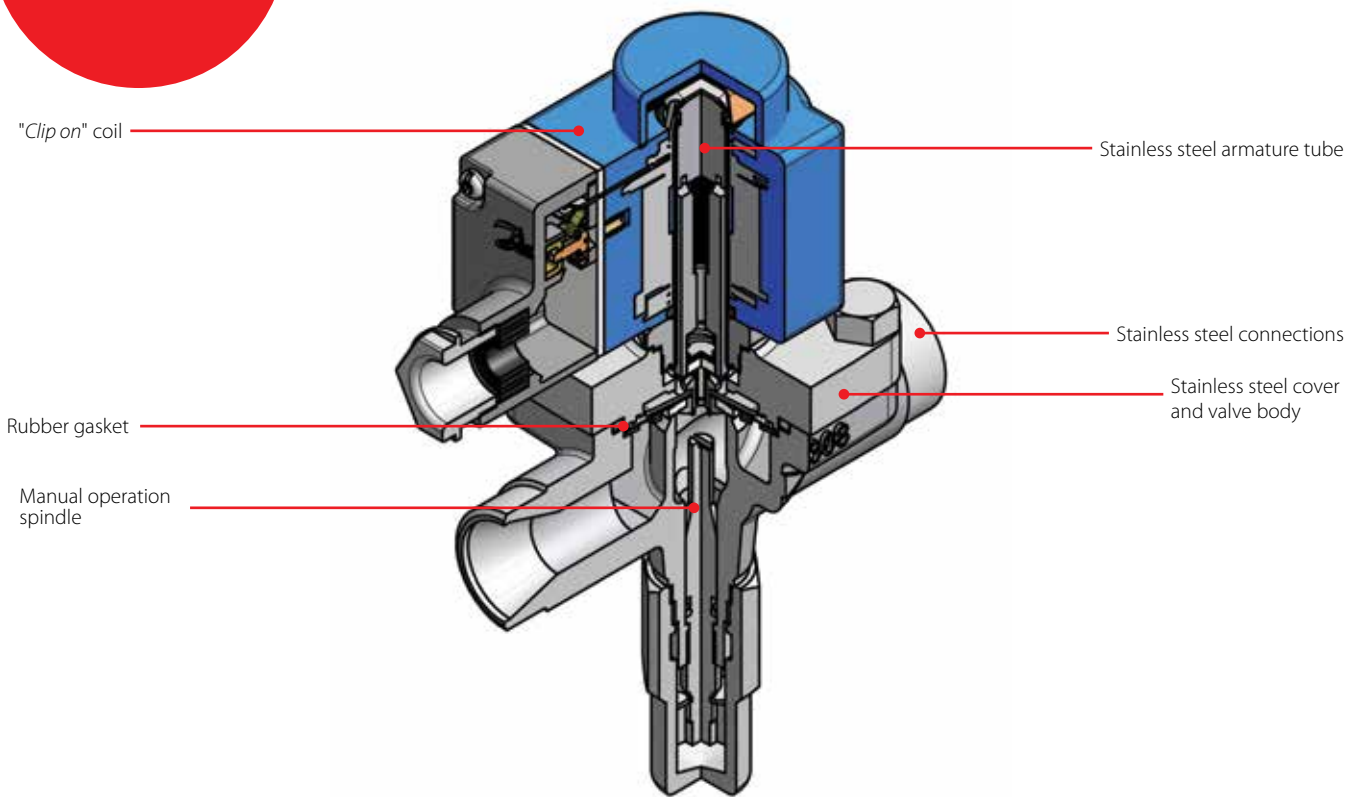
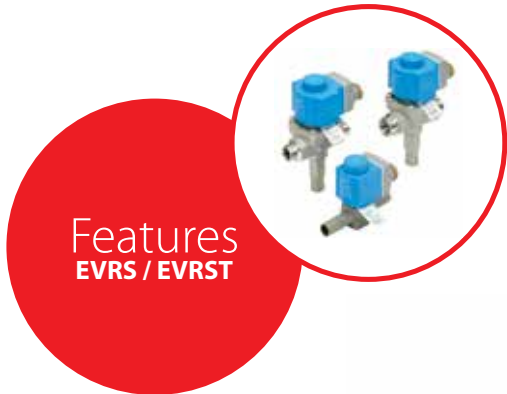
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EVRS / EVRST, Solenoid valves

EVRS and EVRST solenoid valves are made in stainless steel. EVRS 3 is direct operated, EVRS 10 / EVRS 15 / EVRS 20 are servo operated. EVRST 10 / EVRST 15 / EVRST 20 are forced servo operated valves. EVRS and EVRST are used in liquid, suction, hot gas and oil return lines.

EVRS and EVRST are supplied as a parts programme, i.e. separate valve, body and coil. EVRS / EVRST 10, EVRS / EVRST 15, EVRS / EVRST 20 are equipped with spindle for manual opening.



Facts

- Stainless steel valve body and connections
- Max. working pressure 50 bar (suitable for CO₂ subcritical)
- Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R134a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- MOPD up to 38 bar with 20 watt AC coil
- Wide choice of AC and DC coils
- Designed for temperatures of media up to 105 °C
- Manual system on EVRS 10 / EVRS 15 / EVRS 20 and EVRST 10 / EVRST 15 / EVRST 20

Technical data and ordering

EVRS / EVRST solenoid valves, Normally closed (NC)

Technical data

Type	Opening differential pressure Δp [bar]					K _v value ²⁾ [m ³ /h]	Max. working pressure PS [bar]
	Min. [bar]	Max. (MOPD) liquid ¹⁾ [bar]					
		10 W AC	12 W AC	20 W AC	20 W DC		
EVRS 3	0.0	21	25	38	14	0.23	50.0
EVRS 10	0.05	21	25	38	18	1.5	50.0
EVRST 10	0.0	14	21	38	16	1.5	50.0
EVRS 15	0.05	21	25	38	18	2.7	50.0
EVRST 15	0.0	14	21	38	18	2.7	50.0
EVRS 20	0.05	21	25	38	13	4.5	50.0
EVRST 20	0.0	14	21	38	13	4.5	50.0

¹⁾ MOPD for media in gas form is approx. 1 bar greater.

²⁾ The K_v value is the water flow in [m³/h] with a pressure drop across the valve of 1 bar, $\rho = 1000 \text{ kg/m}^3$.

EVRS / EVRST solenoid valves, Normally Closed (NC)

Technical data

Type	Rated capacity ¹⁾ [kW]											
	Liquid				Suction vapour				Hot gas ²⁾			
	R717	R134a	R404A / R507	R410A	R717	R134a	R404A / R507	R410A	R717	R134a	R404A / R507	R410A
EVRS 3	21.8	4.3	3.2	4.5	–	–	–	–	6.5	1.7	1.7	2.3
EVRS / EVRST 10	142.0	27.8	21.1	29.7	9.0	2.5	3.1	4.3	42.6	11.0	11.3	14.9
EVRS / EVRST 15	256.0	50.1	38.0	53.5	16.1	4.4	5.5	7.7	76.7	19.8	20.3	26.7
EVRS / EVRST 20	426.0	83.5	63.3	89.1	26.9	7.3	9.2	12.0	128.0	32.9	33.9	44.5

¹⁾ Rated liquid and suction vapour capacity is based on evaporating temperature $t_e = -10 \text{ }^\circ\text{C}$, liquid temperature ahead of valve $t_l = 25 \text{ }^\circ\text{C}$, and pressure drop across valve $\Delta p = 0.15 \text{ bar}$.

²⁾ Rated hot gas capacity is based on condensing temperature $t_c = 40 \text{ }^\circ\text{C}$, pressure drop across valve $\Delta p = 0.8 \text{ bar}$, hot gas temperature $t_h = 60 \text{ }^\circ\text{C}$, and subcooling of refrigerant $\Delta t_{\text{sub}} = 4 \text{ K}$.

EVRS / EVRST solenoid valves, Normally Closed (NC)

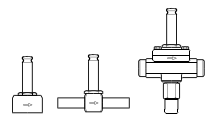
Technical data

Type	R 744 Rated capacity [kW] ¹⁾	
	Liquid	Suction
EVRS 3	6.65	–
EVRS / EVRST 10	43.3	6.9
EVRS / EVRST 15	78.0	12.4
EVRS / EVRST 20	130.0	20.7

¹⁾ Rated liquid and suction vapour capacity is based on evaporating temperature $t_e = -40 \text{ }^\circ\text{C}$, liquid temperature ahead of the valve $t_l = -8 \text{ }^\circ\text{C}$ and pressure drop across the valve $\Delta p = 0.15 \text{ bar}$.

EVRS / EVRST solenoid valves, Normally Closed (NC)

Ordering

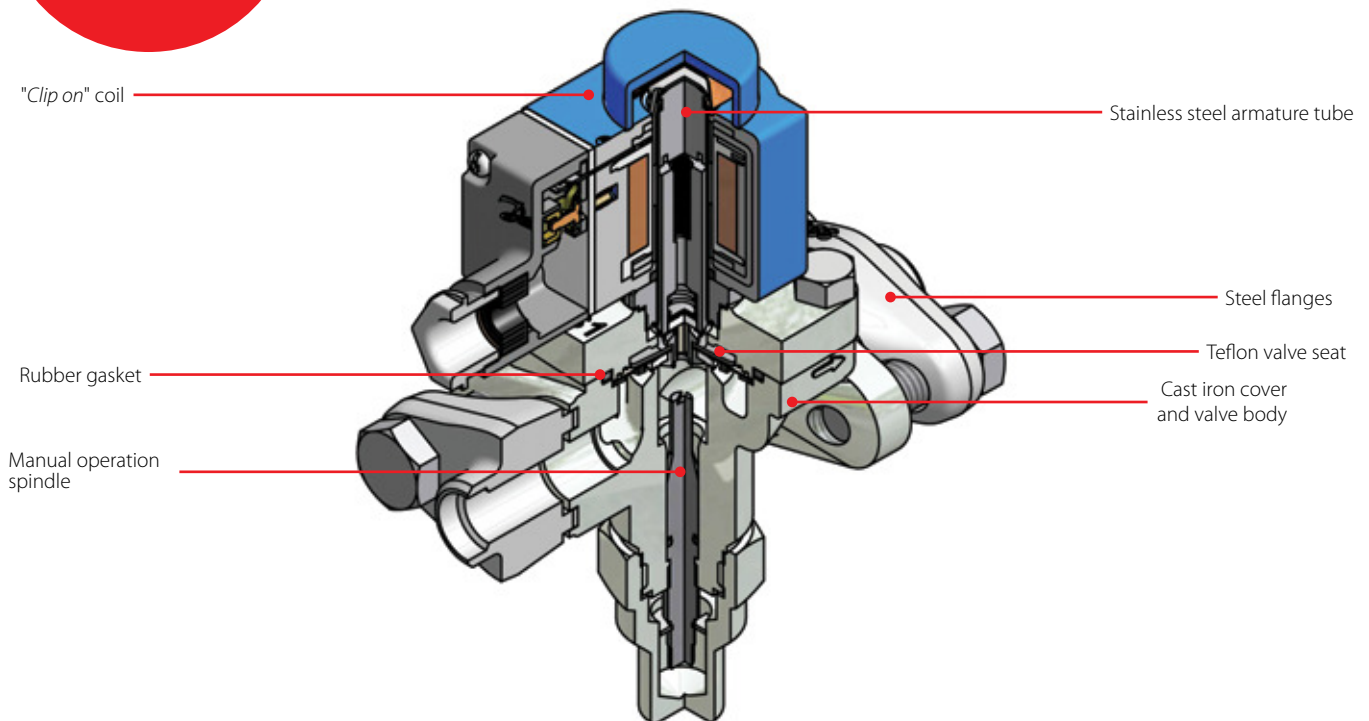
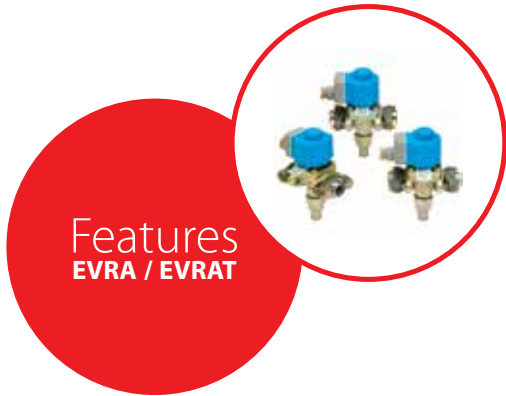


Type	Max. working pressure PS [bar g]	Connection		Manual stem [with / without]	Code no.
		Weld [in]	Pipe thread ISO 228/1		
EVRS 3	50	$\frac{3}{8}$	–	without	032F3080
EVRS 3	50	–	G $\frac{1}{4}$	without	032F3081
EVRS 10	50	$\frac{1}{2}$	–	with	032F3082
EVRST 10	50	$\frac{1}{2}$	–	with	032F3083
EVRS 15	50	$\frac{3}{4}$	–	with	032F3084
EVRST 15	50	$\frac{3}{4}$	–	with	032F3085
EVRS 20	50	1	–	with	032F5437
EVRST 20	50	1	–	with	032F5438

EVRA / EVRAT, Solenoid valves

EVRA and EVRAT are solenoid valves for liquid, suction and hot gas lines. EVRA is a direct or servo operated valve, EVRAT is an assisted lift, servo operated valve. EVRA valves are supplied complete or as a parts programme, i.e. valve body, coil and flanges can be ordered separately. EVRAT is specially designed to open – and stay open – at a pressure drop of 0 bar.

The EVRAT solenoid valve is thus suitable for use in all plants where the required opening differential pressure is 0 bar. EVRAT is available as a parts programme, i.e. separate valve body, flanges and coil. EVRAT 10 / EVRAT 15 / EVRAT 20 all have a spindle for manual operation.



Facts

- Applicable to R717, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R134a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- EVRA and EVRAT valves use a teflon gasket which ensures great tightness across the valve seat
- EVRA valves have a low pressure drop
- EVRAT valves have a minimum opening differential pressure of 0 (zero)
- EVRA and EVRAT valve range can be used with the wide range of standard Danfoss coils
- Strainer type FA can be mounted directly on the valve body except for EVRA 32 / EVRA 40
- EVRA 3 – EVRA 25 and EVRAT 10 / EVRAT 20 valves offer a wide range of flange connection dimensions in accordance with connection standards DIN, ANSI, SOC, Solder and FPT, and a wide range of connection types
- Butt welding DIN (DIN 2448)
- Butt welding ANSI (ANSI B36.10 schedule 80) (3/8 – 1 1/2 in valve sizes)
- Butt welding ANSI (ANSI B36.10 schedule 40) (2 in valve sizes)
- Socket welding ANSI (ANSI B 16.11)
- Solder connection DIN (DIN 2856)
- Solder connection ANSI (ANSI B 16.22)
- FPT internal thread, NPT (ANSI / ASME B 1.20.1)
- EVRA 32 and EVRA 40 are supplied with integrated flanges for either:
 - Welding DIN (DIN 2448)
 - Welding ANSI (ANSI B 36.10)

Technical data and ordering

EVRA / EVRAT Solenoid valves

Ordering valve with coil



Type	Manual Stem	Inlet connection type	Orifice size [mm]	Max OPD 10 W AC [bar]	Max OPD 20 W DC [bar]	Coil type	Coil connection	Supply voltage [V] AC	Frequency [Hz]	Power consumption [W]	Singlepack/Multipack (12 pcs.)	Code no.
EVRA 3	No	Flange *)	3	21	14	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Multipack	032F310231
	No	Flange *)	3	21	14	BE230AS	Connection Box	220 – 230	50	10	Multipack	032F310331
	No	Flange *)	3	21	14	BE230CS	Connection Box	220 – 230	50 / 60	10	Multipack	032F310332
EVRA 10	No	Flange *)	10	21	18	BF230AS	Connection Box	220 – 230	50	10	Multipack	032F620831
	Yes	Flange *)	10	21	18	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Singlepack	032F621231
	Yes	Flange *)	10	21	18	BE230AS	Connection Box	220 – 230	50	10	Singlepack	032F621331
EVRA 15	Yes	Flange *)	10	21	18	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F621332
	No	Flange *)	15	21	18	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Singlepack	032F621731
	No	Flange *)	15	21	18	BF230CS	Cable (1 m/3.3 ft)	220 – 230	50 / 60	10	Singlepack	032F621732
	No	Flange *)	15	21	18	BE230AS	Connection Box	220 – 230	50	10	Singlepack	032F621831
EVRA 20	No	Flange *)	15	21	18	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F621832
	No	Flange *)	20	21	13	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Singlepack	032F622231
	No	Flange *)	20	21	13	BE230AS	Connection Box	220 – 230	50	10	Singlepack	032F622331
EVRA 25	No	Flange *)	20	21	13	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F622332
	Yes	Flange *)	25	21	14	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F803432

*) For ordering flanges; please download the data sheet DKRCL.PY.000.B from www.danfoss.com

EVRA / EVRAT Solenoid valves

Ordering valve without coil



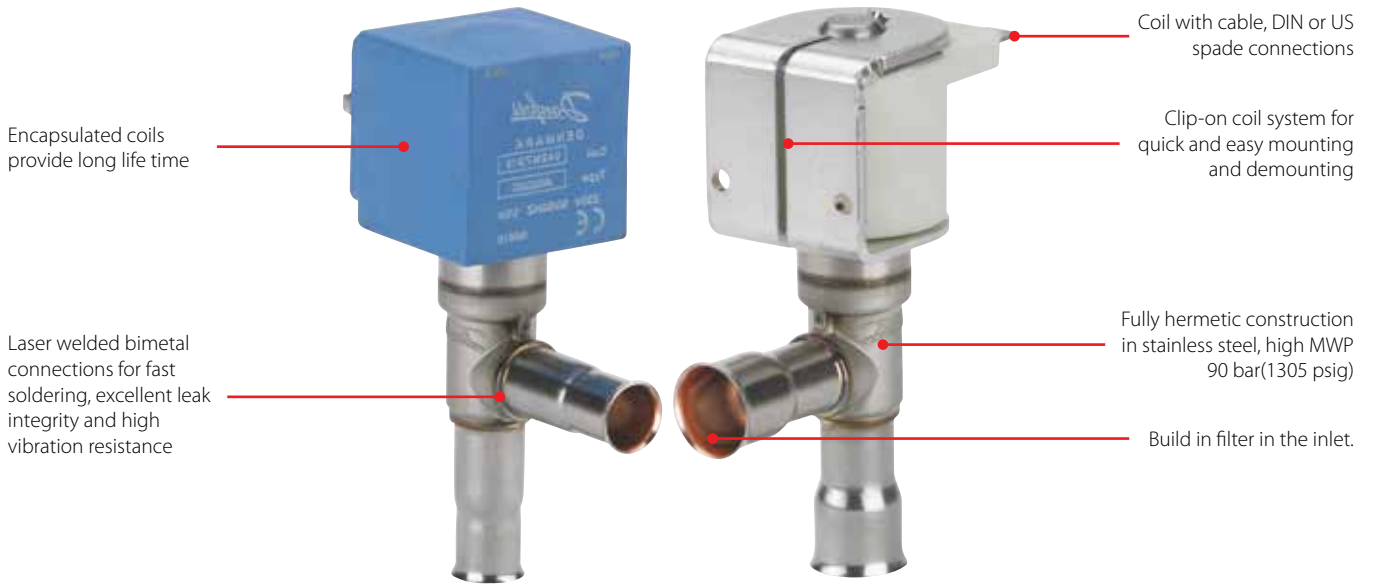
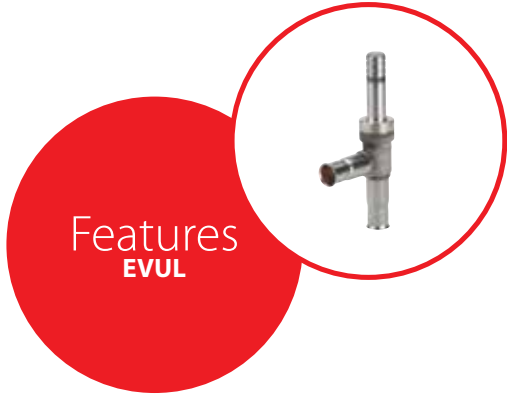
Type	Manual Stem	Inlet connection type	Inlet size [in]	Orifice size [mm]	Max OPD 10 W AC [bar]	Max OPD 12 W AC [bar]	Max OPD 20 W DC [bar]	Required coil type **)	Singlepack/Multipack (12 pcs.)	Code no.
EVRA 3	No	Flange *)	–	3	21	25	14	AC / DC	Multipack	032F3050
EVRA 10	Yes	Flange *)	–	10	21	25	18	AC / DC	Singlepack	032F6210
	No	Flange *)	–	10	21	25	18	AC / DC	Singlepack	032F6211
EVRAT 10	Yes	Flange *)	–	10	14	21	16	AC / DC	Singlepack	032F6214
EVRA 15	Yes	Flange *)	–	15	21	25	18	AC / DC	Singlepack	032F6215
EVRAT 15	Yes	Flange *)	–	15	14	21	16	AC / DC	Singlepack	032F6216
EVRAT 20	Yes	Flange *)	–	20	14	21	13	AC / DC	Singlepack	032F6219
EVRA 20	Yes	Flange *)	–	20	21	25	13	AC	Singlepack	032F6220
	Yes	Flange *)	–	20	19	21	16	AC / DC	Singlepack	032F6221
EVRA 25	Yes	Flange *)	–	25	21	25	14	AC / DC	Singlepack	032F6225
	No	Flange *)	–	25	21	25	14	AC / DC	Singlepack	032F6226
EVRA 32	Yes	Butt weld DIN	1 ¼	22.2	21	25	14	AC / DC	Singlepack	042H1126
	No	Butt weld DIN	1 ¼	22.2	21	25	14	AC / DC	Singlepack	042H1127
EVRA 40	Yes	Butt weld DIN	1 ½	25.4	21	25	14	AC / DC	Singlepack	042H1128
	No	Butt weld DIN	1 ½	25.4	21	25	14	AC / DC	Singlepack	042H1129
EVRA 32	Yes	Butt weld DIN	1 ½	22.2	21	25	14	AC / DC	Singlepack	042H1131
EVRA 40	Yes	Butt weld DIN	2	25.4	21	25	14	AC / DC	Singlepack	042H1132
EVRA 32	Yes	Butt weld ANSI 36.10	1 ¼	22.2	21	25	14	AC / DC	Singlepack	042H1140
	Yes	Butt weld ANSI 36.10	1 ½	22.2	21	25	14	AC / DC	Singlepack	042H1141
EVRA 40	Yes	Butt weld ANSI 36.10	1 ½	25.4	21	25	14	AC / DC	Singlepack	042H1142
	Yes	Butt weld ANSI 36.10	2	25.4	21	25	14	AC / DC	Singlepack	042H1143

*) Includes flange gaskets and bolts. For ordering flanges; please download the data sheet DKRCL.PY.000.B from www.danfoss.com

**) For ordering coils; please download the data sheet DKRCC.PD.BS0.F from www.danfoss.com

EVUL, Solenoid valve

EVUL solenoid valves are designed to fit into compact refrigeration systems. Available in servo operated versions they can be applied in liquid, suction, and hot gas lines.



Facts

Application:

- Commercial refrigeration systems
- Refrigeration appliances
- Liquid coolers
- Ice cube machines
- Mobile refrigeration systems
- Heat pump systems
- Air conditioning units

- Applicable to R744, R404A R507, R410A, R134a, R407A, R23, R290 R407F, R448A, R449A, R450A, and R452A.
- For R290, The EVUL is validated in accordance to ATEX, ISO 5149, IEC 60335, and UL. Ignition risk is evaluated in accordance to ISO 5149 and IEC 60335. *For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.*

- Ambient temperature range: -40 – 105 °C / -40 – 221 °F
- Media temperature: -40 – 105 °C / -40 – 221 °F
Max. 130 °C / 266 °F during defrosting
- Max. working pressure (PS / MWP): - 90 bar / 1305 psi
- MOPD up to 38 bar / 550 psi
- 100% test of functionality, internal / external leakage and electrical characteristics

Technical data and ordering

EVUL

Rated capacity [kW] – Liquid

Type	R134a	R404A/R507	R407A	R410A	R290
EVUL 1	1.65	1.38	1.85	2.02	2.24
EVUL 2	3.31	2.76	3.70	4.04	4.48
EVUL 3	4.96	4.14	5.55	6.06	6.72
EVUL 4	8.27	6.91	9.25	10.10	11.20
EVUL 5	10.75	8.98	12.02	13.13	14.55
EVUL 6	12.40	10.36	13.87	15.15	16.79
EVUL 8	14.88	12.43	16.65	18.18	20.15

Rated capacity [kW] – Suction vapour

Type	R134a	R404A/R507	R407A	R410A	R290
EVUL 1	0.13	0.14	0.16	0.21	0.27
EVUL 2	0.26	0.29	0.31	0.41	0.54
EVUL 3	0.38	0.43	0.47	0.62	0.82
EVUL 4	0.64	0.71	0.78	1.04	1.36
EVUL 5	0.83	0.93	1.01	1.35	1.77
EVUL 6	0.96	1.07	1.17	1.56	2.04
EVUL 8	1.15	1.29	1.40	1.87	2.45

Rated capacity [kW] – Hot gas

Type	R134a	R404A/R507	R407A	R410A	R290
EVUL 1	0.32	0.34	0.41	0.49	1.02
EVUL 2	0.64	0.67	0.82	0.98	2.05
EVUL 3	0.96	1.01	1.22	1.46	3.07
EVUL 4	1.60	1.69	2.04	2.44	5.12
EVUL 5	2.08	2.19	2.65	3.17	6.67
EVUL 6	2.40	2.53	3.06	3.66	7.78
EVUL 8	2.88	3.03	3.67	4.39	9.21

Rated liquid and suction vapor capacity is based on:

Evaporating temperature $t_e = -10\text{ °C}$

Liquid temperature ahead of valve $t_l = 25\text{ °C}$

Pressure drop in valve $\Delta p = 0.15\text{ bar}$

Rated hot gas capacity is based on:

Condensing temperature $t_c = 40\text{ °C}$

Pressure drop across valve $\Delta p = 0.8\text{ bar}$

Hot gas temperature $t_h = 65\text{ °C}$

Subcooling of refrigerant $\Delta t_{sub} = 4\text{ K}$

Technical data and ordering

EVUL

Rated capacity [kW] – Liquid

Type	R134a	R404A / R507	R407A	R410A	R290
EVUL 1	0.47	0.39	0.53	0.57	0.68
EVUL 2	0.93	0.79	1.06	1.15	1.37
EVUL 3	1.40	1.18	1.59	1.72	2.05
EVUL 4	2.33	1.97	2.65	2.87	3.42
EVUL 5	3.02	2.57	3.44	3.73	4.44
EVUL 6	3.49	2.96	3.97	4.31	5.13
EVUL 8	4.19	3.55	4.77	5.17	6.15

Rated capacity [TR] – Suction vapour

Type	R134a	R404A / R507	R407A	R410A	R290
EVUL 1	0.04	0.04	0.05	0.06	0.06
EVUL 2	0.08	0.09	0.09	0.12	0.12
EVUL 3	0.12	0.13	0.14	0.19	0.19
EVUL 4	0.20	0.22	0.24	0.31	0.31
EVUL 5	0.25	0.28	0.31	0.40	0.40
EVUL 6	0.29	0.32	0.35	0.47	0.47
EVUL 8	0.35	0.39	0.42	0.56	0.56

Rated capacity [TR] – Hot gas

Type	R134a	R404A / R507	R407A	R410A	R290
EVUL 1	0.07	0.08	0.09	0.11	0.13
EVUL 2	0.15	0.15	0.18	0.22	0.27
EVUL 3	0.22	0.23	0.28	0.33	0.40
EVUL 4	0.37	0.38	0.46	0.54	0.67
EVUL 5	0.48	0.49	0.60	0.70	0.86
EVUL 6	0.56	0.57	0.69	0.81	1.00
EVUL 8	0.67	0.68	0.83	0.98	1.19

Rated liquid and suction capacity are based on:

- evaporating temperature $t_e = 40\text{ }^\circ\text{F}$;
- liquid temperature ahead of the valve $t_l = 100\text{ }^\circ\text{F}$;
- pressure drop Δp across valve – with liquid:
- $\Delta p = 2\text{ psi}$ for R134a
- $\Delta p = 3\text{ psi}$ for R404A/R507 – with suction vapor: $\Delta p = 1\text{ psi}$

Rated hot gas capacity is based on:

- condensing temperature $t_c = 100\text{ }^\circ\text{F}$;
- hot gas temperature $t_h = 140\text{ }^\circ\text{F}$;
- pressure drop across valve $\Delta p = 2\text{ psi}$

Technical data and ordering

EVUL solder connection, Normally Closed (NC) - separate valve bodies



Ordering

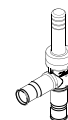
Valve type	Connections	Industrial pack		Multi pack	Connections	Industrial pack		Multi pack
	[in.]	Code no.	Pcs.	Code no.	[mm]	Code no.	Pcs.	Code no.
EVUL 1	1/4	032F8200	40	-	6	032F8227	40	-
	1/4	-	-	032F9506	6	-	-	032F9508
EVUL 2	1/4	032F8201	40	032F9510	6	032F8228	40	032F9516
EVUL 3	1/4	032F8202	40	032F9511	6	032F8229	40	032F9517
	3/8	032F8203	40	-	10	032F8230	40	-
EVUL 4	1/4	032F8204	40	032F9512	6	032F8231	40	032F9518
	3/8	032F8205	40	-	10	032F8232	40	-
	1/2	032F8206	40	-	12	032F8233	40	-
EVUL 5	3/8	032F8207	40	032F9513	10	032F8234	40	032F9519
	1/2	032F8208	40	-	12	032F8235	40	-
EVUL 6	3/8	032F8209	40	-	10	032F8236	40	-
	1/2	032F8210	40	032F9514	12	032F8237	40	032F9521
EVUL 8	1/2	032F8211	40	032F9515	12	032F8238	40	032F9522

Single pack = 1 product in a box with installation guide

Multi pack = box with x pieces single pack (can be split)

Industrial pack = x pieces in one box (cannot be split)

EVUL solder connection, Normally Closed (NC)- only works with UL/UR approved coils - separate valve bodies



Ordering

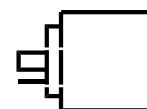
Valve type	Connections [in.]	Industrial pack	
		Code no.	Pcs.
EVUL 1	1/4	032F8245	40
EVUL 2	1/4	032F8246	40
EVUL 3	1/4	032F8247	40
	3/8	032F8248	40
EVUL 4	1/4	032F8249	40
	3/8	032F8250	40
	1/2	032F8251	40
EVUL 5	3/8	032F8252	40
	1/2	032F8253	40
EVUL 6	3/8	032F8254	40
	1/2	032F8255	40
EVUL 8	1/2	032F8256	40

Single pack = 1 product in a box with installation guide

Multi pack = box with x pieces single pack (can be split)

Industrial pack = x pieces in one box (cannot be split)

Technical data and ordering



EVUL Coil

Alternating current AC - with DIN plug 1) - IP65

Type	Ambient Temp. [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Industrial pack		Multi pack
					[W]	[VA]	Code no.	Pcs.	Code no.
AS024CS	-40 – 50	24	-15% – 10%	50	9.5	18	-	-	042N7608
		24	-15% – 10%	60	7.0	14			
AS230CS	-40 – 50	230	-15% – 10%	50	8.0	16	-	-	042N7601
		208 – 240	-15% – 10%	60	7.0	14			
AS240CS	-40 – 50	240	-15% – 10%	50	6.5	13	-	-	042N7602
		240	-15% – 10%	60	5.0	10			

¹⁾ The three pins on the coil can be fitted with spade tabs, 6.3 mm wide (to DIN 46247). The two current carrying pins can also be fitted with spade tabs, 4.8 mm wide. Max. lead cross section: 1.5 mm². If DIN plug is used (DIN 43650) the leads must be connected in the socket. The socket is fitted with a Pg 11 screwed entry for 6 – 12 mm.



Alternating current AC with 1 m cable - IP67

Type	Ambient Temp. [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Industrial pack		Multi pack
					[W]	[VA]	Code no.	Pcs.	Code no.
AU115CS	-40 – 50	115	-15% – 10%	50	7.0	14	-	-	042N7662
		115	-15% – 10%	60	5.0	10			
AU230CS	-40 – 50	230	-15% – 10%	50	7.0	14	042N8651	20	042N7651
		230	-15% – 10%	60	5.0	10			
AU240CS	-40 – 50	240	-15% – 10%	50	6.5	13	042N8652	20	-
		240	-15% – 10%	60	5.0	10			

Single pack = 1 product in a box with installation guide

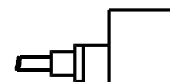
Multi pack = box with x pieces single pack (can be split)

Industrial pack = x pieces in one box (cannot be split)

Technical data and ordering

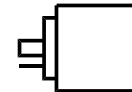
EVUL Coil

Direct current DC with 1 m cable IP67



Type	Ambient Temp. [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Industrial pack		Multi pack
					[W]	[VA]	Code no.	Pcs.	Code no.
AU012DS	-40 – 50	12	±10%	DC	12	–	042N8696	20	042N7696
AU024DS	-40 – 50	24	±10%	DC	14	–	042N8697	20	042N7697

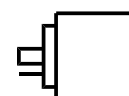
Direct current DC with DIN spade IP00



Type	Ambient Temp. [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Industrial pack		Multi pack
					[W]	[VA]	Code no.	Pcs.	Code no.
AS012DS	-40 – 60	12	±10%	DC	14	–	042N8686	40	–
AS024D	-40 – 50	24	±10%	DC	14	–	042N8687	40	042N7687

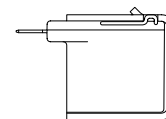
DC coils with 0.25 in. US spade can be supplied on request.

Alternating current AC with DIN spade (UL recognized version) IP00



Type	Ambient Temp. [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Industrial pack		Multi pack
					[W]	[VA]	Code no.	Pcs.	Code no.
AZ240CS	-40 – 50	230	-15% – 10%	50	8.0	16	042N8201	40	042N4201
		208 – 240	-15% – 10%	60	7.0	14			
AZ120CS	-40 – 50	115	-15% – 10%	50	8.5	16	042N8202	40	042N4202
		110 – 120	-15% – 10%	60	7.0	14			
AZ024CS	-40 – 50	24	-15% – 10%	50	9.5	18	042N8203	40	042N4203
		24	-15% – 10%	60	7.0	14			

Alternating current AC with US spade IP00



Type	Ambient Temp. [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Industrial pack		Multi pack
					[W]	[VA]	Code no.	Pcs.	Code no.
AY240C	-40 – 50	208 – 240	-15% – 10%	50	8.0	16	042N8230	40	042N4230
		208 – 240	-15% – 10%	60	8.0	16			
AY120C	-40 – 50	110 – 120	-15% – 10%	50	8.0	16	042N8233	40	042N4233
		110 – 120	-15% – 10%	60	8.0	16			
AY024C	-40 – 50	24	-15% – 10%	50	8.0	16	042N8236	40	–
		24	-15% – 10%	60	8.0	16			

Single pack = 1 product in a box with installation guide

Multi pack = box with x pieces single pack (can be split)

Industrial pack = x pieces in one box (cannot be split)



Accessories

Description	Multi pack	
	Code no.	Pcs.
DIN plug	042N0156	100
O-ring for sealing the coil. Industrial pack (50 pcs.) NB: Valve body supplied with O-ring	032F6115	125

Solenoid coils

The coils are specially designed to operate in the aggressive environment of high humidity and temperature fluctuations that you find in most refrigeration systems.

The Clip-on fastening system ensures a faultless installation and makes the coils easy to mount and dismount. A Danfoss Clip-on coil can be mounted without any tools at all, and it is simple to dismount the coil by means of a screwdriver.

The Clip-on coils are available for the entire range of Danfoss solenoid valves for refrigeration, freezing and air conditioning purposes.

Features Solenoid coils



Many voltage and frequency combinations for flexible installation worldwide

Many power versions for high MOPD performance on different valve types



Clip-on system for easy and fast mounting and demounting

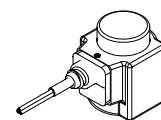
Terminal box, DIN plug or cable for flexible electrical installation

Facts

- Encapsulated coils with long operating life, even under extreme conditions
- Standard coils for AC or DC
- Standard coils available with 3-core cable, terminal box or DIN plugs
- Standard coils from 12 V to 420 V, 50, 60 or 50 / 60 Hz
- Coil version for max. opening differential pressure (MOPD) of up to 38 bar.
- Coils can be fitted without the use of tools.
- ATEX approved coil version for use in EX zone 2

Technical data and ordering

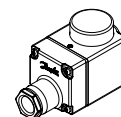
BF solenoid coil with 1m 3-core cable IP67



Ordering

Type	Valve type	Tambient [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Code no.
						[W]	[VA]	
BF024AS	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVR 40 EVRC EVRA EVRAT EVR5 / EVRST EVM (NC)	-40T80	24	-15%, +10%	50	12	20	018F6257
BF230AS		-40T80	230	-15%, +10%	50	12	22	018F6251
BF230AS		-40T80	220	-15%, +10%	50	11	20	018F6251
BF240AS		-40T80	240	-15%, +10%	50	11	19	018F6252
BF400AS		-40T80	380 / 400	±10%	50	10	21	018F6253
BF024BS		-40T80	24	-15%, +10%	60	14	25	018F6265
BF115CS		-40T80	115	-15%, +10%	60	13	22	018F6260
BF115CS		-40T80	100	-15%, +10%	50	11	19	018F6260
BF220BS		-40T80	220	-15%, +10%	60	14	23	018F6264
BF110CS		-40T50	110	±10%	50	15	29	018F6280
BF110CS		-40T50	110	±10%	60	13	23	018F6280
BF230CS		-40T50	220 – 230	±10%	50	16	31	018F6282
BF230CS		-40T50	220 - 230	±10%	60	14	24	018F6282

BE solenoid coil with terminal box IP67



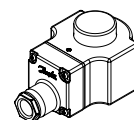
Ordering

Type	Valve type	Tambient [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Code no.
						[W]	[VA]	
BE012AS	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVR5 / EVRST EVM (NC)	-40T80	12	-15%, +10%	50	10	18	018F6706
BE024AS		-40T80	24	-15%, +10%	50	12	21	018F6707
BE042AS		-40T80	42	-15%, +10%	50	10	21	018F6708
BE048AS		-40T80	48	-15%, +10%	50	10	21	018F6709
BE115AS		-40T80	115	-15%, +10%	50	11	19	018F6711
BE230AS		-40T80	230	-15%, +10%	50	12	22	018F6701
BE230AS		-40T80	220	-15%, +10%	50	11	19	018F6701
BE240AS		-40T80	240	-15%, +10%	50	11	19	018F6702
BE440CS		-40T80	380 – 400	-15%, +10%	50	13	23	018F6703
BE440CS		-40T80	440	-15%, +10%	60	14	24	018F6703
BE440AS		-40T80	420	-15%, +10%	50	11	21	018F6704
BE024BS		-40T80	24	-15%, +10%	60	14	25	018F6715
BE115CS		-40T80	100	-15%, +10%	50	11	19	018F6710
BE115CS		-40T80	115	-15%, +10%	60	13	22	018F6710
BE220BS		-40T80	220	-15%, +10%	60	13	23	018F6714
BE240CS		-40T80	200	-15%, +10%	50	11	20	018F6713
BE240CS		-40T80	240	-15%, +10%	60	15	25	018F6713
BE110CS		-40T50	110	±10%	50	15	28	018F6730
BE110CS		-40T50	110	±10%	60	13	22	018F6730
BE230CS		-40T50	220 - 230	±10%	50	17	31	018F6732
BE230CS	-40T50	220 - 230	±10%	60	14	24	018F6732	

See „Opening differential pressure“ under „Technical data“ for the valve concerned.

When replacing a coil with terminal box, it is sufficient to change the coil unit itself. Therefore, order coil with DIN plugs and protective cap.

Technical data and ordering

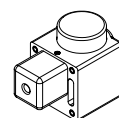


BG solenoid coil with terminal box IP67

Ordering

Type	Valve type	Tambient [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Code no.	
						[W]	[VA]		
BG024AS	EVR 3 – EVR 40 EVRC EVRA EVRAT EVRs/EVRST EVM (NC/NO)	-40T80	24	-15%, +10%	50	11	21	018F6807	
BG048AS		-40T80	48	-15%, +10%	50	12	26	018F6809	
BG110AS		-40T80	110	-15%, +10%	50	13	25	018F6811	
BG230AS		-40T80	230	-15%, +10%	50	15	28	018F6801	
BG230AS		-40T80	220	-15%, +10%	50	13	25	018F6801	
BG240AS		-40T80	240	-15%, +10%	50	13	25	018F6802	
BG400AS		-40T80	380 / 400	-15%, +10%	50	12	26	018F6803	
BG024BS		-40T80	24	-15%, +10%	60	12	26	018F6815	
BG110BS		-40T80	110	-15%, +10%	60	16	29	018F6813	
BG220BS		-40T80	220	-15%, +10%	60	16	29	018F6814	
BG012DS		EVR 2 – EVR 15 (NC) EVR 25 – EVR 40 (NC/NO)	-40T50	12	±10%	DC	20	–	018F6856
BG024DS		EVR 6 – EVR 15 (NO)	-40T50	24	±10%	DC	16	–	018F6857
BG048DS		EVRC 10 – EVRC 15 EVRA 3 – EVRA 15 (NC)	-40T50	48	±10%	DC	20	–	018F6859
BG110DS	EVRA 25 – EVRA 40 (NC)	-40T50	110	±10%	DC	16	–	018F6860	
BG115DS	EVRAT 10 – EVRAT 15 (NC)	-40T50	115	±10%	DC	19	–	018F6861	
BG220DS	EVRs/EVRST 3 – EVRS/EVRST 15 EVM (NC/NO)	-40T50	220	±10%	DC	20	–	018F6851	
BG012DS	EVR 20 to 22 (NC/NO) EVRC 20 EVRA 20 EVRAT 20 EVRST 20	-40T50	12	±10%	DC	20	–	018F6886	
BG024DS		-40T50	24	±10%	DC	20	–	018F6887	
BG048DS		-40T50	48	±10%	DC	20	–	018F6889	
BG110DS		-40T50	110	±10%	DC	20	–	018F6890	
BG220DS		-40T50	220	±10%	DC	20	–	018F6881	

See „Opening differential pressure“ under „Technical data“ for the valve concerned.
When replacing a coil with terminal box, it is sufficient to change the coil unit itself. Therefore, order coil with DIN plugs and protective cap.



BE solenoid coil with DIN spade and protection cap IP20

Ordering

Type	Valve type	Tambient [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Code no.
						[W]	[VA]	
BE024AS	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRs/EVRST EVM (NC)	-40T80	24	-15%, +10%	50	12	21	018F6182
BE230AS		-40T80	230	-15%, +10%	50	12	22	018F6176
BE230AS		-40T80	220	-15%, +10%	50	11	19	018F6176
BE240AS		-40T80	240	-15%, +10%	50	11	19	018F6177
BE420AS		-40T80	420	-15%, +10%	50	10	21	018F6179
BE115CS		-40T80	100	-15%, +10%	50	11	19	018F6185
BE115CS		-40T80	115	-15%, +10%	60	13	22	018F6185
BE220BS		-40T80	220	-15%, +10%	50	13	23	018F6189
BE110CS		-40T50	110	±10%	50	15	28	018F6192
BE110CS		-40T50	110	±10%	60	13	22	018F6192
BE230CS		-40T50	220-230	±10%	50	17	31	018F6193
BE230CS		-40T50	220-230	±10%	60	14	24	018F6193

Technical data and ordering

BB solenoid coil with DIN spade *)



Ordering

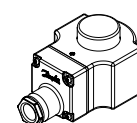
Type	Valve type	Tambient [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Code no.
						[W]	[VA]	
BB024AS	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRV/EVRST EVM (NC)	-40T80	24	-15%, +10%	50	11	19	018F7358
BB115AS		-40T80	115	-15%, +10%	50	11	19	018F7361
BB230AS		-40T80	220 - 230	-15%, +10%	50	11	19	018F7351
BB240AS		-40T80	240	-15%, +10%	50	11	19	018F7352
BB024BS		-40T80	24	-15%, +10%	60	14	23	018F7365
BB110CS		-40T50	110	±10%	50	15	28	018F7360
BB110CS		-40T50	110	±10%	60	13	22	018F7360
BB230CS		-40T50	220 - 230	±10%	50	16	31	018F7363
BB230CS		-40T50	220 - 230	±10%	60	13	24	018F7363

See „Opening differential pressure“ under „Technical data“ for the valve concerned.

When replacing a coil with terminal box, it is sufficient to change the coil unit itself. Therefore, order coil with DIN plugs and protective cap.

*) Can only be used with DIN plug.

BN special solenoid coil with terminal box IP67

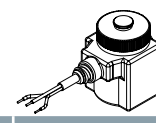


Ordering

Type	Valve type	Tambient [°C]	Supply voltage [V]	Voltage variation	Frequency [Hz]	Power consumption		Code no.
						[W]	[VA]	
BN024AS	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO)	-40T50	24	-15%, +10%	50	24	49	018F6903 ¹⁾
BN024BS	EVRH 4 – EVRH 40	-40T50	24	-15%, +10%	60	22	42	018F6906 ¹⁾
BN230AS	EVRC/EVRA/EVRAT/ EVRV/EVRST/EVM (NC)	-40T50	230	-15%, +10%	50	19	43	018F6905 ¹⁾

¹⁾ Recommended use for EVRH with high MOPD (38 bar).

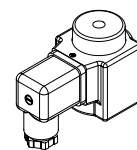
BV solenoid coils with ATEX (Zone 2) approval IP65



Ordering

Coil type	Coil for valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Code no.
					With 1 m cable
BV	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRC EVRA / EVRAT EVRV / EVRST EVM (NC / NO)	Holding: 11 W 21 VA	50	24	018Z6120
			50	110	018Z6121
			50	230	018Z6122
		Inrush: 44 VA	50	240	018Z6123
			60	24	018Z6125
			60	230	018Z6127

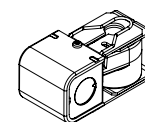
Coil with DIN plug



Ordering

Terminal box	With built-in light emitting indicator diode for solenoid valves (only for AC)	018Z0089
DIN plug	Enclosure IP65, EN 175301-803A	042N0156

Technical data and ordering



BJ coils - Junction box NEMA 2 ~ (UL listed) IP12 – IP32

Ordering

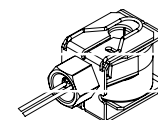
Coil type	Valve type	Power consumption [W]	Frequency [Hz]	Voltage [V] AC	Wire length		Code no.
					[in]	[cm]	
BJ	AKV / EVR EVRH / EVRA EVRAT / EVRS EVRST / EVM EV220B 6-50 EV210B EV215B EV225B EV250B	14	50 / 60	24	7	18	018F4100
		16	50 / 60	110	7	18	018F4110
		15	60	120			
		14	60	208 – 240	7	18	018F4120
		17	50				
		16	60	120	7	18	018F4130
	AKVH / EVRH	16	60	208	7	18	018F4132
		16	60	240	7	18	018F4134

Permissible voltage variation
Alternating current (AC):
50 Hz and 60 Hz: -10% – 15%
50/60 Hz: +/- 10%

Insulation of coil wire
Class H according to IEC 85
Enclosure: IEC 60529
Ambient temperature:
-40 – 50 °C / -40 – 122 °F

BX coils - Conduit boss NEMA 4 ~ (UL listed) IP54

Ordering



Coil type	Valve type	Power consumption [W]	Frequency [Hz]	Voltage [V] AC	Wire length		Code no.			
					[in]	[cm]				
BX	AKV / EVR EVRH / EVRA EVRAT / EVRS EVRST / EVM EV220B 6-50 EV210B EV215B EV225B EV250B	14	50 / 60	24	18	46	018F4102			
		14	50 / 60	24	71	180	018F4103			
		14	50 / 60	24	98	250	018F4104			
		16	50 / 60	110	120	18	46	018F4112		
						36	91	018F4113		
						71	180	018F4114		
						98	250	018F4115		
						18	46	018F4122		
						98	250	018F4123		
		AKVH / EVRH	60	208 – 240	230	18	46	018F4122		
						98	250	018F4123		
						16	60	120	98	250
	16					60	208	98	250	018F4133
	16	60	240	98	250	018F4135				

Permissible voltage variation
Alternating current (AC):
50 Hz and 60 Hz: -10% – 15%
50/60 Hz: +/- 10%

Insulation of coil wire
Class H according to IEC 85
Enclosure: IEC 60529
Ambient temperature:
-40 – 50 °C / -40 – 122 °F

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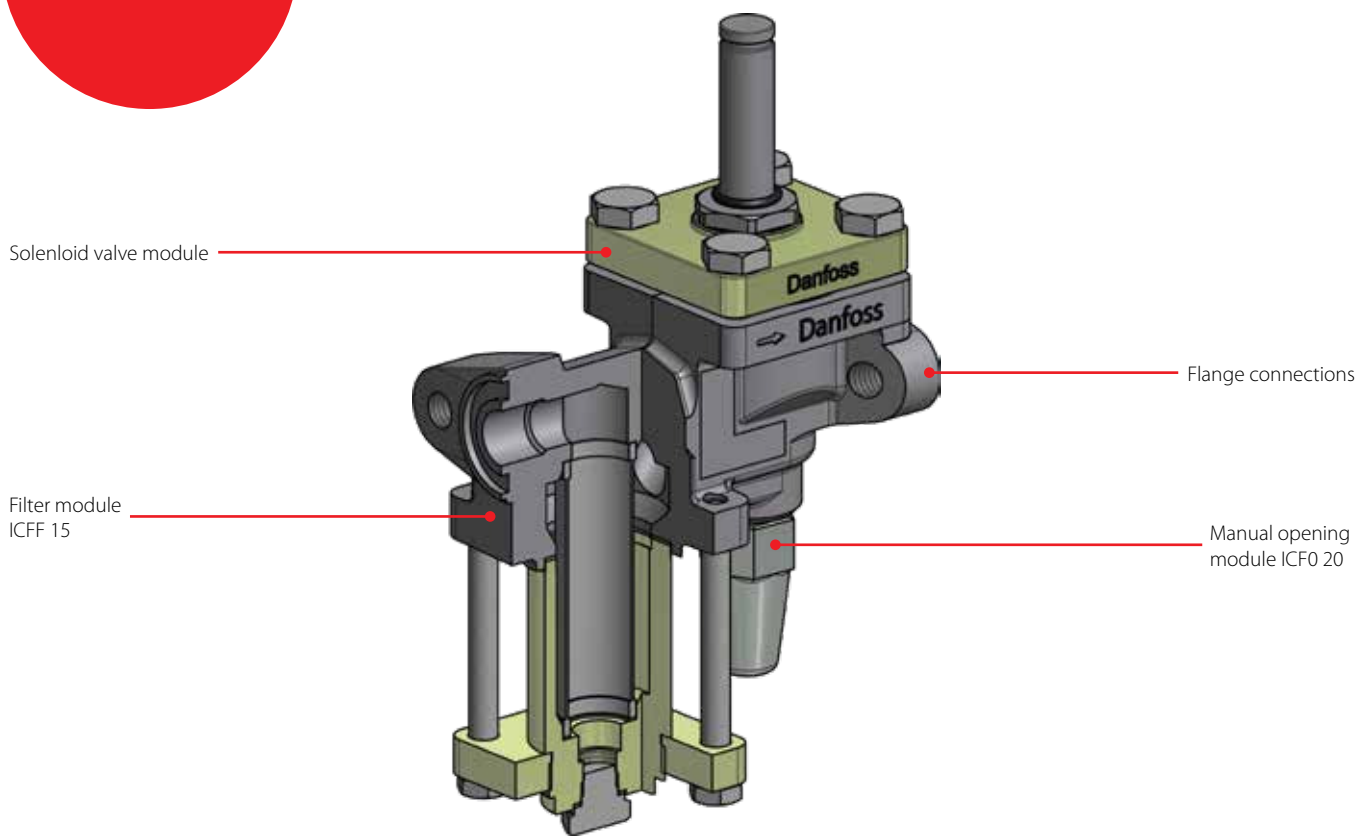
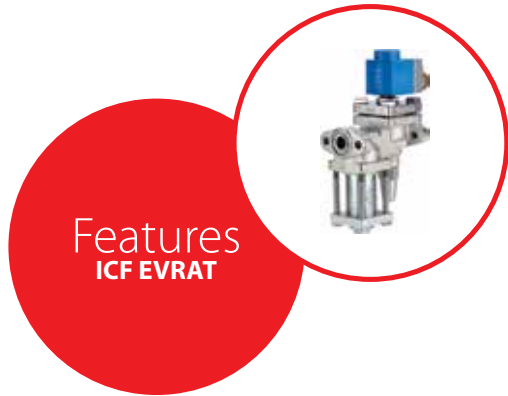
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ICF EVRAT - FA + solenoid valve

Based on advanced technology the ICF EVRAT retrofit valve incorporates three functions in one housing, which can replace the widely used direct coupled FA + EVRAT, as a drop-in solution.

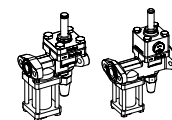
The two function modules - solenoid valve and manual opener are identical to the function modules in the ICF 20 valve station concept thus facilitating logistics and service.



Facts

- Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R134a
The use of ICF EVRAT with flammable hydrocarbons is not recommended.
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Designed for industrial refrigeration applications for a maximum working pressure of 42 bar / 610 psig
- Low temperature steel housing
- Low weight and compact design
- The solenoid valve ICFE 20 is designed to open - and stay open at a pressure drop of 0 bar thus suitable for lines with low pressure drop
- UL approved

Technical data and ordering



ICF EVRAT

Technical data

Temperature range	-40 – 105 °C / -40 – 221 °F
Pressure range	The ICF EVRAT is designed for a max. working pressure of 42 bar g / 610 psig
Ambient temperature	-30 °C – 50 °C / -22 °F – 122 °F
Surface protection	The external surface is zinc-TLP treated to provide corrosion protection according to EN ISO 2081:2009 Additional on-site corrosion protection is recommended

Ordering

ICF EVRAT valves are intended as drop-in replacement valves.

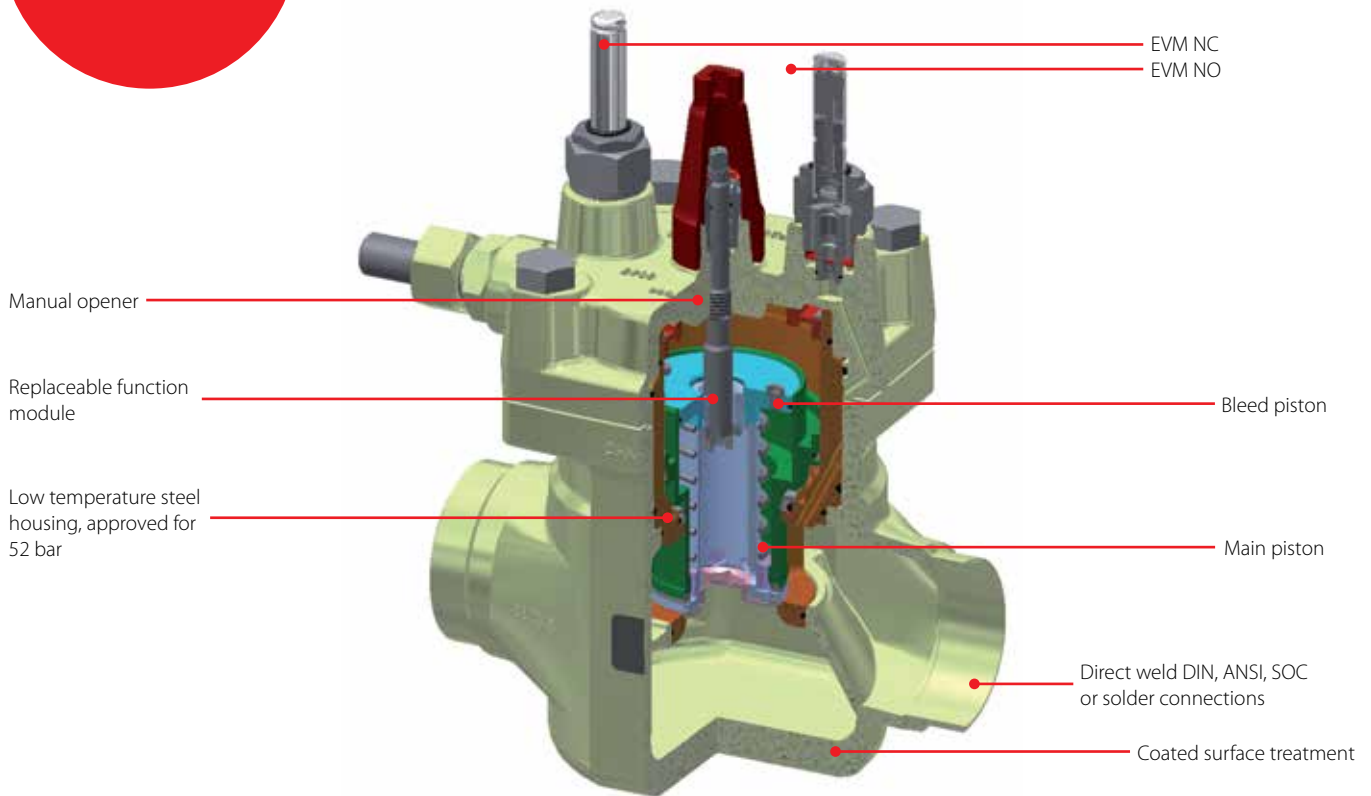
To identify the correct code number simply select the same size as the replaced valve.

Type	Solenoid	K _v value [m³/h]	C _v value [US gal/min]	Code no.
ICF 15 EVRAT	ICFE 20	2.4	2.8	027L4517
ICF 20 EVRAT	ICFE 20	3.0	3.5	027L4518
ICF 20 EVRAT	ICFE 20H	3.7	4.3	027L4519

ICLX, 2-step solenoid valve

ICLX 2-step solenoid valves are used in suction lines for opening against a high differential pressure, e.g. after hot gas defrost in large industrial refrigeration systems. ICLX can be used in chemical and petro-chemical applications. ICLX servo valves belong to the ICV (Industrial Control Valve) family. The ICLX valve is factory configured to open in 2 steps. By following a simple procedure the valve can be configured to open in 1 step only.

In 2-step configuration, step 1 opens to approx. 10% of the capacity after the pilot solenoid valves are energised. Step 2 opens automatically when the pressure differential across the valve has decreased to approx. 1.25 bar / 18 psig. The ICLX servo valve is based on five main components: Valve body, top cover, function module and 2 pilot solenoid valves. The top cover and function module are factory-assembled.



Facts

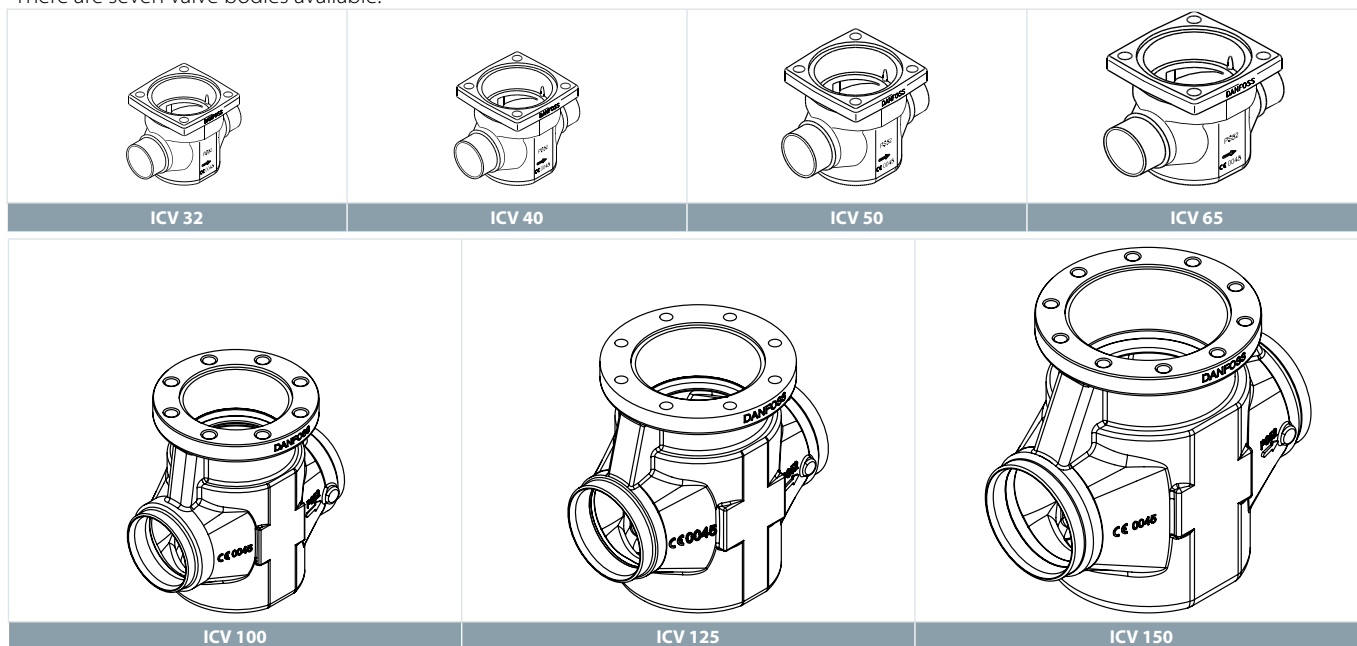
- Designed for industrial refrigeration applications for a maximum working pressure of 52 bar / 754 psig
 - Modular concept
 - Each valve body is available with several different connection types and sizes
 - Valve overhaul is performed by replacing the function module
 - Possible to convert ICLX servo to ICM motor valve
 - Low weight and compact design
 - Low temperature steel body
 - Direct coupled connections
 - Connection types include butt weld, socket weld, solder and threaded connections
 - Easy change from 2 to 1 step opening
 - Manual operating spindle
 - Only one signal needed to control both EVM NC and EVM NO coils
 - Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R134a
 - Use with flammable hydrocarbons is not recommended.
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.*
- Temperature range: -60 – 120 °C / -76 – 248 °F
 - Surface protection
 - The external surface is zinc-plated to provide good corrosion protection

The ICLX concept

The ICLX concept has been developed on a modular principle. This makes it possible to combine function modules and top covers with valve bodies, which are available in many different sizes and with a variety of connection options.

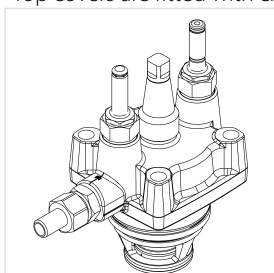
The valve body

There are seven valve bodies available.



Top / function module

Top covers are fitted with external connector, EVM NC and EVM NO pilots and a complete function module.



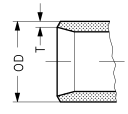
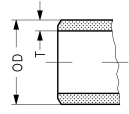
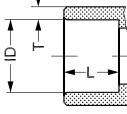
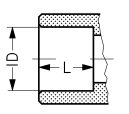
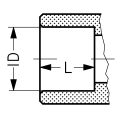
Coils

Both coils to be IP67.

EVM NC: 10 W AC (or higher) for MOPD up to 21 bar - EVM NC: 20 W AC for MOPD 21–40 bar.

EVM NO: 10 W AC (or higher).

Valve bodies in the sizes ICV 32–ICV 65 are available with a range of nominal through oversized connection sizes and types. ICV 100–ICV 150 are available in butt-weld DIN and butt-weld ANSI nominal sizes.

D	A	SOC	SD	SA
				
Butt-weld DIN	Butt-weld ANSI	Socket weld ANSI	Solder DIN	Solder ANSI

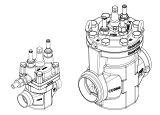
Capacities

	ICLX 32	ICLX 40	ICLX 50	ICLX 65	ICLX 100	ICLX 125	ICLX 150
K _v value [m ³ /h]	22	29	47	82	151	225	390
C _v value [US gal/min]	25.5	33.6	54.5	95	175	261	452

Ordering

ICLX

Ordering factory assembled valve including external connector, EVM NC and EVM NO pilot

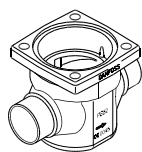


Type	Available connections		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICLX 32	1 ¼	32	Butt weld, EN 10220	D	027H3040
	1 ¼	32	Butt weld, ANSI (B 36.10)	A	027H3041
	1 ¼	32	Socket weld, ANSI (B 16.11)	SOC	027H3042
ICLX 40	1 ½	40	Butt weld, EN 10220	D	027H4040
	1 ½	40	Butt weld, ANSI (B 36.10)	A	027H4041
	1 ½	40	Socket weld, ANSI (B 16.11)	SOC	027H4042
ICLX 50	2	50	Butt weld, EN 10220	D	027H5040
	2	50	Butt weld, ANSI (B 36.10)	A	027H5041
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5042
ICLX 65	2 ½	65	Butt weld, EN 10220	D	027H6040
	2 ½	65	Butt weld, ANSI (B 36.10)	A	027H6041
	2 ½	65	Socket weld, ANSI (B 16.11)	SOC	027H6042
ICLX 80	3	80	Butt weld, EN 10220	D	027H8040
	3	80	Butt weld, ANSI (B 36.10)	A	027H8042
ICLX 100	4	100	Butt weld, EN 10220	D	027H7147
	4	100	Butt weld, ANSI (B 36.10)	A	027H7148
ICLX 125	5	125	Butt weld, EN 10220	D	027H7157
	5	125	Butt weld, ANSI (B 36.10)	A	027H7158
ICLX 150	6	150	Butt weld, EN 10220	D	027H7167
	6	150	Butt weld, ANSI (B 36.10)	A	027H7168

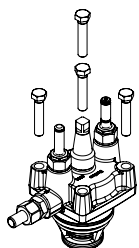
Ordering

Ordering from the parts programme (valve body + top / function module)

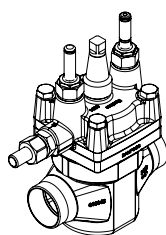
Example:



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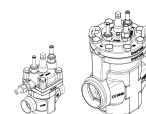


Valve body 50 D (2 in)
027H5120
Table I

Top / function module
ICLX 50
027H5204
Table II

ICLX 32

ICV 32 Valve body



Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 32	1 1/4	32	Butt weld, EN 10220	D	027H3120
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3121
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3122
	1 3/8	35	Solder connection, DIN (2856)	SD	027H3123
	1 1/2	40	Butt weld, EN 10220	D	027H3125
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H3126
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3127
1 5/8	42	Solder connection, DIN (2856)	SD	027H3128	

ICLX 32 top / function module ¹⁾

Type	Code no.
ICLX 32	027H3204

ICLX 40

ICV 40 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 40	1 1/2	40	Butt weld, EN 10220	D	027H4120
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4121
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4122
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4124
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4123
	2	50	Solder connection, DIN (2856)	D	027H4126
	2	50	Butt weld, ANSI (B 36.10)	A	027H4127

ICLX 40 top/function module ¹⁾

Type	Code no.
ICLX 40	027H4204

ICLX 50

ICV 50 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 50	2	50	Butt weld, EN 10220	D	027H5120
	2	50	Butt weld, ANSI (B 36.10)	A	027H5121
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5122
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5123
	2 1/2	65	Butt weld, EN 10220	D	027H5124
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H5125

ICLX 50 top / function module ¹⁾

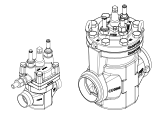
Type	Code no.
ICLX 50	027H5204

¹⁾ Top / function module includes external connector, EVM N C and EVM N O pilots, gaskets and O-rings.

Ordering

ICLX 65

ICV 65 Valve body



Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 65	2 1/2	65	Butt weld, EN 10220	D	027H6120
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6121
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6123
	2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6125
	3	76	Solder connection, DIN (2856)	SD	027H6124
	3	80	Butt weld, EN 10220	D	027H6126
	3	80	Butt weld, ANSI (B 36.10)	A	027H6127

ICLX 65 top / function module ¹⁾

Type	Code no.
ICLX 65	027H6204

¹⁾ Top / function module includes external connector, EVM N C and EVM N O pilots, gaskets and O-rings.

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ICSH, Dual position solenoid valve

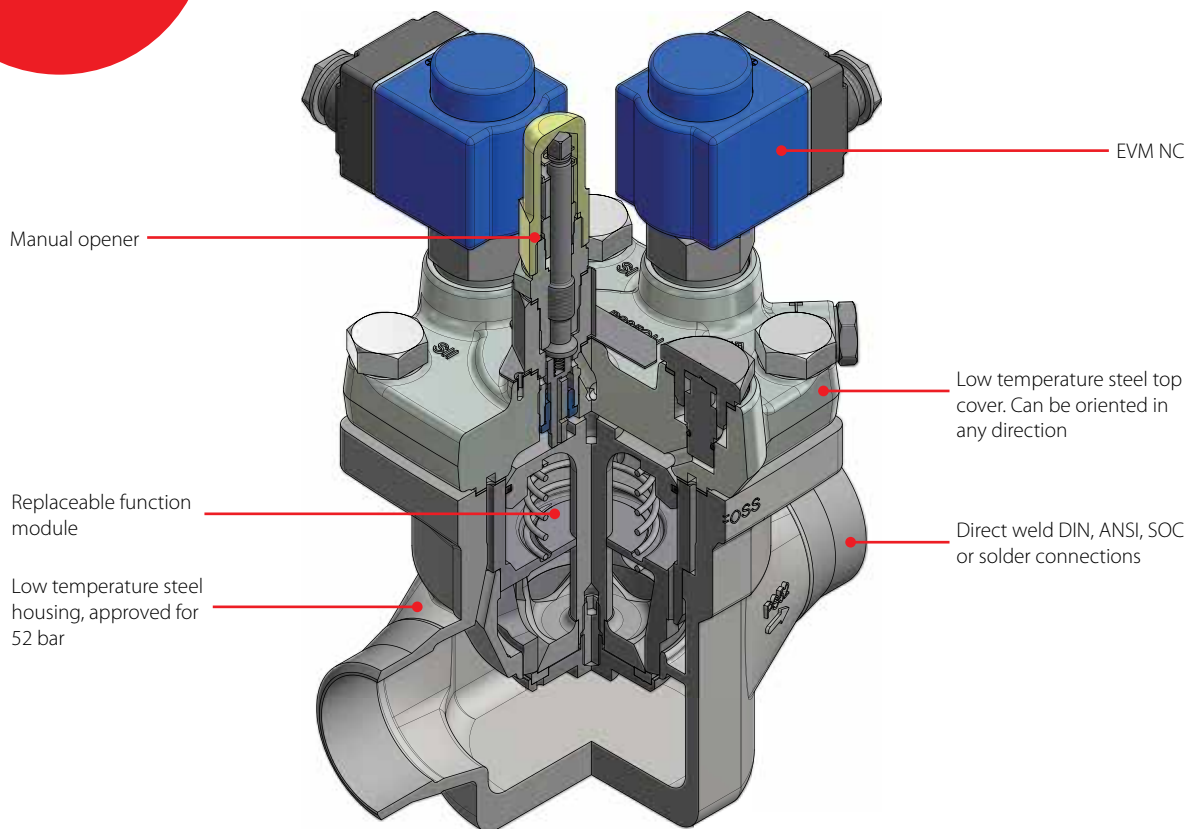
ICSH dual position solenoid valve belongs to the ICV family and consists of an ICV housing, an ICS insert together with an ICSH top cover with 2 EVM normally closed solenoid pilots installed in the top cover.

ICSH is used in hot gas lines for the opening of hot gas defrost flow to the evaporator in 2 steps. Both steps are activated by a controller or a PLC energizing the magnetic coils in a time delay sequence.

Step 1 (approx. 20% of full flow) is to allow a smooth pressure build-up in the evaporator, while the subsequent step 2 opens the flow to 100% to get the full defrost capacity.

The ICSH is designed for large industrial refrigeration systems with ammonia, fluorinated refrigerants or CO₂.

Features ICSH



Facts

- Designed for Industrial Refrigeration applications for a maximum working pressure of 52 bar g / 754 psig.
- Applicable to R717, R744, R134a, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502 and R507. For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Direct welded connections.
- Connection types include butt weld, socket weld and solder connections.
- Low temperature steel body.
- Low weight and compact design.
- 2-wire connection for use with a timer relay or 4 wire connection for connecting to a controller or a PLC.
- The ICSH main valve top cover can be oriented in any direction without the function of pilot valves being affected.
- Stabilizes working conditions and eliminates pressure pulsations during opening of hot gas.
- Manual opening possible.
- PTFE seat provides excellent valve tightness.
- Service friendly design.

The ICSH concept

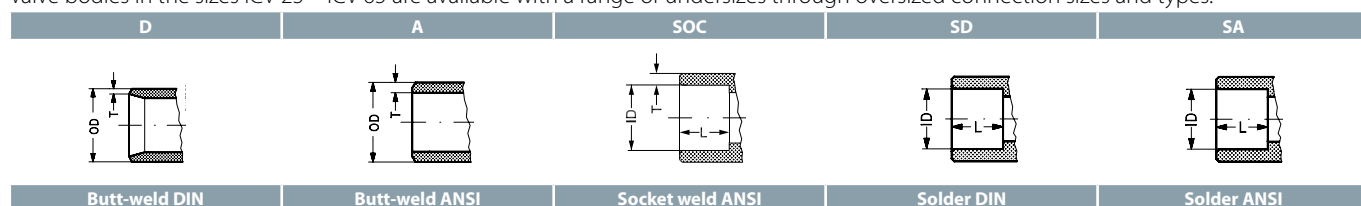
The ICSH concept is developed to highest flexibility of direct welded connections. For valve sizes ICV 25 – ICV 65 a wide range of connection sizes and types is available. The direct welded (non-flanged) connections secure low risk of leakage.

The valve body

There are five valve bodies available.

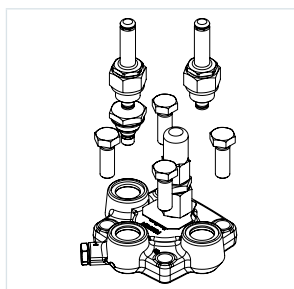


Valve bodies in the sizes ICV 25 – ICV 65 are available with a range of undersizes through oversized connection sizes and types.



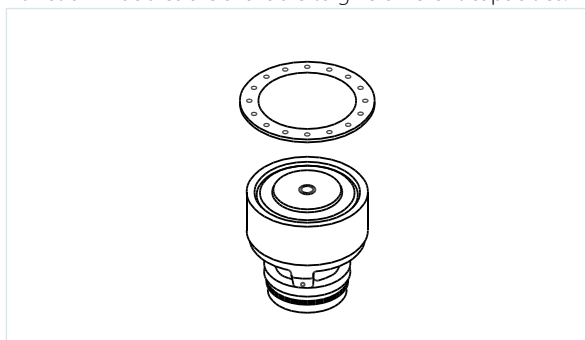
The top cover

Including bolts, one blanking plug and 2 EVM NC



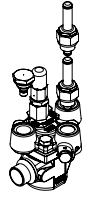
The function module

The ICS function module is also used for ISCH. Multiple function modules are available to give different capacities.



Type	Valve body size	K _v value [m ³ /h]
ICS 25 – 5	25	1.7
ICS 25 – 10	25	3.5
ICS 25 – 15	25	6.0
ICS 25 – 20	25	8
ICS 25 – 25	25	11.5
ICS 32	32	17
ICS 40	40	27
ICS 50	50	44
ICS 65	65	70
ICS 80	80	85

Ordering



ICSH

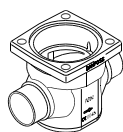
Ordering factory assembled valve including 2 EVM NC pilot valves and 1 blanking plug

Type	Available connections		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICSH 25	1	25	Butt weld, EN 10220	D	027H2309
	1	25	Butt weld, ANSI (B 36.10)	A	027H2308
	1	25	Socket weld, ANSI (B 16.11)	SOC	027H2307
ICSH 32	1 1/4	32	Butt weld, EN 10220	D	027H3309
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3378
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3377
ICSH 40	1 1/2	40	Butt weld, EN 10220	D	027H4309
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4308
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4307
ICSH 50	2	50	Butt weld, EN 10220	D	027H5309
	2	50	Butt weld, ANSI (B 36.10)	A	027H5308
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5307
ICSH 65	2 1/2	65	Butt weld, EN 10220	D	027H6309
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6311
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6308
ICSH 80	3	80	Butt weld, EN 10220	D	027H7302
	3	80	Butt weld, ANSI (B 36.10)	A	027H7303

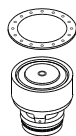
Ordering

Ordering from the parts programme (valve body + function module + top cover)

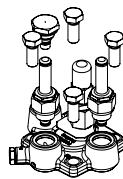
Example:



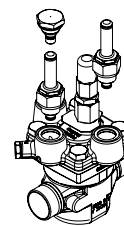
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Valve body 32 D (1 1/4 in.)
027H3120

Function module ICS 32
027H3200

Top cover ICSH
027H0164



ICSH 25 / ICV 25 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 25	3/4	20	Butt weld, EN 10220	D	027H2128
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H2131
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2132
	3/4	20	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2133
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2125
	7/8	22	Solder connection, DIN (2856)	SD	027H2123
	1	25	Butt weld, EN 10220	D	027H2120
	1	25	Butt weld, ANSI (B 36.10)	A	027H2121
	1	25	Socket weld, ANSI (B 16.11)	SOC	027H2122
	1	25	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2127
	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2126
	1 1/8	28	Solder connection, DIN (2856)	SD	027H2124
	1 1/4	32	Butt weld, EN 10220	D	027H2129
1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H2130	
1 3/8	35	Solder connection, DIN (2856)	SD	027H2134	
1 1/2	40	Butt weld, EN 10220	D	027H2135	

ICSH 25 / ICS 25 Function module

Type	C _v value [gal/min]	K _v value [m ³ /h]	Code no.
ICSH / ICS 25 - 5	13.30	11.500	027H2201 ¹⁾
ICSH / ICS 25 - 10	2.00	1.700	027H2202 ¹⁾
ICSH / ICS 25 - 15	4.10	3.500	027H2203 ¹⁾
ICSH / ICS 25 - 20	7.00	6.000	027H2204 ¹⁾
ICSH / ICS 25 - 25	13.90	12.000	027H2200 ¹⁾

ICSH 25 Top cover

Type	Code no.
ICSH 25	027H0159 ²⁾

ICSH 32 / ICV 32 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 32	1 1/4	32	Butt weld, EN 10220	D	027H3120
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3121
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3122
	1 3/8	35	Solder connection, DIN (2856)	SD	027H3123
	1 1/2	40	Butt weld, EN 10220	D	027H3125
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H3126
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3127
1 5/8	42	Solder connection, DIN (2856)	SD	027H3128	

ICSH 32 / ICS 32 Function module

Type	Code no.
ICSH / ICS 32	027H3200 ¹⁾

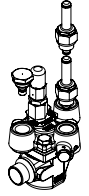
ICSH 32 Top cover

Type	Code no.
ICSH 32	027H0164 ²⁾

¹⁾ Including gasket and O-rings

²⁾ Including bolts, one blanking plug and 2 EVM NC

Ordering



ICSH 40 / ICV 40 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 40	1 1/2	40	Butt weld, EN 10220	D	027H4120
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4121
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4122
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4124
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4123
	2	50	Butt weld, EN 10220	D	027H4126
	2	50	Butt weld, ANSI (B 36.10)	A	027H4127

ICSH 40 / ICS 40 Function module

Type	Code no.
ICSH / ICS 40	027H4200 ¹⁾

ICSH 40 Top cover

Type	Code no.
ICSH 40	027H0169 ²⁾

ICSH 50 / ICV 50 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 50	2	50	Butt weld, EN 10220	D	027H5120
	2	50	Butt weld, ANSI (B 36.10)	A	027H5121
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5122
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5123
	2 1/2	65	Butt weld, EN 10220	D	027H5124
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H5125

ICSH 50 / ICS 50 Function module

Type	Code no.
ICSH / ICS 50	027H5200 ¹⁾

ICSH 50 Top cover

Type	Code no.
ICSH 50	027H0174 ²⁾

ICSH 65 – 80 / ICV 65-80 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 65 – 80	2 1/2	65	Butt weld, EN 10220	D	027H6120
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6121
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6123
	2 1/2	65	Butt weld, JIS (B S 602)	J	027H6122
	2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6125
	3	76	Solder connection, DIN (2856)	SD	027H6124
	3	80	Butt weld, EN 10220	D	027H6126
	3	80	Butt weld, ANSI (B 36.10)	A	027H6127

ICSH 65 – 80 / ICS 65 – 80 Function module

Type	Code no.
ICSH / ICS 65	027H6200 ¹⁾
ICSH / ICS 80	027H8200 ¹⁾

ICSH 65 – 80 Top cover

Type	Code no.
ICSH 65	027H0179 ²⁾
ICSH 80	027H0227 ²⁾

¹⁾ Including gasket and O-rings

²⁾ Including bolts, one blanking plug and 2 EVM NC

Note:

The capacity of the ICS 80 module can only be achieved when using the valve body with 80 D or A (3 in) connections. If any other ICV 65 valve body is used the capacity of the complete valve will be reduced by up to 6%.

VHV / STF, 4-way reversing valves

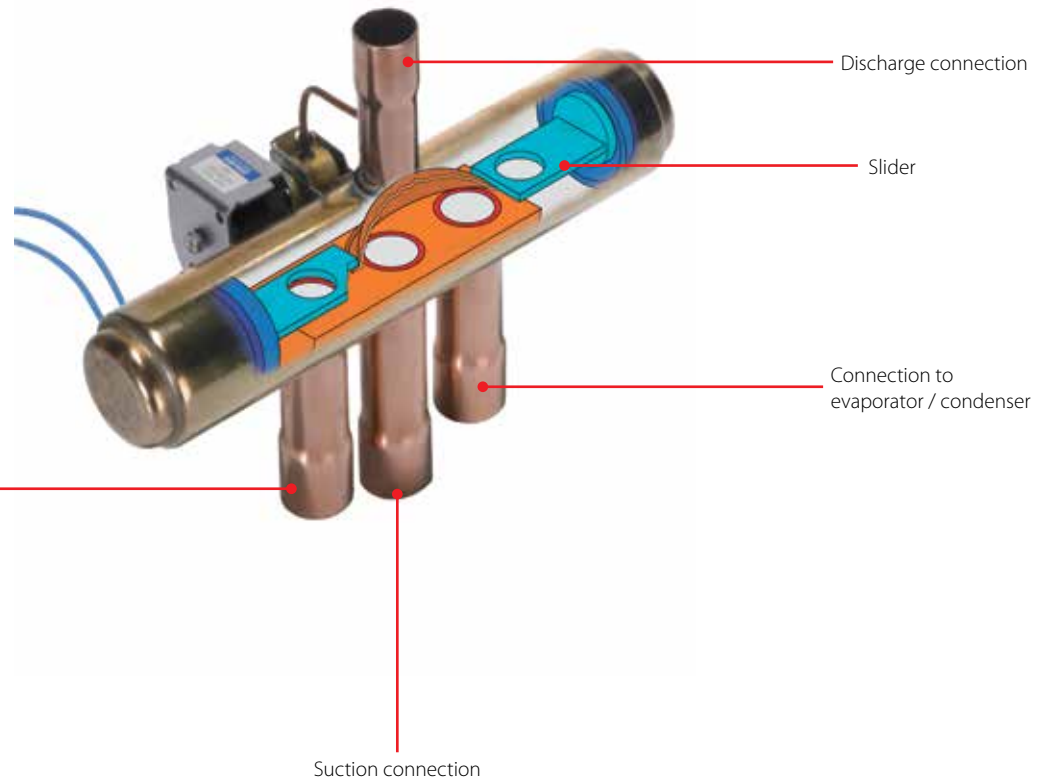
Danfoss Saginomiya STF and VHV 4-way reversing valves are used in reversible applications such as heat pumps or reversible air conditioning units and chillers. The 4-way valve allows an inversion of the refrigeration cycle, changing from cooling mode in summer to heating mode in winter.

The cycle inversion is initiated by a small solenoid pilot valve controlling the movement of a slider, which changes the direction of the refrigerant.

The 4-way reversing valves are available with many different connection sizes. Capacities: 1.5 – 400 kW.

The 4-way reversing valves are UL and CE approved.

Features VHV / STF



Facts

Application:

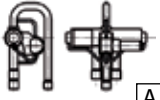
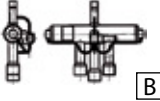
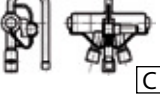





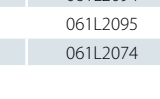

- Heat pump applications
- Reversing chillers
- Packaged air conditioning systems
- Room air conditioning systems

- Applicable to R410A, R407C, R134a, R404A
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Different connection sizes and connection configurations available
- Designed for instantaneous changeover with minimum pressure differential
- Minimal leakage in the valve
- Reduced pressure drop thanks to unique design (shape of internal elements)
- Max. working pressure PS: 45 bar
- Ambient temperature: -20 – 55 °C
- Full capacity range up to 400 kW
- Largest valve available on the market (VHV-6001)
- 30 years of experience and know-how

Technical data and ordering

STF / VHV

Technical data

Type	Discharge		Suction		Nominal capacity ¹⁾ [kW]	Style	Box qty.	Code no.	
	I.D. [mm]	O.D. [in]	I.D. [mm]	O.D. [in]					
STF-0101G	7.95	5/16	9.50	3/8	1.6 – 5.1	A	4	061L1206	
	7.95	5/16	9.50	3/8	1.6 – 5.1	A	45	061L1188	
STF-0104G	7.95	5/16	9.50	3/8	2.4 – 6.4	A	45	061L1143	
STF-0201G	9.50	3/8	12.70	1/2	2.8 – 11.4	A	3	061L1207	
	9.50	3/8	12.70	1/2	2.8 – 11.4	A	32	061L1144	
STF-0204G	9.50	3/8	15.90	5/8	2.8 – 11.4	D	32	061L1145	
STF-0205G	7.95	5/16	12.70	1/2	2.8 – 11.4	B	32	061L1146	
STF-0208G	9.50	3/8	15.90	5/8	2.8 – 11.4	C	32	061L1147	
STF-0209G	9.50	3/8	12.70	1/2	2.8 – 11.4	B	32	061L1148	
STF-0214G	12.70	1/2	15.90	5/8	2.8 – 11.4	D	32	061L1149	
STF-0301G	12.70	1/2	15.90	5/8	5.3 – 14.6	E	4	061L1208	
STF-0306G	12.70	1/2	19.05	3/4	5.3 – 14.6	E	32	061L1151	
STF-0401G	12.70	1/2	19.05	3/4	8.3 – 29.2	B	2	061L1209	
	12.70	1/2	19.05	3/4	8.3 – 29.2	B	24	061L1152	
STF-0404G	12.70	1/2	19.05	3/4	8.4 – 33	B	24	061L1193	
STF-0409G	12.70	1/2	22.20	7/8	8.3 – 29.2	B	24	061L1154	
STF-0413G	15.90	5/8	22.20	7/8	8.3 – 29.2	B	24	061L1155	
STF-0420G	12.70	1/2	22.20	7/8	8.4 – 33	B	24	061L1156	
STF-0712G	19.05	3/4	22.20	7/8	21 – 53	B	1	061L1223	
	19.05	3/4	22.20	7/8	21 – 53	B	6	061L1195	
STF-0715G	22.20	7/8	28.60	1 1/8	21 – 53	B	6	061L1158	
STF-0728G	22.20	7/8	22.20	7/8	21 – 53	B	6	061L1160	
STF-1511G	22.20	7/8	28.60	1 1/8	41 – 61	F	1	061L1224	
STF-1513G	22.20	7/8	34.95	1 3/8	41 – 61	F	1	061L1217	
STF-1514G	28.60	1 1/8	34.95	1 3/8	41 – 61	F	1	061L1218	
STF-2011G	22.20	7/8	28.60	1 1/8	41 – 77	B	1	061L1219	
STF-2017G	28.60	1 1/8	34.95	1 3/8	41 – 77	B	1	061L1225	
STF-2501G ²⁾	25.40	1	31.80	1 1/4	55 – 98	G	1	061L1278	
STF-2505G	28.60	1 1/8	34.95	1 3/8	55 – 98	G	1	061L1279	
STF-2506G	28.60	1 1/8	41.30	1 5/8	55 – 98	G	1	061L1280	
STF-3001G	31.80	1 1/4	38.10	1 1/2	68 – 129	G	1	061L1281	
STF-3003G	28.60 ³⁾	1 1/8 ³⁾	41.30	1 5/8	68 – 129	G	1	061L1282	
STF-4001G	38.10	1 1/2	44.50	1 3/4	122 – 195	G	1	061L1284	
STF-4002G	41.30 ³⁾	1 5/8 ³⁾	41.30	1 5/8	122 – 195	G	1	061L1285	
STF-5001G	38.10	1 1/2	54.00	2 1/8	183 – 256	G	1	061L1286	
STF-5002G	41.30 ³⁾	1 5/8 ³⁾	54.00	2 1/8	183 – 256	G	1	061L1287	
VHV-6001	41.30 ³⁾	1 5/8 ³⁾	66.70	2 5/8	267 – 374	G	1	061L1186	

STF / VHV

Ordering

Coil for 4-way reversing valves ⁴⁾	Cable length [mm]	Rated voltage	Box qty.	Code no.
STF-01AB500A1	600	24 V AC	10	061L2092
STF-01AB503B1	1200	24 V AC	100	061L2038
STF-01AJ506B1	600	220 – 240 V AC	10	061L2093
	1200	208 – 240 V AC	1	061L2125
STF-01AJ504F1	1200	208 – 240 V AC	10	061L2094
	2000	220 – 240 V AC	10	061L2095
STF-01AJ512D1	2000	220 – 240 V AC	60	061L2074

¹⁾ The nominal capacities for R407C.

²⁾ STF-2501G does not have a bracket.

³⁾ Refers to O.D.

⁴⁾ STF coils can be used with all STF and VHV valves.

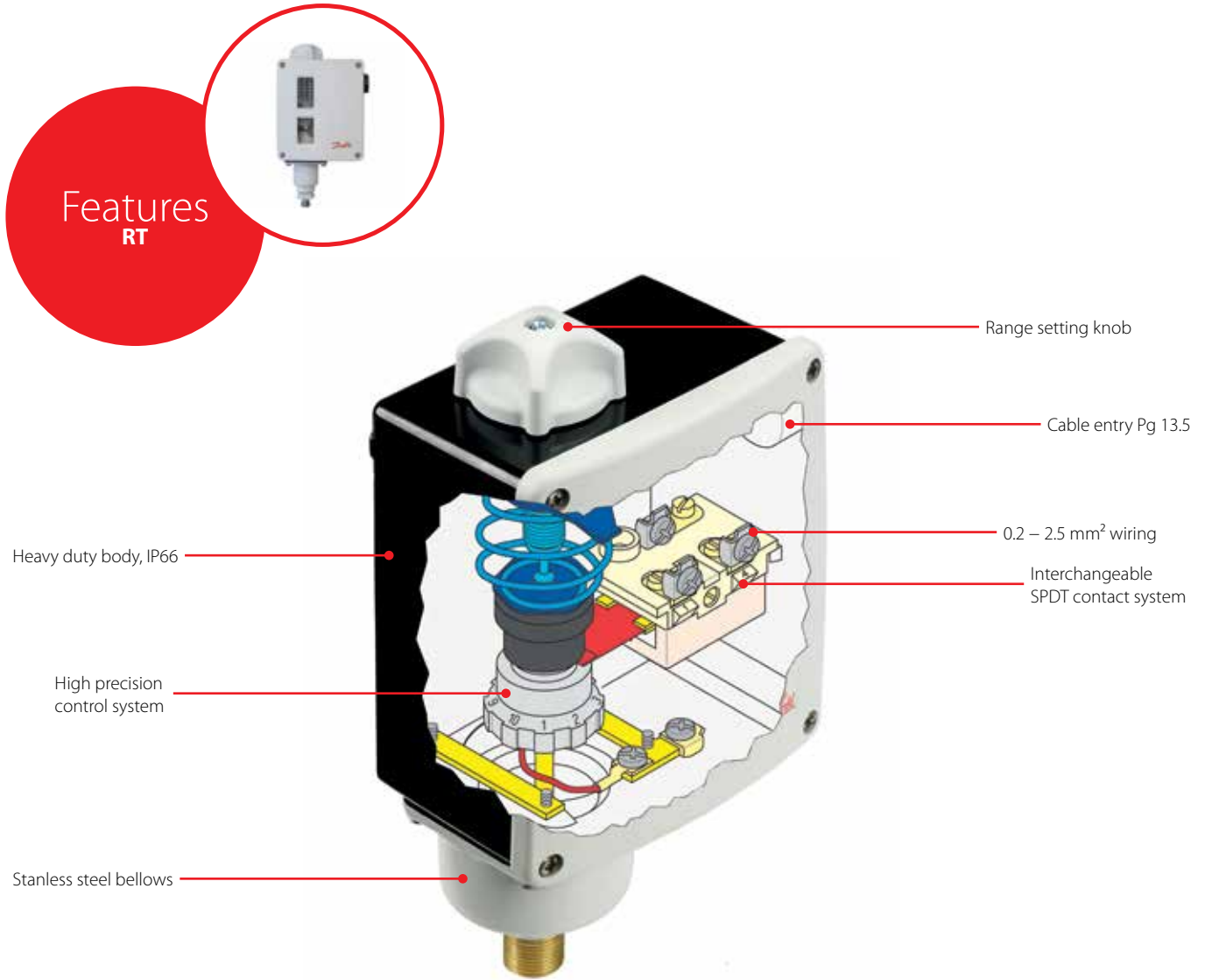
⁵⁾ Refers to I.D.

Note: R407C and R410A: for discharge and suction, I.D. describes exact inner diameter of valve connections. O.D. relates to the outer diameter of connection pipe in the system.

RT, Pressure switch

RT pressure switches contain a pressure operated single-pole changeover contact, the position of which depends on the pressure in the inlet connection and the set scale value. The RT series includes pressure switches for general applications

within industrial and maritime refrigeration, as well as differential pressure switches for neutral zone regulation, and special pressure switches with gold-plated contact surfaces for PLC applications.



Facts

Application:

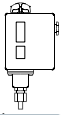
- General applications within industrial and marine refrigeration

- Pressure switches for fluorinated refrigerants and R717 (NH₃)
- Wide regulating range
- Suitable for both alternating and direct current (AC and DC)
- Interchangeable contact system
- Special versions with gold plated contact surfaces for PLC applications
- Versions for neutral zone regulation
- High stability and accuracy
- Long operating life time

- Enclosure: IP66 to EN 60529 / IEC 60529, except for versions with ext. reset which are IP54
- Insulation 400 V
- Ambient temperature: -50 – 70 °C for housing
- Cable connection: Pg 13.5
- Cable diameter: 6 – 14 mm

Technical data and ordering

RT pressure switches for R134a, R404A, R407A, R407C, R407F, R422B, R422D

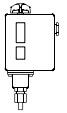


Ordering

Type	Pressure	Regulation range [bar]	Differential Δp [bar]	Reset	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 1	Low	-0.8 – 5	0.5 – 1.6	Auto	22	25	1/4 in / 6 mm flare	017-524566
	Low	-0.8 – 5	0.5	Man. (Min.)	22	25	1/4 in / 6 mm flare	017-524666
RT 200	Low	0.2 – 6	0.25 – 1.2	Auto	22	25	G 3/8 A ¹⁾	017-523766
RT 117	High	10 – 30	1 – 4	Auto	42	47	G 3/8 A ¹⁾	017-529566

¹⁾ G ext. thread, ISO 228-1

RT safety pressure switches for R134a, R404A, R407A, R407C, R407F, R422B, R422D, R507A, R717 (NH₃)

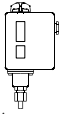


Ordering

Type	Pressure	Regulation range [bar]	Differential Δp [bar]	Reset	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 1A	Low	-0.8 – 5	0.5 – 1.6	Auto	22	25	1/4 in / 6 mm flare	017-501966
	Low	-0.8 – 5	0.5 – 1.6	Auto	22	25	G 3/8 A ¹⁾	017-500166
	Low	-0.8 – 5	0.5	Man. (Min.)	22	25	1/4 in / 6 mm flare	017-502766
	Low	-0.8 – 5	0.5	Man. (Min.)	22	25	G 3/8 A ¹⁾	017-500266
	Low	-0.8 – 5	1.3 – 2.4	Auto	22	25	G 3/8 A ¹⁾	017-500766
RT 5A	High	4 – 17	1.2 – 4	Auto	22	25	1/4 in / 6 mm flare	017-505266
	High	4 – 17	1.2 – 4	Auto	22	25	G 3/8 A ¹⁾	017-504666
	High	4 – 17	1.3	Man. (Max.)	22	25	1/4 in / 6 mm flare	017-506166
	High	4 – 17	1.3	Man. (Max.)	22	25	G 3/8 A ¹⁾	017-504766

¹⁾ G external thread, ISO 228-1

RT pressure switches with adjustable neutral zone for R134a, R404A, R407A, R407C, R407F, R507A, R717 (NH₃) *



Ordering

Type	Pressure	Regulation range [bar]	Mechanical differential Δp [bar]	Neutral zone Δp [bar]	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 1AL	Low	-0.8 – 5	0.2	0.2 – 0.9	22	25	cutting ring $\varnothing 6$ mm	017L001666
	Low	-0.8 – 5	0.2	0.2 – 0.9	22	25	G 3/8 A ¹⁾ + weld nipple $\varnothing 6.5 / 10$ mm	017L003366
RT 200L	Low	0.2 – 6	0.25	0.25 – 0.7	22	25	G 3/8 A ¹⁾ + weld nipple $\varnothing 6.5 / 10$ mm	017L003266
RT 5AL	High	4 – 17	0.35	0.35 – 1.4	22	25	cutting ring $\varnothing 6$ mm	017L001766 ²⁾
	High	4 – 17	0.35	0.35 – 1.4	22	25	G 3/8 A ¹⁾ + weld nipple $\varnothing 6.5 / 10$ mm	017L004066 ²⁾
RT 117L	High	10 – 30	1	1 – 3	42	47	G 3/8 A ¹⁾ + weld nipple $\varnothing 6.5 / 10$ mm	017L004266 ²⁾

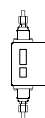
¹⁾ G external thread, ISO 228-1

²⁾ Without nipple

*) Only types with letter A are suitable for R717.

Technical data and ordering

RT differential pressure switches for R134a, R404A, R407A, R407C, R407F, R422B, R422D, R507A, R717 (NH₃)



Ordering

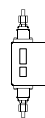
Type	Regulation range [bar]	Mechanical differential Δp [bar]	Operating range for LP bellows [bar]	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 260A	0.5 – 4	0.3	-1 – 18	22	25	cutting ring ø6 mm	017D001466
	0.5 – 4	0.3	-1 – 18	22	25	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D002166
	0.5 – 4	0.3	-1 – 18	22	25	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D002266 ²⁾
	0.5 – 6	0.5	-1 – 36	42	47	cutting ring ø6 mm	017D001566
	0.5 – 6	0.5	-1 – 36	42	47	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D002366
	1.5 – 11	0.5	-1 – 31	42	47	cutting ring ø6 mm	017D001666
	1.5 – 11	0.5	-1 – 31	42	47	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D002466
RT 262A	0.1 – 1.5	0.1	-1 – 9	11	13	cutting ring ø6 mm	017D001366
	0.1 – 1.5	0.1	-1 – 9	11	13	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D002566
RT 265A ³⁾	1 – 6	0.5	-1 – 36	42	47	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D007266

¹⁾ G external thread, ISO 228-1

²⁾ Manual reset

³⁾ Filter monitor: Alarm Δp = 0.8 bar, cut-out Δp = 1 bar (factory setting)

RT differential pressure switches with adjustable neutral zone for R134a, R404A, R407A, R407C, R407F, R422B, R422D, R507A, R717 (NH₃)



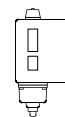
Ordering

Type	Regulation range [bar]	Mechanical differential Δp [bar]	Adjustable Neutral zone [bar]	Operating range for LP bellows [bar]	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 262 AL	0.1 – 1.5	0.1	1 – 0.33	-1 – 9	11	13	G ^{1/2} A ¹⁾ + weld nipple ø6.5 / 10 mm	017D004366

¹⁾ G external thread, ISO 228-1

RT safety pressure switches with EN 12263 approval and CE marked according to PED, Pressure Equipment Directive

For R134a, R404A, R407A, R407C, R407F, R422B, R422D, R507A, R717 (NH₃) *)



Ordering

Type	Pressure	Regulation range [bar]	Differential (fixed) Δp [bar]	Reset	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 6W	High	5 – 25	3	Auto	28 ²⁾	38	1/4 in / 6 mm flare	017-503166
RT 6B	High	10 – 28	1	Man. (Max.)	28 ²⁾	38	1/4 in / 6 mm flare	017-503466
RT 6S	High	10 – 28	1	Man. (Max.)	28 ²⁾	38	1/4 in / 6 mm flare	017-507566
RT 30AW	High	1 – 10	0.8	Auto	22	25	G ^{1/2} A ¹⁾	017-518766
RT 30AB	High	1 – 10	0.4	Man. (Max.)	22	25	G ^{1/2} A ¹⁾	017-518866
RT 30AS	High	1 – 10	0.4	Man. (Max.)	22	25	G ^{1/2} A ¹⁾	017-518966
RT 6AW	High	5 – 25	3	Auto	28 ²⁾	38	cutting ring ø6 mm	017-513166
	High	5 – 25	3	Auto	28 ²⁾	38	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017-503266
RT 6AB	High	10 – 28	1.5	Man. (Max.)	28 ²⁾	38	cutting ring ø6 mm	017-513366
	High	10 – 28	1.5	Man. (Max.)	28 ²⁾	38	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017-503566
RT 6AS	High	10 – 28	1.5	Man. (Max.)	28 ²⁾	38	cutting ring ø6 mm	017-514666
	High	10 – 28	1.5	Man. (Max.)	28 ²⁾	38	G ^{3/8} A ¹⁾ + weld nipple ø6.5 / 10 mm	017-507666

¹⁾ G external thread, ISO 228-1

²⁾ Max. working pressure acc. to PED is limited to 28 bar. If the unit is going to be used outside PED regulation, then MWP may be increased to 34 bar.

^{*)} Only types with letter A are suitable for R717

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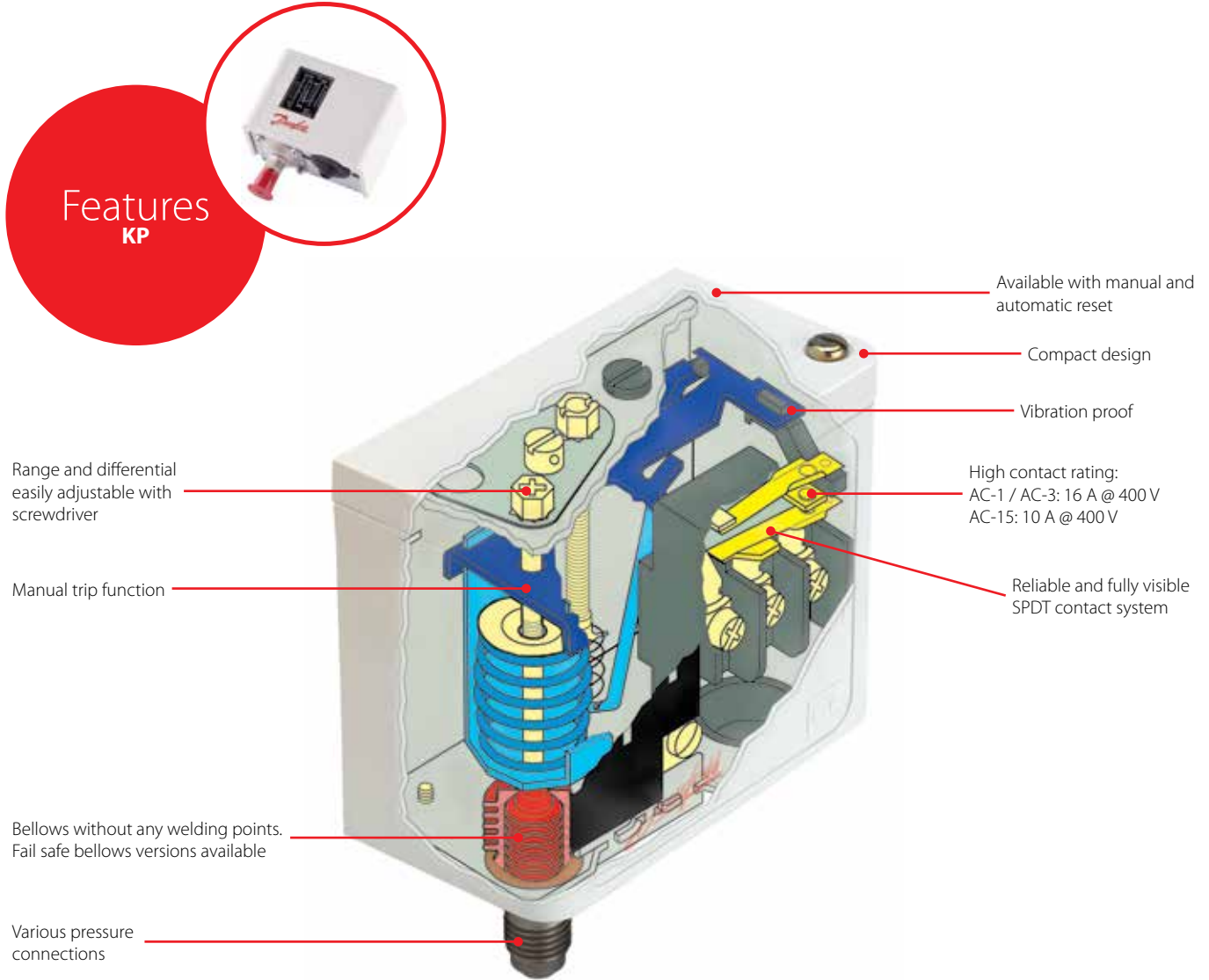
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KP, Pressure switch

KP pressure switches are designed to protect refrigeration systems from excessively high discharge pressures, excessively low suction pressures, to start / stop compressors or to operate fans of aircooled condensers.

The enhanced contact system for 16 A makes it possible to operate electrical motors up to 2 kW directly, without the use of contactors. KP pressure switches are available in IP30 and IP44 enclosures.



Facts

Application: Food Retail, Heavy Commercial Refrigeration, Light Commercial Refrigeration, Commercial Air Conditioning, Food Processing and Storage.

- Easy to handle compact design with large and visible scale plates
- Vibration and shock resistant
- Accurate and reliable compressor operation due to excellent electro-mechanical function
- High reliability both electrically and mechanically-a KP switch can be connected directly to a single-phase

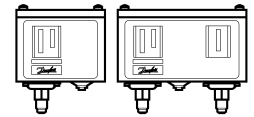
AC motor of up to approximately 2 kW or installed in the control circuit of DC motors and large AC motors

- Easy to install electrical connection which also facilitates rack mounting
- Bellows without any welding points, which makes them stress free and completely tight
- Wide range of approvals - Danfoss offers a wide range of approval suited for specific applications and geographical markets

- Available with flare, solder or capillary tube connections
- Pressure switches PED 97 / 23 / EC approved available
- Wide pressure ranges
The programme covers working ranges: -0.9 – 46.5 bar / -1.3 – 674 psi
- Versions with IP30 enclosure rating can be updated to IP44 or IP55 enclosure rating using top plate (IP44) or IP55 enclosure (IP55), available as accessories

Technical data and ordering

KP pressure switches for R134a, R404A, R407A, R407C, R407F, R422B, R422D, R438A, R448A, R449A, R450A, R452A, R507A, R513A



Ordering

Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Connection type	Code no.
		Regulating range [bar]	Differential Δp [bar]	Regulating range [bar]	Differential Δp [bar]	Low pressure LP	High pressure HP			
KP 1	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-110166 ^{1) 4)}
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in ODF solder	060-111266 ⁴⁾
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	6 mm ODF solder	060-111066 ⁴⁾
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-114166 ^{2) 4)}
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1/4 in / 6 mm flare	060-110366 ¹⁾
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1/4 in ODF solder	060-111166
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	6 mm ODF solder	060-110966
KP 2	Low	-0.2 – 5.0	0.4 – 1.5	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-112066 ^{1) 4)}
	Low	-0.2 – 5.0	0.4 – 1.5	–	–	Auto	–	SPDT	6 mm ODF solder	060-112366 ⁴⁾
KP 5	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1/4 in / 6 mm flare	060-117166 ^{1) 4)}
	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1/4 in ODF solder	060-117966 ⁴⁾
	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	6 mm ODF solder	060-117766 ⁴⁾
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-117366 ¹⁾
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	1/4 in ODF solder	060-118066
KP 15	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 in / 6 mm flare	060-124166 ⁴⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 in ODF solder	060-125466 ⁴⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP signal	1/4 in / 6 mm flare	060-124366 ¹⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP signal	1/4 in / 6 mm flare	060-114866 ²⁾
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Man. (Min.)	Man. (Max.)	SPDT+LP signal	1/4 in / 6 mm flare	060-124566 ¹⁾
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. ³⁾	Conv. ³⁾	SPDT+LP signal	1/4 in / 6 mm flare	060-126166
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-126566 ^{1) 4)}
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 in ODF solder	060-129966 ⁴⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-126466 ¹⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1/4 in ODF solder	060-128466 ¹⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Conv. ³⁾	Conv. ³⁾	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-115466 ⁴⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Conv. ³⁾	Conv. ³⁾	SPDT+LP and HP signal	1/4 in ODF solder	060-001066 ⁴⁾
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. ³⁾	Conv. ³⁾	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-122066

¹⁾ Available in Asia market with code 060-xxxx91

²⁾ Pressure switches with gold-plated contacts

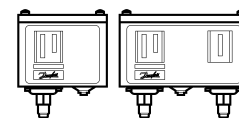
³⁾ Conv.: optional automatic or manual reset

⁴⁾ Enclosure IP44

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Technical data and ordering

KP pressure switches PED 2014/68/EU approved; EN 12263
For R134a, R404A, R407A, R407C, R407F, R410A*), R422B, R422D, R438A,
R448A, R449A, R450A, R452A, R507A, R513A



Ordering

Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Connection type	Code no.
		Regulating range [bar]	Differential Δp [bar]	Regulating range [bar]	Differential Δp [bar]	Low pressure LP	High pressure HP			
KP 1	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-110166 ³⁾
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	6 mm ODF solder	060-111066 ³⁾
	Low	-0.9 – 7	0.7	–	–	Man. (Min.)	–	SPDT	1/4 in / 6 mm flare	060-110366 ³⁾
	Low	-0.9 – 7	0.7	–	–	Man. (Min.)	–	SPDT	6 mm ODF solder	060-110966
KP 2	Low	-0.2 – 5	0.4 – 1.5	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-112066 ³⁾
	Low	-0.2 – 5	0.4 – 1.5	–	–	Auto	–	SPDT	6 mm ODF solder	060-112366 ³⁾
KP 6W ¹⁾	High	–	–	8 – 42	4 – 10	–	Auto	SPDT	1/4 in / 6 mm flare	060-519066 ³⁾
KP 6B ¹⁾	High	–	–	8 – 42	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-519166
KP 7W ¹⁾	High	–	–	8 – 32	4 – 10	–	Auto	SPDT	1/4 in / 6 mm flare	060-119066 ³⁾
	High	–	–	8 – 32	4 – 10	–	Auto	SPDT	6 mm ODF solder	060-120366 ³⁾
KP 7B ¹⁾	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-119166
KP 7S ¹⁾	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-119266 ³⁾
KP 7BS ¹⁾	Dual	–	–	8 – 32	4	–	Man. (Max.)	SPST	1/4 in / 6 mm flare	060-120066
KP 17W ¹⁾	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-127566 ³⁾
	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	6 mm ODF solder	060-127666 ³⁾
KP 17W ¹⁾	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 in / 6 mm flare	060-126766 ³⁾
KP 17B ¹⁾	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-126866
	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Man. (Max.)	SPDT	6 mm ODF solder	060-127466
KP 17WB ¹⁾	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Conv. ²⁾	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-539766 ³⁾ 4)

¹⁾ W = PSH (pressure switch), B = PZH (pressure switch with ext. reset), S = PZHH (pressure switch with int. reset)

²⁾ Available in Asia market with code 060-xxxx91

³⁾ Enclosure IP44

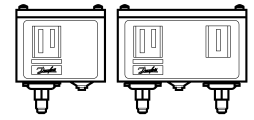
⁴⁾ Factory setting: LP side: range = 1 bar P_o , diff. = 1 bar; HP side: range = 18 bar P_o , diff. = 4 bar fixed

⁵⁾ Conv.: optional automatic or manual reset

^{*}) only for KP6W, KP6B

Technical data and ordering

KP pressure switches for R717, R134a, R404A, R407A, R407C, R407F, R422B, R422D, R438A, R448A, R449A, R450A, R452A, R507A, R513A



Ordering

Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Connection type	Code no.
		Regulating range [bar]	Differential Δp [bar]	Regulating range [bar]	Differential Δp [bar]	Low pressure LP	High pressure HP			
KP 1A	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	M10 × 0.75	060-116266 ²⁾
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1 m cap. tube with M10 × 0.75	060-116066 ²⁾
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1 m cap. tube with M10 × 0.75	060-116166
KP 5A	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1 m cap. tube with M10 × 0.75	060-123066 ²⁾
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	M10 × 0.75	060-115366 ³⁾
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	1 m cap. tube with M10 × 0.75	060-123166
KP 15A	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	M10 × 0.75	060-129566
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1 m cap. tube with M10 × 0.75	060-129366 ²⁾
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	M10 × 0.75	060-129666
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1 m cap. tube with M10 × 0.75	060-129466
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. ¹⁾	Conv. ¹⁾	SPDT+LP signal	1 m cap. tube with M10 × 0.75	060-128366
KP 7ABS	Dual	–	–	8 – 32	4	–	Man. (Max.)	SPST	1 m cap. tube with M10 × 0.75	060-120566

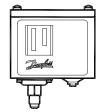
¹⁾ Conv.: optional automatic or manual reset

²⁾ Enclosure IP44

³⁾ Available in Asia market with code 060-xxxx91

KP pressure switches for R290, R444B, R600, R600a, R1234ze, R1290

Ordering



Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Function *)	Code no.
		Regulating range [bar]	Differential Δp [bar]	Regulating range [bar]	Differential Δp [bar]	Low pressure LP	High pressure HP			Connection ¼ in ODF solder
KP 1E	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	PSL	060-530066
KP 1E	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	PZL	060-530266
KP 7EW	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	PSH	060-530466
KP 7EB	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	PZH	060-530666

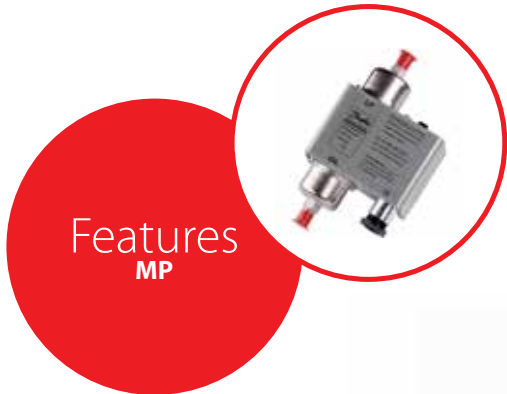
*) PSL, PZL, PSH, PZH according to EN12263: 1998

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MP, Differential pressure switch

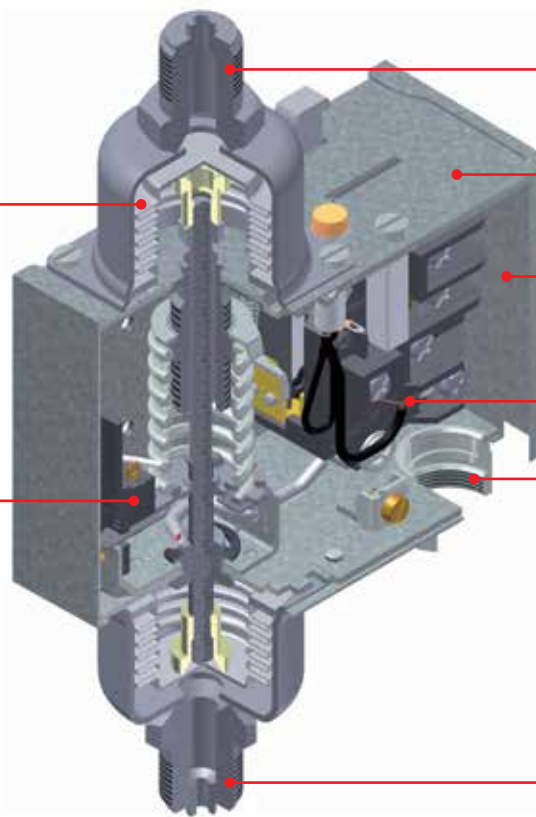
MP 54 and MP 55 oil differential pressure switches are used as safety switches to protect refrigeration compressors against low lubricating oil pressure. If the oil pressure fails, the oil differential pressure switch stops the compressor after a certain time period.

MP 54 has a fixed differential pressure setting. It also incorporates a thermal time relay with a fixed release time setting. MP 55 and MP 55A have adjustable differential pressure and are available both with and without thermal time relay.



Dedicated for wide range of refrigerants

Models with different relay release time



Connection to suction side of refrigeration plant, LP

Versions with adjustable or fixed differential

Electrical connection at the front of the unit

Suitable for both alternating and direct current (AC and DC)

Pg 13.5 screwed cable entry

Connection to pressure side of lubrication system, OIL

Facts

Application:

- Food Retail
- Heavy Commercial Refrigeration
- Light Commercial Refrigeration
- Commercial Air Conditioning
- Food Processing and Storage

- Suitable for both alternating and direct current (AC and DC)
- Small contact differential
- Bellows without any welding points, which makes them stress free and completely tight
- Wide regulating range

- Screwed cable entry for cables: 6 – 14 mm diameter
- Electrical connection at the front of the unit
- Wide range of approvals - Danfoss offers a wide range of approvals suited for specific applications and geographical markets

Technical data and ordering

MP differential pressure switches for R134a, R404A, R407A, R407C, R407F, R422B, R422D, R448A, R449A, R450A, R452A, R507A, R513A



Ordering

Type	Differential Δp [bar]	Operation range, LP side [bar]	Relay release time [s]	Connection type	Code no.
MP 54	0.65	-1 – 12	0 ²⁾	1/4 in Flare	060B029766
	0.65	-1 – 12	45	1/4 in Flare	060B016666
	0.9	-1 – 12	60	1/4 in Flare	060B016766
	0.65	-1 – 12	90	1/4 in Flare	060B016866
	0.65	-1 – 12	120	1/4 in Flare	060B016966
MP 55	0.3 – 4.5	-1 – 12	45	1/4 in Flare	060B017066
	0.3 – 4.5	-1 – 12	45	1 m cap.tube 1/4 in ODF solder	060B013366
	0.3 – 4.5	-1 – 12	60	1/4 in Flare	060B017166
	0.3 – 4.5	-1 – 12	60	1/4 in Flare	060B017866 ¹⁾
	0.3 – 4.5	-1 – 12	90	1/4 in Flare	060B017266
	0.3 – 4.5	-1 – 12	120	1/4 in Flare	060B017366
	0.3 – 4.5	-1 – 12	0 ²⁾	1/4 in Flare	060B029966

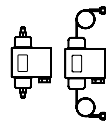
¹⁾ With glow lamp that remains on during normal operation.

Note: If the operational light goes out, the compressor should not run longer than the release time.

²⁾ MP without time relay.

Versions without time relay are for applications where an external time relay is required - perhaps with a different release time than the one specified.

MP differential pressure switches for R134a, R404A, R407A, R407C, R407F, R422B, R422D, R448A, R449A, R450A, R452A, R507A, R513A



Ordering

Type	Control differential Δp [psi]	Regulation range LP side [inHg] – [psi]	Time relay delay time [s]	Connection type	Code no.
MP 54	6.0	29 – 175	45	1/4 in Flare	060B200866
	6.0	29 – 175	45	1/4 in Flare nut with 36 in capillary tube	060B205066
	9.0	29 – 175	90	1/4 in Flare	060B200266
	9.0	29 – 175	120	1/4 in Flare	060B200366 ²⁾
	9.0	29 – 175	120	1/4 in Flare nut with 36 in capillary tube	060B205366 ²⁾
MP 55	4.3 – 65	29 – 175	45	1/4 in Flare nut with 36 in capillary tube	060B205466
	4.3 – 65	29 – 175	60	1/4 in Flare	060B201266 ¹⁾
	4.3 – 65	29 – 175	90	1/4 in Flare	060B200666
	4.3 – 65	29 – 175	120	1/4 in Flare	060B200766
	4.3 – 65	29 – 175	120	1/4 in Flare nut with 36 in capillary tube	060B205766

¹⁾ With glow lamp that remains on during normal operation of compressor.

²⁾ Three-wire hook-up.

Note: When time delay is energized which also means that min. permissible oil pressure (differential Δp) is reached, light goes out.

MP differential pressure switches for R717, R134a, R404A, R407A, R407C, R407F, R422B, R422D, R448A, R449A, R450A, R452A, R507A, R513A



Ordering

Type	Differential Δp [bar]	Operation range, LP side [bar]	Relay release time [s]	Connection type	Code no.
MP 55A	0.3 – 4.5	-1 – 12	45	G 3/8 A supplied with $\phi 6.5$ / 10 mm weld nipple	060B017466
	0.3 – 4.5	-1 – 12	45	M12x1.5 with 6 mm cutting ring	060B018266
	0.3 – 4.5	-1 – 12	60	G 3/8 A supplied with $\phi 6.5$ / 10 mm weld nipple	060B017566
	0.3 – 4.5	-1 – 12	60	M12x1.5 with 6 mm cutting ring	060B018366
	0.3 – 4.5	-1 – 12	60	G 3/8 A supplied with $\phi 6.5$ / 10 mm weld nipple	060B017966 ¹⁾
	0.3 – 4.5	-1 – 12	90	G 3/8 A supplied with $\phi 6.5$ / 10 mm weld nipple	060B017666
	0.3 – 4.5	-1 – 12	90	M12x1.5 with 6 mm cutting ring	060B018466
	0.3 – 4.5	-1 – 12	120	G 3/8 A supplied with $\phi 6.5$ / 10 mm weld nipple	060B017766
	0.3 – 4.5	-1 – 12	120	M12x1.5 with 6 mm cutting ring	060B018566
	0.3 – 4.5	-1 – 12	0 ²⁾	G 3/8 A supplied with $\phi 6.5$ / 10 mm weld nipple	060B029866 ²⁾
	0.3 – 4.5	-1 – 12	0 ²⁾	M12x1.5 with 6 mm cutting ring	060B029666

¹⁾ With glow lamp that remains on during normal operation.

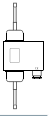
Note: If the operational light goes out, the compressor should not run longer than the release time.

²⁾ MP without time relay.

Versions without time relay are for applications where an external time relay is required - perhaps with a different release time than the one specified.

Technical data and ordering

MP differential pressure switches for R32, R290, R600, R600a, R1270



Ordering

Type	Differential range Δp [bar]	Switch differential max. Δp [bar]	Operation range, LP side [bar]	Connection type	Code no.
MP 55E	0.3 – 4.5	0.2	-1 – 12	1/4 inch ODF solder	060B530066

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ACB / CCB, Cartridge pressure switches

Cartridge pressure switches are small diaphragm type pressure switches for use in refrigeration and air conditioning systems. They as standard are equipped with a 6A contact system with automatic or manual reset. ACB / CCB are robust and reliable in use, and the small size, lightness and high degree of protection means

that they can be mounted directly on the refrigeration system where pressure monitoring is required. Cartridge pressure switches are available in many different versions with different pressure settings and pressure connections.

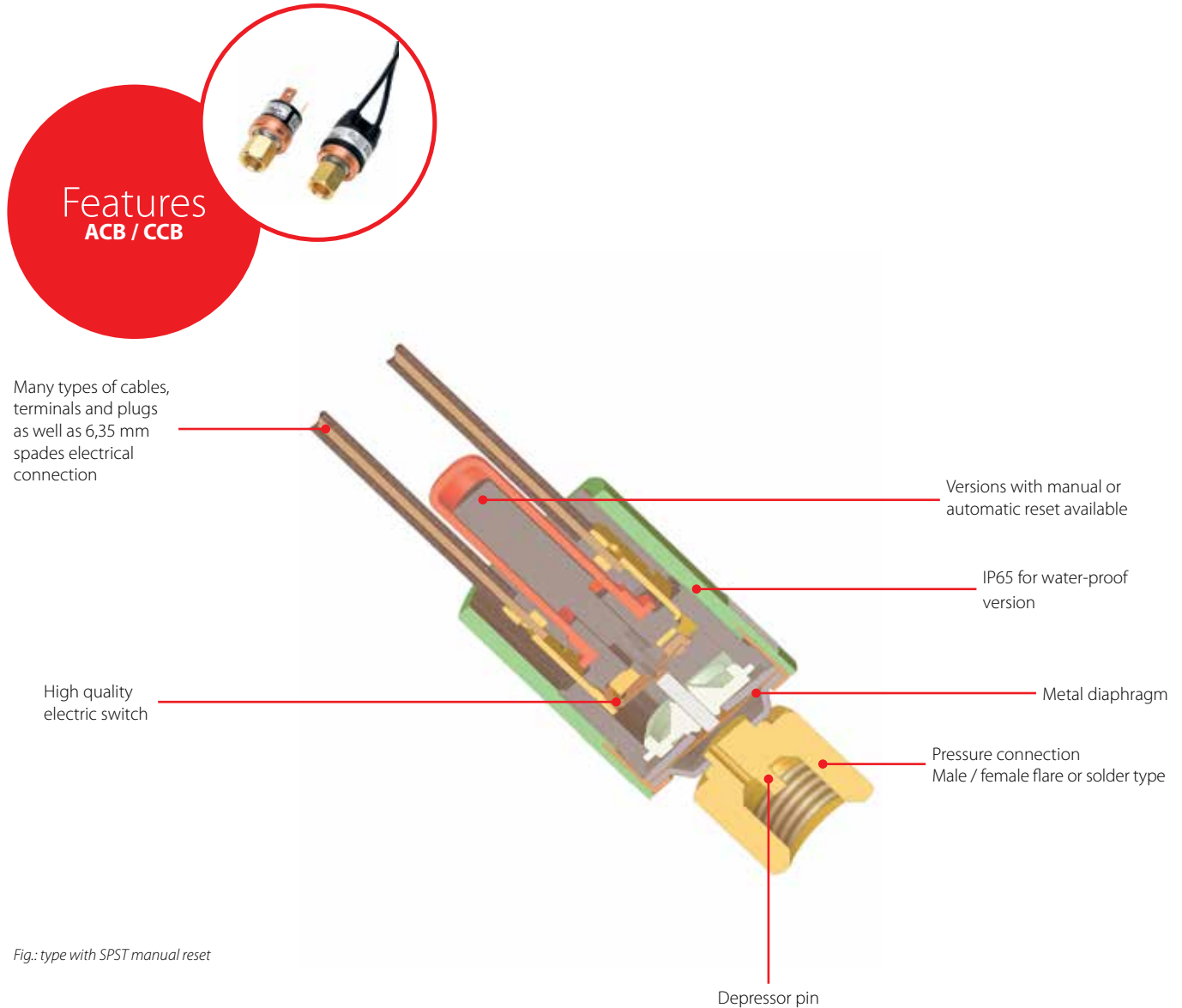


Fig.: type with SPST manual reset

Facts

Application:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration

- Compact and easy to install
- Metal diaphragm:
 - excellent reliability and repeatability
 - lifetime of 100 000 cycles minimum
 - no contact chattering during changeover
- Flexible order quantity due to European production with short lead times
- Wide choice of specifications:
 - set-point
 - pressure connection
 - electrical connection
- Global coverage and widespread use by major OEMs
- Over 100 million pcs installed in the field

- CE, TÜV, UL and C-UL approvals (SPDT man. only CE approvals)
- Additional information about special versions: 1 A (250 V AC); 4 A (250 V AC) SPDT, 6 A (250 V AC) SPST and gold plated contact system 0.05 A (12 / 24 V DC)
- Normally Closed (NC), Normally Open (NO) or SPDT contact system
- Convenient electrical connection - spades or cables (1.5 m cable for standard version)
- Pressure range: -0.6 – 150 bar
- Automatic or manual reset
- IP65 (water proof version with cables)

Technical data and ordering

ACB cartridge pressure switches for R134a, R404A, R407C, R407A, R407F, R410A, R438A, R448A, R449A, R450A, R452A, R513A

Ordering

Application	Reset	Cut out		Cut in		Contact system	Enclosure type O-open type W-waterproof ¹⁾ S-with spades ²⁾	Connection type	Code no.
		[bar]	[psi]	[bar]	[psi]				
High pressure cut-out	Auto	18 ± 0.7	260 ± 10	13 ± 1.2	190 ± 17	SPST-NC	W	6 mm / solder	061F7504
	Auto	18 ± 0.7	260 ± 10	13 ± 1.2	190 ± 17	SPST-NC	W	1/4 in / solder	061F7505
	Auto	18 ± 0.7	260 ± 10	13 ± 1.2	190 ± 17	SPST-NC	W	1/4 in / female flare	061F7506
	Auto	18 ± 0.7	260 ± 10	13 ± 1.2	190 ± 17	SPDT	W	1/4 in / female flare	061F9057
	Auto	20 ± 1.0	290 ± 14	16 ± 1.5	230 ± 21	SPST-NC	S	1/4 in / solder	061F8710
	Auto	20 ± 1.0	290 ± 14	16 ± 1.5	230 ± 21	SPST-NC	S	1/4 in / female flare	061F8708
	Auto	23 ± 0.7	335 ± 10	19 ± 1.5	275 ± 17	SPST-NC	S	1/4 in / solder	061F8707
	Auto	23 ± 0.7	335 ± 10	19 ± 1.2	275 ± 17	SPST-NC	W	1/4 in / female flare	061F8494
	Auto	23 ± 0.7	335 ± 10	19 ± 1.2	275 ± 17	SPDT	W	1/4 in / female flare	061F9056
	Manual	23 ± 0.7	335 ± 10	19 ± 1.2	275 ± 17	SPDT	W	1/4 in / female flare	061F9243
	Auto	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	W	6 mm / solder	061F7507
	Auto	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	W	1/4 in / solder	061F7508
	Auto	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	W	1/4 in / female flare	061F7509
	Auto	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	S	1/4 in / solder	061F8705
	Auto	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	S	1/4 in / female flare	061F8701
	Auto	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPDT	W	1/4 in / female flare	061F9055
	Manual	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	W	6 mm / solder	061F9703
	Manual	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	W	1/4 in / solder	061F9714
	Manual	26 ± 1.0	380 ± 15	20 ± 1.5	290 ± 22	SPST-NC	W	1/4 in / female flare	061F9713
	Auto	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPST-NC	W	6 mm / solder	061F7510
	Auto	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPST-NC	W	1/4 in / solder	061F7513
	Auto	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPST-NC	W	1/4 in / female flare	061F7514
	Auto	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPST-NC	S	1/4 in / solder	061F8704
	Auto	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPST-NC	S	1/4 in / female flare	061F8700
	Auto	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPDT	W	1/4 in / female flare	061F9054
	Manual	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPDT	W	1/4 in / female flare	061F9242
	Manual	28 ± 1.0	405 ± 14	21 ± 1.5	305 ± 22	SPST-NC	W	1/4 in / female flare	061F9522
	Auto	31 ± 1.0	405 ± 14	24 ± 1.5	350 ± 22	SPST-NC	W	6 mm / solder	061F8493
	Auto	31 ± 1.0	405 ± 14	24 ± 1.5	350 ± 22	SPST-NC	W	1/4 in / female flare	061F8492
	Auto	31 ± 1.0	405 ± 14	24 ± 1.5	350 ± 22	SPST-NC	S	1/4 in / solder	061F8706
Auto	31 ± 1.0	405 ± 14	24 ± 1.5	350 ± 22	SPDT	W	1/4 in / female flare	061F9053	
Auto	42 ± 1.2	610 ± 17	33 ± 2.0	480 ± 29	SPST-NC	W	6 mm / solder	061F7515	
Auto	42 ± 1.2	610 ± 17	33 ± 2.0	480 ± 29	SPST-NC	W	1/4 in / solder	061F7516	
Auto	42 ± 1.2	610 ± 17	33 ± 2.0	480 ± 29	SPST-NC	W	1/4 in / female flare	061F7517	
Manual	42 ± 1.2	610 ± 17	33 ± 2.0	480 ± 29	SPST-NC	W	1/4 in / female flare	061F9575	
Auto	42 ± 1.2	610 ± 17	33 ± 2.0	480 ± 29	SPDT	W	1/4 in / female flare	061F9052	
Low pressure cut-out	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPST-NO	W	6 mm / solder	061F7518
	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPST-NO	W	1/4 in / solder	061F7519
	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPST-NO	W	1/4 in / female flare	061F7520
	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPST-NO	S	1/4 in / solder	061F7402
	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPST-NO	S	1/4 in / female flare	061F7400
	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPDT	S	1/4 in / solder	061F9106
	Auto	0.5 ± 0.4	7 ± 6	1.5 ± 0.5	22 ± 4	SPDT	S	1/4 in / female flare	061F9102
	Auto	0.7 ± 0.5	10 ± 7	1.7 ± 0.4	25 ± 6	SPST-NO	W	6 mm / solder	061F7521
	Auto	0.7 ± 0.5	10 ± 7	1.7 ± 0.4	25 ± 6	SPST-NO	W	1/4 in / solder	061F7522
	Auto	0.7 ± 0.5	10 ± 7	1.7 ± 0.4	25 ± 6	SPST-NO	W	1/4 in / female flare	061F7523
	Auto	0.7 ± 0.5	10 ± 7	1.7 ± 0.4	25 ± 6	SPDT	W	1/4 in / female flare	061F9058
	Auto	1.7 ± 0.5	25 ± 7	2.7 ± 0.4	39 ± 6	SPST-NO	W	6 mm / solder	061F7524
	Auto	1.7 ± 0.5	25 ± 7	2.7 ± 0.4	39 ± 6	SPST-NO	W	1/4 in / solder	061F7525
	Auto	1.7 ± 0.5	25 ± 7	2.7 ± 0.4	39 ± 6	SPST-NO	W	1/4 in / female flare	061F7526
	Auto	2.2 ± 0.3	32 ± 4.5	3.4 ± 0.3	50 ± 4.5	SPST-NO	W	6 mm / solder	061F7418
Fan Control	Auto	8.5 ± 1.2	125 ± 17	11 ± 0.8	11 ± 0.8	SPST-NO	W	6 mm / solder	061F8491
	Auto	8.5 ± 1.2	125 ± 17	11 ± 0.8	11 ± 0.8	SPST-NO	W	1/4 in / female flare	061F8490
	Auto	13 ± 1.5	190 ± 22	16 ± 1.0	16 ± 1.0	SPST-NO	W	6 mm / solder	061F8334
	Auto	13 ± 1.5	190 ± 22	16 ± 1.0	16 ± 1.0	SPST-NO	W	1/4 in / female flare	061F8333

¹⁾ Waterproof models (IP65) with 1.5 m wires AWG18, packed per 20 pcs.

²⁾ model with spade connectors(IP40), Packed per 50 pcs.

Technical data and ordering

CCB cartridge pressure switches for CO₂ only

Ordering

Application	Reset	Cut out		Cut in		Contact system	Enclosure type W-waterproof	Connection type	Code no.
		[bar]	[psi]	[bar]	[psi]				
High pressure control	Auto	100±10	1450±145	70±20	1015±290	SPST-NC	W	6.35 mm / solder	061F9808 ¹⁾
	Auto	100±10	1450±145	70±20	1015±290	SPST-NC	W	6.35 mm / solder	061F9908 ²⁾
	Auto	110±10	1595±145	80±20	1160±290	SPST-NC	W	6.35 mm / solder	061F9809 ¹⁾
	Auto	110±10	1595±145	80±20	1160±290	SPST-NC	W	6.35 mm / solder	061F9909 ²⁾
	Auto	120±10	1740±145	90±20	1305±290	SPST-NC	W	6.35 mm / solder	061F9810 ¹⁾
	Auto	120±10	1740±145	90±20	1305±290	SPST-NC	W	6.35 mm / solder	061F9910 ²⁾
	Auto	130±10	1885±145	100±20	1450±290	SPST-NC	W	6.35 mm / solder	061F9811 ¹⁾
	Auto	140±10	2030±145	100±20	1450±290	SPST-NC	W	6.35 mm / solder	061F9812 ¹⁾
Auto	150±10	2175±145	100±20	1450±290	SPST-NC	W	6.35 mm / solder	061F9813 ¹⁾	

¹⁾ Models packed per 100 pcs.

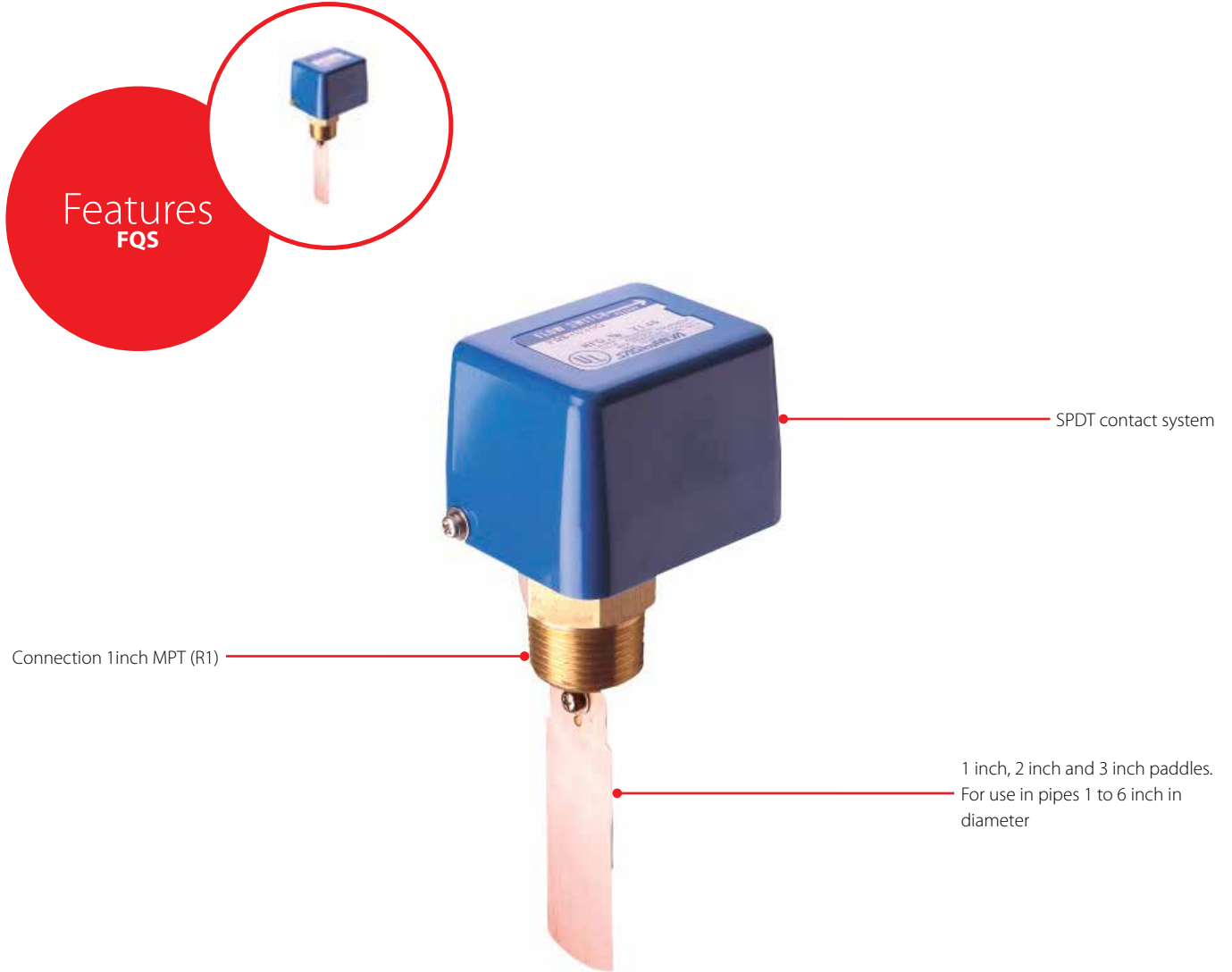
²⁾ Models packed per 20 pcs.

Quick Selection Notes:

FQS, Flow switch

Made by Saginomiya, the FQS flow switches are of the paddle type for general fluid line applications. The SPDT contact mechanism makes or breaks an electric circuit when flow starts or stops. The FQS flow switch can be used for any fluid compatible with copper alloy materials, which are the parts of the switch which come into contact with the fluid.

The electrical contact block is completely sealed from the fluid. The paddle consists of three segments that can be removed or trimmed and fixed to the switch for use in pipes from 1 to 6 inches in diameter. The standard paddles are made of copper alloy. Stainless steel paddles are also available.



Facts

Application:

- Chilled water applications for air-conditioning systems
- Water flow control for heat pumps
- Hot-water supply systems
- Fire-sprinkler systems
- Water, Glycol
- Simple mounting and wiring
- Fast and easy to adjust to different pipe sizes
- Water-proof version available if required
- Installation in vertical or horizontal position possible
- CE and UL approval
- SPDT contact system

Technical data and ordering

FQS - Flow switch

Ordering

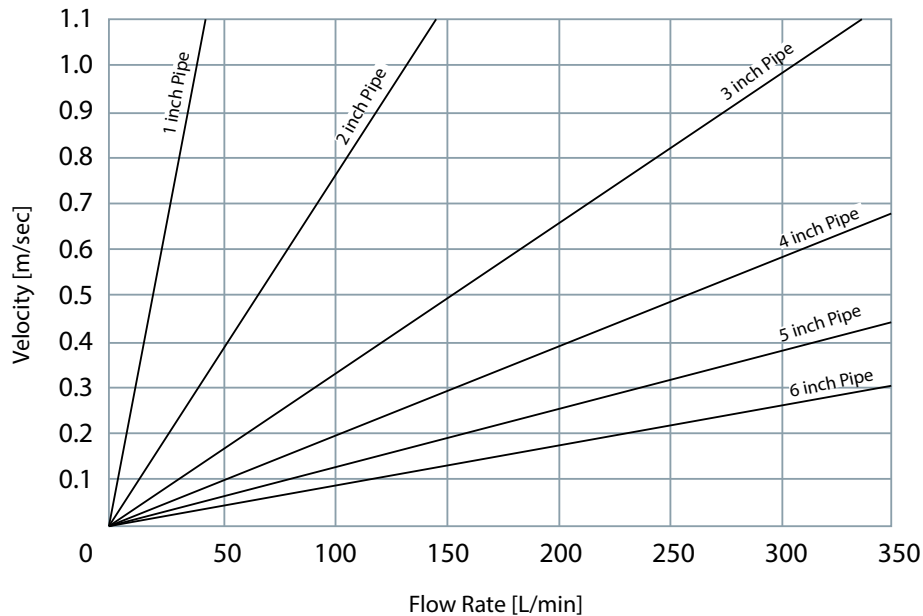
Type	Approvals	Paddle size [in]	Usable line size [in]	Max. fluid pressure MPa [bar]	Connection [in]	IP value	Ambient temperature [°C]	Fluid temperature [°C]	Ambient humidity RH [%]	Code no.
FQS-U30G	CE, UL	1,2 and 3 ¹⁾	1 – 6	0.98 (10)	1 MPT (R1)	20	25 – 80	5 – 80	80	061H4000
FQS-W30G	CE	1,2 and 3 ¹⁾	1 – 6	0.98 (10)	1 MPT (R1)	42	25 – 80	5 – 80	95	061H4005

¹⁾ 6 inch paddle (material: stainless steel) is available upon request.

Electrical data

Current [A]	Model	Standard	
		Voltage [V]	
		125 V [AC]	250 V [AC]
Full Load Amp.		3.5	2.5
Locked Rotor Amp.		21	15
Non-Inductive Amp.		15	15

Flow amount - flow velocity characteristics

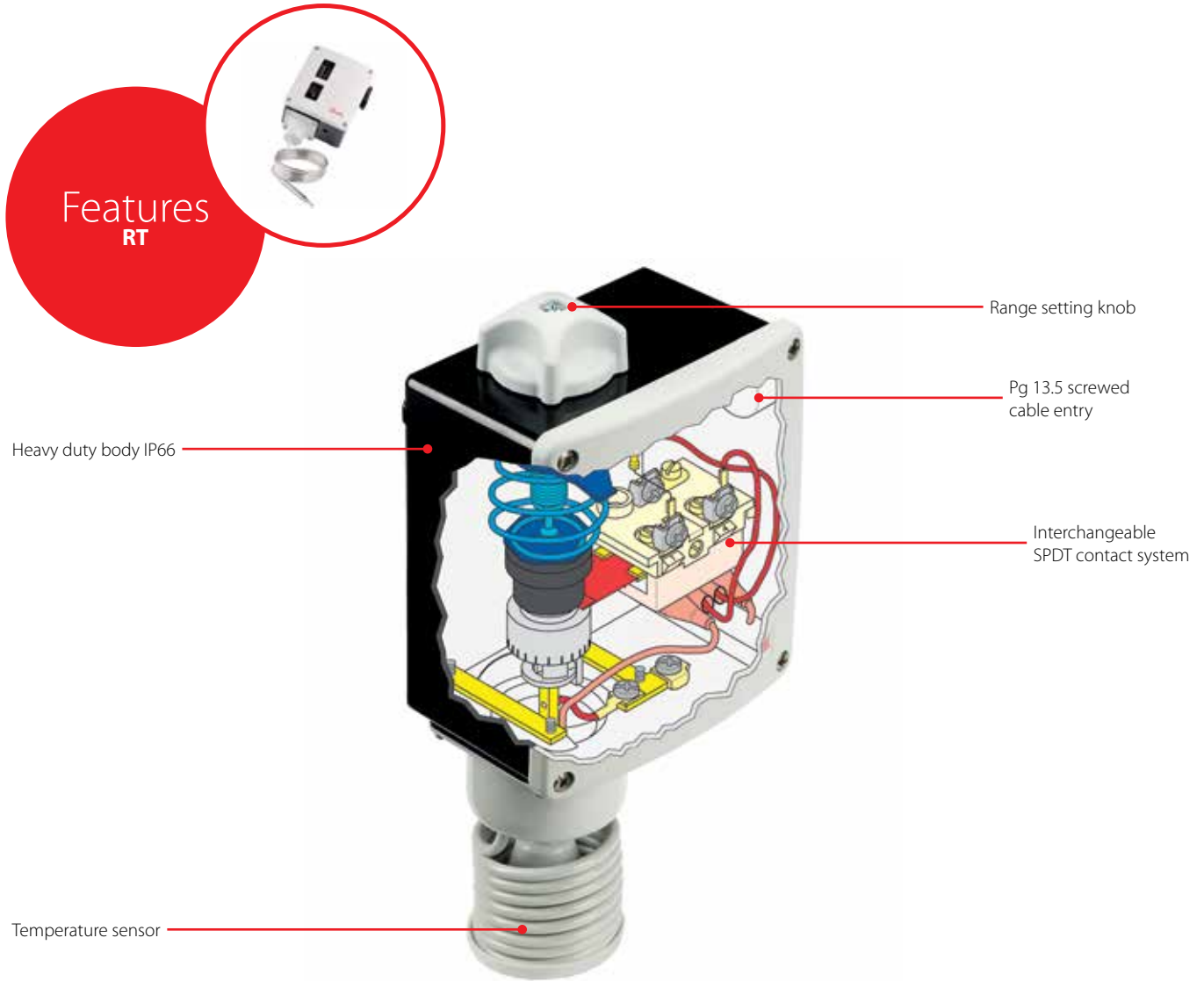


Q : Flow Amount (liter/min.)
 V : Velocity (m/sec.)
 d : Pipe I.D. (mm)
 $Q = \pi d^2 / 4 \times V \times 6 \times 10^2$ (liter/min.)

RT, Thermostat

RT thermostats are fitted with a single-pole changeover switch. The position of the contacts depends on the bulb temperature and the set scale value. The RT series includes thermostats for general applications within industrial and marine refrigeration.

The RT series also includes differential thermostats, thermostats for neutral zone regulation, and special thermostats with gold-plated contact surface for PLC applications.



Facts

Application:

- General applications within industrial and marine refrigeration

- Wide regulating range
- Suitable for both alternating and direct current (AC and DC)
- Interchangeable contact system
- High stability and accuracy
- Long operating life time
- Enclosure: IP66 to EN 60529 / IEC 60529, except for versions with ext. reset which are IP54

- Insulation 400 V
- Ambient temperature: -50 – 70 °C for housing
- Special versions for PLC applications
- Cable connection: Pg 13.5
- Cable diameter: 6 – 14 mm

Technical data and ordering

RT thermostats

Ordering

Type	Charge type	Sensor type	Regulation range [°C]	Differential Δt		Reset	Max. sensor temp. [°C]	Capillary tube length [m]	Code no.
				Lowest temp. setting [°C]	Highest temp. setting [°C]				
RT 9	State Vapour ¹⁾	A	-45 – -15	2.2 – 10	1 – 4.5	Auto	150	2	017-506666
RT 3	State Vapour ¹⁾	A	-25 – 15	2.8 – 10	1 – 4	Auto	150	2	017-501466
RT 17	State Vapour ¹⁾	B	-50 – -15	2.2 – 7	1.5 – 5	Auto	100	–	017-511766
RT 11	State Vapour ¹⁾	B	-30 – 0	1.5 – 6	1 – 3	Auto	66	–	017-508366
RT 4	State Vapour ¹⁾	B	-5 – 30	1.5 – 7	1.2 – 4	Auto	75	–	017-503666 017-503766 ⁴⁾
RT 13	State Vapour ¹⁾	A	-30 – 0	1.5 – 6	1 – 3	Auto	150	2	017-509766
RT 2	Adsorption ²⁾	A	-25 – 15	5 – 18	6 – 20	Auto	150	2	017-500866
RT 8	Adsorption ²⁾	A	-20 – 12	1.5 – 7	1.5 – 7	Auto	145	2	017-506366
RT 12	Adsorption ²⁾	A	-5 – 10	1 – 3.5	1 – 3	Auto	65	2	017-508966
RT 23	Adsorption ²⁾	A	5 – 22	1.1 – 3	1 – 3	Auto	85	2	017-527866
RT 15	Adsorption ²⁾	A	8 – 32	1.6 – 8	1.6 – 8	Auto	150	2	017-511566
RT 24	Adsorption ²⁾	A	15 – 34	1.4 – 4	1.4 – 3.5	Auto	105	2	017-528566
RT 140	Adsorption ²⁾	C	15 – 45	1.8 – 8	2.5 – 11	Auto	240	2	017-523666
RT 102	Adsorption ²⁾	D	25 – 90	2.4 – 10	3.5 – 20	Auto	300	2	017-514766
RT 34	Adsorption ²⁾	B	-25 – 15	2 – 10	2 – 12	Auto	100	–	017-511866
RT 7	Adsorption ²⁾	A	-25 – 15	2 – 10	2.5 – 14	Auto	150	2	017-505366
RT 14	Adsorption ²⁾	A	-5 – 30	2 – 8	2 – 10	Auto	150	2	017-509966
RT 101	Adsorption ²⁾	A	25 – 90	2.4 – 10	3.5 – 20	Auto	300	2	017-500366
RT 107	Partial ³⁾	A	70 – 150	6 – 25	1.8 – 8	Auto	215	2	017-513566

¹⁾ The sensor must be located colder than thermostat housing and capillary tube.

²⁾ The sensor can be located warmer or colder than thermostat housing.

³⁾ The sensor must be located warmer than thermostat housing and capillary tube.

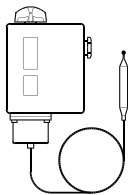
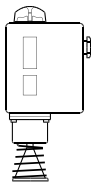
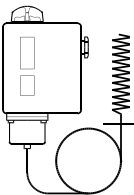
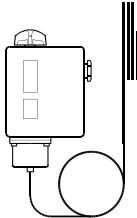
⁴⁾ With built-in heating coil, reduces the thermal differential.

RT thermostats with adjustable neutral zone

Ordering

Type	Charge	Sensor type	Regulation range [°C]	Mechanical differential [K]	Neutral zone NZ		Max. sensor temp. [°C]	Capillary tube length [m]	Code no.
					At min. range setting [K]	At max. range setting [K]			
RT 16L	Vapour	B	0 – 38	1.5 – 0.7	1.5 – 5	0.7 – 1.9	100	–	017L002466
RT 8L	Adsorption	A	-20 – 12	1.5	1.5 – 4.4	1.5 – 4.9	145	2	017L003066
RT 14L	Adsorption	A	-5 – 30	1.5	1.5 – 5	1.5 – 5	150	2	017L003466
RT 140L	Adsorption	C	15 – 45	1.8 – 2	1.8 – 4.5	2.0 – 5	240	2	017L003166
RT 101L	Adsorption	A	25 – 90	2.5 – 3.5	2.5 – 7	3.5 – 12.5	300	2	017L006266

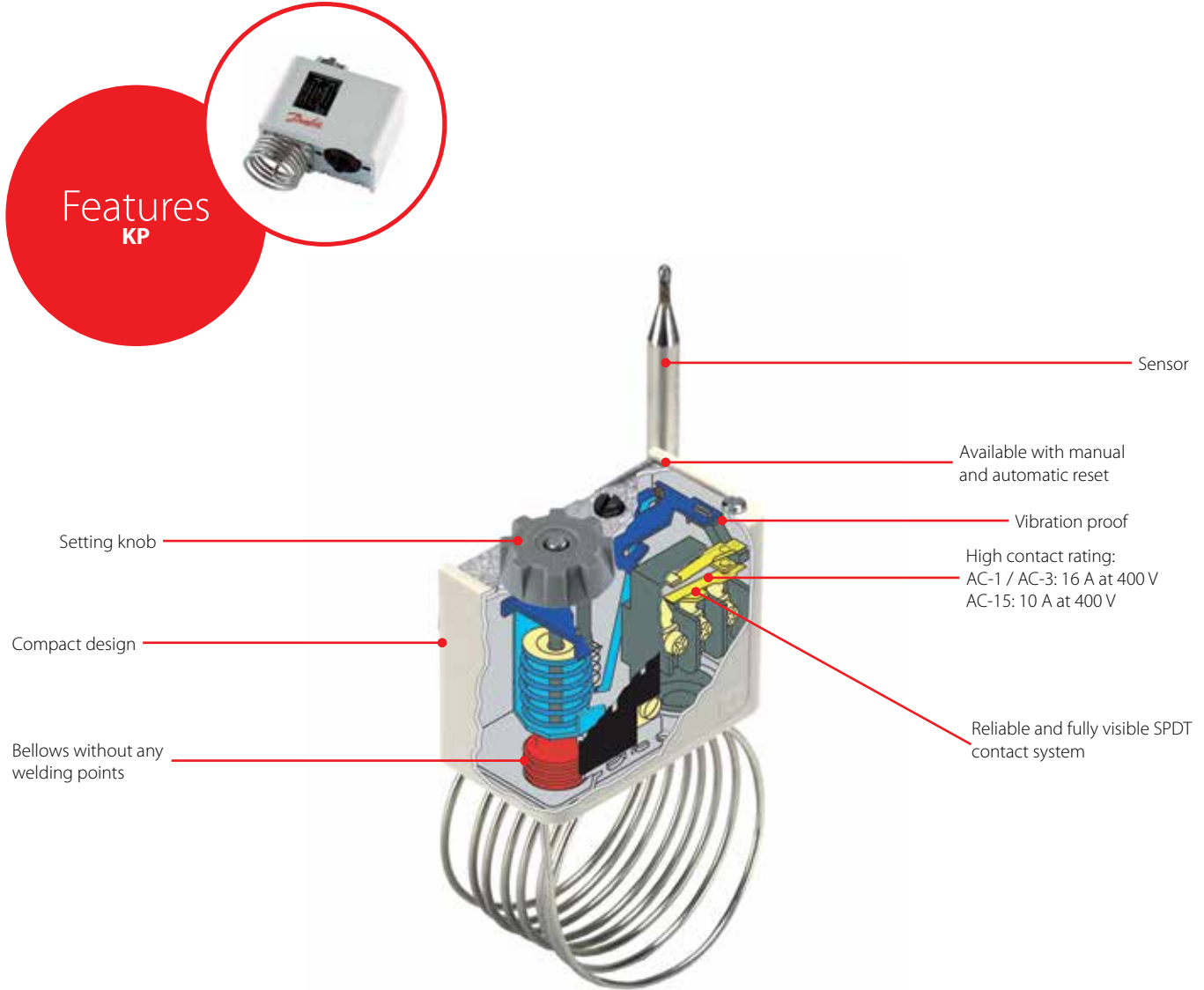
Type of sensor

A	B	C	D
			
Cylindrical remote sensor	Room sensor	Duct sensor	Capillary tube sensor

KP, Thermostat

KP thermostats are single-pole, double-throw (SPDT) temperature-operated electric switches. KP thermostats can be connected directly to a single-phase AC motor of up to approximately 2 kW or installed in the control circuit of DC motors and large AC motors.

KP thermostats are used primarily for regulation, but also for safety monitoring systems, and are available with vapour charge or with adsorption charge. With vapour charge the differential is very small. KP thermostats with adsorption charge are widely used to give frost protection.



Facts

Application:

- Frost protection
- Defrost control
- Case and Room control

- Easy to handle compact design with large and visible scale plates
- Vibration and shock resistant
- High reliability both electrically and mechanically – a KP control can be connected directly to a single-phase AC motor of up to approximately 2 kW or installed in the control circuit of DC motors and large AC motors
- Wide range of approvals - Danfoss offers a wide range of approvals suited for specific applications and geographical markets
- Available with capillary sensor, air sensor or cylindrical pocket sensor
- Different sensing elements - As experts in charging technologies Danfoss offers temperature switches that operate in a wide temperature range
- Available with vapour charge or with adsorption charge
- IP30 can be increased to IP44 or IP55 using top plate or IP55 enclosure available as accessories

Technical data and ordering

KP thermostats

Ordering

Sensor type	Charge	Bulb type	Regulation range [°C]	Differential Δt		Reset	Max. bulb temp. [°C]	Capillary tube length [m]	Code no.
				Lowest temperature [°C]	Lowest temperature [°C]				
KP 61	Vapour ¹⁾	A	-30 – 15	5.5 – 23	1.5 – 7	Auto	120	2	060L110066
	Vapour ¹⁾	A	-30 – 15	5.5 – 23	1.5 – 7	Auto	120	5	060L110166
	Vapour ¹⁾	B	-30 – 13	4.5 – 23	1.2 – 7	Auto	120	2	060L110266
	Vapour ¹⁾	B	-30 – 15	5.5 – 23	1.5 – 7	Auto	120	2	060L110366 ³⁾
	Vapour ¹⁾	B	-30 – 15	5.5 – 23	1.5 – 7	Auto	120	2	060L112866 ³⁾ ⁴⁾
	Vapour ¹⁾	A	-30 – 15	Fixed 6	Fixed 2	Min.	120	5	060L110466
KP 62	Vapour ¹⁾	B	-30 – 15	Fixed 6	Fixed 2	Min.	120	2	060L110566
	Vapour ¹⁾	C 1	-30 – 15	6.0 – 23	1.5 – 7	Auto	120	–	060L110666
KP 63	Vapour ¹⁾	A	-50 – 10	10.0 – 70	2.7 – 8	Auto	120	2	060L110766
	Vapour ¹⁾	B	-50 – 10	10.0 – 70	2.7 – 8	Auto	120	2	060L110866
KP 68	Vapour ¹⁾	C 1	-5 – 35	4.5 – 25	1.8 – 7	Auto	120	–	060L111166
KP 69	Vapour ¹⁾	B	-5 – 35	4.5 – 25	1.8 – 7	Auto	120	2	060L111266
KP 62	Adsorbtion ²⁾	C 2	-30 – 15	5.0 – 20	2.0 – 8	Auto	80	–	060L111066 ³⁾ ⁴⁾
KP 71	Adsorbtion ²⁾	E 2	-5 – 20	3.0 – 10	2.2 – 9	Auto	80	2	060L111366
	Adsorbtion ²⁾	E 2	-5 – 20	Fixed 3	Fixed 3	Min.	80	2	060L111566
KP 73	Adsorbtion ²⁾	E 1	-25 – 15	12.0 – 70	8.0 – 25	Auto	80	2	060L111766
	Adsorbtion ²⁾	D 1	-25 – 15	4.0 – 10	3.5 – 9	Auto	80	2	060L111866 ³⁾
	Adsorbtion ²⁾	D 1	-25 – 15	Fixed 3.5	Fixed 3.5	Min.	80	2	060L113866
	Adsorbtion ²⁾	D 2	-20 – 15	4.0 – 15	2.0 – 13	Auto	55	3	060L114066
KP 75	Adsorbtion ²⁾	D 1	-25 – 15	3.5 – 20	3.25 – 18	Auto	80	2	060L114366
	Adsorbtion ²⁾	F	0 – 35	3.5 – 16	2.5 – 12	Auto	110	2	060L112066
KP 77	Adsorbtion ²⁾	E 2	0 – 35	3.5 – 16	2.5 – 12	Auto	110	2	060L113766
	Adsorbtion ²⁾	E 3	20 – 60	3.5 – 10	3.5 – 10	Auto	130	2	060L112166
KP 77	Adsorbtion ²⁾	E 3	20 – 60	3.5 – 10	3.5 – 10	Auto	130	3	060L112266
	Adsorbtion ²⁾	E 2	20 – 60	3.5 – 10	3.5 – 10	Auto	130	5	060L116866
KP 79	Adsorbtion ²⁾	E 3	50 – 100	5.0 – 15	5.0 – 15	Auto	150	2	060L112666
KP 81	Adsorbtion ²⁾	E 3	80 – 150	7.0 – 20	7.0 – 20	Auto	200	2	060L112566
	Adsorbtion ²⁾	E 3	80 – 150	Fixed 8	Fixed 8	Max.	200	2	060L115566
KP 98	Adsorbtion ²⁾	E 2	OIL: 60 – 120	OIL: Fixed 14	OIL: Fixed 14	Max.	150	1	060L113166
	Adsorbtion ²⁾	E 2	HT: 100 – 180	HT: Fixed 25	HT: Fixed 25	Max.	250	2	


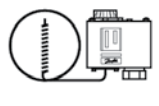

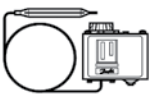
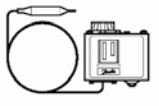
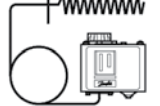
¹⁾ Sensor must always be placed colder than the thermostat housing and capillary tube. The thermostat will then regulate independent of ambient temperature.

²⁾ Sensor can be placed warmer or colder than thermostat housing and capillary tube, but variations from 20 °C ambient temperature will influence the scale accuracy.

³⁾ With manual switch, not isolating switch.

⁴⁾ Panel mounting model with top plate.

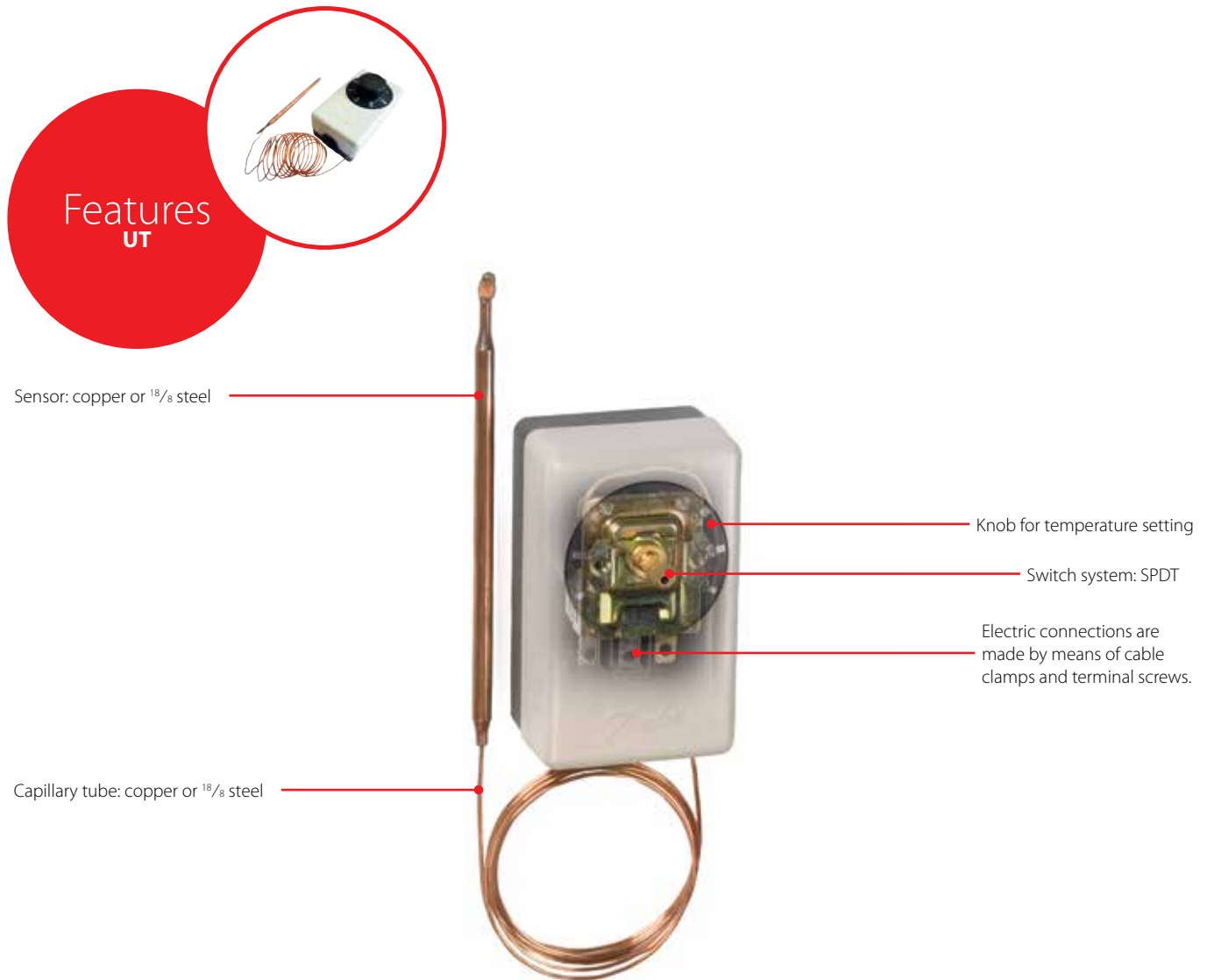
Thermostat sensor types

A	B	C	D	E	F
					
Straight capillary tube	ø9.5 × 70 mm remote air coil	C1: ø40 × 30 mm air coil C2: ø25 × 67 mm air coil (integral with thermostat)	D1: ø10 × 85 mm double contact remote sensor D2: ø16 × 170 mm double contact remote sensor Note! Cannot be used in sensor pocket	E1: ø6.4 × 95 mm remote sensor E2: ø9.5 × 115 mm remote sensor E3: ø9.5 × 85 mm remote sensor	ø25 × 125 mm remote duct coil

UT, Thermostat

UT thermostats are temperature controlled electric switches with stainless steel $18/8$ or copper capillary tube and sensor. The temperature can be set easily and accurately using the large knob on the front of the thermostat.

The temperature must be set to correspond to the required mean temperature. The thermostat has a fixed differential.



Facts

Application:

- Cold rooms
- Beverage coolers
- Ice cream makers
- Milk coolers
- Air conditioning plant
- Heat recovery systems

- UT is available for wall or panel mounting
- UT for wall mounting: IP20 to EN 60529 / IEC 52
- UT for panel mounting: IP00 to EN 60529 / IEC 529
- UT 72 for universal purposes: -30 – 30 °C

- UT 73 for frost protection: 0 – 40 °C
- Differential is fixed 2.3 °C
- Automatic reset
- Contact load:
 - AC 1: 10 A, 250 / 380 V

Technical data and ordering



UT thermostats

Ordering

Type	Version	Regulation range [°C]	Differential [°C]	Reset	Max. sensor temperature [°C]	Capillary tube length [m]	Quantity	Connection type	Code no.
UT 72	Wall mounting	-30 – 30	2.3	Auto	60	2.0	1	Copper	060H1501
	Wall mounting	-30 – 30	2.3	Auto	60	2.0	1	¹⁸ / ₈ steel	060H1506
	Wall mounting	-30 – 30	2.3	Auto	60	2.0	1	Copper	060H1503 ¹⁾
	Wall mounting	-30 – 30	2.3	Auto	60	3.0	1	Copper	060H1505
	Wall mounting	-30 – 30	2.3	Auto	60	3.0	24	Copper	060H1508
UT 73	Panel mounting	-30 – 30	2.3	Auto	60	3.0	48	Copper	060H1605
	Wall mounting	0 – 40	2.3	Auto	90	2.0	1	Copper	060H1502
	Panel mounting	0 – 40	2.3	Auto	90	2.0	48	Copper	060H1502

¹⁾Included bulb clamps.

Accessories

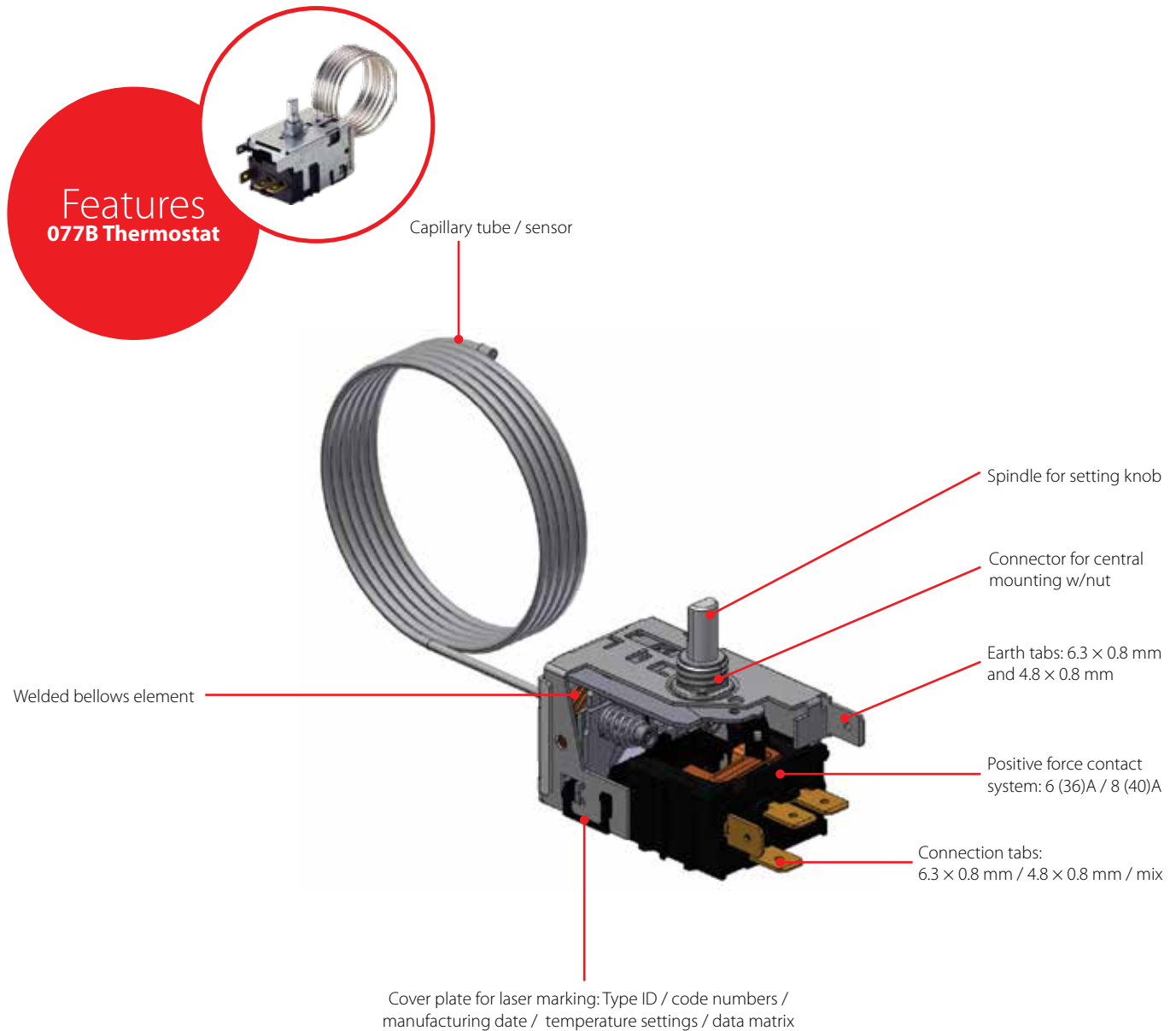
Version	UT 72	UT 73
Setting knob	060-1067	060-1096
Bulb clamp	060-1090	060-1090

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077B, Thermostat

077B thermostats have NC (Normally Closed) main contacts; i.e. they cut out the compressor current circuit on decreasing temperature. 077B thermostats are designed to operate at least 300,000 cycles at full load (6/36A and 8/40A respectively); internal quality audits

reinforced product performance by metering over 1,000,000 cycles. 077B thermostats are designed for temperature control in refrigerators and freezers and can be used as an evaporator or a room thermostat.



Facts

Application:

- Refrigerators
- Upright and chest freezers
- Liquid and bottle coolers
- Small commercial refrigeration

- World class quality with high CpK values that ensures a long and trouble-free lifetime
- Available with Enclosed Brake Device (EBD) for use in household appliances charged with hydrocarbon gases such as R600a or R290
- Available with a wide range of standard functions, various extra functions and accessories
- Available with 6.3 x 0.8 mm, 4.8 x 0.8 mm terminals or a combination
- Approved by recognized authorities for

specific applications and geographical markets

- Danfoss Appliance Controls are certified by Bureau Veritas in ISO14001, ISO9001 and OHSAS18001

Technical data and ordering

077B thermostats

Ordering

077B thermostat type	Application	Function	Temperature °C at 760 mm Hg					Signal	Defrost	Capillary tube length	Code no.
			Thermostat position								
			Warm Cut-in / cut-out	Middle Cut-in / cut-out	Cold Cut-in / cut-out						
077B0	Refrigerators	Without extra functionality	3.5 / -3 *)	0 / -7	-5.4 / -12	-	-	1.0	077B0020		
	Refrigerators	Without extra functionality	-2 / -11 *)	-5.5 / -15	-10 / -20.5	-	-	1.0	077B0021		
	Refrigerators	Without extra functionality	2.5 / -5 *)	-	-13.5 / -24.5	-	-	1.2	077B0033		
	Refrigerators	Without extra functionality	2 / -5.5	-	-13.5 / -25 *)	-	-	1.3	077B7001 ¹⁾		
	Ice-cream cabinets and freezers without signal	Without extra functionality	-7.5 / -15 *)	-	-22 / -33.1	-	-	2.0	077B0102		
	Ice-cream cabinets and freezers without signal	Without extra functionality	-7.5 / -15	-	-21 / -32.5 *)	-	-	2.3	077B7005 ¹⁾		
	Liquid and bottle coolers	Without extra functionality (liquid)	15.5 / 9	12 / 5	8 / 0.5 *)	-	-	1.2	077B0027		
	Liquid and bottle coolers	Without extra functionality (bottle)	10.5 / 5	0 / -7	3 / -4.5 *)	-	-	1.2	077B0028		
	Liquid and bottle coolers	Without extra functionality (bottle)	10.9 / 5.2	-	-1 / -8.5 *)	-	-	2.0	077B0155		
	Liquid and bottle coolers	Without extra functionality (bottle & liquid)	11.5 / 6 *)	-	-1 / -8.5	-	-	2.0	077B7008 ¹⁾		
077B02	Chest and Upright freezers	Without extra functionality	-15 / -23 *)	-18 / -27	-22 / -32	-	-	0.8	077B0025		
	Absorption coolers	With auxiliary contact	3.5 / -1 *)	-2 / -7	-7 / -12.5	-	-	1.2	077B0220		
077B20	Absorption coolers	With auxiliary contact	3.5 / -1 *)	-	-5 / -11	-	-	1.5	077B7004 ¹⁾		
	Chest and Upright freezers	With signal contact, cutting in on rising temperature	-15 / -23 *)	-18 / -27	-22 / -32	-12 *)	-	0.8	077B2020		
	Chest and Upright freezers	With signal contact, cutting in on rising temperature	-10 / -17 *)	-	-24 / -34.7	-6 *)	-	2.0	077B2077		
077B30	Chest and Upright freezers	With signal contact, cutting in on rising temperature (active signal)	-10 / -17 *)	-	-24 / -34.5	-6 *)	-	2.3	077B7006 ¹⁾		
	Chest and Upright freezers	With signal contact, cutting out on rising temperature (passive signal)	-10 / -17 *)	-	-24 / -34.5	-6 *)	-	2.3	077B7007 ¹⁾ ²⁾		
077B40	Refrigerators with pushbutton defrost	With push button defrost	0 / -7.5 *)	-	-11 / -21	-	6	1.3	077B7002 ¹⁾		
077B6/62	Two-temperature cabinets with automatic defrost	With constant cut-in temperature, automatic defrost and auxiliary contact	3.5 / -12.5	3.5 / -17.5	3.5 / -23 *)	-	-	1.0	077B6021		
	Two-temperature cabinets with automatic defrost	With constant cut-in temperature, automatic defrost and auxiliary contact	3.5 / -11	-	3.5 / -27 *)	-	-	1.2	077B6208		
	Two-temperature cabinets with automatic defrost	With constant cut-in temperature, automatic defrost and auxiliary contact	3.5 / -10	3.5 / -15	3.5 / -20 *)	-	-	1.0	077B6220		
	Two-temperature cabinets with automatic defrost	With constant cut-in temperature, automatic defrost and auxiliary contact	3.5 / -11	-	3.5 / -27 *)	-	-	2.0	077B6476		
	Two-temperature cabinets with automatic defrost	With constant cut-in temperature, automatic defrost and auxiliary contact	3.5 / -11	-	3.5 / -27.5 *)	-	-	1.6	077B7003 ¹⁾		
	Two-temperature cabinets with automatic defrost	With constant cut-in temperature, automatic defrost and changeover contact	5 / -10 *)	-	5 / -30	-	-	1.5	077B6321		

*) Adjustment position

¹⁾ Forming part of the 8 Service Thermostats, sold with accessories in practical boxes

²⁾ Available for After Market Sales

Technical data and ordering

Service thermostats

Ordering

Application	No.	Temperatures [°C]				Accessories						Capillary tube length [m]	Remarks	Code no.
		Warm pos. cut-in / cut out	Cold pos. cut-in / cut out	Signal	Defrosting	Washer	Small knob	Push-button	Mounting bracket	Seal cap	Small parts			
Refrigerators	1	2 / -5.5	-13.5 / -25 *)	-	-	x	x	-	x	-	x	1.3	-	077B7001 ¹⁾
Refrigerators with pushbutton defrost	2	0 / -7.5 *)	-11 / -21	-	6	x	x	x	x	-	x	1.3	-	077B7002
Refrigerators with automatic defrost	3	3.5 / -11	3.5 / -27.5 *)	-	-	x	x	-	x	-	x	1.6	With auxillary switch	077B7003 ¹⁾
Absorption refrigerators	4	3.5 / -1 *)	-5 / -11	-	-	x	x	-	x	-	x	1.5	With auxillary switch	077B7004 ¹⁾
Ice-cream cabinets and freezers without signal	5	-7.5 / -15	-21 / -32.5 *)	-	-	-	x	-	x	x	x	2.3	-	077B7005 ¹⁾
Freezers with active signal	6	-10 / -17 *)	-24 / -34.5	-6 *)	-	-	x	-	x	x	x	2.3	With active signal	077B7006 ¹⁾
Freezers with passive signal	7	-10 / -17 *)	-24 / -34.5	-6 *)	-	-	x	-	x	x	x	2.3	With passive signal	077B7007
Bottle and liquid coolers	8	11.5 / 6 *)	-1 / -8.5	-	-	x	x	-	x	x	x	2.0	-	077B7008 ¹⁾

*) Adjustment position

¹⁾ With EBD (from January 2017)

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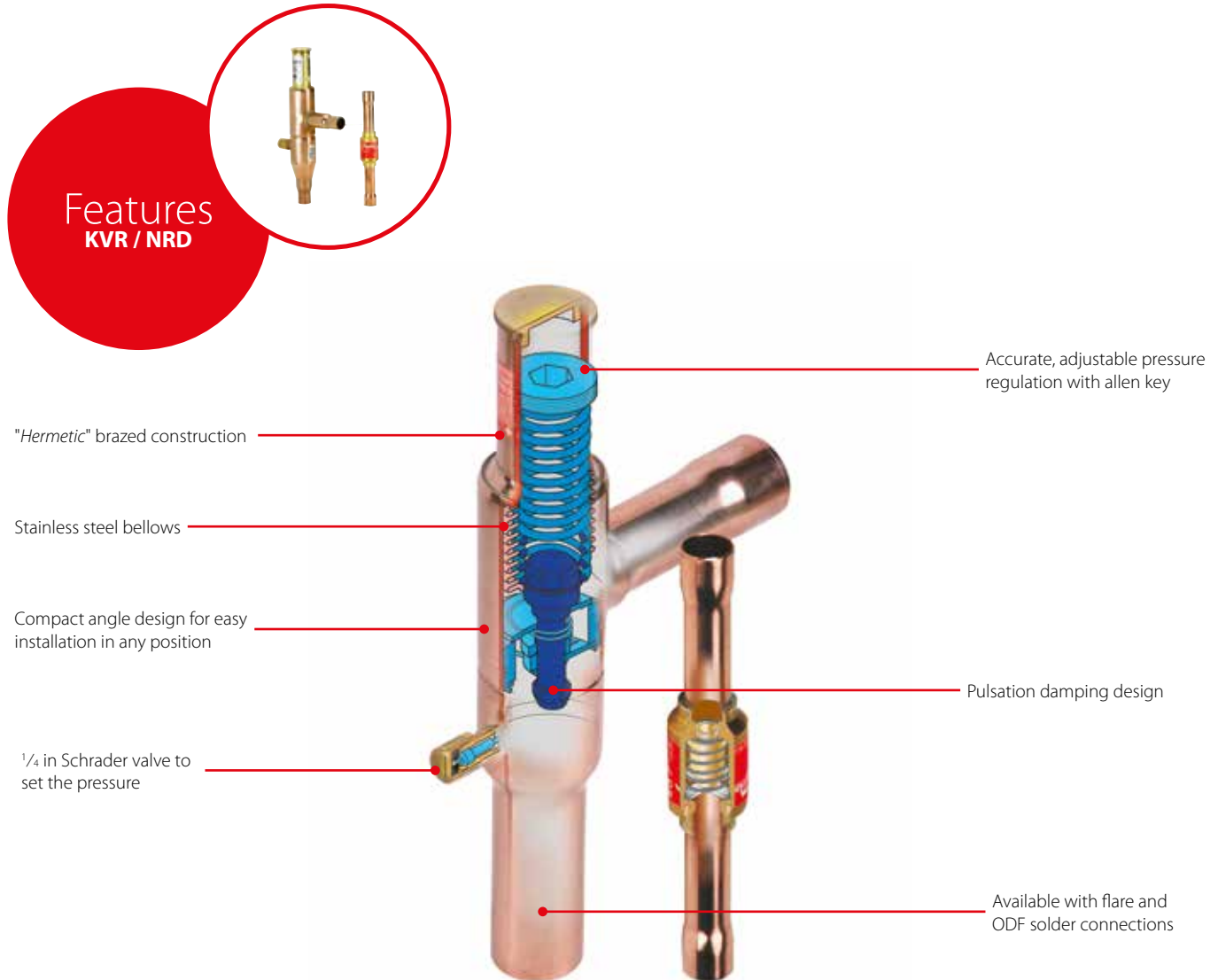
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KVR / NRD, Condensing pressure regulator / Differential pressure valve

KVR condensing pressure regulator valves can be mounted on either the gas or liquid side of the condenser in refrigeration and air conditioning systems.

They are used to maintain a constant and sufficiently high condensing pressure with systems using air-cooled condensers. KVR condensing pressure regulators can also be used with valve types NRD or KVD to assure that adequate pressure is maintained on the receiver.



Facts

Application:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

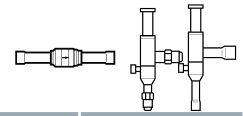
- The regulators are the most compact on the market
- Excellent performance because of balanced port design (equalization of force on port)

- The refrigeration system can operate with very large load variations
- Very easy to adjust the KVR
- The NRD is non-adjustable
 - it is activated when pressure differential between discharge line and receiver exceeds 1.4 bar
- Reliable design
- KVR can be installed either in discharge line or liquid line
- Wide capacity and operating range
- Regulation range: 5 – 17.5 bar / 73 – 254 psig

- KVR 12 – 22, NRD: applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A *), R513A, R600, R600a
 - *) Not applicable for NRD
- KVR 12 – 22 and NRD: May be used in the following EX range: Category 3 (Zone 2)
- KVR 28 – 35: applicable to R134a, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A
- Maximum working pressure
 - KVR: PS / MWP = 28 bar / 406 psig
 - NRD: PS / MWP = 46 bar / 667 psig

Technical data and ordering

KVR / NRD - Condensing pressure regulator / Differential pressure valve



Ordering

Type	Rated liquid capacity in [kW] / [TR] ¹⁾						Rated hot gas capacity in [kW] / [TR] ¹⁾						Connection type	Connection size		Code no.
	R134a		R404A / R507		R407C		R134a		R404A / R507		R407C			[in]	[mm]	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]				
KVR 12	47.3	11.8	36.6	8.2	54.4	13.8	11.6	3.03	12.0	3.27	14.3	4.50	Flare ²⁾	1/2	12	034L0091
	47.3	11.8	36.6	8.2	54.4	13.8	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF ³⁾	1/2	-	034L0093
	47.3	11.8	36.6	8.2	54.4	13.8	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF ³⁾	-	12	034L0096
KVR 15	47.3	11.8	36.6	8.2	54.4	13.8	11.6	3.03	12.0	3.27	14.3	4.50	Flare ²⁾	5/8	16	034L0092
	47.3	11.8	36.6	8.2	54.4	13.8	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF ³⁾	5/8	16	034L0097
KVR 22	47.3	11.8	36.6	8.2	54.4	13.8	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF ³⁾	7/8	22	034L0094
KVR 28	121	30.2	93.7	20.9	139.3	35.5	30.6	8.04	34.9	8.66	37.7	11.91	Solder, ODF ³⁾	1 1/8	-	034L0095
	121	30.2	93.7	20.9	139.3	35.5	30.6	8.04	34.9	8.66	37.7	11.91	Solder, ODF ³⁾	-	28	034L0099
KVR 35	121	30.2	93.7	20.9	139.3	35.5	30.6	8.04	34.9	8.66	37.7	11.91	Solder, ODF ³⁾	1 3/8	35	034L0100
NRD	-	-	-	-	-	-	-	-	-	-	-	-	Solder, ODF ³⁾	1/2	-	020-1132
	-	-	-	-	-	-	-	-	-	-	-	-	Solder, ODF ³⁾	-	12	020-1136

¹⁾ Rated capacity is based on:

- evaporating temperature $t_e = -10\text{ }^\circ\text{C} / 14\text{ }^\circ\text{F}$

- condensing temperature $t_c = 30\text{ }^\circ\text{C} / 110\text{ }^\circ\text{F}$

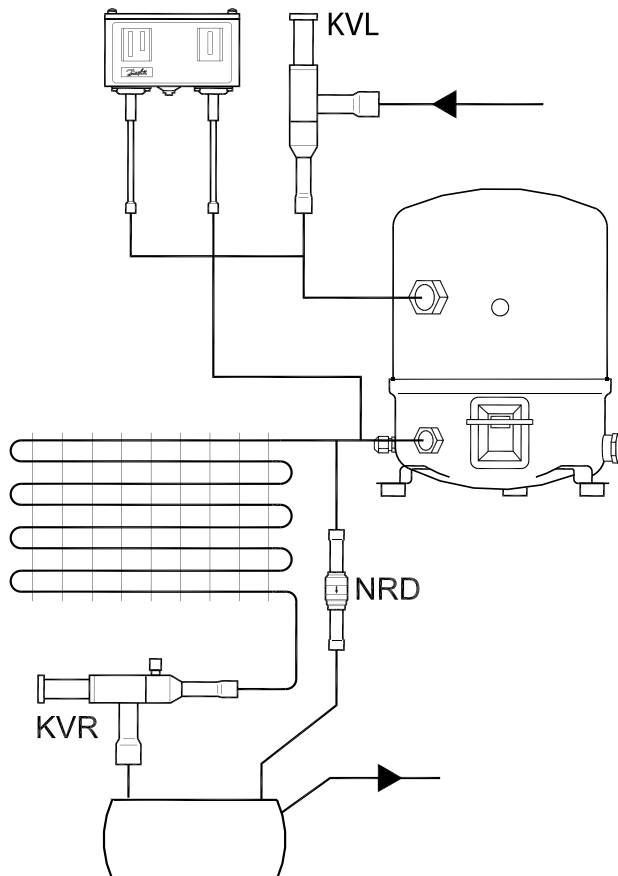
- pressure drop across the valve $\Delta p = 0.2\text{ bar} / 3\text{ psi}$ for liquid capacity, $\Delta p = 0.4\text{ bar} / 6\text{ psi}$ for hot gas capacity, offset = 3 bar / 45 psi

²⁾ KVR are delivered without flare nuts. Separate flare nuts can be supplied: 1/2 in / 12 mm - code no. 011L1103, 3/8 in / 16 mm - code no. 011L1167.

³⁾ The connection dimensions chosen must not be too small, as gas velocities in excess of 130 ft/s at the inlet of the regulator can give flow noise.

To select the product for other conditions or refrigerants, use Danfoss Coolselector*2.

Application example

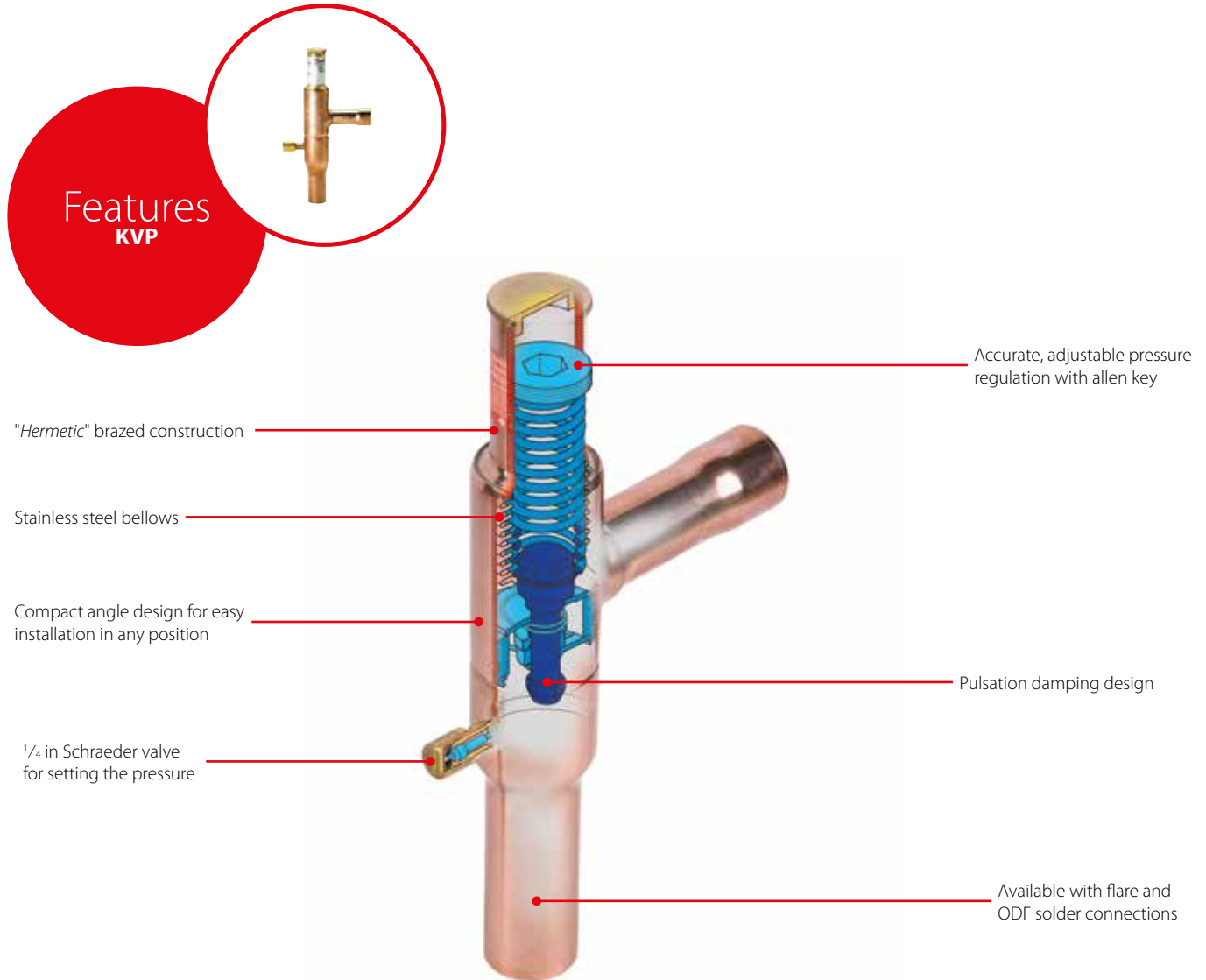


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KVP, Evaporator pressure regulator

KVP evaporating pressure regulators are mounted in the suction line of refrigeration and air conditioning systems. They are used to maintain a constant pressure corresponding to a constant temperature on the evaporator.

They also protect against too low an evaporating pressure by throttling down when the pressure falls below the set value.



Facts

Application:

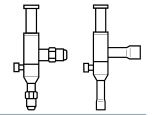
- Traditional refrigeration
- Air conditioning units
- Cold rooms
- Display cabinets

- The KVP can be used to differentiate the evaporating pressures in two or more evaporators in systems with one compressor
- Protection against a too low evaporating pressure: the regulator closes when the pressure in the evaporator falls below the set value
- Wide capacity and operating range

- Regulation range: 0 – 5.5 bar / 0 – 80 psig
- KVP 12 – 22: applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a
- KVP 12 – 22: May be used in the following EX range: Category 3 (Zone 2)
- KVP 28 – 35: applicable to R134a, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A
- Maximum working pressure: PS / MWP = 18 bar / 260 psig

Technical data and ordering

KVP - Evaporator pressure regulator



Ordering

Type	Rated capacity in [kW] / [TR] ¹⁾						Connection type	Connection size		Code no.
	R134a		R404A / R507		R407C			[in]	[mm]	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]				
KVP 12	2.8	0.9	3.6	1.2	3.7	1.2	Flare ²⁾ ³⁾	1/2	12	034L0021
	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF ³⁾	1/2	–	034L0023
	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF ³⁾	–	12	034L0028
KVP 15	2.8	0.9	3.6	1.2	3.7	1.2	Flare ²⁾ ³⁾	5/8	16	034L0022
	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF ³⁾	5/8	16	034L0029
KVP 22	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF ³⁾	7/8	22	034L0025
KVP 28	6.1	1.9	7.7	2.6	7.9	2.6	Solder, ODF ³⁾	1 1/8	–	034L0026
	6.1	1.9	7.7	2.6	7.9	2.6	Solder, ODF ³⁾	–	28	034L0031
KVP 35	6.1	1.9	7.7	2.6	7.9	2.6	Solder, ODF ³⁾	1 3/8	35	034L0032

¹⁾ Rated capacity is the capacity of the regulator at

– Evaporating temperature $t_e = -10\text{ °C} / 14\text{ °F}$

– Condensing temperature $t_c = 25\text{ °C} / 100\text{ °F}$

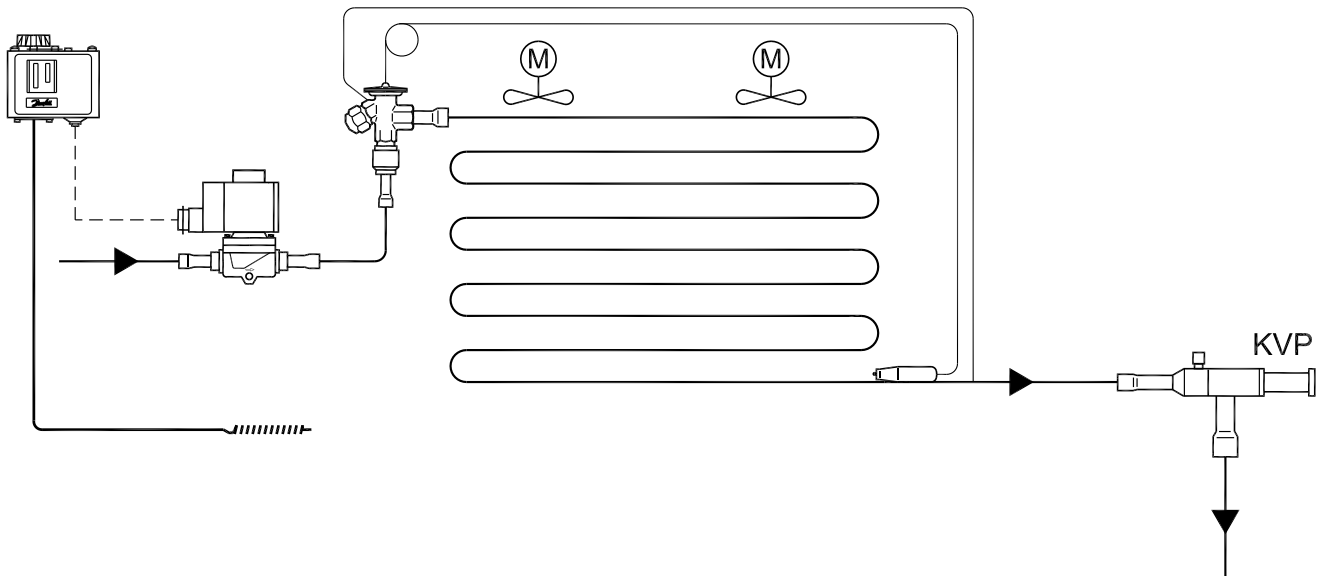
– Pressure drop in regulator $\Delta p = 0.2\text{ bar} / 2\text{ psi}$, offset = 0.6 bar / 9 psi

²⁾ Supplied without flare nuts. Separate flare nuts can be supplied: 1/2 in / 12 mm - code no. 011L1103; 5/8 in / 16 mm - code no. 011L1167.

³⁾ The connection dimensions chosen must not be too small, since gas velocities in excess of 40 m/s at the inlet of the regulator can give flow noise.

To select the product for other conditions or refrigerants, use Danfoss Coolselector[®]2.

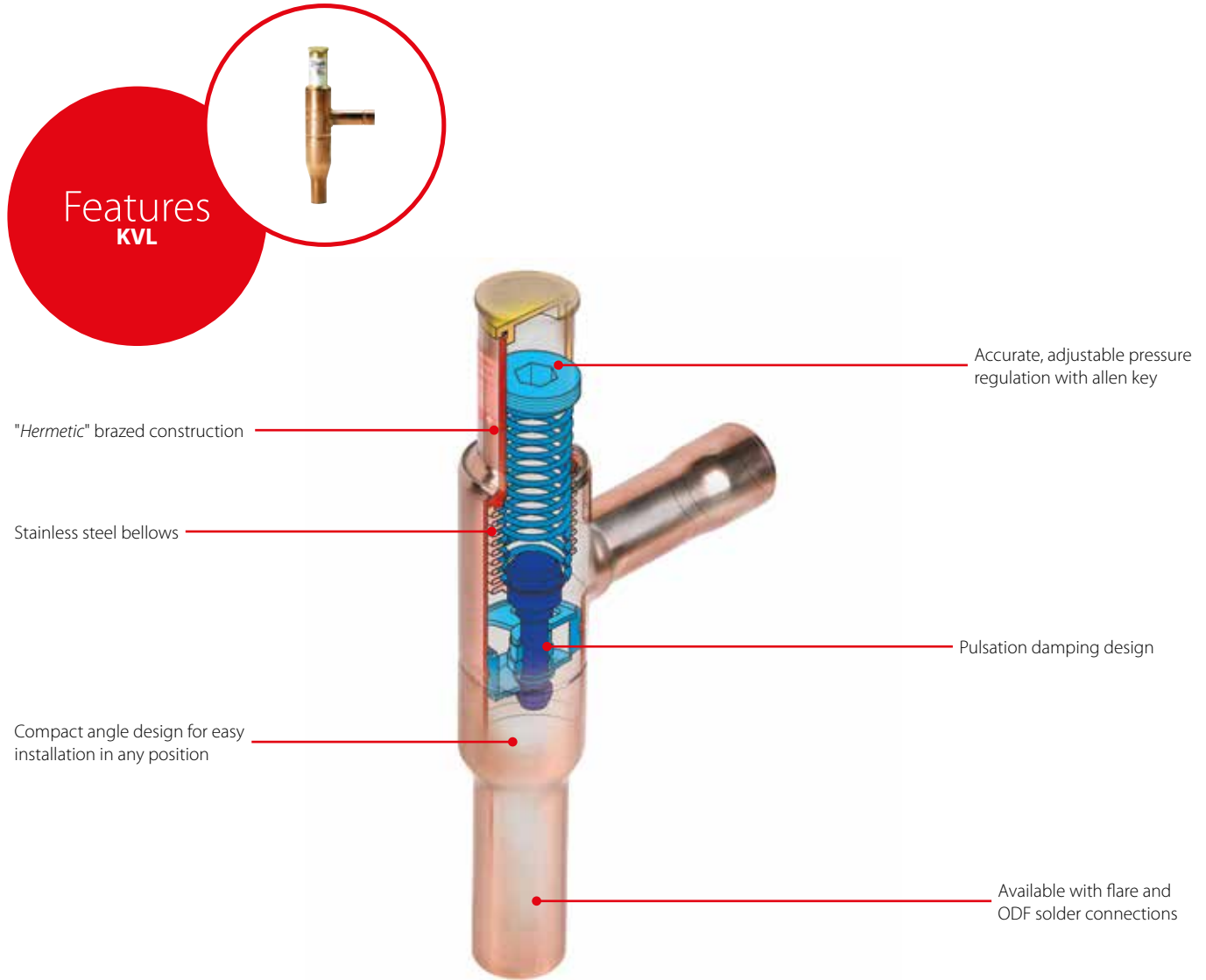
Application example



KVL, Crankcase pressure regulator

KVL crankcase pressure regulator valves are installed in the suction line ahead of the compressor.

KVL protects the compressor motor against overload during start-up after long standstill periods or after defrost periods (high pressure in evaporator).



Facts

Application:

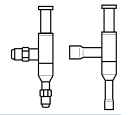
- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

- Unaffected by ambient pressure variations
- Bellows welded to the body for long lifetime
- Accurate, adjustable pressure regulation
- Easy adjustment before start up
- Protects the compressor against electrical motor overloading
- Wide capacity and operating range
- Regulation range: 0.2 – 6 bar / 3 – 87 psig

- KVL 12 – 22: applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a
- KVL 12 – 22: may be used in the following EX range: Category 3 (Zone 2)
- KVL 28 – 35: applicable to R134a, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A
- Maximum working pressure: PS / MWP = 18 bar / 261 psig

Technical data and ordering

KVL - Crankcase pressure regulator



Ordering

Type	Rated capacity in [kW] / [TR] ¹⁾						Connection type	Connection size		Code no.
	R134a		R404A / R507		R407C			[in]	[mm]	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]				
KVL 12	5.3	0.8	6.3	1.0	6.4	1.1	Flare ²⁾³⁾	1/2	12	034L0041
	5.3	0.8	6.3	1.0	6.4	1.1	Solder, ODF ³⁾	1/2	–	034L0043
	5.3	0.8	6.3	1.0	6.4	1.1	Solder, ODF ³⁾	–	12	034L0048
KVL 15	5.3	0.8	6.3	1.0	6.5	1.1	Flare ²⁾³⁾	5/8	16	034L0042
	5.3	0.8	6.3	1.0	6.5	1.1	Solder, ODF ³⁾	5/8	16	034L0049
KVL 22	5.3	0.8	6.3	1.0	6.5	1.1	Solder, ODF ³⁾	7/8	22	034L0045
KVL 28	13.2	2.6	15.9	3.4	16.4	3.8	Solder, ODF ³⁾	1 1/8	–	034L0046
	13.2	2.6	15.9	3.4	16.4	3.8	Solder, ODF ³⁾	–	28	034L0051
KVL 35	13.2	2.6	15.9	3.4	16.4	3.8	Solder, ODF ³⁾	1 3/8	35	034L0052

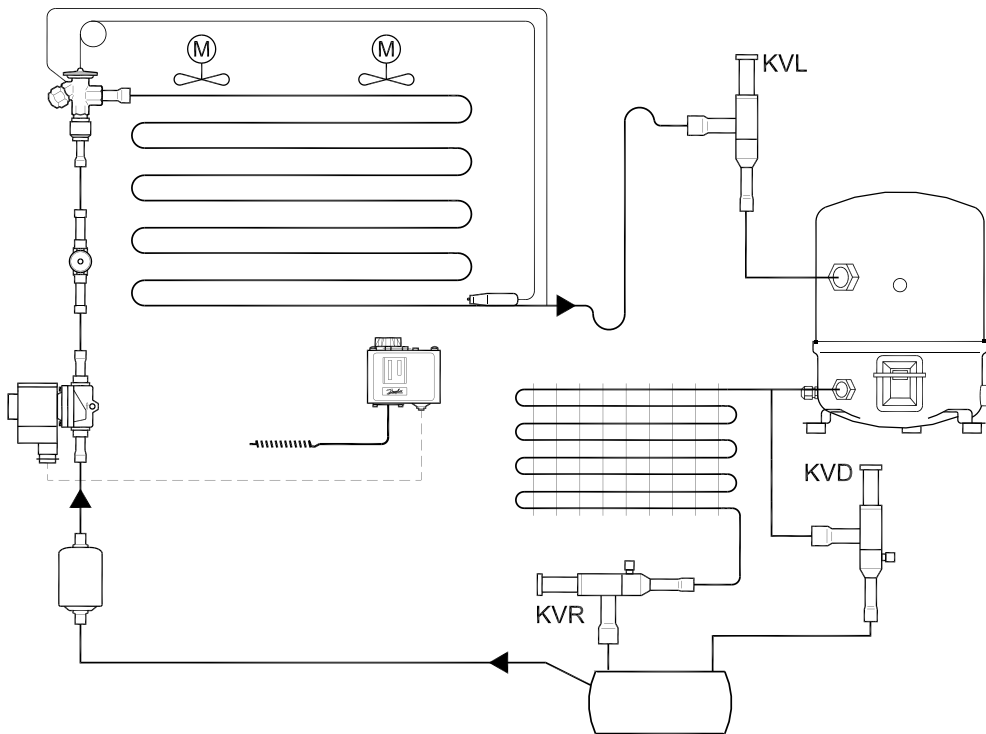
¹⁾ Rated capacity is the capacity of the regulator at
 – Evaporating temperature $t_e = -10\text{ °C} / 14\text{ °F}$
 – Condensing temperature $t_c = 25\text{ °C} / 100\text{ °F}$
 – Pressure drop in regulator $\Delta p = 0.2\text{ bar} / 2\text{ psi}$

²⁾ Supplied without flare nuts. Separate flare nuts can be supplied: 1/2 in / 12 mm - code no. 011L1103, 5/8 in / 16 mm - code no. 011L1167.

³⁾ The connection dimensions chosen must not be too small, since gas velocities in excess of 40 m/s at the inlet of the regulator can give flow noise.

To select the product for other conditions or refrigerants, use Danfoss Coolselector*2.

Application example

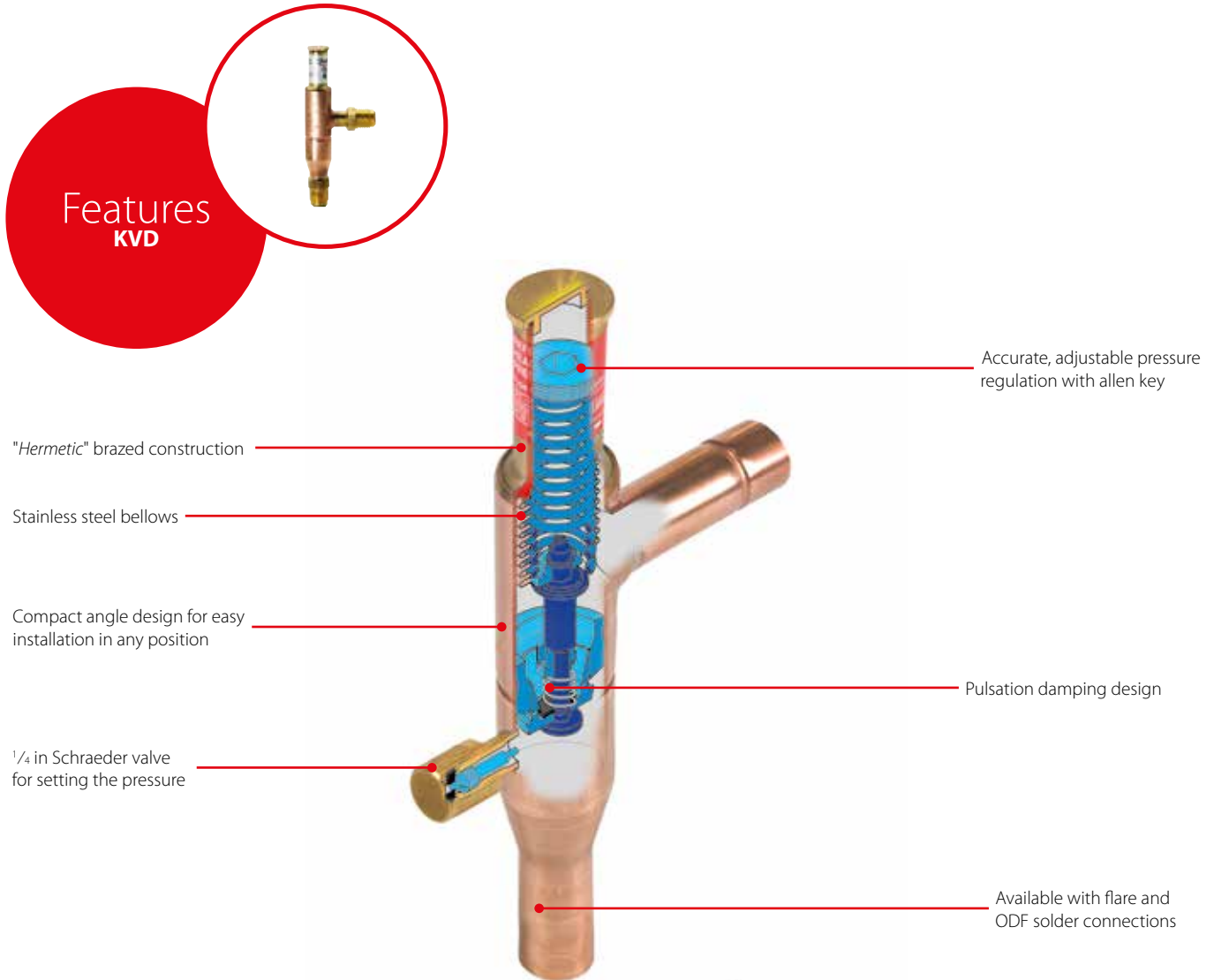


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KVD, Receiver pressure regulator

KVD receiver pressure regulators open on falling receiver pressure and bypasses hot gas to maintain the receiver pressure at the regulator setting (adjustable).

KVD and KVR form a regulating system, used to maintain constant and adequately high condensing and receiver pressure in plant with heat-recovery, and in refrigeration and air conditioning plant with air-cooled condensers.



Facts

Application:

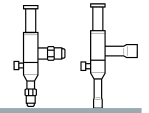
- Traditional refrigeration
- Air conditioning units
- Commercial refrigeration

- The regulator is equipped with an effective damping device against pulsations which can normally arise in a refrigeration plant
- KVD regulations is only dependent upon the outlet pressure. Pressure variations on the inlet side of the regulator do not affect the degree of opening since KVD is equipped with an equalization bellows

- Wide capacity and operating range
- Regulation range:
3 – 20 bar / 44 – 290 psig
- Max. working pressure
PS MWP = 28 bar / 406 psig
- Can be used as a relief valve from high pressure to suction side
- Applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a
- May be used in the following EX range:
Category 3 (Zone 2)

Technical data and ordering

KVD - Receiver pressure regulator



Ordering

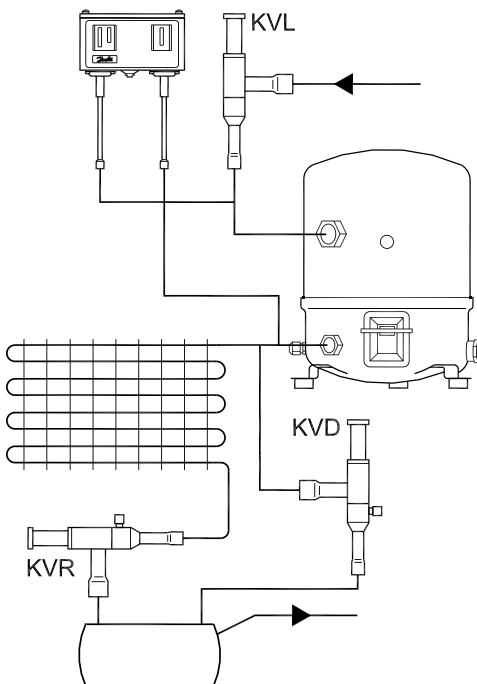
Type	K _v value [m ³ /h ^{1/2}] ¹⁾	Connection type	Connection size		Code no.
			[in]	[mm]	
KVD 12	1.75	Flare ²⁾ ³⁾	1/2	12	034L0171
	1.75	Solder, ODF ³⁾	1/2	–	034L0173
	1.75	Solder, ODF ³⁾	–	12	034L0176
KVD 15	1.75	Flare ²⁾ ³⁾	5/8	16	034L0172
	1.75	Solder, ODF ³⁾	5/8	16	034L0177

¹⁾ The K_v value is the flow of water in [m³/h] at a pressure drop across valve of 1 bar, ρ = 1000 kg / m³.

²⁾ Supplied without flare nuts. Separate flare nuts can be supplied: 1/2 in / 12 mm - code no. 011L1103, 5/8 in / 16 mm - code no. 011L1167.

³⁾ The connection dimensions chosen must not be too small, since gas velocities in excess of 40 m/s at the inlet of the regulator can give flow noise.

Application example

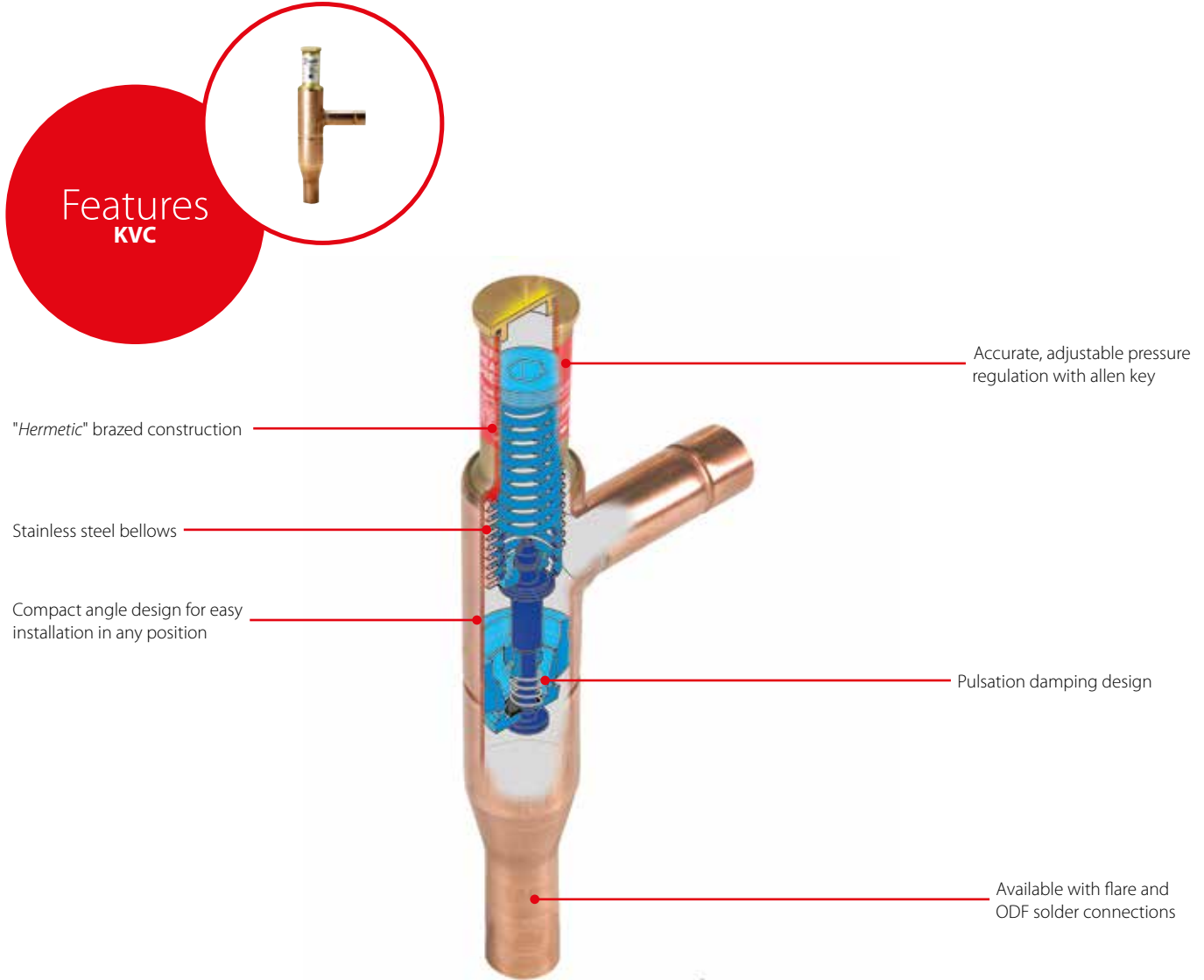


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KVC, Hot gas bypass regulator

KVC are hot gas bypass regulators used for the adaptation of the compressor capacity to the actual evaporator load. Placed in a bypass between high and low pressure sides of the refrigeration system, KVC imposes a lower limit on the compressor

suction pressure by supplying the low pressure side with replacement capacity in the form of hot gas/cool gas from the high pressure side.



Facts

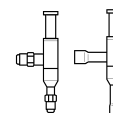
Application:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration
- Commercial refrigeration
- Compressed air driers

- KVC regulations is only dependent upon the outlet pressure. Pressure variations on the inlet side of the regulator do not affect the degree of opening since KVC is equipped with an equalization bellows
- The regulator is also equipped with an effective damping device against pulsations which can normally arise in a refrigeration plant

- Compact angle design for easy installation
- Wide capacity and operating range
- Regulation range: 0.2 – 6 bar / 3 – 87 psig
- Maximum working pressure PS / MWP = 28 bar / 406 psig
- Applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a
- May be used in the following EX range: Category 3 (Zone 2)
- Medium temperature: -45 – 130 °C / -49 – 266 °F

Technical data and ordering



KVC - Hot gas bypass regulator

Ordering

Type	Rated capacity in [kW] / [TR] ⁴⁾						Connection type	Connection size		Code no.
	R134a		R404A / R507		R407C			[in]	[mm]	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]				
KVC 12 ³⁾	4.8	1.36	6.9	2.02	8.4	2.31	Flare ²⁾ ³⁾	1/2	12	034L0141
	4.8	1.36	6.9	2.02	8.4	2.31	Solder, ODF ³⁾	1/2	–	034L0143
	4.8	1.36	6.9	2.02	8.4	2.31	Solder, ODF ³⁾	–	12	034L0146
KVC 15 ³⁾	9.4	2.65	13.6	3.93	16.4	4.50	Flare ²⁾ ³⁾	5/8	16	034L0142
	9.4	2.65	13.6	3.93	16.4	4.50	Solder, ODF ³⁾	5/8	16	034L0147
KVC 22 ³⁾	12.0	3.41	17.4	5.04	21.0	5.78	Solder, ODF ³⁾	7/8	22	034L0144

¹⁾ Supplied without flare nuts. Separate flare nuts can be supplied: 1/2 in / 12 mm - code no. 011L1103, 5/8 in / 16 mm - code no. 011L1167.

²⁾ The connection dimensions chosen must not be too small, since gas velocities in excess of 40 m/s at the inlet of the regulator can give flow noise.

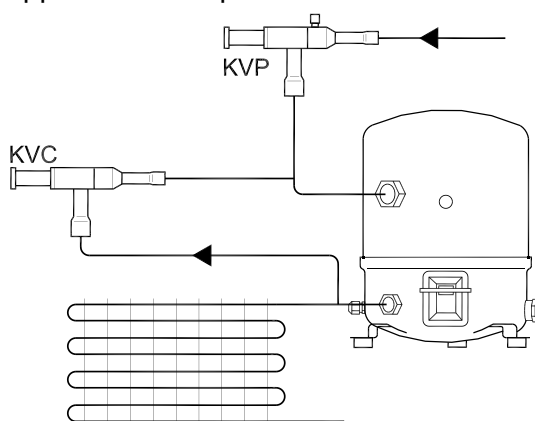
³⁾ If the discharge temperature becomes too high in relation to the compressor specification, the installation of an injection valve in a bypass between liquid line and compressor suction line is recommended.

⁴⁾ Rated capacity is the capacity of the regulator at:

– Evaporating temperature $t_e = -10\text{ °C} / 14\text{ °F}$

– Condensing temperature $t_c = 25\text{ °C} / 77\text{ °F}$

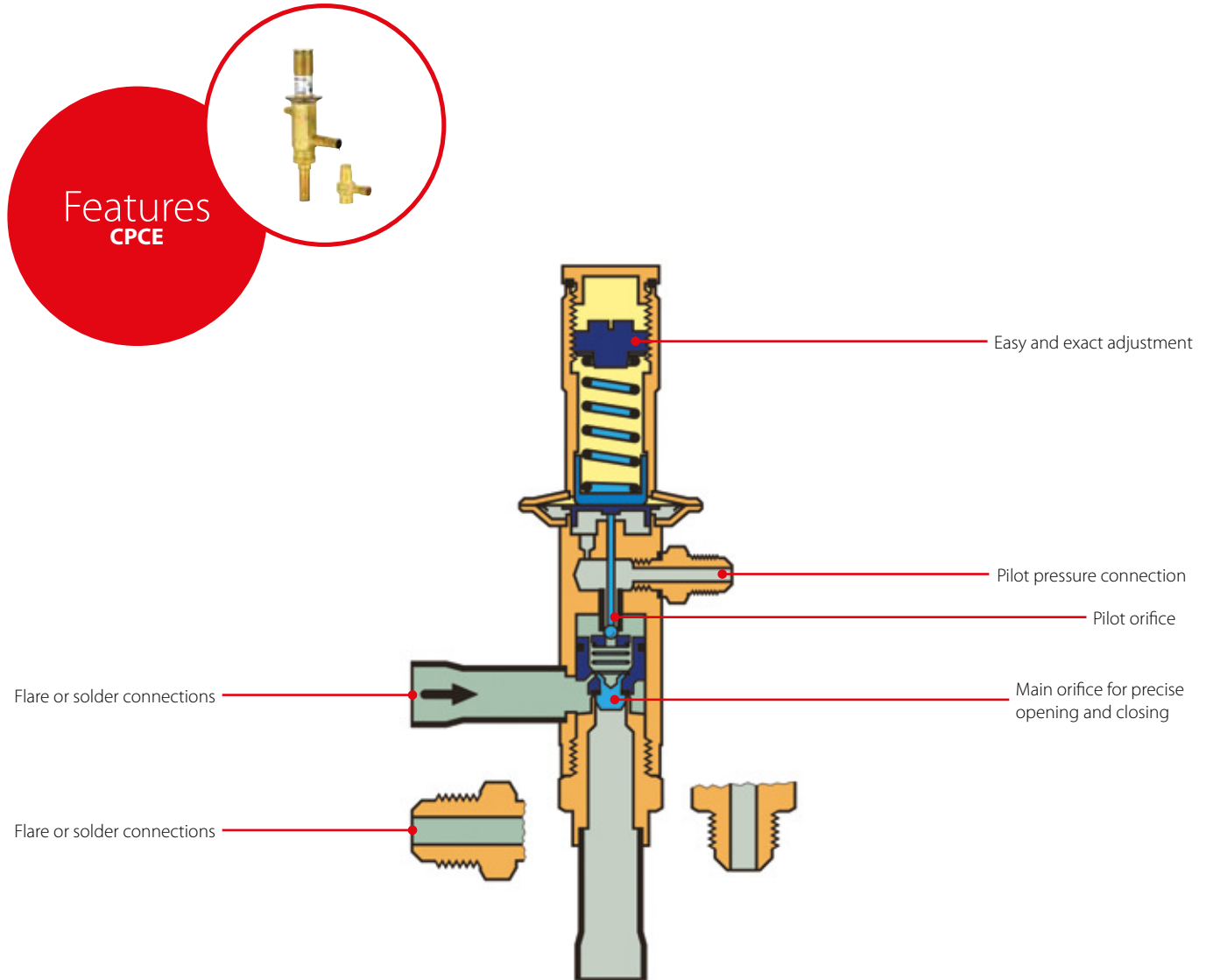
Application example



CPCE, Hot gas bypass regulator / LG, Liquid gas mixer (accessory)

CPCE hot gas bypass regulators adapt compressor capacity to actual evaporator load, and are designed for installation in a bypass line between the low and high pressure sides of the refrigeration system, for hot gas injection between evaporator and thermo-static expansion valve.

Injection is through an LG liquid-gas mixer.



Facts

Application:

- Traditional refrigeration
- Air conditioning units
- Commercial refrigeration
- Compressed air dryers
- Transport refrigeration

- Prevents high suction superheats by combining hot gas injection with expansion valve characteristics

- Can also protect against too low an evaporating temperature, i.e. to prevent evaporator icing
- LG Liquid-gax mixer can be used for hot gas defrosting or reverse cycle systems
- Superior control accuracy
- The regulator increases evaporator gas velocity thus ensuring better oil return to compressor
- Direct connection to system suction line regulates hot gas injection independent of evaporator pressure drop

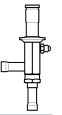
- LG Liquid-gax mixer provides homogenous mixing of the liquid and hot gas refrigerant injected into the evaporator
- Applicable to R1234ze ^{*)}, R1270 ^{*)}, R134a, R290 ^{*)}, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A, R600 ^{*)}, R600a ^{*)}

^{*)} only LG 12 – 16 and LG 16 – 22

- May be used in the following EX range: Category 3 (Zone 2)
- Max. working pressure: PS / MWP = 28 bar / 406 psig

Technical data and ordering

CPCE - Hot gas bypass regulator



Ordering

Type	Rated capacity in [kW] / [TR] ¹⁾						Connection type	Connection size		Code no.
	R134a		R404A / R507		R407C			[in]	[mm]	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]				
CPCE 12	7.9	4.3	16.4	6.3	19.0	6.7	Flare ²⁾ ³⁾	1/2	12	034N0081
	7.9	4.3	16.4	6.3	19.0	6.7	Solder, ODF ³⁾	1/2	12	034N0082
CPCE 15	11.6	6.3	24.2	9.1	27.9	9.9	Solder, ODF ³⁾	5/8	16	034N0083
CPCE 22	15.2	8.4	32.0	12.1	37.1	13.2	Solder, ODF ³⁾	7/8	22	034N0084

¹⁾ Rated capacity is the capacity of the regulator at:
 - Evaporating temperature $t_e = -10\text{ °C} / 14\text{ °F}$
 - Condensing temperature $t_c = 30\text{ °C} / 100\text{ °F}$
 - Reduction of suction temperature / pressure $\Delta t_s = \text{CPCE: } 4\text{ K}$

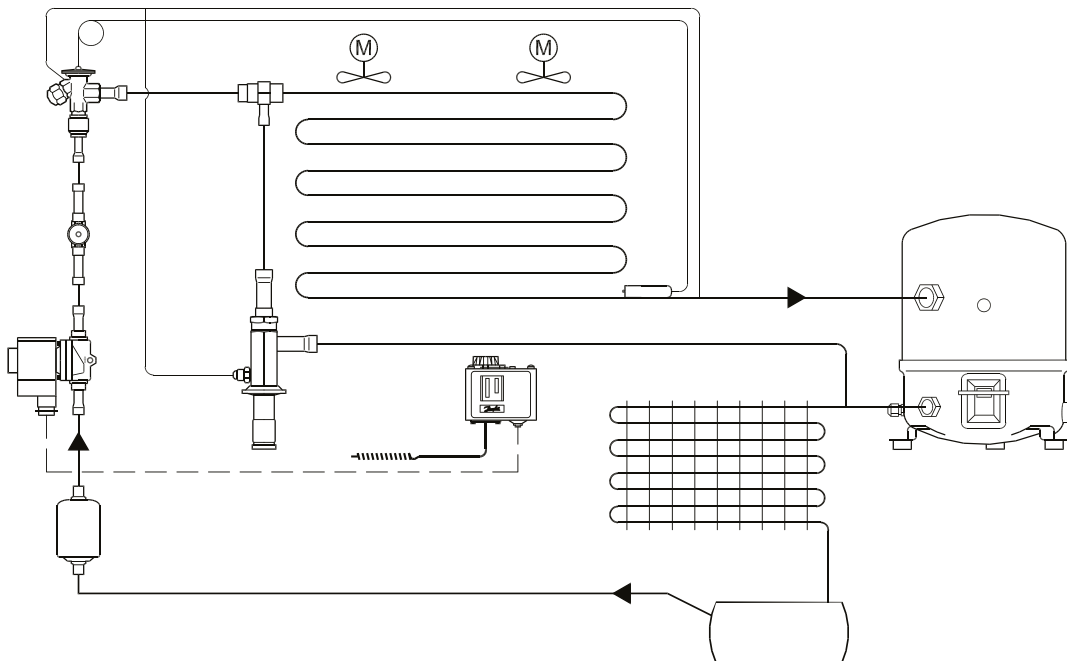
LG - Liquid-gas mixer (accessory)



Ordering

Type	Connection						Code no.
	Expansion valve Solder, ODM		Hot gas Solder, ODF		Liquid distributor Solder, ODF		
	[in]	[mm]	[in]	[mm]	[in]	[mm]	
LG 12 – LG 16	5/8	16	1/2	12	5/8	16	069G4001
LG 12 – LG 22	7/8	22	1/2	12	7/8	22	069G4002
LG 16 – LG 28	1 1/8	28	5/8	16	1 1/8	28	069G4003
LG 22 – LG 35	1 3/8	35	7/8	22	1 3/8	35	069G4004

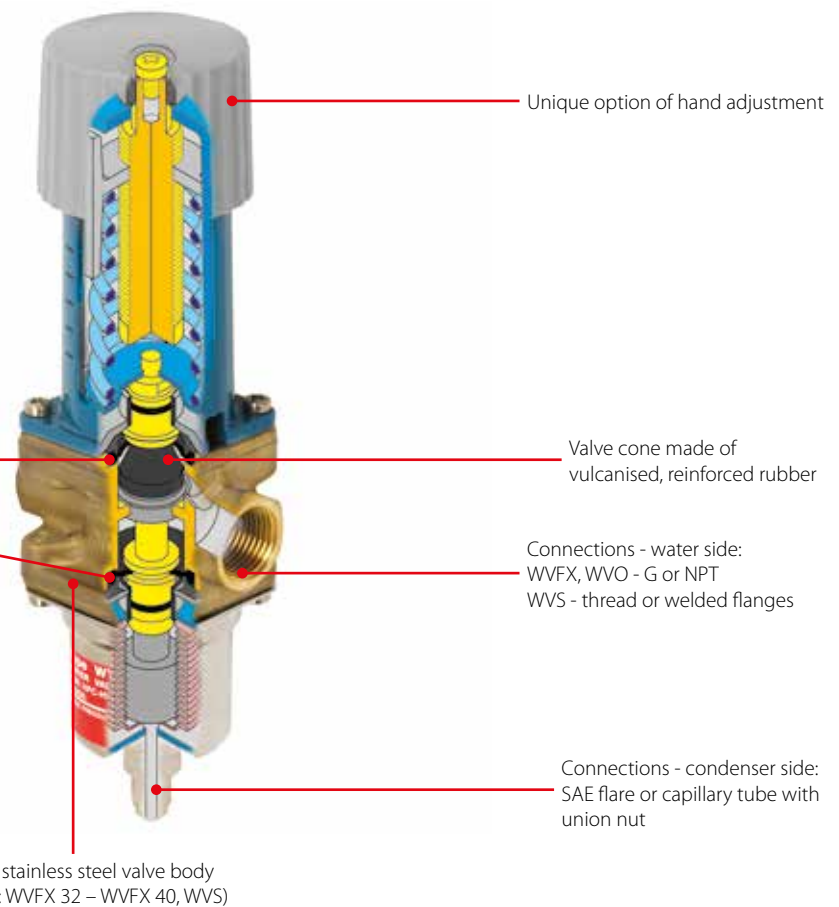
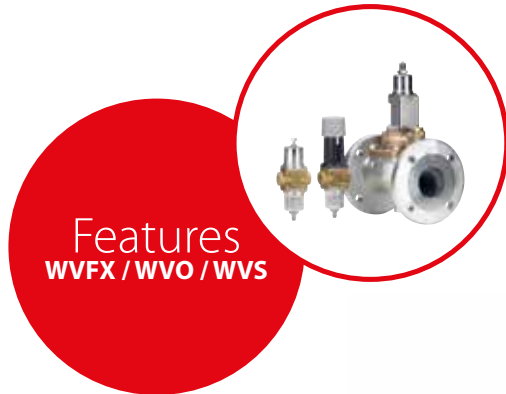
Application example



WVFX/WVO/WVS, Pressure operated water valves

WVFX, WVO and WVS pressure operated water valves are used to regulate the flow of water in refrigeration plant with water-cooled condensers in order to ensure constant proportional regulation of condensing pressure. The water valve modulates the water flow to maintain the condensing pressure at a constant level during operation.

When the refrigeration plant is stopped, the cooling water flow is shut off automatically. Media: fresh water and neutral brine. For use with aggressive media such as sea water, WVFX 15, WVFX 20 and WVFX 25 are available in stainless steel versions.



Facts

Applications:

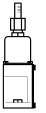
- Traditional refrigeration
- Air conditioning units
- Other applications with water-cooled condenser
- Ice making machines
- Ice cream machines
- IT cooling
- Water chillers
- WVFX 10 – WVFX 25 can be supplied in stainless steel housing for sea water applications

- Exact pressure control - high accuracy of WVO valves up to 0.2 bar
- Reliable design - factory setting is maintained during whole life cycle
- Insensitive to dirt - fit and forget solution
- High permissible water pressure (PS) = 16 bar - can be used with water towers
- Low flow version - 0.63 m³/h (available on request)
- WVFX 10 – WVFX 40 are direct actuated valves
- WVS 32 – WVS 100 are servo-operated valves

- Very wide media temperature range: -25 – 130 °C
- Versions with capillary tube available on request
- Applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R410A ¹⁾, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a, R717 ²⁾
- ¹⁾ High pressure refrigerants version (45.2 MWP) only
- ²⁾ WVS, WVFX 10 – 25 and WVO with flare connection only; versions with capillary tube or with solder connections are not compatible with R717. WVFX 32 and WVFX 40 are not compatible with R717
- May be used in the following EX range: Category 3 (Zone 2)

Technical data

WVFX / WVO / WVS, Pressure operated water valve



Technical data

Type	Control press. adjustable closing press. [bar]	Max. working pressure PS [bar]	Max. test pressure PB [bar]	Media	Liquid side		K _v value ¹⁾ [m ³ /h]
					Max. working pressure PS [bar]	Max. test pressure PS [bar]	
WVO 10	8.0 – 22 ²⁾	26.4	29	Fresh water, neutral brine, sea water ³⁾	16	24	1.4
WVFX 10	3.5 – 16	26.4	29		16	24	1.4
	4.0 – 23	26.4	29		16	24	1.4
WVO 15	15.0 – 29.0	45.2	60		16	24	1.4
	14.0 – 18.0	26.4	29		16	24	1.9
WVFX 15	3.5 – 16.0	26.4	29		16	24	1.9
	4.0 – 23.0	26.4	29		16	24	1.9
WVFX 20	15.0 – 29.0	45.2	60		16	24	1.9
	3.5 – 16.0	26.4	29		16	24	3.4
	4.0 – 23.0	26.4	29		16	24	3.4
WVFX 25	15.0 – 29.0	45.2	60		16	24	3.4
	3.5 – 16.0	26.4	29		16	24	5.5
WVFX 32	4.0 – 23.0	26.4	29		16	24	5.5
	4.0 – 17.0	24.1	26.5		10	10	11.0
WVFX 40	4.0 – 17.0	24.1	26.5		10	10	11.0
	WVS 32	2.2 – 19.0	26.4		29	10	16
15.0 – 29.0		45.2	60		10	16	12.5
WVS 40	2.2 – 19.0	26.4	29		10	16	21.0
	15.0 – 29.0	45.2	60		10	16	21.0
WVS 50	2.2 – 19.0	26.4	29		10	16	32.0
	15.0 – 29.0	45.2	60	10	16	32.0	
WVS 65	2.2 – 19.0	26.4	29	10	16	45.0	
	15.0 – 29.0	45.2	60	10	16	45.0	
WVS 80	2.2 – 19.0	26.4	29	10	16	80.0	
	15.0 – 29.0	45.2	60	10	16	80.0	
WVS 100	2.2 – 19.0	26.4	29	10	16	125.0	
	15.0 – 29.0	45.2	60	10	16	125.0	

¹⁾ The K_v value is the flow of water in [m³/h] with a pressure drop across the valve of 1 bar, ρ = 1000 kg/m³.

²⁾ Pressure control range width max. 6 bar.

³⁾ WVFX 15 – WVFX 25 with stainless steel housing only.

Media temperature range

WVFX 10 – WVFX 25: -25 – 130 °C

WVFX 32 – WVFX 40: -25 – 90 °C

WVS 50 – WVS 100: -25 – 90 °C

Opening differential pressure

WVO 10 – 25: 0 – 10 bar

WVFX 10 – WVFX 40: 0 – 10 bar

WVS 32 – WVFX 40: 0.5 – 4 bar

WVS 50 – WVS 100: 0.3 – 4 bar

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Technical data and ordering



WVFX - Pressure operated water valves, commercial applications

Ordering

Type	Connection			Range (refrigerant) [bar]	Code no.
	Water side ISO 228-1	Condenser side			
		[in]	[mm]		
WVFX 10	G 3/8	1/4	6 flare	3.5 – 16	003N1100
	G 3/8	1/4	6 flare	4.0 – 23	003N1105
	G 3/8	1/4	6 flare	15.0 – 29.0	003N1410
WVFX 15	G 1/2	1/4	6 flare	3.5 – 16	003N2100
	G 1/2	1/4	6 flare nut	4.0 – 23	003N2205
	G 1/2	1/4	6 flare	4.0 – 23	003N2105
WVFX 20	G 3/4	1/4	6 flare	15.0 – 29.0	003N2410
	G 3/4	1/4	6 flare	3.5 – 16	003N3100
	G 3/4	1/4	6 flare	4.0 – 23	003N3105
WVFX 25	G 3/4	1/4	6 flare nut	4.0 – 23	003N3205
	G 1	1/4	6 flare	15.0 – 29.0	003N3410
	G 1	1/4	6 flare	3.5 – 16	003N4100
WVFX 32	G 1	1/4	6 flare	4.0 – 23	003N4105
	G 1 1/4	1/4	6 flare	15.0 – 29.0	003N4410
	G 1 1/2	1/4	6 flare	4.0 – 17	003F1232
WVFX 40	G 1 1/2	1/4	6 flare	4.0 – 17	003F1240

WVFX - Pressure operated water valves, with stainless steel housing

WVFX 15	G 1/2	1/4	6 flare	3.5 – 16	003N2101
	G 1/2	1/4	6 flare	4.0 – 23	003N2104
WVFX 20	G 3/4	1/4	6 flare	4.0 – 23	003N3104
WVFX 25	G 1	1/4	6 flare	3.5 – 16	003N4101
	G 1	1/4	6 flare	4.0 – 23	003N4104

WVO - Pressure operated water valves, commercial applications

WVO 10	G 3/8	1/4	6 flare	8 – 12	003N5203
	G 3/8	1/4	6 flare	14 – 18	003N5206
WVO 15	G 3/8	1/4	6 flare	16 – 20	003N5207
	G 1/2	1/4	6 flare	14 – 18	003N5216



WVS - Pressure operated water valve parts programme

Type	Connection ISO 228-1	Code no.				
		Valve body	Pilot unit ²⁾	Pilot unit for R410A and R744 (CO ₂) ²⁾	Flange set ³⁾	Servo spring for differential pressure range: 1 – 10 bar
WVS 32	G 1 1/4	016D5032	016D1017	016D1018	–	016D1327
WVS 40	G 1 1/2	016D5040	016D1017	016D1018	–	016D0575
WVS 50	2 in. weld flange	016D5050 ¹⁾	016D1017	016D1018	027N3050	016D0576
WVS 65	2 1/2 in. weld flange	016D5065 ¹⁾	016D1017	016D1018	027N3065	016D0577
WVS 80	3 in. weld flange	016D5080 ¹⁾	016D1017	016D1018	027N3080	016D0578
WVS 100	4 in. weld flange	016D5100 ¹⁾	016D1017	016D1018	027N3100	016D0579

¹⁾ Code numbers cover valve body, flange gaskets, flange bolts and screws for pilot valve.

²⁾ Code numbers cover control element and spring housing.

³⁾ Code numbers cover an inlet and an outlet flange.

Accessories

Description	Code no.
1 m capillary tube 1/4 in., 6 mm flare coupling nuts at each end	060-017166
Bracket for do WVFX 10 – WVFX 25	003N0388

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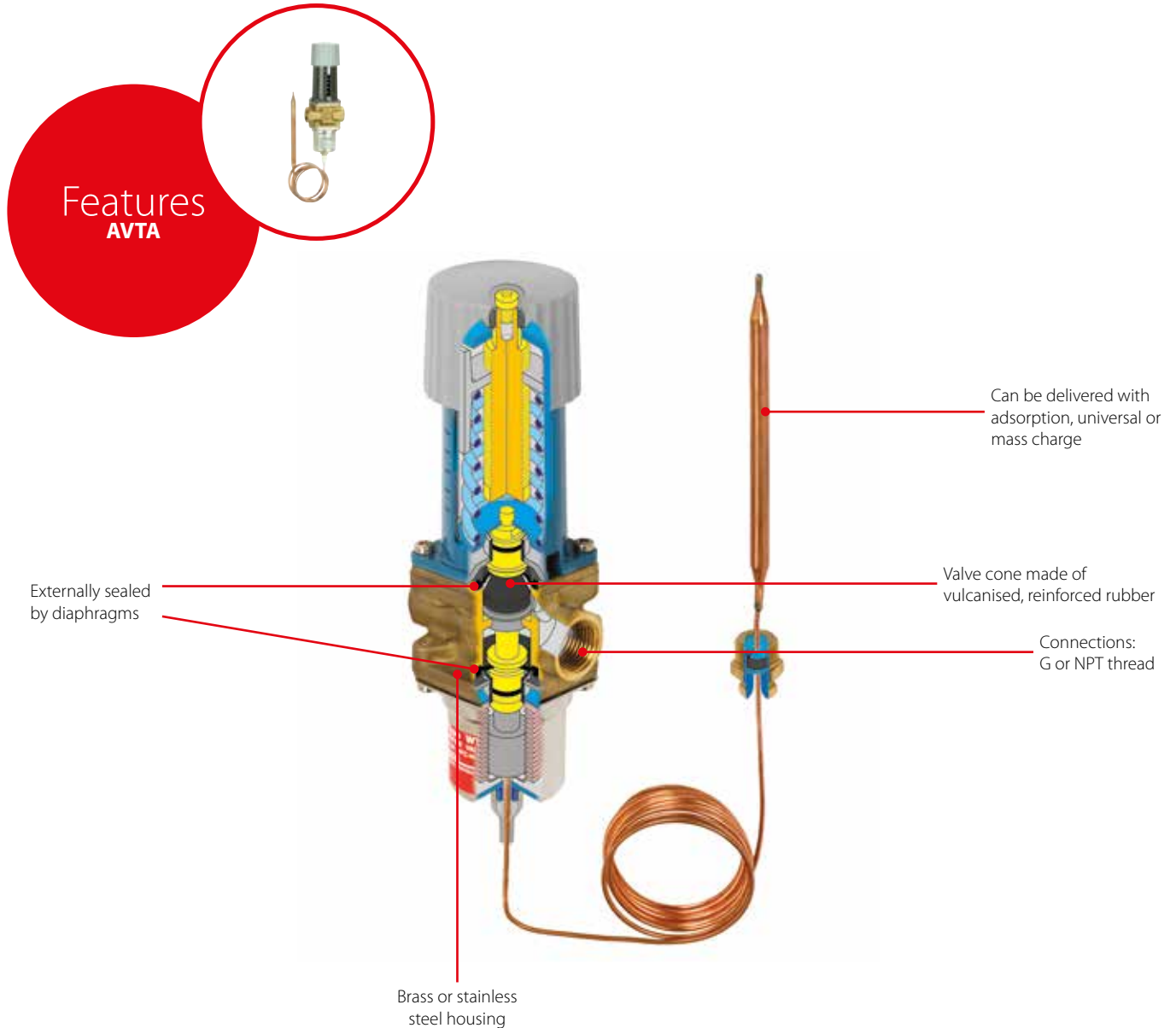
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AVTA, Thermostatic operated water valve

AVTA thermostatic operated water valves are used for proportional regulation of water flow quantity in refrigeration plant with water-cooled condensers for condensing pressure regulation purposes. AVTA valves give modulating regulation of the condensing temperature and so maintain it constant during operation.

When the refrigeration plant is stopped, the cooling water flow is shut off automatically. Media: Fresh water or neutral brine. For use with aggressive media such as sea water, special versions in stainless steel are available. AVTA opens on rising bulb temperatures.



Facts

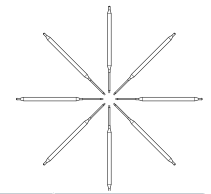
Applications:

- Traditional refrigeration with water cooled condenser
- Cooling of industrial processes

- Insensitive to dirt – fit and forget solution
- Insensitive to pressure variations
- Needs no power supply - self acting
- The valve can be placed in any position
- Operates from zero differential pressure
- Unique option of hand regulation
- Differential pressure: 0 – 10 bar

- Max. working pressure PS = 16 bar
- Max. pressure on sensor: 25 bar
- Opens on rising sensor temperature
- The regulation range is defined for the point at which the valve begins to open
- AVTA are direct actuated valves

Technical data and ordering

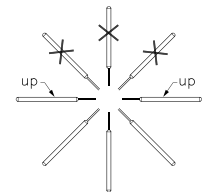


AVTA with adsorption charge (sensor $\varnothing 9.5 \times 150$ mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K _v value at $\Delta p = 1$ bar [m ³ /h]	Capillary tube length [m]	Code no. ¹⁾
AVTA 10	G 3/8	10 – 80	130	1.4	2.3	003N1144
AVTA 15	G 1/2	10 – 80	130	1.9	2.3	003N0107
AVTA 20	G 3/4	10 – 80	130	3.4	2.3	003N0108
AVTA 25	G 1	10 – 80	130	5.5	2.3	003N0109

¹⁾ Code no. covers complete valve including capillary tube gland.

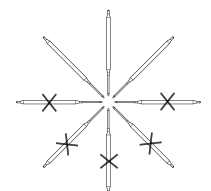


AVTA with universal charge (sensor $\varnothing 18 \times 210$ mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K _v value at $\Delta p = 1$ bar [m ³ /h]	Capillary tube length [m]	Code no. ¹⁾
AVTA 10	G 3/8	0 – 30	57	1.4	2.0	003N1132
AVTA 15	G 1/2	0 – 30	57	1.9	2.0	003N2132
AVTA 20	G 3/4	0 – 30	57	3.4	2.0	003N3132
AVTA 25	G 1	0 – 30	57	5.5	2.0	003N4132
AVTA 10	G 3/8	25 – 65	90	1.4	2.0	003N1162
AVTA 15	G 1/2	25 – 65	90	1.9	2.0	003N2162
AVTA 20	G 3/4	25 – 65	90	1.9	2.0 (armoured)	003N0041
	G 3/4	25 – 65	90	3.4	2.0	003N3162
	G 3/4	25 – 65	90	3.4	5.0	003N3165
AVTA 25	G 1	25 – 65	90	3.4	2.0 (armoured)	003N0031
	G 1	25 – 65	90	5.5	2.0	003N4162
	G 1	25 – 65	90	5.5	2.0 (armoured)	003N0032
AVTA 10	G 3/8	50 – 90	125	1.4	2.0	003N1182
	G 1/2	50 – 90	125	1.9	2.0	003N2182
AVTA 20	G 3/4	50 – 90	125	3.4	2.0	003N3182
AVTA 25	G 1	50 – 90	125	5.5	2.0	003N4182

¹⁾ Code no. covers complete valve including capillary tube gland.

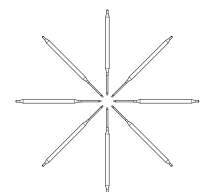


AVTA with mass charge (sensor $\varnothing 9.5 \times 180$ mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K _v value at $\Delta p = 1$ bar [m ³ /h]	Capillary tube length [m]	Code no. ¹⁾
AVTA 15	G 1/2	0 – 30	57	1.9	2.0	003N0042
AVTA 20	G 3/4	0 – 30	57	3.4	2.0	003N0043
AVTA 15	G 1/2	25 – 65	90	1.9	2.0	003N0045
	G 1/2	25 – 65	90	1.9	2.0 (armoured)	003N0299
AVTA 20	G 3/4	25 – 65	90	1.9	5.0	003N0034
	G 3/4	25 – 65	90	3.4	2.0	003N0046
AVTA 25	G 1	25 – 65	90	5.5	2.0	003N0047

¹⁾ Code no. covers complete valve including capillary tube gland.



AVTA in stainless steel with adsorption charge (sensor $\varnothing 9.5 \times 150$ mm)

Ordering

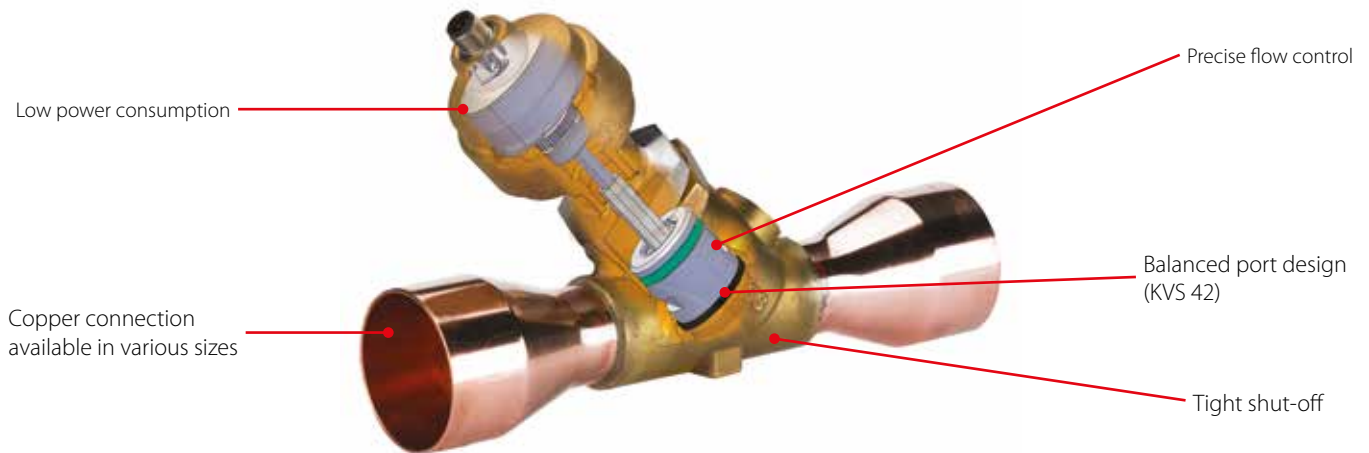
Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K _v value at $\Delta p = 1$ bar [m ³ /h]	Capillary tube length [m]	Code no. ¹⁾
AVTA 15	G 1/2	10 – 80	130	1.9	2.3	003N2150
AVTA 20	G 3/4	10 – 80	130	3.4	2.3	003N3150
AVTA 25	G 1	10 – 80	130	5.5	2.3	003N4150

¹⁾ Code no. covers complete valve including capillary tube gland.

KVS, Electric suction modulating control valve

KVS are electrically operated suction modulating control valves for transport and refrigeration applications. Accurate temperature or pressure control is obtained by modulating the refrigerant flow in the evaporator with a current or voltage driver.

With an EKC 368 controller (current driver) and an AKS sensor placed in the media to be controlled, an accuracy better than $\pm 0.5 \text{ K} / \pm 0.9 \text{ }^\circ\text{F}$ can be obtained. The balanced design provides bi-flow operation as well as solenoid shut-off function in both flow directions at MOPD 33 bar / 479 psi.



Facts

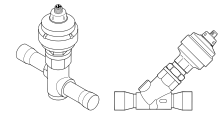
Application:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration
- Supermarkets
- Applicable to R410A, R407C, R404A, R134a, R507

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specification.

- Biflow
- High resolution for precise control
- Low power consumption
- Corrosion resistant design external as well as internal
- Solenoid tight shut-off
- Balanced port design (KVS 42)
- Cable and connector assemblies as accessories
- Controller: Electronic controller EKC 368, temperature sensors and pressure transmitters

Technical data and ordering



KVS - Electric suction modulating control valve

Technical data

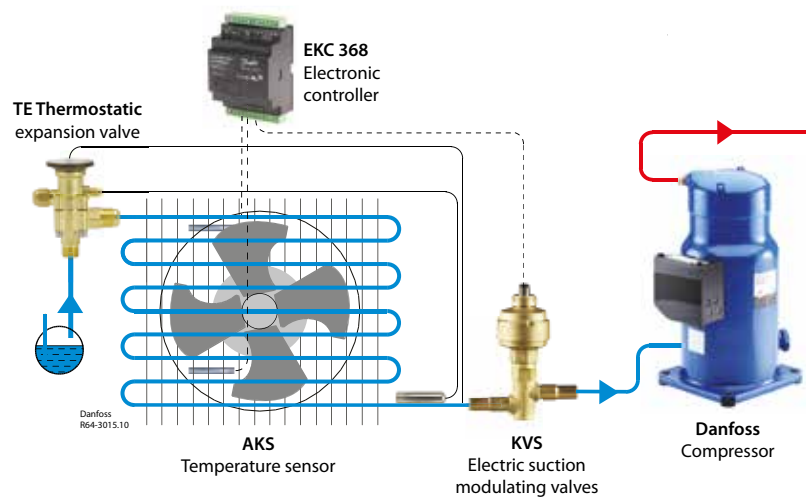
Parameter	KVS 15	KVS 42
Refrigerant oil	All mineral and ester oils	All mineral and ester oils
CE marking	No	Yes
MOPD	33 bar / 479 psi	33 bar / 479 psi
Max. working pressure	45.5 bar / 660 psi	34 bar / 493 psi
Refrigerant temperature range	-40 – 65 °C / -40 – 149 °F	-40 – 65 °C / -40 – 149 °F
Ambient temperature	-40 – 60 °C / -40 – 140 °F	-40 – 60 °C / -40 – 140 °F
Total stroke	13 mm / 1/2 in	17.2 mm / 5/16 in
Motor enclosure	IP67	IP67
Material of Construction	Body and AST enclosure: Brass; Connector: Copper	Body and AST enclosure: Brass; Connector: Copper

KVS - Electric suction modulating control valve

Electrical data

Parameter	KVS 15 and KVS 42
Stepper motor type	Bi-polar - permanent magnet
Step mode	2 phase full step
Phase resistance	52 Ω ± 10%
Phase inductance	85 mH
Holding current	Depends on application. Full current allowed (100% duty cycle).
Step angle	7.5° (motor), 0.9° (lead screw), Gearing ration 8.5:1. (38 / 13)2:1
Nominal voltage	(Constant voltage drive) 12 V DC -4% – 15%
Phase current	(Using chopper drive) 100 mA RMS -4% – 15%
Max. total power	Voltage/current drive: 5.5 / 1.3 W (UL: NEC class 2)
Step rate	150 steps / second (constant voltage drive) 0 – 300 steps / second 300 recommended (chopper current drive)
Total steps	KVS 15: 2625 (160 – 0) steps KVS 42: 3810 (160 – 0) steps
Full travel time	KVS 15: 17 / 8.5 second (voltage / current) KVS 42: 25.4 / 12.7 second (voltage / current)
Lifting height	KVS 15: 13 mm / 1/2 in KVS 42: 17.2 mm / 5/16 in
Reference position	Overdriving against the full close position
Electrical connection	M12 connector

- Related products**
 Electronic controller
Type EKC 368
 Temperature sensors
Type AKS
 Service driver
Type AST-G

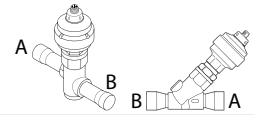


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Technical data and ordering

KVS - Electric suction modulating control valve

Ordering, valves in single pack



Type	Rated capacity ¹⁾				KVS valve		
	R134a		R404A/R507		Connection A x B		Code no. single pack
	[kW]	[TR]	[kW]	[TR]	[mm]	[in]	
KVS 15	3.78	0.94	4.58	1.07	16	5/8	034G4252
	3.78	0.94	4.58	1.07	22	7/8	034G4253
KVS 42	29.3	8.3	35.3	10.0	22	7/8	034G2858
	29.3	8.3	35.3	10.0	28	1 1/8	034G2850
	29.3	8.3	35.3	10.0	35	1 3/8	034G2851
	29.3	8.3	35.3	10.0	-	1 5/8	034G2852
	29.3	8.3	35.3	10.0	-	1 5/8	034G2852

¹⁾ Rated capacity is the valve capacity at:
 - evaporating temperature $t_e = -10\text{ °C} / 14\text{ °F}$
 - condensing temperature $t_c = 25\text{ °C} / 77\text{ °F}$
 - pressure drop across valve $\Delta p = 0.2\text{ bar} / 2.9\text{ psi}$

M12 Female - Connector Cable

Ordering

Cable quality	Temperature range	Cable length (L)		Design	Code no. single pack
Jacket: PVC	-50 – 80 °C / -58 – 176 °F	2 m	6.6 ft	M12, 4 pins to actuator and flying wires for driver connection	034G2201
	-50 – 80 °C / -58 – 176 °F	8 m	26.2 ft		034G2200
Jacket: CPE	-40 – 80 °C / -40 – 176 °F	2 m	6.6 ft		034G2202

KVS - Electric suction modulating control valve

Accessory

Type	Description	Type designation	Code no. Multipack
Cable filter	Cable filter for KVS valve	AKA 211	084B2238

M12 angle cable

Specification

Jacket	PVC - black
Cable outer sheath	Oil - resistant
Water proof rating	IP 67
Operating temperature range	-40 – 80 °C
Wire type	Twisted pair, cross section 20 AWG / 0.5 mm ²
Cable outer diameter	7.0 mm
Minimum bending radius	10 x cable diameter
Cable combustibility / test	Flame retardant / VW-1 / CSA FT - 1
M12 standard	EN 61076-2-101
Reference standard	UL style 2464 and DIN VDE 0812
LVD directive	2014/35/EU
Approval	CE, RoHS, UL, EAC, LLC CDC EURO TYSK

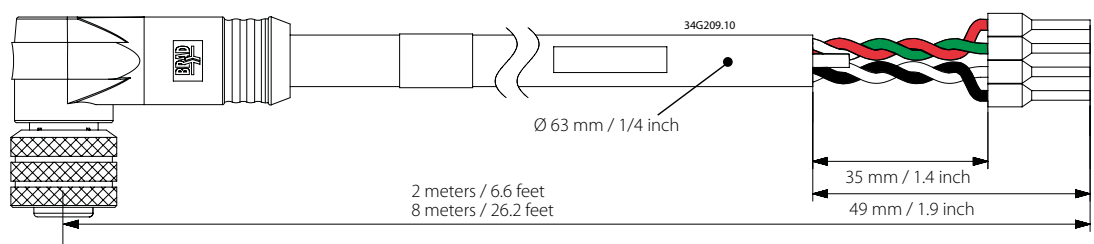
Ordering



Cable	Cable length (L)	Insulation	Packing format	Code no.
PVC - Black	2 m / 6.6 ft	SR-PVC	Single pack	034G7073
	8 m / 26.2 ft	SR-PVC	Single pack	034G7074

Caution: M12 angle cable is not approved for flammable applications.

Dimensions



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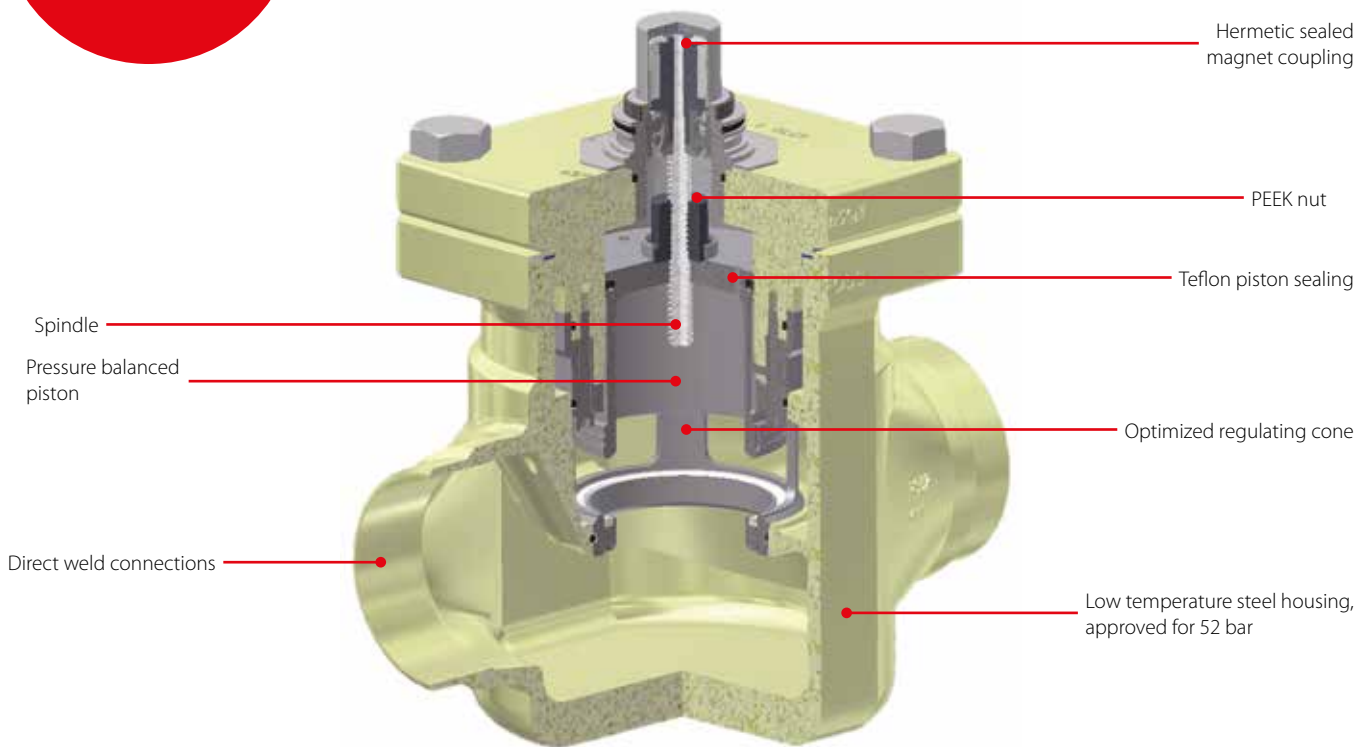
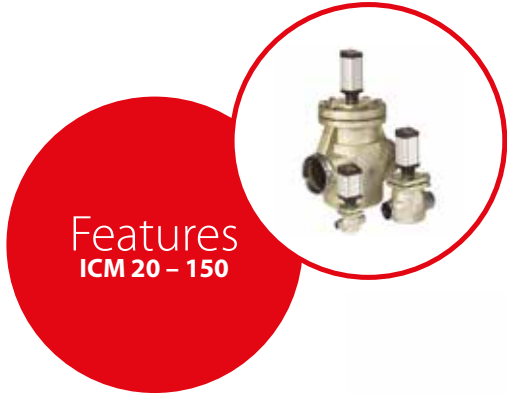
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ICM 20-150, Motor operated valve

ICM are direct operated motorized valves driven by actuator type ICAD (Industrial Control Actuator with Display). The motor valve is based on four main components - valve body, top cover, function module and actuator - and is available both as complete valves and as parts programme. ICM valves are designed to regulate an expansion process in liquid lines with or without phase change or control pressure or

temperature in dry and wet suction lines and hot gas lines. ICM valves are designed so that the opening and closing forces are balanced. Therefore only three sizes of ICAD actuators are needed for the complete range of ICM from DN 20 to DN 150. The ICM motorized valve and ICAD actuator assembly offers a very compact unit with small dimensions.



Facts

Application:

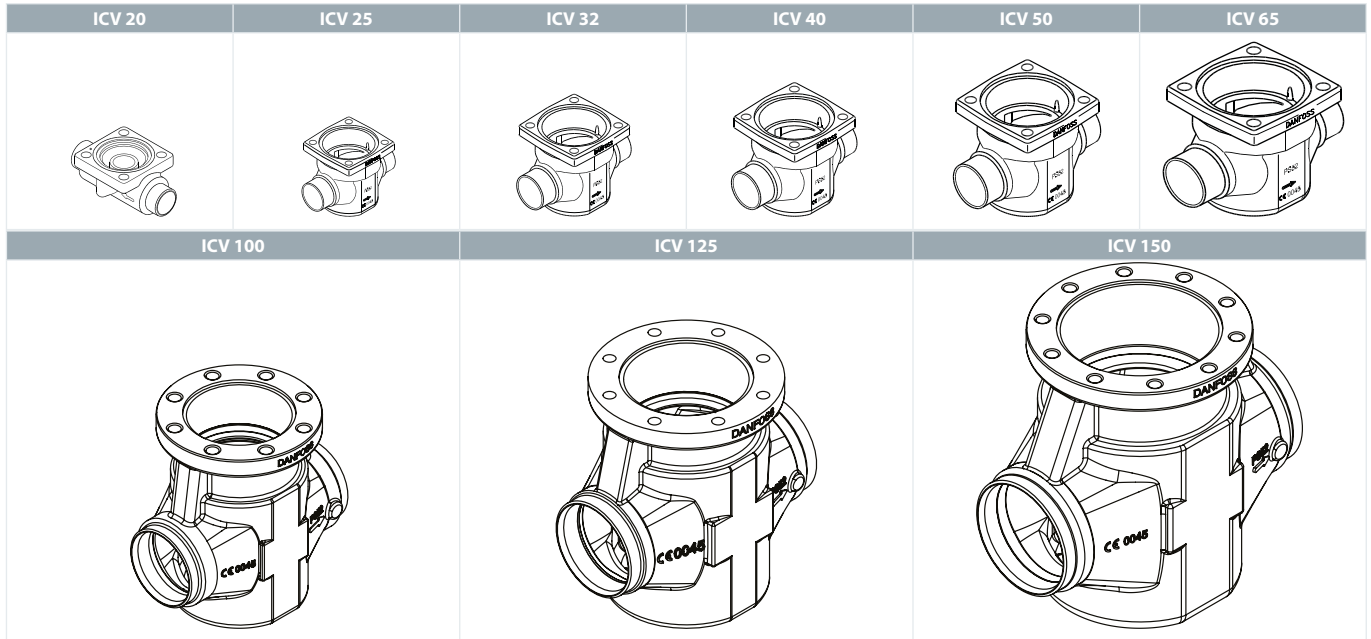
- Industrial refrigeration for a maximum working pressure of 52 bar / 754 psig
- Modular Concept
 - Each valve body is available with several different connection types and sizes
 - Valve overhaul is performed by replacing the function module
 - Possible to convert ICM motor operated valve to ICS pilot operated servo valve
- Low weight and compact design
- Low temperature steel body
- Direct coupled connections, connection types include butt weld, socket weld, solder and threaded connections
- V-port regulating cone ensures optimum regulating accuracy particularly at part load
- Manual opening possible via ICAD or service tool
- Cavitation resistant valve seat
- Magnet coupling - real hermetic sealing
- Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R1234ze, R134a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Temperature range:
 - 60 – 120 °C / -76 – 248 °F
- Surface protection: The external surface is zinc-chromated to provide good corrosion protection
- Max. working pressure: 52 bar g / 754 psig
- Max. opening pressure differential (MOPD):
 - ICM 20 – 32: 52 bar / 750 psi
 - ICM 40: 40 bar / 580 psi
 - ICM 50: 30 bar / 435 psi
 - ICM 65: 20 bar / 290 psi
 - ICM 100: 20 bar / 290 psi
 - ICM 125: 20 bar / 290 psi
 - ICM 150: 20 bar / 290 psi

The ICM concept

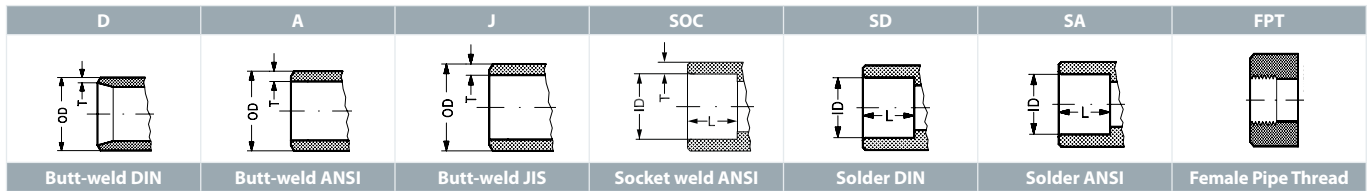
The ICM concept is developed around a modular principle. This gives the possibility of combining function modules and top covers with special valve body size that is available in a variety of connection possibilities.

The valve body

There are nine valve bodies available.



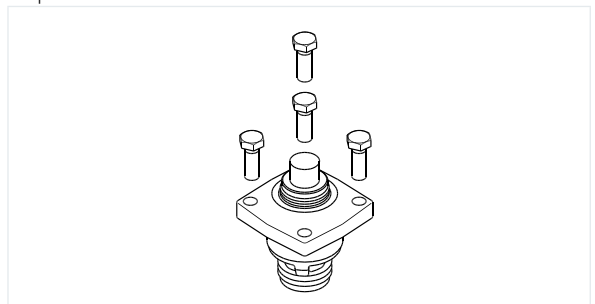
Valve bodies in the sizes ICV 20 – ICV 65 are available with a range of undersizes through oversized connection sizes and types. ICV 100 – ICV 150 are available in butt-weld DIN and butt-weld ANSI nominal sizes.



Type	Valve body size	K _v [m ³ /h]	C _v [US gal/min]
ICM 20A-33	20	0.2	0.23
ICM 20-A	20	0.6	0.7
ICM 20-B66	20	1.6	1.9
ICM 20-B	20	2.4	2.8
ICM 20-C	20	4.6	5.3
ICM 25-A	25	6	7
ICM 25-A33	25	2	2.3
ICM 25-B	25	12	13.9
ICM 32-A	32	9	10.4
ICM 32-B	32	17	20
ICM 40-A	40	15	17
ICM 40-B	40	26	30
ICM 50-A	50	23	27
ICM 50-B	50	40	46
ICM 65-A	65	35	41
ICM 65-B	65	70	81
ICM 100-B	100	142	167
ICM 125-B	125	223	260
ICM 150-B	150	370	430

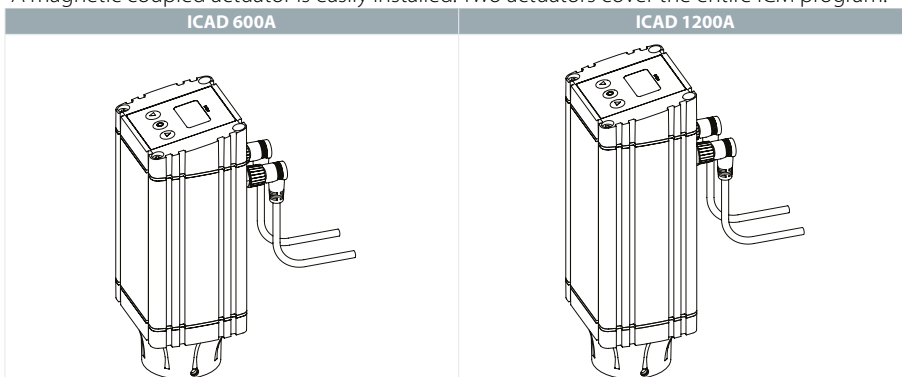
Top / function module

The multiple top / function modules have different capacities.



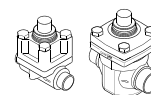
The actuator

A magnetic coupled actuator is easily installed. Two actuators cover the entire ICM program.



Technical data and ordering

ICM - Motor operated valve



Ordering factory assembled valve (valve body and top / function module)

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICM 20 – A	3/4	20	Butt weld, EN 10220	D	027H1030
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H1035
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H1040
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H1050
	7/8	22	Solder connection, DIN (2856)	SD	027H1045
ICM 20 – B	1	25	Butt weld, EN 10220	D	027H1020
	3/4	20	Butt weld, EN 10220	D	027H1031
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H1036
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H1041
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H1051
ICM 20 – C	7/8	22	Solder connection, DIN (2856)	SD	027H1046
	1	25	Butt weld, EN 10220	D	027H1021
	3/4	20	Butt weld, EN 10220	D	027H1032
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H1052
	7/8	22	Solder connection, DIN (2856)	SD	027H1047
ICM 25 – A	1	25	Butt weld, EN 10220	D	027H1022
	1	25	Butt weld, ANSI (B 36.10)	A	027H1025
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2010
	7/8	22	Solder connection, DIN (2856)	SD	027H2006
	1	25	Butt weld, EN 10220	D	027H2000
	1	25	Butt weld, ANSI (B 36.10)	A	027H2002
	1	25	Socket weld, ANSI (B 16.11)	SOC	027H2004
	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2012
	1 1/8	28	Solder connection, DIN (2856)	SD	027H2008
	1 1/8	35	Solder connection, DIN (2856)	SD	027H2014
ICM 25 – B	1 1/2	40	Butt weld, EN 10220	D	027H2016
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2011
	7/8	22	Solder connection, DIN (2856)	SD	027H2007
	1	25	Butt weld, EN 10220	D	027H2001
	1	25	Butt weld, ANSI (B 36.10)	A	027H2003
	1	25	Socket weld, ANSI (B 16.11)	SOC	027H2005
	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2013
	1 1/8	28	Solder connection, DIN (2856)	SD	027H2009
ICM 32 – A	1 1/8	35	Solder connection, DIN (2856)	SD	027H2015
	1 1/4	32	Butt weld, EN 10220	D	027H3000
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3002
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3004
	1 1/8	35	Solder connection, DIN (2856)	SD	027H3006
	1 1/2	40	Butt weld, EN 10220	D	027H3012
ICM 32 – B	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3008
	1 1/4	32	Butt weld, EN 10220	D	027H3001
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3003
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3005
	1 3/8	35	Solder connection, DIN (2856)	SD	027H3007
ICM 40 – A	1 1/2	40	Butt weld, EN 10220	D	027H4000
	1 5/8	40	Butt weld, ANSI (B 36.10)	A	027H4002
	1 5/8	40	Socket weld, ANSI (B 16.11)	SOC	027H4004
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4006
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4008
ICM 40 – B	2	50	Butt weld, EN 10220	D	027H4010
	1 1/2	40	Butt weld, EN 10220	D	027H4001
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4003
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4005
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4007
ICM 50 – A	1 5/8	42	Solder connection, DIN (2856)	SD	027H4009
	2	50	Butt weld, EN 10220	D	027H5000
	2	50	Butt weld, ANSI (B 36.10)	A	027H5002
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5004
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5006
ICM 50 – B	2 1/2	65	Butt weld, EN 10220	D	027H5008
	2	50	Butt weld, EN 10220	D	027H5001
	2	50	Butt weld, ANSI (B 36.10)	A	027H5003
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5005
ICM 65 – A	2 1/8	54	Solder connection, DIN (2856)	SD	027H5007
	2 1/2	65	Butt weld, EN 10220	D	027H6010
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6012
ICM 65 – B	2 1/2	65	Butt weld, EN 10220	D	027H6001
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6003
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6005
	2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6007
	3	76	Solder connection, DIN (2856)	SD	027H6009

Technical data and ordering

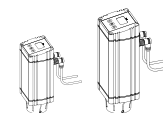
ICM - Motor operated valve

Ordering factory assembled valve (valve body and top / function module)

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICM 100	4	100	Butt weld, EN 10220	D	027H7130
	4	100	Butt weld, ANSI (B 36.10)	A	027H7131
ICM 125	5	125	Butt weld, EN 10220	D	027H7150
	5	125	Butt weld, ANSI (B 36.10)	A	027H7151
ICM 150	6	150	Butt weld, EN 10220	D	027H7170
	6	150	Butt weld, ANSI (B 36.10)	A	027H7171

ICAD actuator

Ordering



Type	Cable	Supply voltage	Load	Analog Input	Digital Input	Output	Code no.
ICAD 600A	1.5 m (60 in)	24 V DC	1.2 A	0 / 4 – 20 mA 0 / 2 – 10 V	ON / OFF Volt free contact	0 / 4 – 20 mA	027H9075
	None	24 V DC	1.2 A	0 / 4 – 20 mA 0 / 2 – 10 V	ON / OFF Volt free contact	0 / 4 – 20 mA	027H9120
ICAD 1200A	1.5 m (60 in)	24 V DC	3.0 A	0 / 4 – 20 mA 0 / 2 – 10 V	ON / OFF Volt free contact	0 / 4 – 20 mA	027H9077
	None	24 V DC	3.0 A	0 / 4 – 20 mA 0 / 2 – 10 V	ON / OFF Volt free contact	0 / 4 – 20 mA	027H9122

ICAD - Service tool

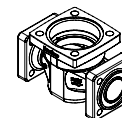
Ordering



Type	Function	Code no.
ICM 20–32	Featuring a magnetic coupling for manual operation of the ICM and a threaded end for dismounting of the ICS function module and other useful functions.	027H0180
ICM 40–150		027H0181

ICV-PM valve housings

Ordering



Type	Code no.
ICV 25 (H)A4A Valve housing	027H2304 *)
ICV 32 A4A Valve housing	027H3130 *)
ICV 32 HA4A Valve housing	027H3131 *)
ICV 40 (H)A4A Valve housing	027H4129 *)
ICV 50 (H)A4A Valve housing	027H5128 **)
ICV 65 (H)A4A Valve housing	027H6129 **)

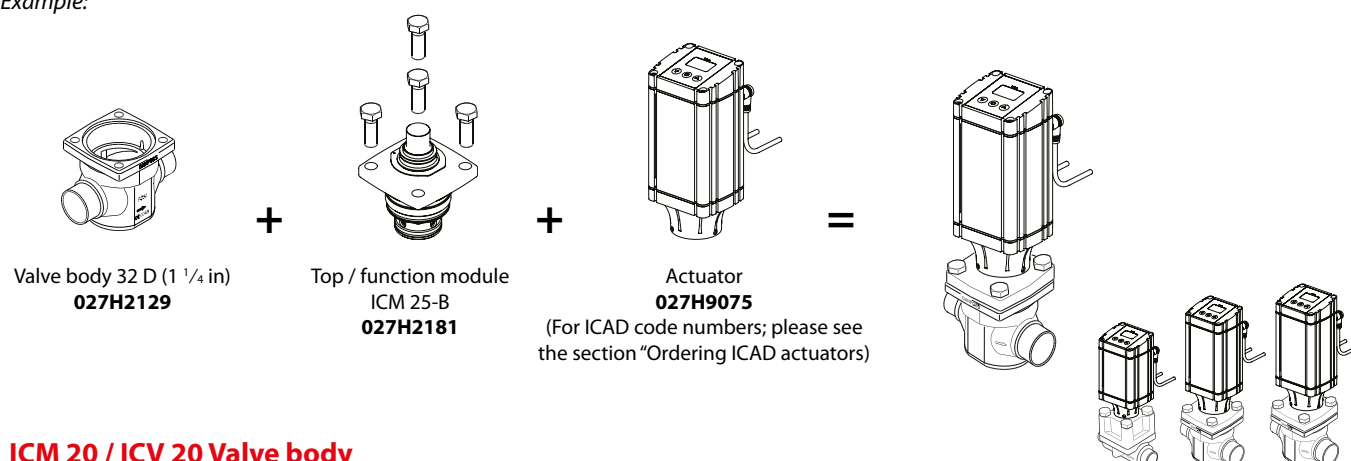
*) Includes ICV PM valve housing, flange gaskets and flange bolts.

***) Includes ICV PM valve housing, flange gaskets, flange bolts and flange nuts.

Technical data and ordering

Ordering from the parts programme (valve body + top / function module + actuator)

Example:



ICM 20 / ICV 20 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 20	5/8	16	Solder connection, ANSI (B 16.22)	SA	027H1129
	5/8	16	Solder connection, DIN (2856)	SD	027H1132
	3/4	20	Butt weld, EN 10220	D	027H1145
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H1148
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H1151
	3/4	20	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H1157
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H1160
	7/8	22	Solder connection, DIN (2856)	SD	027H1154
	1	25	Butt weld, EN 10220	D	027H1163
	1	25	Butt weld, ANSI (B 36.10)	A	027H1166

ICM 20 top / function module ¹⁾

Type	C _v value [gal/min]	K _v value [m ³ /h]	Code no.
ICM 20 – A33	0.23	0.2	027H1186
ICM 20 – A	0.7	0.6	027H1180
ICM 20 – B66	1.9	1.6	027H1194
ICM 20 – B	2.8	2.4	027H1181
ICM 20 – C	5.3	4.6	027H1182

ICM 25 / ICV 25 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 25	3/4	20	Butt weld, EN 10220	D	027H2128
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H2131
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2132
	3/4	20	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2133
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2125
	7/8	22	Solder connection, DIN (2856)	SD	027H2123
	1	25	Butt weld, EN 10220	D	027H2120
	1	25	Butt weld, ANSI (B 36.10)	A	027H2121
	1	25	Socket weld, ANSI (B 16.11)	SOC	027H2122
	1	25	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2127
	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2126
	1 1/8	28	Solder connection, DIN (2856)	SD	027H2124
	1 1/4	32	Butt weld, EN 10220	D	027H2129
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H2130
1 3/8	35	Solder connection, DIN (2856)	SD	027H2134	
1 1/2	40	Butt weld, EN 10220	D	027H2135	

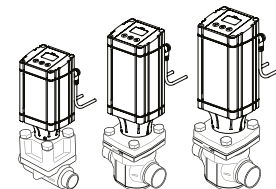
ICM 25 top / function module ²⁾

Type	C _v value [gal/min]	K _v value [m ³ /h]	Code no.
ICM 25 – A	7	6	027H2180
ICM 25-A33	2.3	2.3	027H2190
ICM 25 – B	13.9	12	027H2181

¹⁾ Including bolts and O-ring (for assembly with ICV valve body). Seat and O-ring (for seat to be mounted in ICV valve body).

²⁾ Including gasket and O-rings.

Technical data and ordering



ICM 32 / ICV 32 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 32	1 1/4	32	Butt weld, EN 10220	D	027H3120
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3121
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3122
	1 3/8	35	Solder connection, DIN (2856)	SD	027H3123
	1 1/2	40	Butt weld, EN 10220	D	027H3125
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H3126
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3127
	1 5/8	42	Solder connection, DIN (2856)	SD	027H3128

ICM 32 top / function module ²⁾

Type	Cv value [gal/min]	Kv value [m ³ /h]	Code no.
ICM 32 – A	10.4	9	027H3180
ICM 32 – B	20	17	027H3181

ICM 40 / ICV 40 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 40	1 1/2	40	Butt weld, EN 10220	D	027H4120
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4121
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4122
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4124
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4123
	2	50	Butt weld, EN 10220	D	027H4126
	2	50	Butt weld, ANSI (B 36.10)	A	027H4127

ICM 40 top / function module ²⁾

Type	Cv value [gal/min]	Kv value [m ³ /h]	Code no.
ICM 40 – A	17	15	027H4180
ICM 40 – B	30	26	027H4181

ICM 50 / ICV 50 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 50	2	50	Butt weld, EN 10220	D	027H5120
	2	50	Butt weld, ANSI (B 36.10)	A	027H5121
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5122
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5123
	2 1/2	65	Butt weld, EN 10220	D	027H5124
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H5125

ICM 50 top / function module ²⁾

Type	Cv value [gal/min]	Kv value [m ³ /h]	Code no.
ICM 50 – A	27	23	027H5180
ICM 50 – B	46	40	027H5181

ICM 65 / ICV 65 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 65 – 80	2 1/2	65	Butt weld, EN 10220	D	027H6120
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6121
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6123
	2 1/2	65	Butt weld, JIS (B S 602)	J	027H6122
	2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6125
	3	76	Solder connection, DIN (2856)	SD	027H6124
	3	80	Butt weld, EN 10220	D	027H6126
	3	80	Butt weld, ANSI (B 36.10)	A	027H6127

ICM 65 top / function module ²⁾

Type	Cv value [gal/min]	Kv value [m ³ /h]	Code no.
ICM 65 – A	41	35	027H6180
ICM 65 – B	80	70	027H6181

¹⁾ Including bolts and O-ring (for assembly with ICV valve body). Seat and O-ring (for seat to be mounted in ICV valve body).

²⁾ Including gasket and O-rings.

Note: Converting old PM valve to new ICV solution (ICS, ICM or ICLX) can be done with the ICV PM flanged valve housing.

The ICV PM flanged valve housing is designed for a max. working pressure of 28 bar g / 406 psig and therefore a suitable replacement for PM valves in the service market.

For ordering, please see the spare part documentation on PM valves.

ICS 25-150, Pilot-operated servo valve

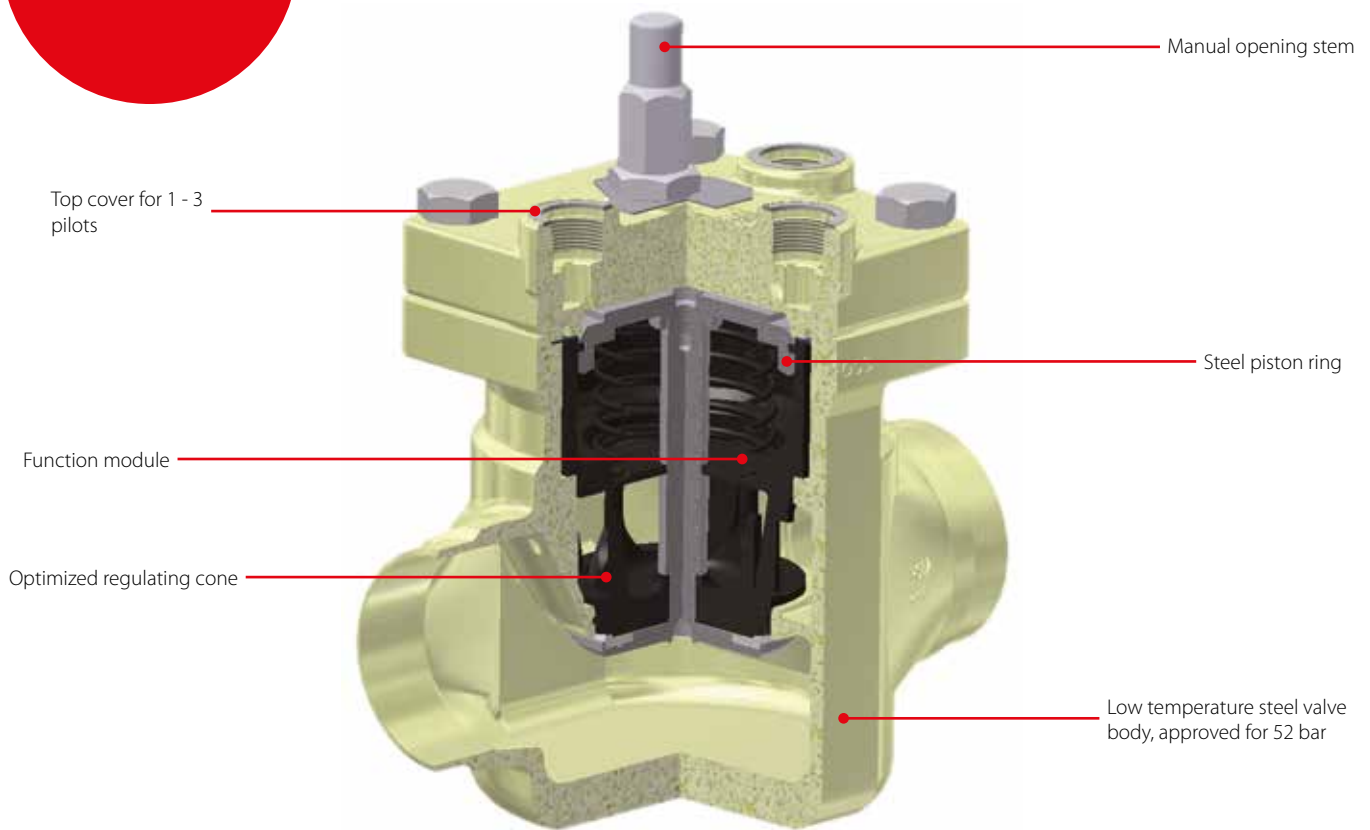
ICS are compact, servo operated multi-function control valves based on three main components – valve body, function module and top cover - and are available both as complete valves and as parts programme.

ICS valve functions are defined by the pilot valves connected.

ICS 1 pilot has one pilot pressure connection and ICS 3 pilot has three pilot pressure connections. With pilots, ICS can be used for regulating pressure, temperature and ON / OFF function in refrigeration systems.

ICS valves are designed for low and high-pressure.

ICS valves can be used on the high and low-pressure sides, in wet and dry suction lines and in liquid lines without phase change (i.e. where no expansion takes place in the valve). The associated Danfoss pilot valves can be either screwed directly into the ICS valve or connected via an external pilot line.



Facts

Application:

- Industrial refrigeration for a maximum working pressure of 52 bar / 754 psig
- Modular Concept:
 - Each valve body is available with several different connection types and sizes
 - Valve overhaul is performed by replacing the function module
 - Possible to convert ICS pilot-operated servo valve to ICM motor operated valve
- Low weight and compact design
- Low temperature steel body

- Direct coupled connections: connection types include butt weld, socket weld, solder and threaded connections
- V-port regulating cone ensures optimum regulating accuracy particularly at part load
- Manual operating spindle
- The ICS valve is a multifunction valve where 1 or up to 3 pilot valves can be mounted into the pilot ports
- Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R1234ze, R134a

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

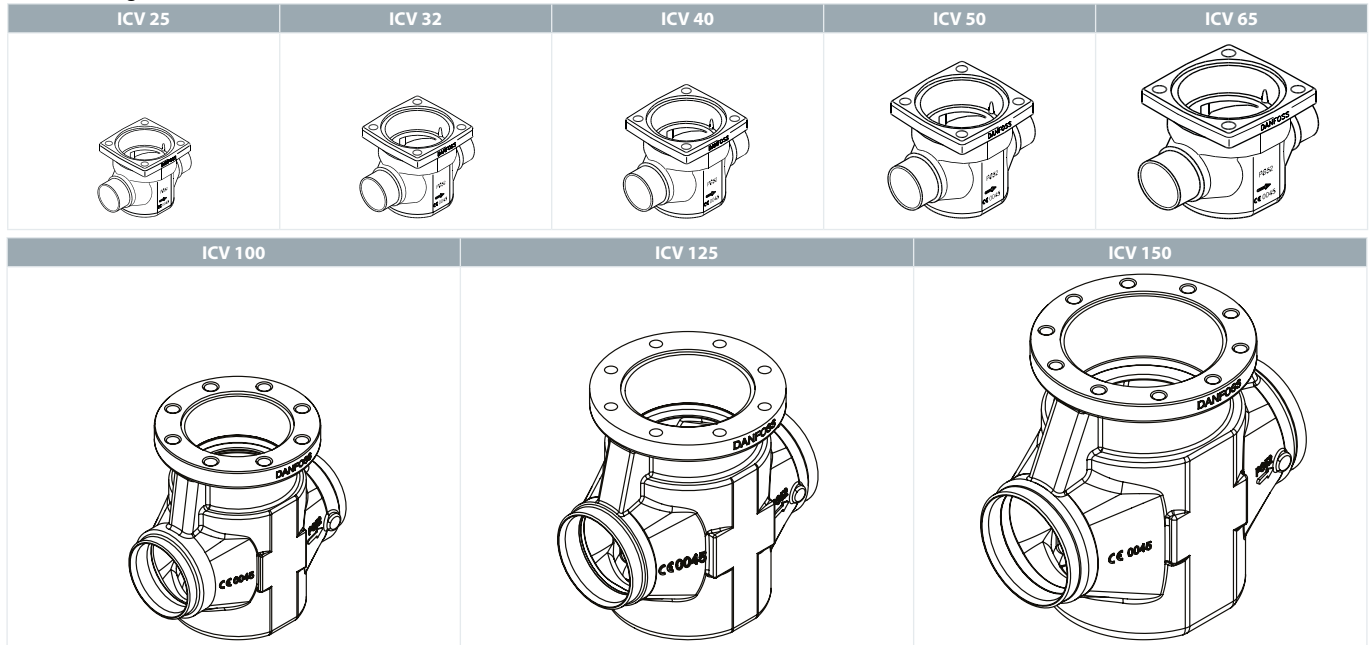
- Temperature range: -60 – 120 °C / -76 – 248 °F
- Surface protection: The external surface is zinc-chromated to provide good corrosion protection
- Max. working pressure: 52 bar g / 754 psig

The ICS concept

The ICS concept is developed around a modular principle. This gives the possibility of combining function modules and top covers with valve bodies, which are available in many different sizes and with a variety of connection possibilities.

The valve body

There are eight valve bodies available.

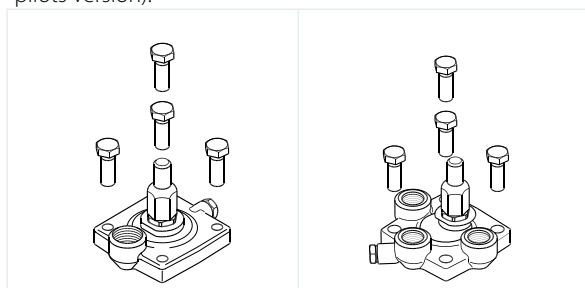


Valve bodies in the sizes ICV 25 – ICV 65 are available with a range of undersizes through oversized connection sizes and types. ICV 100 – ICV 150 are available in butt-weld DIN and butt-weld ANSI nominal sizes.

D	A	J	SOC	SD	SA	FPT
Butt-weld DIN	Butt-weld ANSI	Butt-weld JIS	Socket weld ANSI	Solder DIN	Solder ANSI	Female Pipe Thread

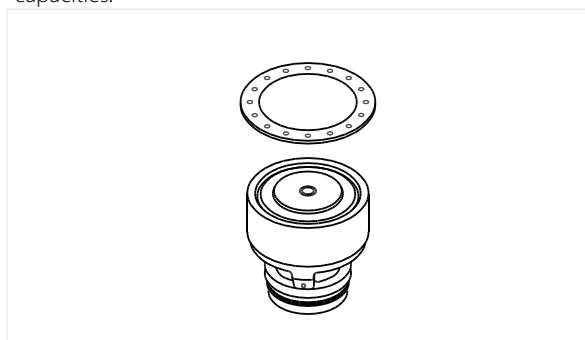
The top cover

Each valve body may be fitted with a 1 pilot or 3 pilot top cover (except ICS 100 – ICS 150 - only available as 3 pilots version).



The function module

Multiple function modules are available to give different capacities.

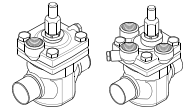


Type	Valve body size	K _v value [m ³ /h]
ICS 25 – 5	25	1.7
ICS 25 – 10	25	3.5
ICS 25 – 15	25	6.0
ICS 25 – 20	25	8
ICS 25 – 25	25	11.5
ICS 32	32	17
ICS 40	40	27
ICS 50	50	44
ICS 65	65	70
ICS 80	80	85
ICS 100	100	142
ICS 125	125	207
ICS 150	150	354

Ordering

ICS - Pilot-operated servo valve

Ordering factory assembled valve (valve body and top / function module)



Type		Connection size		Connection type	Connection designation	Code no.
		[in]	[mm]			
ICS 25 - 5	1 pilot	3/4	20	Butt weld, EN 10220	D	027H2028
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2029
		3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2140
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2025
		7/8	22	Solder connection, DIN (2856)	SD	027H2023
		1	25	Butt weld, EN 10220	D	027H2020
	3 pilots ¹⁾	1	25	Butt weld, ANSI (B 36.10)	A	027H2021
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2026
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2024
		3/4	20	Butt weld, EN 10220	D	027H2078
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2079
		3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2145
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2075
		7/8	22	Solder connection, DIN (2856)	SD	027H2073
		1	25	Butt weld, EN 10220	D	027H2070
		1	25	Butt weld, ANSI (B 36.10)	A	027H2071
ICS 25 - 10	1 pilot	3/4	20	Butt weld, EN 10220	D	027H2038
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2039
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2035
		7/8	22	Solder connection, DIN (2856)	SD	027H2033
		1	25	Butt weld, EN 10220	D	027H2030
		1	25	Butt weld, ANSI (B 36.10)	A	027H2031
	3 pilots ¹⁾	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2036
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2034
		3/4	20	Butt weld, EN 10220	D	027H2088
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2089
		3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2146
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2085
		7/8	22	Solder connection, DIN (2856)	SD	027H2083
		1	25	Butt weld, EN 10220	D	027H2080
		1	25	Butt weld, ANSI (B 36.10)	A	027H2081
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2086
ICS 25 - 15	1 pilot	3/4	20	Butt weld, EN 10220	D	027H2048
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2049
		3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2142
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2045
		7/8	22	Solder connection, DIN (2856)	SD	027H2043
		1	25	Butt weld, EN 10220	D	027H2040
	3 pilots ¹⁾	1	25	Butt weld, ANSI (B 36.10)	A	027H2041
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2046
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2044
		3/4	20	Butt weld, EN 10220	D	027H2098
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2099
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2095
		7/8	22	Solder connection, DIN (2856)	SD	027H2093
		1	25	Butt weld, EN 10220	D	027H2090
		1	25	Butt weld, ANSI (B 36.10)	A	027H2091
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2096
ICS 25 - 20	1 pilot	3/4	20	Butt weld, EN 10220	D	027H2058
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2059
		3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2143
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2055
		7/8	22	Solder connection, DIN (2856)	SD	027H2053
		1	25	Butt weld, EN 10220	D	027H2050
	3 pilots ¹⁾	1	25	Butt weld, ANSI (B 36.10)	A	027H2051
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2056
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2054
		3/4	20	Butt weld, EN 10220	D	027H2108
		3/4	20	Butt weld, ANSI (B 36.10)	A	027H2109
		3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2148
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2105
		7/8	22	Solder connection, DIN (2856)	SD	027H2103
		1	25	Butt weld, EN 10220	D	027H2100
		1	25	Butt weld, ANSI (B 36.10)	A	027H2101
3 pilots ¹⁾	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2106	
	1 1/8	28	Solder connection, DIN (2856)	SD	027H2104	

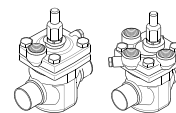
¹⁾ Including one blanking plug (A+B)

²⁾ Including two blanking plugs (A) and one sealing plug (B)

Ordering

ICS - Pilot-operated servo valve

Ordering factory assembled valve (valve body and top / function module) (continued)



Type		Connection size		Connection type	Connection designation	Code no.
		[in]	[mm]			
ICS 25 – 25	1 pilot	3/4	20	Butt weld, EN 10220	D	027H2068
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2065
		7/8	22	Solder connection, DIN (2856)	SD	027H2063
		1	25	Butt weld, EN 10220	D	027H2060
		1	25	Butt weld, ANSI (B 36.10)	A	027H2061
		1	25	Socket weld, ANSI (B 16.11)	SOC	027H2062
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2066
	3 pilots ¹⁾	1 1/8	28	Solder connection, DIN (2856)	SD	027H2064
		3/4	20	Butt weld, EN 10220	D	027H2118
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2115
		7/8	22	Solder connection, DIN (2856)	SD	027H2113
		1	25	Butt weld, EN 10220	D	027H2110
		1	25	Butt weld, ANSI (B 36.10)	A	027H2111
		1	25	Socket weld, ANSI (B 16.11)	SOC	027H2112
ICS 32	1 pilot	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2116
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2114
		1 1/4	32	Butt weld, EN 10220	D	027H3020
		1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3021
	3 pilots ¹⁾	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3022
		1 3/8	35	Solder connection, DIN (2856)	SD	027H3023
		1 1/4	32	Butt weld, EN 10220	D	027H3030
ICS 40	1 pilot	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3031
		1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3032
		1 3/8	35	Solder connection, DIN (2856)	SD	027H3033
		1 1/2	40	Butt weld, EN 10220	D	027H4020
	3 pilots ¹⁾	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4021
		1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4022
		1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4024
ICS 50	1 pilot	1 5/8	42	Solder connection, DIN (2856)	SD	027H4023
		1 1/2	40	Butt weld, EN 10220	D	027H4030
		1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4031
		1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4032
	3 pilots ¹⁾	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4034
		1 5/8	42	Solder connection, DIN (2856)	SD	027H4033
		2	50	Butt weld, EN 10220	D	027H5020
ICS 65	1 pilot	2	50	Butt weld, ANSI (B 36.10)	A	027H5021
		2	50	Socket weld, ANSI (B 16.11)	SOC	027H5022
		2 1/8	54	Solder connection, DIN (2856)	SD	027H5023
		2	50	Butt weld, EN 10220	D	027H5030
	3 pilots ¹⁾	2	50	Butt weld, ANSI (B 36.10)	A	027H5031
		2	50	Socket weld, ANSI (B 16.11)	SOC	027H5032
		2 1/8	54	Solder connection, DIN (2856)	SD	027H5033
ICS 80	1 pilot	2 1/2	65	Butt weld, EN 10220	D	027H6020
		2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6021
		2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6023
		2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6025
	3 pilots ¹⁾	3	76	Solder connection, DIN (2856)	SD	027H6024
		2 1/2	65	Butt weld, EN 10220	D	027H6030
		2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6031
ICS 100	1 pilot	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6033
		2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6035
	3 pilots ²⁾	3	76	Solder connection, DIN (2856)	SD	027H6034
		3	80	Butt weld, EN 10220	D	027H8020
ICS 125	1 pilot	3	80	Butt weld, ANSI (B 36.10)	A	027H8021
		3	80	Butt weld, EN 10220	D	027H8030
	3 pilots ²⁾	3	80	Butt weld, ANSI (B 36.10)	A	027H8031
ICS 150	1 pilot	4	100	Butt weld, EN 10220	D	027H7120
		4	100	Butt weld, ANSI (B 36.10)	A	027H7121
	3 pilots ²⁾	4	100	Butt weld, ANSI (B 36.10)	A ²⁾	027H7122
		5	125	Butt weld, EN 10220	D	027H7140
ICS 150	3 pilots ²⁾	5	125	Butt weld, ANSI (B 36.10)	A	027H7141
		5	125	Butt weld, ANSI (B 36.10)	A ²⁾	027H7142
	3 pilots ²⁾	6	150	Butt weld, EN 10220	D	027H7160
ICS 150	3 pilots ²⁾	6	150	Butt weld, ANSI (B 36.10)	A	027H7161
		6	150	Butt weld, ANSI (B 36.10)	A ²⁾	027H7162

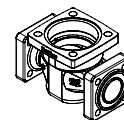
¹⁾ Including one blanking plug (A+B).

²⁾ Including two blanking plugs (A) and one sealing plug (B).

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Ordering

ICV-PM valve housings



Ordering

Type	Code no.
ICV 25 PM Valve housing	027H2119 *)
ICV 32 PM Valve housing	027H3129 *)
ICV 40 PM Valve housing	027H4128 *)
ICV 50 PM Valve housing	027H5127 **)
ICV 65 PM Valve housing	027H6128 **)

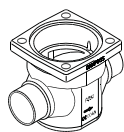
*) Includes ICV PM valve housing, flange gaskets and flange bolts.

***) Includes ICV PM valve housing, flange gaskets, flange bolts and flange nuts.

Ordering

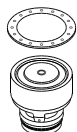
Ordering from the parts programme (valve body + function module + top cover)

Example:



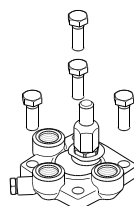
Valve body 25 D (1 in)
027H2120

+



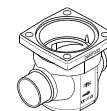
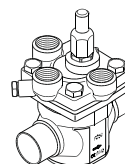
Function module
ICS 25 - 15
027H2203

+



Top cover 3 pilots
027H2173

=



ICS 25 / ICV 25 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 25	3/4	20	Butt weld, EN 10220	D	027H2128
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H2131
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	027H2132
	3/4	20	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2133
	7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2125
	7/8	22	Solder connection, DIN (2856)	SD	027H2123
	1	25	Butt weld, EN 10220	D	027H2120
	1	25	Butt weld, ANSI (B 36.10)	A	027H2121
	1	25	Socket weld, ANSI (B 16.11)	SOC	027H2122
	1	25	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2127
	1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2126
	1 1/8	28	Solder connection, DIN (2856)	SD	027H2124
	1 1/4	32	Butt weld, EN 10220	D	027H2129
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H2130
1 3/8	35	Solder connection, DIN (2856)	SD	027H2134	
1 1/2	40	Butt weld, EN 10220	D	027H2135	

ICS 25 function module

Type	C _v value [gal/min]	K _v value [m ³ /h]	Code no.
ICS 25 - 5	13.30	11.500	027H2201 ¹⁾
ICS 25 - 10	2.00	1.700	027H2202 ¹⁾
ICS 25 - 15	4.10	3.500	027H2203 ¹⁾
ICS 25 - 20	7.00	6.000	027H2204 ¹⁾
ICS 25 - 25	13.90	12.000	027H2200 ¹⁾

ICS 25 top cover

Type	Code no.
ICS 25	027H2172 ²⁾
ICS 25	027H2173 ³⁾

ICS 32 / ICV 32 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 32	1 1/4	32	Butt weld, EN 10220	D	027H3120
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3121
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3122
	1 3/8	35	Solder connection, DIN (2856)	SD	027H3123
	1 1/2	40	Butt weld, EN 10220	D	027H3125
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H3126
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3127
1 5/8	42	Solder connection, DIN (2856)	SD	027H3128	

ICS 32 function module

Type	Code no.
ICS 32	027H3200 ¹⁾

ICS 32 top cover

Type	Code no.
ICS 32	027H3172 ²⁾
ICS 32	027H3173 ³⁾

¹⁾ Including gasket and O-rings

²⁾ Including bolts

³⁾ Including bolts and one blanking plug

Ordering

Ordering from the parts programme (valve body + function module + top cover) (continued)



ICS 40 / ICV 40 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 40	1 1/2	40	Butt weld, EN 10220	D	027H4120
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4121
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4122
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4124
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4123
	2	50	Butt weld, EN 10220	D	027H4126
	2	50	Butt weld, ANSI (B 36.10)	A	027H4127

ICS 40 function module

Type	Code no.
ICS 40	027H4200 ¹⁾

ICS 40 top cover

Type	Code no.	
ICS 40	1 Pilot	027H4172 ²⁾
	3 Pilots	027H4173 ³⁾

ICS 50 / ICV 50 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 50	2	50	Butt weld, EN 10220	D	027H5120
	2	50	Butt weld, ANSI (B 36.10)	A	027H5121
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5122
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5123
	2 1/2	65	Butt weld, EN 10220	D	027H5124
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H5125

ICS 50 function module

Type	Code no.
ICS 50	027H5200 ¹⁾

ICS 50 top cover

Type	Code no.	
ICS 50	1 Pilot	027H5172 ²⁾
	3 Pilots	027H5173 ³⁾

ICS 65 – 80 / ICV 65-80 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 65 – 80	2 1/2	65	Butt weld, EN 10220	D	027H6120
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6121
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6123
	2 1/2	65	Butt weld, JIS (B S 602)	J	027H6122
	2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6125
	3	76	Solder connection, DIN (2856)	SD	027H6124
	3	80	Butt weld, EN 10220	D	027H6126
	3	80	Butt weld, ANSI (B 36.10)	A	027H6127

ICS 65 – 80 function module

Type	Code no.
ICS 65	027H6200 ¹⁾
ICS 80	027H8200 ¹⁾

ICS 65 – 80 top cover

Type	Code no.	
ICS 65 – 80	1 Pilot	027H6172 ²⁾
	3 Pilots	027H6173 ³⁾

¹⁾ Including gasket and O-rings.

²⁾ Including bolts.

³⁾ Including bolts and one blanking plug.

Note: Converting old PM valve to new ICV solution (ICS, ICM or ICLX) can be done with the ICV PM flanged valve housing.

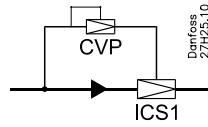
The ICV PM flanged valve housing is designed for a max. working pressure of 28 bar g / 406 psig and therefore a suitable replacement for PM valves in the service market. For ordering, please see the spare part documentation on PM valves

ICS application examples

Example no. 1-1

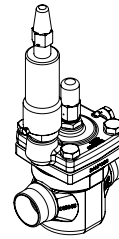
Constant pressure regulation

- CVP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVP-M 4 – 28 bar g / 58 – 406 psig
- CVP-H 25 – 52 bar g / 363 – 754 psig



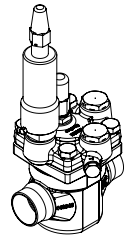
Products

- 1 × ICS 1 Pilot
- 1 × CVP-L/M/H



Products

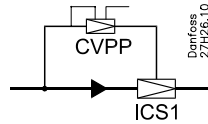
- 1 × ICS 3 Pilots
- 1 × CVP-L/M/H
- 2 × Blanking plugs
- Sl: A + B
- Sil: A



Example no. 1-2

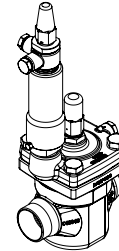
Differential pressure regulation

- CVPP-L (0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVPP-M 4 – 28 bar g / 58 – 406 psig



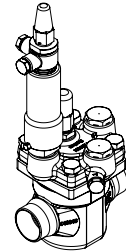
Products

- 1 × ICS 1 Pilot
- 1 × CVPP-L/M



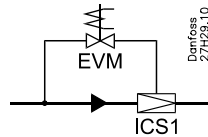
Products

- 1 × ICS 3 Pilots
- 1 × CVPP-L/M
- 2 × Blanking plugs
- Sl: A + B
- Sil: A



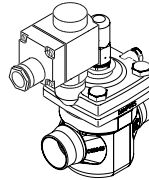
Example no. 1-3

On / off regulation (solenoid valve)



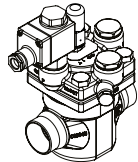
Products

- 1 × ICS 1 Pilot
- 1 × EVM
- 1 × coil



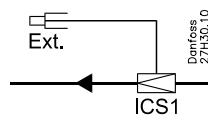
Products

- 1 × ICS 3 Pilots
- 1 × EVM
- 1 × coil
- 2 × Blanking plugs
- Sl: A + B
- Sil: A



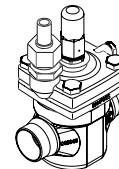
Example no. 1-4

Regulation with external control pressure



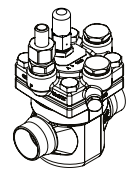
Products

- 1 × ICS 1 Pilot
- 1 × nipple for external control pressure



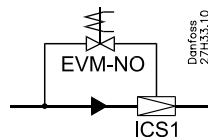
Products

- 1 × ICS 3 Pilots
- 1 × nipple for external control pressure
- 2 × Blanking plugs
- Sl: A + B
- Sil: A



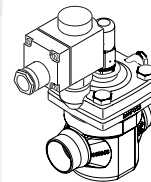
Example no. 1-5

On / off regulation (solenoid valve)



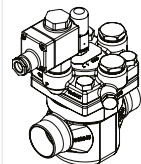
Products

- 1 × ICS 1 Pilot
- 1 × EVM-NO (12 W coil)



Products

- 1 × ICS 3 Pilots
- 1 × EVM-NO (12 W coil)
- 2 × Blanking plugs
- Sl: A + B
- Sil: A

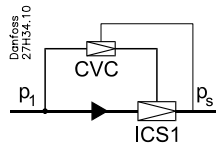


ICS application examples (continued)

Example no. 1-6

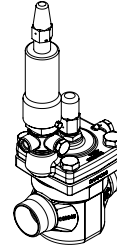
Crankcase pressure regulation.
(Max. suction pressure regulation)

• -0.45 – 7 bar g
(13.3 in. Hg to 102 psig)



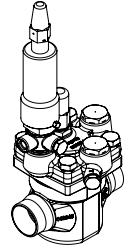
Products

1 × ICS 1 Pilot
1 × CVC-L



Products

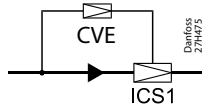
1 × ICS 3 Pilots
1 × CVC-L
2 × Blanking
plugs
SI: A + B
SII: A



Example no. 1-7

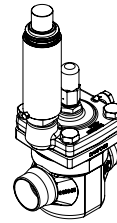
Electronically controlled media
temperature regulation

• -0.66 – 8 bar g
(19.5 in. Hg to 116 psig)



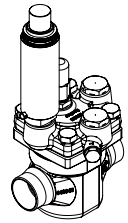
Products

1 × ICS 1 Pilot
1 × CVE



Products

1 × ICS 3 Pilots
1 × CVE
2 × Blanking
plugs
SI: A + B
SII: A



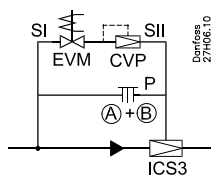
ICS application examples (continued)

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Example no. 2-1

Constant pressure regulation combined with electrical shut off

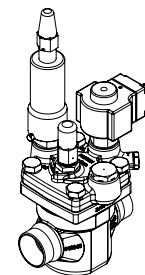
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Danfoss
27H66.10

Products

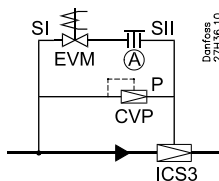
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × CVP-L
- 1 × EVM
- 1 × coil



Example no. 2-2

Constant pressure regulation combined with electrical wide open

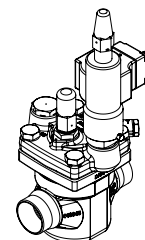
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Danfoss
27H56.10

Products

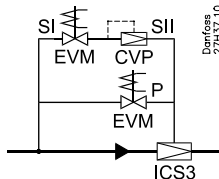
- 1 × ICS 3 Pilots
- 1 × blanking plug (A)
- 1 × CVP-L
- 1 × EVM



Example no. 2-3

Constant pressure regulation combined with electrical shut off and wide open

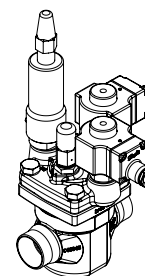
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Danfoss
27H57.10

Products

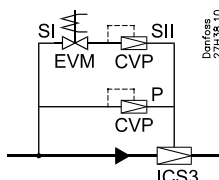
- 1 × ICS 3 Pilots
- 1 × CVP-L
- 2 × EVM
- 2 × coils



Example no. 2-4

Constant pressure regulation with change-over between two preset evaporating pressures

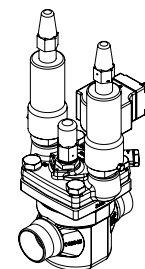
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Danfoss
27H58.10

Products

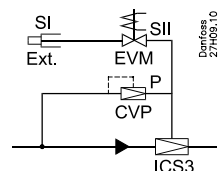
- 1 × ICS 3 Pilots
- 2 × CVP-L
- 1 × EVM
- 1 × coil



Example no. 2-5

External control pressure with electrical shut off combined with constant pressure regulation

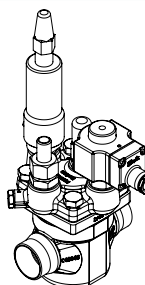
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Danfoss
27H63.10

Products

- 1 × ICS 3 Pilots
- 1 × nipple for external control pressure
- 1 × CVP-L
- 1 × EVM
- 1 × coil

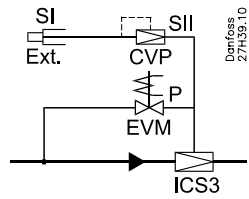


ICS application examples (continued)

Example no. 2-6

Constant pressure regulation with external control pressure combined with electrical wide open

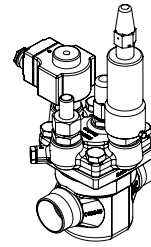
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Demiflex
27H39,10

Products

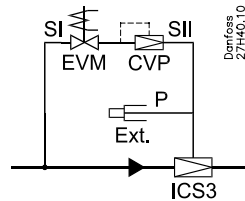
- 1 × ICS 3 Pilots
- 1 × nipple for external control pressure
- 1 × CVP-L
- 1 × EVM
- 1 × coil



Example no. 2-7

Constant pressure regulation with electrical shut off combined with external control pressure

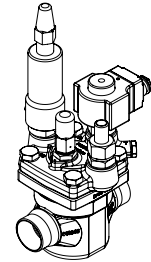
• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Demiflex
27H40,10

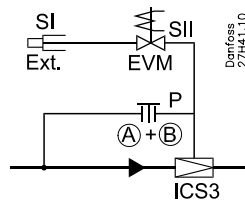
Products

- 1 × ICS 3 Pilots
- 1 × nipple for external control pressure
- 1 × CVP-L
- 1 × EVM
- 1 × coil



Example no. 2-8

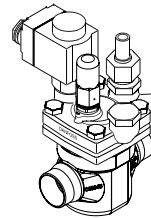
Solenoid valve with external control pressure for small pressure drops



Demiflex
27H41,10

Products

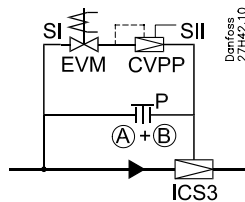
- 1 × ICS 3
- 1 × blanking plug (A + B)
- 1 × nipple for external control pressure
- 1 × EVM
- 1 × coil



Example no. 2-9

Differential pressure regulation combined with electrical shut off

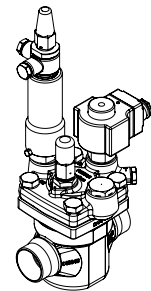
• CVPP-L (0.66 – 7 bar g)
(19.5 in. Hg to 102 psig)



Demiflex
27H42,10

Products

- 1 × ICS 3
- 1 × blanking plug (A + B)
- 1 × CVPP-L
- 1 × EVM
- 1 × coil



ICS application examples (continued)

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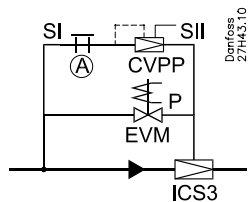
19

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Example no. 2-10

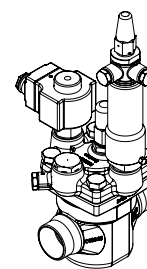
Differential pressure regulation combined with electrical wide open

- CVPP-L (0.66 – 7 bar g) (19.5 in. Hg to 102 psig)



Products

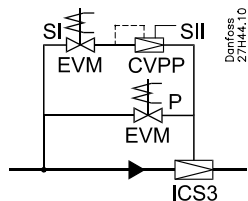
- 1 × ICS 3 Pilots
- 1 × blanking plug (A)
- 1 × CVPP-L
- 1 × EVM
- 1 × coil



Example no. 2-11

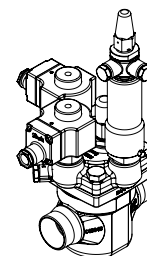
Differential pressure regulation combined with electrical wide open and shut off

- CVPP-L (0.66 – 7 bar g) (19.5 in. Hg to 102 psig)



Products

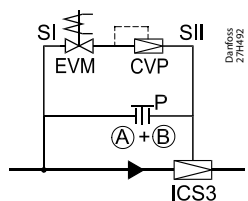
- 1 × ICS 3 Pilots
- 1 × CVPP-L
- 2 × EVM
- 2 × coils



Example no. 2-12

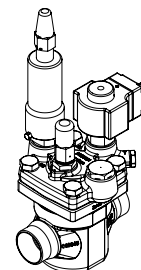
Constant pressure regulation combined with electrical shut off

- CVP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVP-M 4 – 28 bar g / 58 – 406 psig
- CVP-H 25 – 52 bar g / 363 – 754 psig



Products

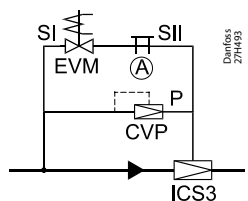
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × CVP-L/M/H
- 1 × EVM
- 1 × coil



Example no. 2-13

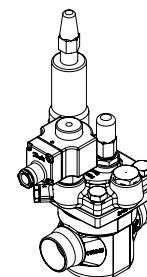
Constant pressure regulation combined with electrical wide open

- CVP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVP-M 4 – 28 bar g / 58 – 406 psig
- CVP-H 25 – 52 bar g / 363 – 754 psig



Products

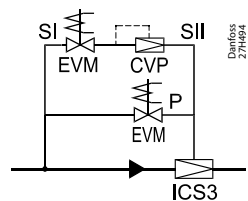
- 1 × ICS 3 Pilots
- 1 × blanking plug (A)
- 1 × CVP-L/M/H
- 1 × EVM
- 1 × coil



Example no. 2-14

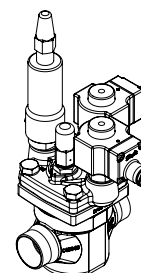
Constant pressure regulation combined with electrical shut off and wide open

- CVP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVP-M 4 – 28 bar g / 58 – 406 psig
- CVP-H 25 – 52 bar g / 363 – 754 psig



Products

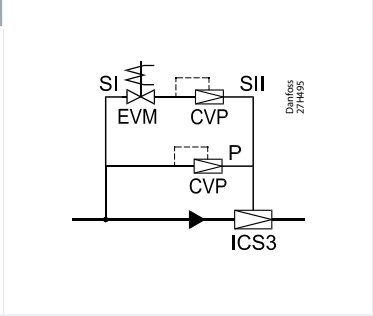
- 1 × ICS 3 Pilots
- 1 × CVP-L/M/H
- 2 × EVM
- 2 × coils



ICS application examples (continued)

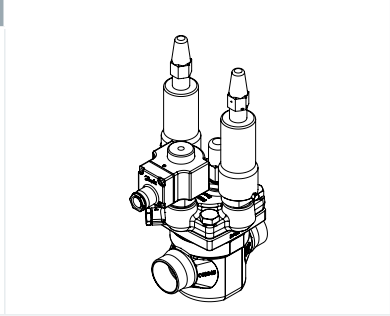
Example no. 2-15
 Constant pressure regulation with change-over between two preset evaporating pressures

- CVP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVP-M 4 – 28 bar g / 58 to 406 psig
- CVP-H 25 – 52 bar g / 363 – 754 psig



Products

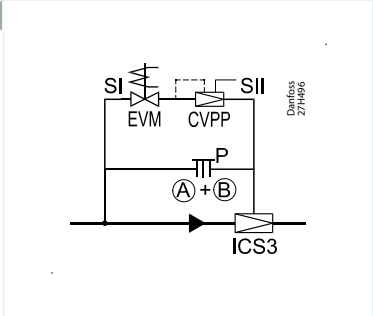
- 1 x ICS 3 Pilots
- 2 x CVP-L/M/H
- 1 x EVM
- 1 x coil



Example no. 2-16
 Differential pressure regulation combined with electrical shut off

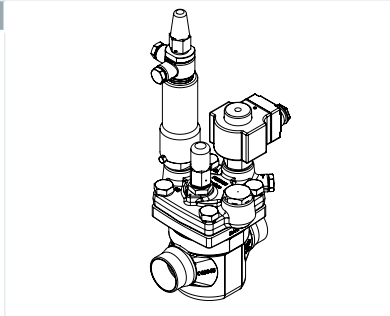
CVPP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)

- CVPP-M 4 – 28 bar g / 58 – 406 psig



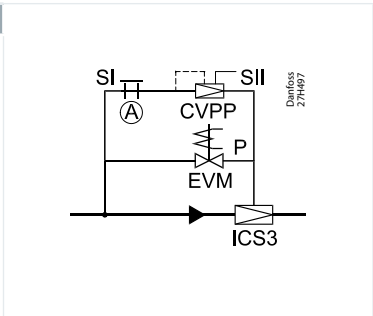
Products

- 1 x ICS 3 Pilots
- 1 x blanking plug (A + B)
- 1 x CVPP-L/M
- 1 x EVM
- 1 x coil



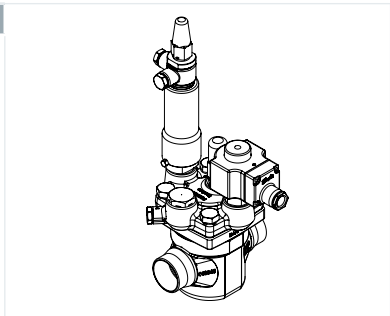
Example no. 2-17
 Differential pressure regulation combined with electrical wide open

- CVPP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVPP-M 4 – 28 bar g / 58 – 406 psig



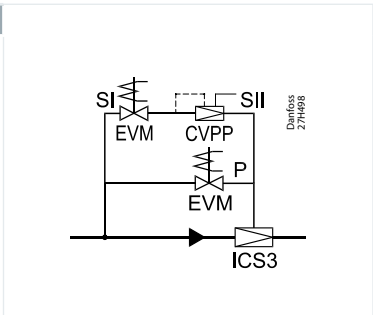
Products

- 1 x ICS 3 Pilots
- 1 x blanking plug (A)
- 1 x CVPP-L/M
- 1 x EVM
- 1 x coil



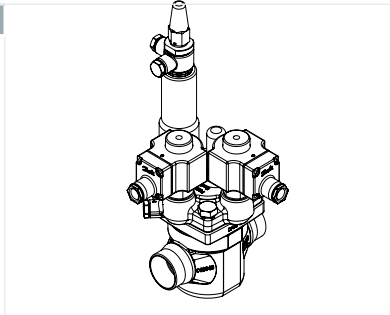
Example no. 2-18
 Differential pressure regulation combined with electrical wide open and shut off

- CVPP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVPP-M 4 – 28 bar g / 58 – 406 psig



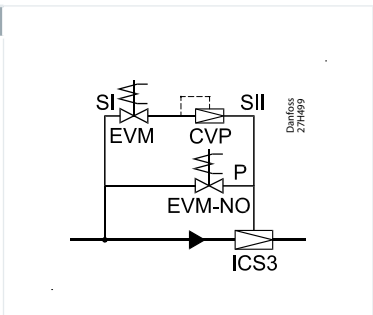
Products

- 1 x ICS 3 Pilots
- 1 x CVPP-L/M
- 2 x EVM
- 2 x coils



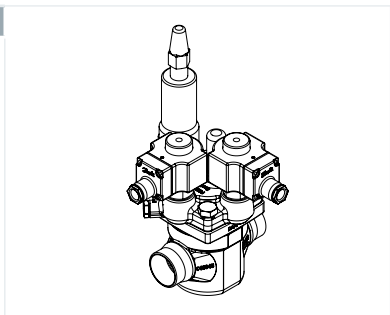
Example no. 2-19
 Constant pressure regulation combined with electrical wide open and shut off

- CVP-L (-0.66 – 7 bar g) (19.5 in. Hg to 102 psig)
- CVP-M 4 – 28 bar g / 58 – 406 psig
- CVP-H 25 – 52 bar g / 363 – 754 psig



Products

- 1 x ICS 3 Pilots
- 1 x CVP-L/M/H
- 1 x EVM
- 1 x EVM-NO (12 W coil)
- 2 x coils

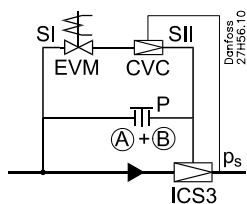


ICS application examples (continued)

Example no. 2-20

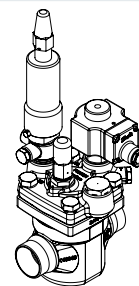
Crankcase pressure regulation (max. suction pressure regulation) combined with shut off

• -0.45 – 7 bar g
(13.3 in. Hg to 102 psig)



Products

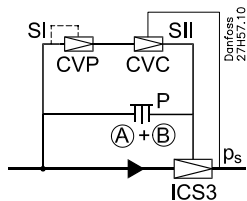
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × CVC-L
- 1 × EVM
- 1 × coil



Example no. 2-21

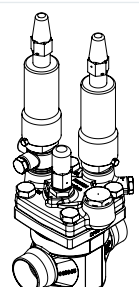
Crankcase pressure regulation (max. suction pressure regulation) combined with evaporating pressure regulation

• -0.66 – 28 bar g
(19.5 in. Hg to 406 psig)



Products

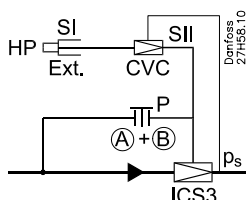
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × CVC-L/M
- 1 × CVP-L/M



Example no. 2-22

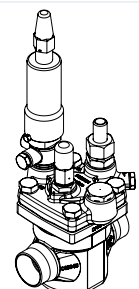
Crankcase pressure regulation (max. suction pressure regulation) at low pressure drops across the valve

• -0.45 – 7 bar g
(13.3 in. Hg to 102 psig)



Products

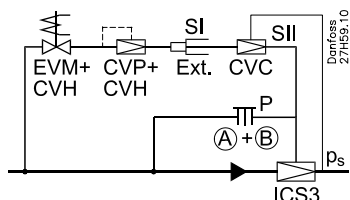
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × nipple for external control pressure
- 1 × CVC-L



Example no. 2-23

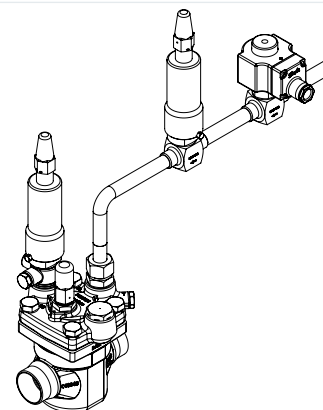
Crankcase pressure regulation (max. suction pressure regulation) combined with constant pressure regulation and electrical shut off.

• -0.66 – 7 bar g
(19.5 in. Hg to 102 psig)



Products

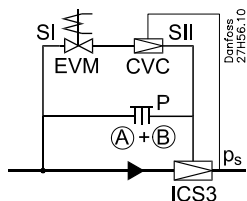
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × nipple for external control pressure
- 1 × CVP-L
- 1 × EVM
- 1 × coil
- 2 × CVH
- 1 × CVC-L



Example no. 2-24

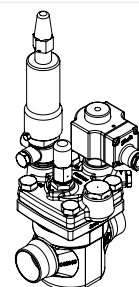
Hot gas bypass regulation combined with electrical shut off

• -0.45 – 7 bar g
(13.3 in. Hg to 102 psig)



Products

- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × CVC-L
- 1 × EVM
- 1 × coil

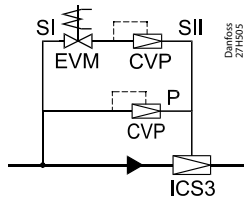


ICS application examples (continued)

Example no. 2-25

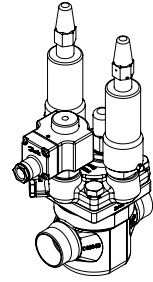
Constant pressure regulation with electrical shut off and protection against high pressure when suction line is closed

• -0.66 – 28 bar g
(19.5 in. Hg to 406 psig).



Products

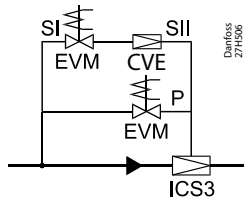
- 1 × ICS 3 Pilots
- 1 × CVP-L
- 1 × EVM
- 1 × coil
- 1 × CVP-M



Example no. 2-26

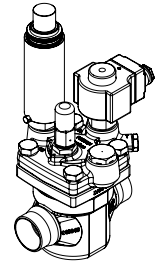
Electronically controlled media temperature regulation combined with electrical shut off

• -1 – 8 bar g
(0 in. Hg to 116 psig).



Products

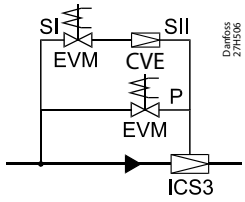
- 1 × ICS 3 Pilots
- 1 × blanking plug (A + B)
- 1 × CVE
- 1 × EVM
- 1 × coil



Example no. 2-27

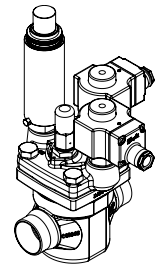
Electronically controlled media temperature regulation combined with electrical shut off and wide open

• -1 – 8 bar g
(0 in. Hg to 116 psig).



Products

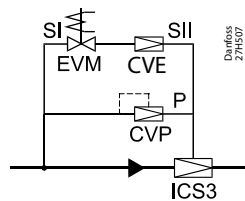
- 1 × ICS 3 Pilots
- 1 × CVE
- 2 × EVM
- 2 × coils



Example no. 2-28

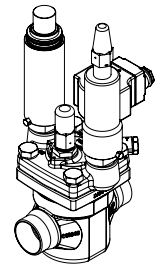
Electronically controlled media temperature regulation combined with electrical shut off and changeover to constant pressure regulation

• -1 – 8 bar g
(0 in. Hg to 116 psig).



Products

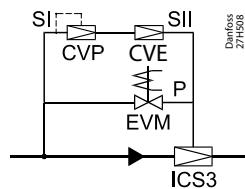
- 1 × ICS 3 Pilots
- 1 × CVQ
- 1 × CVP-L
- 1 × EVM
- 1 × coil



Example no. 2-29

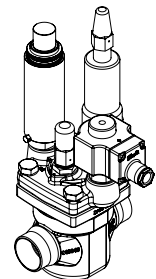
Electronically controlled media temperature regulation with low evaporating pressure protection combined with wide open

• -1 – 8 bar g
(0 in. Hg to 116 psig).



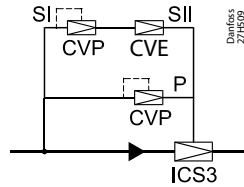
Products

- 1 × ICS 3 Pilots
- 1 × CVE
- 1 × CVP-L
- 1 × EVM
- 1 × coil

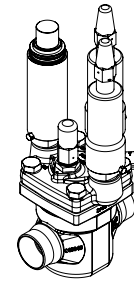


ICS application examples (continued)

Example no. 2-30
Electronically controlled media temperature regulation with low evaporating pressure protection combined with changeover to constant pressure regulation
 • -1 – 8 bar g
 (0 in. Hg to 116 psig).

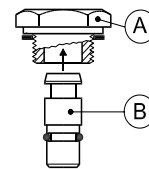
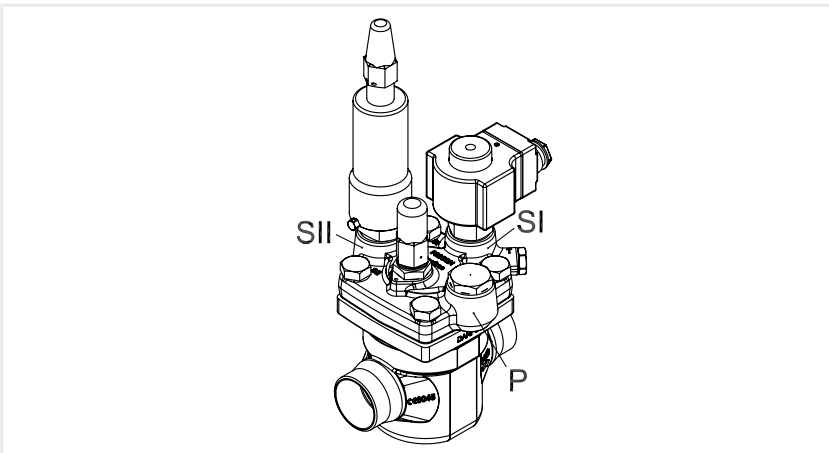


Products
 1 × ICS 3 Pilots
 1 × CVE
 2 × CVP-L

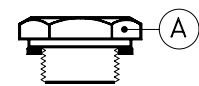


The ICS valve will be fully open if the pilot valve in P is fully open, irrespective of the degree of opening of pilot valves SI and SII.
 The ICS valve will be fully closed if the pilot valve in P is fully closed and at least one of the valves in SI or SII is fully closed at the same time.
 The relation between the pilot valves in ports SI, SII and P is shown in the table below.

Pilot valve port			ICS valve
SI	SII	P	
Open	Open	Closed	Open
Open	Open	Open	Open
Open	Closed	Closed	Closed
Open	Closed	Open	Open
Closed	Open	Closed	Closed
Closed	Open	Open	Open
Closed	Closed	Closed	Closed
Closed	Closed	Open	Open



Blanking plug A + B



Blanking plug A

CVP / CVPP / CVC / CVE / EVM, Pilot valves and CVH housing

Pilot valves are intended for mechanical control of a main valve and are ready for direct installation in the top cover of the main valve.

Small capacities can be controlled by the pilot valve directly without a main valve when installed in the matching CVH housing.

Features CVP / CVPP / CVC / CVE / EVM / CVH



Facts

The range of pilot valves consist of:

- Constant-pressure pilot valve, type CVP
- Differential-pressure pilot valve, type CVPP
- Pressure-operated pilot valve with reference pressure connection, type CVC
- Electronically operated constant-pressure pilot valve, type CVE (to be fitted with the ICAD actuator)
- Solenoid pilot valve, type EVM (NC)
- Solenoid pilot valve, type EVM (NO)
- Housing, type CVH for pilot valves, for mounting in external pilot lines

- Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R134a

The use of pilots with flammable hydrocarbons is not recommended.
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- The pilot valves can be screwed direct into the main valve, thus avoiding the necessity of welding, soldering and

separate pilot lines

- The pilot valves can be mounted directly in the ICS, PM or ICF valve or it can be connected via an external pilot line and a CVH housing
- All pilot valves can be used on all sizes of main valves
- Extremely accurate pressure and temperature control
- Several pilot valves can be connected in series or in parallel to provide many functions in the same ICS or ICF valve

Technical data and ordering

CVP

Constant-pressure pilot valve

Valve type	Max. working pressure		k _v / C _v value ¹⁾		Temperature range		Pressure range		Code no.
	[bar]	[psi]	[m ³ /h]	[US gal/min]	[° C]	[° F]	[bar]	[psi]	
CVP-L	52	754	0.40	0.46	-60 / 120	-76 / 248	-0.66 – 7	19.5 in Hg to 102	027B0920
CVP-M	52	754	0.40	0.46	-60 / 120	-76 / 248	4 – 28	58 – 406	027B0921
CVP-H	52	754	0.40	0.46	-60 / 120	-76 / 248	25 – 52	363 – 754	027B0922

P-band for a valve system regulated by CVP and ICS / PM main valve: < 0.2 bar g / 2.9 psi g

¹⁾ The k_v / C_v value is measured with the pilot valve mounted in a CVH housing for external pilot lines. The value can vary slightly, depending on the setting value.

CVPP

Differential-pressure pilot valve

Valve type	Max. working pressure		k _v / C _v value ¹⁾		Temperature range		Pressure range		Code no.
	[bar]	[psi]	[m ³ /h]	[US gal/min]	[° C]	[° F]	[bar]	[psi]	
CVPP-L	52	754	0.40	0.46	-60 / 120	-76 / 248	-0.66 – 7	19.5 in Hg to 102	027B0930
CVPP-M	52	754	0.40	0.46	-60 / 120	-76 / 248	4 – 28	58 – 406	027B0931

P-band for a valve system regulated by CVPP and ICS / ICF / PM main valve: < 0.2 bar g / 2.9 psi g.

¹⁾ The k_v / C_v value is measured with the pilot valve mounted in a CVH housing for external pilot lines. The value can vary slightly, depending on the setting value.

CVC

Pressure-operated pilot valve with reference pressure connection

Valve type	Max. working pressure		k _v / C _v value ¹⁾		Temperature range		Pressure range		Code no.
	[bar]	[psi]	[m ³ /h]	[US gal/min]	[° C]	[° F]	[bar]	[psi]	
CVC-L	52	754	0.20	0.23	-60 / 120	-76 / 248	-0.66 – 7	19.5 in Hg to 102	027B0940
CVC-M	52	754	0.20	0.23	-60 / 120	-76 / 248	4 – 28	58 – 406	027B0941

The reference pressure must be connected to the low-pressure side of the system.

P-band for a valve system regulated by CVC and ICS / PM / PMC main valve: < 0.3 bar g / 4.4 psi g

¹⁾ The k_v / C_v value is measured with the pilot valve mounted in a CVH housing for external pilot lines. The value can vary slightly, depending on the setting value.

CVE

Electronically operated constant-pressure (constant pressure difference) pilot valve. To be fitted with the ICAD 600A actuator*

Valve type	Max. working pressure		k _v / C _v value ¹⁾		Temperature range		Pressure range		Code no.
	[bar]	[psi]	[m ³ /h]	[US gal/min]	[° C]	[° F]	[bar]	[psi]	
CVE	52	754	0.40	0.46	-60 / 120	-76 / 248	-0.66 – 8	19.5 in. Hg to 116	027B0980

¹⁾ The k_v / C_v value is measured with the pilot valve mounted in a CVH housing for external pilot lines. The value can vary slightly, depending on the setting value.

CVE pressure setting

barg	-0.66	0	1	2	3	4	5	6	7	8
psig	19.5 in. Hg	0	14.5	29.0	43.5	58.0	72.5	87.0	101.5	116.0
mA	18.3	17.1	15.9	14.7	13.5	12.3	11.1	9.9	8.7	7.5
ICAD reading %	90%	83%	75%	67%	60%	53%	45%	37%	30%	23%

See the ICAD installation guide for ICAD setup.

* ICAD 600A: 027H9075 and 027H9120

EVM

Solenoid pilot valve

Valve type	Max. working pressure		k _v / C _v value ¹⁾		Temperature range		Pressure range MOPD/MCPD		Code no.
	[bar]	[psi]	[m ³ /h]	[US gal/min]	[° C]	[° F]	[bar]	[psi]	
EVM NC	65	940	0.28	0.32	-60 / 120	-76 / 248	21	305	027B1120
EVM NO	52	754	0.12	0.14	-60 / 120	-76 / 248	19	276	027B1130
EVM NO	52	754	0.12	0.14	-60 / 120	-76 / 248	40	580	027B1132 **

MOPD: Maximum opening differential pressure with a 10 W AC coil. With: 20 W AC coil: 40 bar / 580 psi / 20 W DC coil: 14 bar / 203 psi

MCPD: Maximum closing differential pressure with a 10/12 W AC coil or a 20 W DC coil.

** For ICLX valve service

¹⁾ The k_v / C_v value is measured with the pilot valve mounted in a CVH housing for external pilot lines. The value can vary slightly, depending on the setting value.

CVH

Housing for pilot valve (for mounting in external pilot lines)

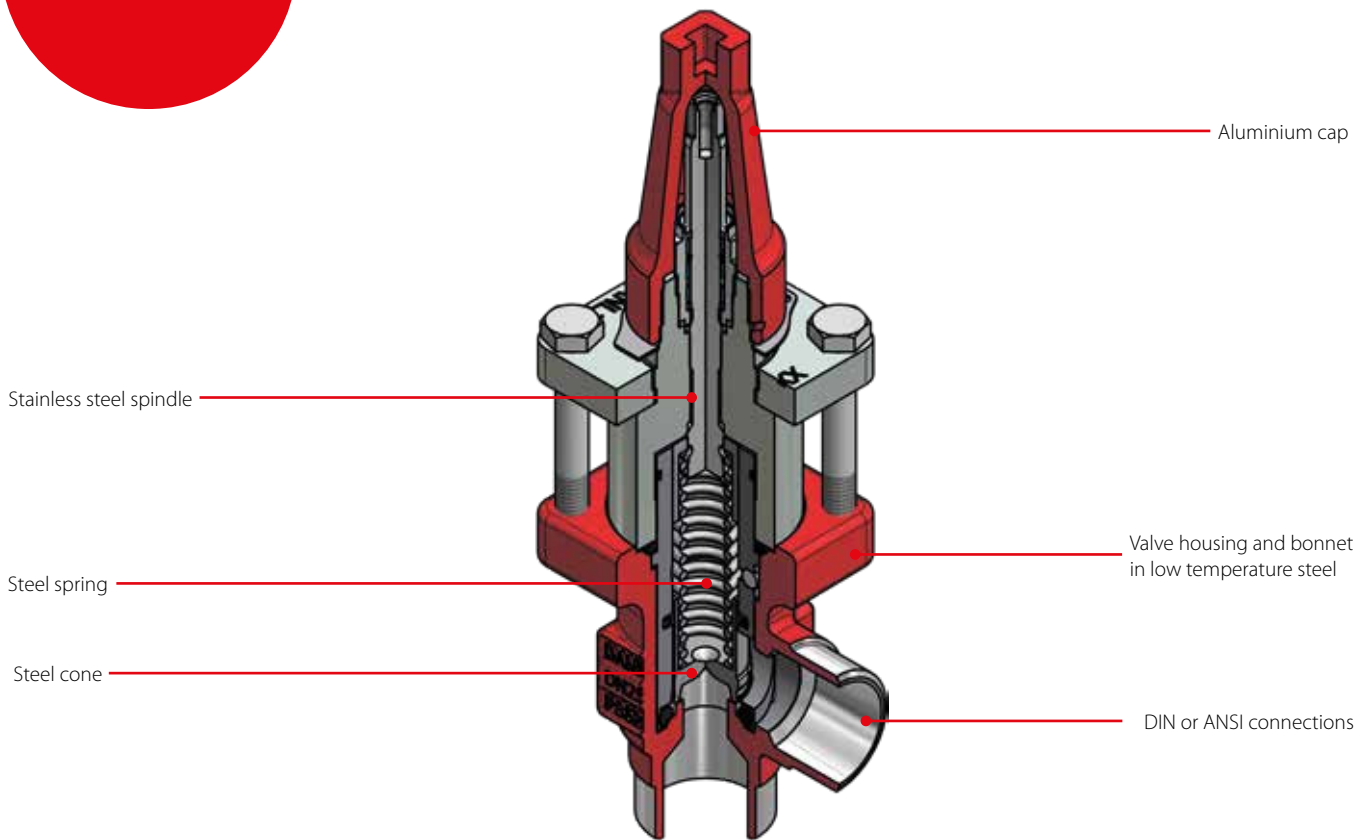
Type	Connection size		Connection type	Connection standard	Code no.
	[in]	[mm]			
CVH	1/4	6	Internal pipe thread - 1/4 in NPT	ANSI/ASME B1.20.1	027F1159
	1/4	6	Internal pipe thread - G1/4 in A	ISO 228-1	027F1160
	3/8	10	Butt weld	ASME B 36.10M - SCHEDULE 80	027F1047
	1/2	15	Butt weld	ASME B 36.10M - SCHEDULE 80	027F1090
	1/2	15	Socket weld	ASME B 16.11	027F1091

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OFV / OFV-SS, Pressure regulating valves

OFV are angle-way over flow valves, which have adjustable opening pressure and cover the differential pressure range (ΔP): 2 – 8 bar / 29 – 116 psi. The valve can be closed manually, e.g. during plant service and have backseating, enabling the spindle seal to be replaced with the valve still under pressure.

The valves are especially designed to prevent fluttering due to low velocity and/or low density. In consequence it is possible to apply the valves with wide fluctuations in capacity demands, i.e. from maximum performance to part load. A flexible O-ring provides perfect sealing over the seat.



Facts

- Applicable to R717, R744, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R134a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Full temperature range packing gland: -50 – 150 °C / -58 – 302 °F
- Maximum operating pressure: 40 bar g / 580 psig
- Three functions in one valve. The OFV valve combines the functions of an overflow valve, a check valve and a stop valve
- Special features for OFV-SS:
 - Low temperature stainless steel housing and bonnet
 - Low temperature packing gland -60 – 150 °C / -76 – 302 °F
 - Maximum operating pressure 52 bar / 754 psi g

Technical data and ordering

OFV / OFV-SS - Pressure regulating valve



Ordering

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
OFV 20	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	2412+185
	3/4	20	Angleway	Butt weld, EN 10220	D	2412+183
OFV - SS 20	3/4	20	Angleway	Butt weld, EN 10220	D	148G3194
OFV 25	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	2412+186
	1	25	Angleway	Butt weld, EN 10220	D	2412+184
OFV - SS 25	1	25	Angleway	Butt weld, ANSI (B 36.19M)	A	148G3843
	1	25	Angleway	Butt weld, EN 10220	D	148G3195

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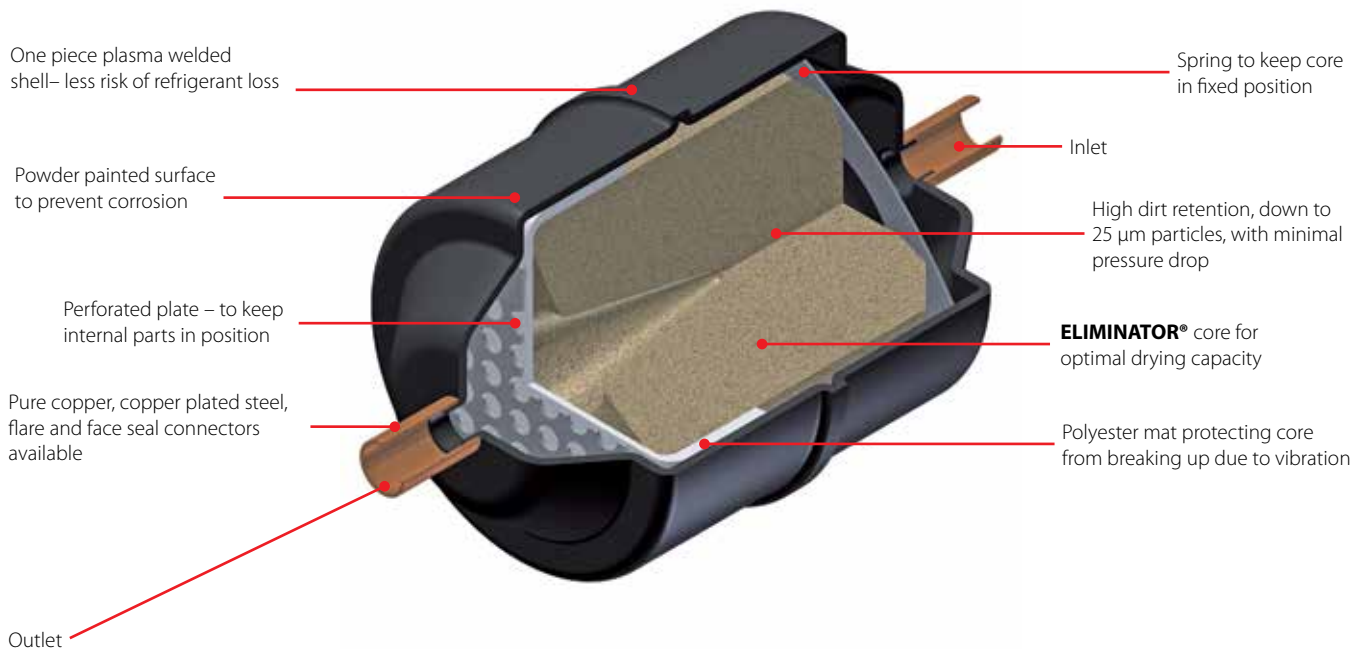
19

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DML, Hermetic filter drier

DML hermetic filter driers are optimised for refrigerants with mineral or benzene oils. The filter driers are hermetic and approved for up to 46 bar, depending on type.

The filter driers are delivered with flare or copper / copper plated steel connections.



Facts

Application:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration
- Applicable to R32, R134a, R404A, R410A, R407C, R23, R600, R600a, R744, R1234yf, R1234ze, R407f, R290, R452A, R444B, R449A, R448A and R450A
- This product is approved for R290, R600 and R600a by ignition source assessment in accordance to standard EN13463-1. Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are

approved for flammable refrigerants.

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- High drying capacity avoiding the risk of acid formation in the refrigeration system
- All Danfoss filter driers have end caps designed for greater protection and easy removal
- Wide range with sizes: 1.5 – 75 cubic inches

- Corrosion resistant powder-painted finish, tested for 500 hrs in salt spray
- 100% 3Å molecular sieve core
- Face seal connectors for HFO refrigerants available upon request, please contact your sales representative
- PS / MWP up to 46 bar / 667 psig
- Available with flare, solder (purecopper, cu-plated) connections

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Technical data

DML - Hermetic filter drier

Drying and liquid capacity (SI units)

Type	Drying capacity [kg] of refrigerant ¹⁾														Liquid capacity [kW] ²⁾							Max. working pressure PS [bar]
	R134a		R404A		R507		R407C		R410A		R290		R32		R134a	R404A	R507	R407C	R410A	R290	R32	
	[°C]																					
	24	52	24	52	24	52	24	52	24	52	24	52	24	52								
DML 1.52 s	2.9	2.7	3.1	3.0	3.2	2.9	2.9	2.7	2.6	2.4	4.34	3.47	2.7	2.5	2.81	1.90	1.85	2.78	2.73	4.20	4.08	46
DML 032 / 032s	4.58	4.32	4.94	4.67	5.03	4.63	4.58	4.21	4.15	3.80	6.85	5.47	4.29	3.88	6.13	4.15	4.05	6.08	5.96	7.00	8.91	46
DML 032.5s	4.58	4.32	4.94	4.67	5.03	4.63	4.58	4.21	4.15	3.80	6.85	5.47	4.29	3.88	9.63	6.53	6.36	9.56	9.36	11.50	14.01	46
DML 033 / 033s	4.58	4.32	4.94	4.67	5.03	4.63	4.58	4.21	4.15	3.80	6.85	5.47	4.29	3.88	11.25	6.68	7.43	11.17	9.58	13.50	16.37	46
DML 034s	4.58	4.32	4.94	4.67	5.03	4.63	4.58	4.21	4.15	3.80	6.85	5.47	4.29	3.88	16.44	11.56	11.21	16.84	17.10	19.80	25.05	46
DML 052 / 052s	7.49	7.05	8.07	7.63	8.23	7.56	7.49	6.89	6.79	6.22	11.19	8.95	7.01	6.35	6.51	4.41	4.30	6.46	6.33	7.80	9.47	46
DML 052.5s	7.49	7.05	8.07	7.63	8.23	7.56	7.49	6.89	6.79	6.22	11.19	8.95	7.01	6.35	12.13	8.21	8.01	12.03	11.78	14.50	17.64	46
DML 053 / 053s	7.49	7.05	8.07	7.63	8.23	7.56	7.49	6.89	6.79	6.22	11.19	8.95	7.01	6.35	16.52	11.19	10.91	16.39	16.05	19.80	24.02	46
DML 054s	7.49	7.05	8.07	7.63	8.23	7.56	7.49	6.89	6.79	6.22	11.19	8.95	7.01	6.35	21.89	14.83	14.45	21.72	21.27	26.20	31.84	46
DML 055s	7.49	7.05	8.07	7.63	8.23	7.56	7.49	6.89	6.79	6.22	11.19	8.95	7.01	6.35	26.84	18.18	17.72	26.63	26.08	32.10	39.04	46
DML 082 / 082s	12.13	11.42	13.07	12.35	13.32	12.24	12.13	11.15	10.99	10.07	18.12	14.48	11.35	10.28	6.46	4.38	4.27	6.41	6.28	7.70	9.40	46
DML 082.5s	12.13	11.42	13.07	12.35	13.32	12.24	12.13	11.15	10.99	10.07	18.12	14.48	11.35	10.28	12.42	8.41	8.20	12.32	12.07	14.90	18.06	46
DML 083 / 083s	12.13	11.42	13.07	12.35	13.32	12.24	12.13	11.15	10.99	10.07	18.12	14.48	11.35	10.28	16.28	11.03	10.75	16.15	15.82	19.50	23.68	46
DML 084 / 084s	12.13	11.42	13.07	12.35	13.32	12.24	12.13	11.15	10.99	10.07	18.12	14.48	11.35	10.28	21.42	14.51	14.14	21.25	20.82	25.60	31.15	46
DML 085 / 085s	12.13	11.42	13.07	12.35	13.32	12.24	12.13	11.15	10.99	10.07	18.12	14.48	11.35	10.28	25.06	16.98	16.55	24.87	24.36	30.00	36.45	46
DML 162 / 162s	27.09	25.51	29.20	27.58	29.75	27.35	27.10	24.90	24.56	22.49	40.47	32.35	25.34	22.95	6.75	4.57	4.46	6.70	6.56	8.10	9.82	46
DML 163 / 163s	27.09	25.51	29.20	27.58	29.75	27.35	27.10	24.90	24.56	22.49	40.47	32.35	25.34	22.95	19.42	13.15	12.82	19.26	18.87	23.20	28.24	46
DML 164 / 164s	27.09	25.51	29.20	27.58	29.75	27.35	27.10	24.90	24.56	22.49	40.47	32.35	25.34	22.95	27.04	18.32	17.86	26.83	26.28	32.40	39.33	46
DML 165 / 165s	27.09	25.51	29.20	27.58	29.75	27.35	27.10	24.90	24.56	22.49	40.47	32.35	25.34	22.95	37.81	25.61	24.97	37.52	36.75	45.20	54.99	46
DML 166 / 166s	27.09	25.51	29.20	27.58	29.75	27.35	27.10	24.90	24.56	22.49	40.47	32.35	25.34	22.95	44.16	29.91	29.16	43.82	42.92	52.80	64.22	46
DML 167s	27.09	25.51	29.20	27.58	29.75	27.35	27.10	24.90	24.56	22.49	40.47	32.35	25.34	22.95	49.71	33.67	32.83	49.32	48.31	59.50	72.29	46
DML 303 / 303s	55.95	52.69	60.31	56.97	61.45	56.49	55.97	51.44	50.72	46.46	81.59	65.23	52.34	47.41	20.48	13.87	13.52	20.32	19.90	24.50	29.79	46
DML 304 / 304s	55.95	52.69	60.31	56.97	61.45	56.49	55.97	51.44	50.72	46.46	81.59	65.23	52.34	47.41	30.67	20.77	20.25	30.42	29.80	36.70	44.60	46
DML 305 / 305s	55.95	52.69	60.31	56.97	61.45	56.49	55.97	51.44	50.72	46.46	81.59	65.23	52.34	47.41	48.61	32.93	32.10	48.23	47.24	58.20	70.70	46
DML 306 / 306s	55.95	52.69	60.31	56.97	61.45	56.49	55.97	51.44	50.72	46.46	81.59	65.23	52.34	47.41	60.17	40.75	39.73	59.69	58.47	72.00	87.50	46
DML 307s	55.95	52.69	60.31	56.97	61.45	56.49	55.97	51.44	50.72	46.46	81.59	65.23	52.34	47.41	69.46	47.05	45.86	68.91	67.50	83.10	101.01	46
DML 309s	55.95	52.69	60.31	56.97	61.45	56.49	55.97	51.44	50.72	46.46	81.59	65.23	52.34	47.41	79.18	53.63	52.28	78.55	76.94	94.70	115.14	35
DML 413	75.56	71.15	81.44	76.93	82.98	76.28	75.57	69.46	68.49	62.73	110.18	88.08	70.68	64.02	19.47	13.19	12.86	19.32	18.92	23.30	28.32	35
DML 414 / 414s	75.56	71.15	81.44	76.93	82.98	76.28	75.57	69.46	68.49	62.73	110.18	88.08	70.68	64.02	31.84	21.56	21.02	31.59	30.94	38.10	46.30	46
DML 415 / 415s	75.56	71.15	81.44	76.93	82.98	76.28	75.57	69.46	68.49	62.73	110.18	88.08	70.68	64.02	51.58	34.94	34.06	51.17	50.12	61.70	75.01	46
DML 417s	75.56	71.15	81.44	76.93	82.98	76.28	75.57	69.46	68.49	62.73	110.18	88.08	70.68	64.02	84.69	57.37	55.92	84.03	82.30	101.30	123.17	46
DML 419s	75.56	71.15	81.44	76.93	82.98	76.28	75.57	69.46	68.49	62.73	110.18	88.08	70.68	64.02	91.01	61.64	60.09	90.29	88.44	121.80	132.35	35
DML 607s	111.91	105.38	120.62	113.94	122.90	112.97	111.93	102.87	101.44	92.91	163.19	130.46	104.69	94.82	79.42	53.79	52.44	78.79	77.17	95.00	115.49	35
DML 609s	111.91	105.38	120.62	113.94	122.90	112.97	111.93	102.87	101.44	92.91	163.19	130.46	104.69	94.82	95.42	64.63	63.01	94.67	92.73	114.17	138.77	667
DML 757s	151.11	142.30	162.88	153.86	165.95	152.55	151.15	138.91	136.98	125.46	220.36	176.17	141.36	128.04	81.75	55.37	53.98	81.11	79.44	97.81	118.88	507
DML 759s	151.11	142.30	162.88	153.86	165.95	152.55	151.15	138.91	136.98	125.46	220.36	176.17	141.36	128.04	101.79	68.94	67.21	100.98	98.91	121.79	148.02	507

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 – 50 ppm W
- R404A, R507: 1020 – 50 ppm W
- R407C: 1020 – 50 ppm W
- R410A: 1050 – 50 ppm W
- R290: 565 – 15 ppm W
- R32: 1040 ppm W – 50 ppm W

In accordance with ARI 710-2004

²⁾ Given in accordance with ARI 710-2004 for:

- $t_e = -15\text{ °C}$
- $t_c = 30\text{ °C}$
- $\Delta p = 0.07\text{ bar}$

Approvals

UL US, file no. SA 6398
PED 2014/68/EU -a4p3

Technical data

DML - Hermetic filter drier

Drying and liquid capacity (US units)

Type	Drying capacity [lb] of refrigerant ¹⁾														Liquid capacity [TR] ²⁾							Max. working pressure MWP [psig]
	R134a		R404A		R507		R407C		R410A		R290		R32		R134a	R404A	R507	R407C	R410A	R290	R32	
	[°F]																					
	75	125	75	125	75	125	75	125	75	125	75	125	75	125								
DML 1.52 s	6.4	6.0	6.9	6.5	7.0	6.5	6.4	5.9	5.8	5.3	9.58	7.66	6.0	5.4	0.80	0.54	0.53	0.80	0.78	1.20	1.17	667
DML 032 / 032s	10.10	9.51	10.89	10.29	11.10	10.20	10.11	9.29	9.16	8.39	15.09	12.07	9.45	8.56	1.75	1.19	1.16	1.74	1.70	2.00	2.55	667
DML 032.5s	10.10	9.51	10.89	10.29	11.10	10.20	10.11	9.29	9.16	8.39	15.09	12.07	9.45	8.56	2.75	1.86	1.82	2.73	2.67	3.29	4.00	667
DML 033 / 033s	10.10	9.51	10.89	10.29	11.10	10.20	10.11	9.29	9.16	8.39	15.09	12.07	9.45	8.56	3.22	1.91	2.12	3.19	2.74	3.86	4.68	667
DML 034s	10.10	9.51	10.89	10.29	11.10	10.20	10.11	9.29	9.16	8.39	15.09	12.07	9.45	8.56	4.70	3.30	3.20	4.81	4.89	5.66	7.16	667
DML 052 / 052s	16.52	15.55	17.80	16.82	18.14	16.67	16.52	15.18	14.97	13.71	24.67	19.72	15.45	13.99	1.86	1.26	1.23	1.85	1.81	2.23	2.71	667
DML 052.5s	16.52	15.55	17.80	16.82	18.14	16.67	16.52	15.18	14.97	13.71	24.67	19.72	15.45	13.99	3.46	2.35	2.29	3.44	3.37	4.14	5.04	667
DML 053 / 053s	16.52	15.55	17.80	16.82	18.14	16.67	16.52	15.18	14.97	13.71	24.67	19.72	15.45	13.99	4.72	3.20	3.12	4.68	4.59	5.66	6.86	667
DML 054s	16.52	15.55	17.80	16.82	18.14	16.67	16.52	15.18	14.97	13.71	24.67	19.72	15.45	13.99	6.25	4.24	4.13	6.21	6.08	7.49	9.10	667
DML 055s	16.52	15.55	17.80	16.82	18.14	16.67	16.52	15.18	14.97	13.71	24.67	19.72	15.45	13.99	7.67	5.19	5.06	7.61	7.45	9.17	11.15	667
DML 082 / 082s	26.74	25.18	28.82	27.23	29.37	26.99	26.75	24.58	24.24	22.20	39.94	31.93	25.01	22.66	1.85	1.25	1.22	1.83	1.79	2.20	2.69	667
DML 082.5s	26.74	25.18	28.82	27.23	29.37	26.99	26.75	24.58	24.24	22.20	39.94	31.93	25.01	22.66	3.55	2.40	2.34	3.52	3.45	4.26	5.16	667
DML 083 / 083s	26.74	25.18	28.82	27.23	29.37	26.99	26.75	24.58	24.24	22.20	39.94	31.93	25.01	22.66	4.65	3.15	3.07	4.61	4.52	5.57	6.76	667
DML 084 / 084s	26.74	25.18	28.82	27.23	29.37	26.99	26.75	24.58	24.24	22.20	39.94	31.93	25.01	22.66	6.12	4.15	4.04	6.07	5.95	7.31	8.90	667
DML 085 / 085s	26.74	25.18	28.82	27.23	29.37	26.99	26.75	24.58	24.24	22.20	39.94	31.93	25.01	22.66	7.16	4.85	4.73	7.10	6.96	8.57	10.41	667
DML 162 / 162s	59.72	56.24	64.37	60.81	65.59	60.29	59.74	54.90	54.14	49.59	89.22	71.32	55.87	50.60	1.93	1.31	1.27	1.91	1.88	2.31	2.81	667
DML 163 / 163s	59.72	56.24	64.37	60.81	65.59	60.29	59.74	54.90	54.14	49.59	89.22	71.32	55.87	50.60	5.55	3.76	3.66	5.50	5.39	6.63	8.07	667
DML 164 / 164s	59.72	56.24	64.37	60.81	65.59	60.29	59.74	54.90	54.14	49.59	89.22	71.32	55.87	50.60	7.73	5.23	5.10	7.67	7.51	9.26	11.24	667
DML 165 / 165s	59.72	56.24	64.37	60.81	65.59	60.29	59.74	54.90	54.14	49.59	89.22	71.32	55.87	50.60	10.80	7.32	7.13	10.72	10.50	12.91	15.71	667
DML 166 / 166s	59.72	56.24	64.37	60.81	65.59	60.29	59.74	54.90	54.14	49.59	89.22	71.32	55.87	50.60	12.62	8.55	8.33	12.52	12.26	15.09	18.35	667
DML 167s	59.72	56.24	64.37	60.81	65.59	60.29	59.74	54.90	54.14	49.59	89.22	71.32	55.87	50.60	14.20	9.62	9.38	14.09	13.80	17.00	20.66	667
DML 303 / 303s	123.36	116.16	132.96	125.60	135.47	124.53	123.39	113.40	111.82	102.42	179.88	143.81	115.40	104.52	5.85	3.96	3.86	5.81	5.69	7.00	8.51	667
DML 304 / 304s	123.36	116.16	132.96	125.60	135.47	124.53	123.39	113.40	111.82	102.42	179.88	143.81	115.40	104.52	8.76	5.93	5.79	8.69	8.51	10.49	12.74	667
DML 305 / 305s	123.36	116.16	132.96	125.60	135.47	124.53	123.39	113.40	111.82	102.42	179.88	143.81	115.40	104.52	13.89	9.41	9.17	13.78	13.50	16.63	20.20	667
DML 306 / 306s	123.36	116.16	132.96	125.60	135.47	124.53	123.39	113.40	111.82	102.42	179.88	143.81	115.40	104.52	17.19	11.64	11.35	17.06	16.71	20.57	25.00	667
DML 307s	123.36	116.16	132.96	125.60	135.47	124.53	123.39	113.40	111.82	102.42	179.88	143.81	115.40	104.52	19.84	13.44	13.10	19.69	19.29	23.74	28.86	667
DML 309s	123.36	116.16	132.96	125.60	135.47	124.53	123.39	113.40	111.82	102.42	179.88	143.81	115.40	104.52	22.62	15.32	14.94	22.44	21.98	27.06	32.90	667
DML 413	166.57	156.86	179.54	169.60	182.93	168.16	166.61	153.13	151.00	138.30	242.90	194.19	155.82	141.14	5.56	3.77	3.67	5.52	5.41	6.66	8.09	667
DML 414 / 414s	166.57	156.86	179.54	169.60	182.93	168.16	166.61	153.13	151.00	138.30	242.90	194.19	155.82	141.14	9.10	6.16	6.01	9.02	8.84	10.89	13.23	667
DML 415 / 415s	166.57	156.86	179.54	169.60	182.93	168.16	166.61	153.13	151.00	138.30	242.90	194.19	155.82	141.14	14.74	9.98	9.73	14.62	14.32	17.63	21.43	667
DML 417s	166.57	156.86	179.54	169.60	182.93	168.16	166.61	153.13	151.00	138.30	242.90	194.19	155.82	141.14	24.20	16.39	15.98	24.01	23.52	28.94	35.19	667
DML 419s	166.57	156.86	179.54	169.60	182.93	168.16	166.61	153.13	151.00	138.30	242.90	194.19	155.82	141.14	26.00	17.61	17.17	25.80	25.27	34.80	37.81	507
DML 607s	246.71	232.33	265.92	251.20	270.94	249.06	246.77	226.80	223.64	204.84	359.77	287.62	230.79	209.04	22.69	15.37	14.98	22.51	22.05	27.14	33.00	507
DML 609s	246.71	232.33	265.92	251.20	270.94	249.06	246.77	226.80	223.64	204.84	359.77	287.62	230.79	209.04	27.26	18.47	18.00	27.05	26.49	32.62	39.65	667
DML 757s	333.15	313.72	359.08	339.21	365.86	336.32	333.23	306.25	301.99	276.60	485.81	388.38	311.65	282.28	23.36	15.82	15.42	23.17	22.70	27.95	33.97	507
DML 759s	333.15	313.72	359.08	339.21	365.86	336.32	333.23	306.25	301.99	276.60	485.81	388.38	311.65	282.28	29.08	19.70	19.20	28.85	28.26	34.80	42.29	507

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W
- R290: 565 - 15 ppm W
- R32: 1040 ppm W - 50 ppm W

In accordance with ARI 710-2004

²⁾ Given in accordance with ARI 710-2004 for:

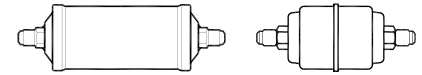
- $t_e = 5^\circ\text{F}$
- $t_c = 85^\circ\text{F}$
- $\Delta p = 1 \text{ psig}$

Approvals

UL US, file no. SA 6398
PED 2014/68/EU -a4p3

Ordering

DML - Flare Ordering



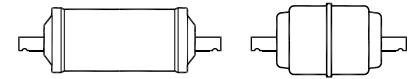
Type	Connection		Multipack no.
	[in]	[mm]	
DML 032	1/4	6	023Z5035 ¹⁾
DML 033	3/8	10	023Z5036 ¹⁾
	3/8	10	023Z5090
DML 052	1/4	6	023Z5037
DML 053	3/8	10	023Z5038
DML 082	1/4	6	023Z5039
DML 083	3/8	10	023Z5040
DML 084	1/2	12	023Z5041
DML 085	5/8	16	023Z5073
DML 162	1/4	6	023Z5042
DML 163	3/8	10	023Z5043
DML 164	1/2	12	023Z5044
DML 165	5/8	16	023Z5045
DML 166	3/4	19	023Z5046
DML 303	3/8	10	023Z0049
DML 304	1/2	12	023Z0050
DML 305	5/8	16	023Z0051
DML 306	3/4	19	023Z0193
DML 385	5/8	16	023Z0189
DML 413	3/8	10	023Z0108
DML 414	1/2	12	023Z0109
DML 415	5/8	16	023Z0110
DML 416	3/4	19	023Z0195

¹⁾ Wire mesh in filter drier outlet

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Ordering

DML - Solder (pure copper)



Ordering

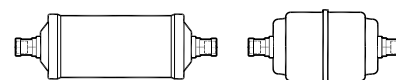
Type	Connection	Multipack Code no.	Connection	Multipack Code no.
	[in]		[mm]	
DML 1.52s	1/4	023Z8253	–	–
DML 1.52x2 / 2s	1/4	023Z8250	–	–
DML 032s	1/4	023Z5048 ¹⁾	6	–
DML 032.5s	5/16	023Z5049	8	–
DML 033s	3/8	023Z5050	10	023Z5051
DML 034s	1/2	023Z5121	12	–
DML 052s	1/4	023Z5053	6	023Z5052
DML 053s	3/8	023Z5054	10	023Z5055
DML 054s	1/2	023Z5101	3.8	–
DML 082s	1/4	023Z5057	6	–
DML 082.5s	5/16	023Z5117	8	–
DML 083s	3/8	023Z5058	10	023Z5059
DML 084s	1/2	023Z5061	12	023Z5060
DML 085s	5/8	023Z5072	16	–
DML 162s	1/4	023Z5063	6	–
DML 163s	3/8	023Z5064	10	023Z5065
DML 164s	1/2	023Z5067	12	023Z5066
DML 165s	5/8	023Z5068	16	–
DML 166s	3/4	023Z5071	19	–
DML 167s	7/8	023Z5069	22	–
DML 303s	3/8	023Z0067	10	–
DML 304s	1/2	023Z0068	12	–
DML 305s	5/8	023Z0069	16	–
DML 306s	3/4	023Z0070	19	–
DML 307s	7/8	023Z0071	22	–
DML 309s	1 1/8	023Z0072	28	–
DML 414s	1/2	023Z0111	12	–
DML 415s	5/8	023Z0112	16	–
DML 417s	7/8	023Z0113	22	–
DML 419s	1 1/8	023Z0114	28	–
DML 604s	1/2	–	12	–
DML 607s	7/8	023Z0073	22	–
DML 609s	1 1/8	023Z0074	28	–
DML 757s	7/8	023Z0117	22	–
DML 759s	1 1/8	023Z0118	28	–

¹⁾ Wire mesh in filter drier outlet

This product is approved for R290, R600 and R600a by ignition source assessment in accordance to standard EN13463-1. Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants.

Ordering

DML - Solder (cu-plated)



Ordering

Type	Connection	Multipack Code no.	Connection	Multipack Code no.
	[in]		[mm]	
DML 032s	1/4	023Z4552	6	023Z4551
DML 032.5s	5/16	023Z4553	8	–
DML 033s	3/8	023Z4555	10	023Z4554
DML 034s	1/2	023Z4556	12	023Z4557
DML 052s	1/4	023Z4559	6	023Z4558
DML 052.5s	5/16	023Z4560	6	–
DML 053s	3/8	023Z4562	10	023Z4561
DML 054s	1/2	023Z4564	12	023Z4563
DML 055s	5/8	023Z4565	16	–
DML 082s	1/4	023Z4567	6	023Z4566
DML 083s	3/8	023Z4570	10	023Z4569
DML 084s	1/2	023Z4572	12	023Z4571
DML 085s	5/8	023Z4573	16	–
DML 162s	1/4	023Z4575	6	023Z4574
DML 163s	3/8	023Z4578	10	023Z4577
DML 164s	1/2	023Z4580	12	023Z4579
DML 165s	5/8	023Z4581	16	–
DML 166s	3/4	023Z4582	19	–
DML 167s	7/8	023Z4583	22	–
DML 303s	3/8	023Z4585	10	023Z4584
DML 304s	1/2	023Z4587	12	023Z4586
DML 305s	5/8	023Z4588	16	–
DML 306s	3/4	023Z4589	19	–
DML 307s	7/8	023Z4590	22	–
DML 309s	1 1/8	023Z4592	28	023Z4591
DML 414s	1/2	023Z4594	12	023Z4593
DML 415s	5/8	023Z4595	16	–
DML 417s	7/8	023Z4596	22	–
DML 419s	1 1/8	023Z4598	28	023Z4597
DML 604s	1/2	023Z4600	12	023Z4599
DML 605s	–	–	18	023Z4601
DML 607s	7/8	023Z4602	22	–
DML 609s	1 1/8	023Z4604	28	023Z4603
DML 757s	7/8	023Z4605	22	–
DML 759s	1 1/8	023Z4607	28	023Z4606

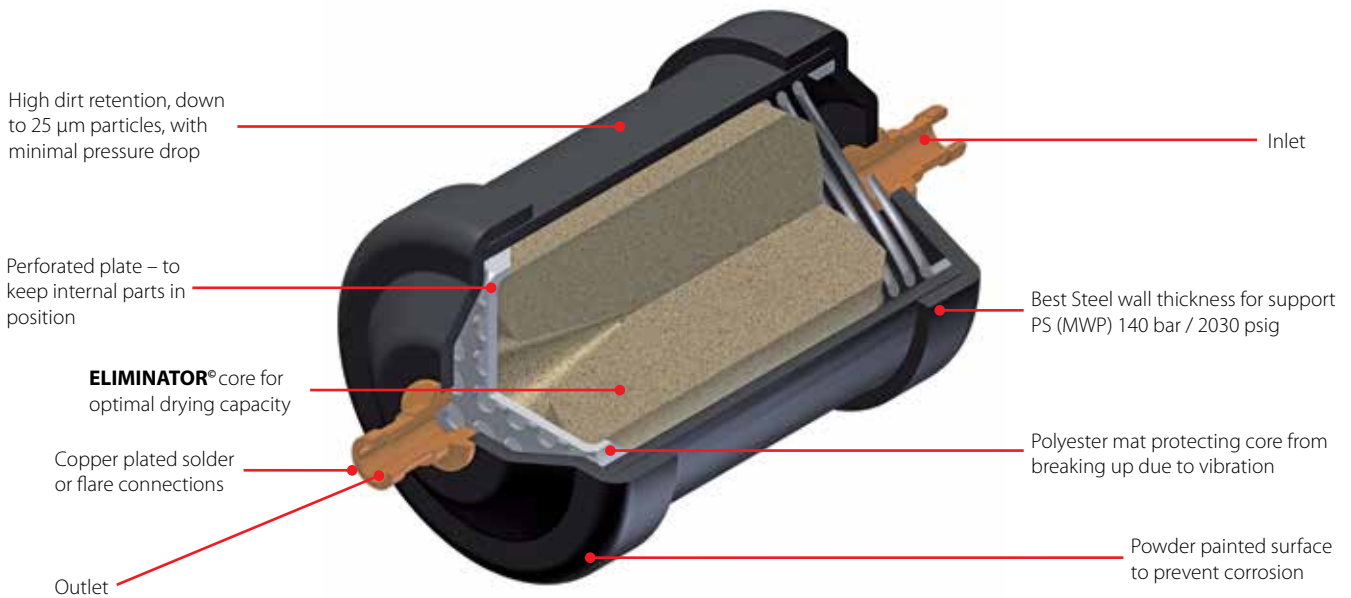
This product is approved for R290, R600 and R600a by ignition source assessment in accordance to standard EN13463-1. Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants.

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DMT, Hermetic filter drier for CO₂

DMT **ELIMINATOR**[®] hermetic filter driers are designed for use in CO₂ systems, and protect the system from moisture, acids and solid particles, eliminating harmful chemical reactions and abrasive impurities. DMT driers have a core composition of 100% Molecular Sieve.

DMT hermetic filter driers are designed for applications requiring the highest moisture capacity, and the lowest possible leak rate. They are available with flare and solder (cu-plated steel) connections and are designed to support max. working pressure as high as 140 bar / 2030 psig.



Facts

Application:

- liquid line in CO₂ systems
- Applicable to R744 (CO₂) refrigerants
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Support PS / MWP up to 140 bar / 2030 psig
- 100% 3 Å Molecular Sieve core
- High drying capacity minimizing the risk of acid formation (hydrolysis)
- Will not deplete oil additives
- Available with solder (copper plated) and flare connections (i.e. standard, flare o-ring and NPT)
- Lowest possible leak rate

- Corrosion resistant powder-painted finish. Special coating for marine applications available upon request
- Allows installation with any orientation provided the arrow is in the flow direction,
- Available in sizes from 8 to 13 cubic inches
- 25 µm (0.001 in) filter provides high retention with minimal pressure drop
- No residual moisture when delivered
- Thermally stable up to 120 °C / 250 °F

Technical data and ordering

DMT - Hermetic filter drier for CO₂

Drying and liquid capacity

Type	Drying capacity ¹⁾						Liquid capacity ²⁾		Max. working pressure PS / MWP [bar / psig]	Additional Data		
	R 744 CO ₂ -6.6 °C / 20 °F			R 744 CO ₂ 24 °C / 75 °F			R 744 CO ₂ Flare / Cu-plated			Volume [l]		
	H ₂ O [g]	Ref [Kg]	Drop Water	H ₂ O [g]	Ref [Kg]	Drop Water	[kW]	[TR]		Shell	Core	Net
DMT 082 / 082s	10.66	11.35	213.29	9.80	10.43	196.01	4.20	1.20	140 / 2030	0.18	0.06	0.12
DMT 083 / 083s	10.66	11.35	213.29	9.80	10.43	196.01	11.90	3.40	140 / 2030	0.18	0.06	0.12
DMT 084s	10.66	11.35	213.29	9.80	10.43	196.01	16.10	4.60	140 / 2030	0.18	0.06	0.12
DMT 133 / 133s	17.25	18.35	345.03	15.85	16.87	317.08	11.20	3.20	140 / 2030	0.32	0.17	0.15
DMT 134s	17.25	18.35	345.03	15.85	16.87	317.08	14.00	4.00	140 / 2030	0.32	0.17	0.15

The moisture test was performed according with ASHRAE standard on liquid phase

¹⁾ Drying capacity

Drying capacity is based on following moisture content test standards before and after drying:

EPD: From 1110 ppm W to 50 ppm W at 24 °C / 75 °F

EPD: From 445 ppm W to 50 ppm W at -6.6 °C / 20 °F

²⁾ Liquid capacity

Given in accordance with ARI 710-2004 for:

$t_e = -15\text{ °C} / 5\text{ °F}$

$t_c = 30\text{ °C} / 85\text{ °F}$

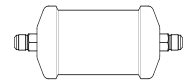
$\Delta p = 0.07\text{ bar} / 1\text{ psig}$

Temperature range:

-40 – 100 °C / -40 – 212 °F

DMT - Flare

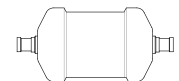
Ordering



Type	Connection	Code no.
	[in]	
DMT 082	1/4	023Z8407
DMT 083	3/8	023Z8406
DMT 133	3/8	023Z8405
DMT 133 NPT	1/4	023Z8410

DMT - Solder (cu-plated)

Ordering



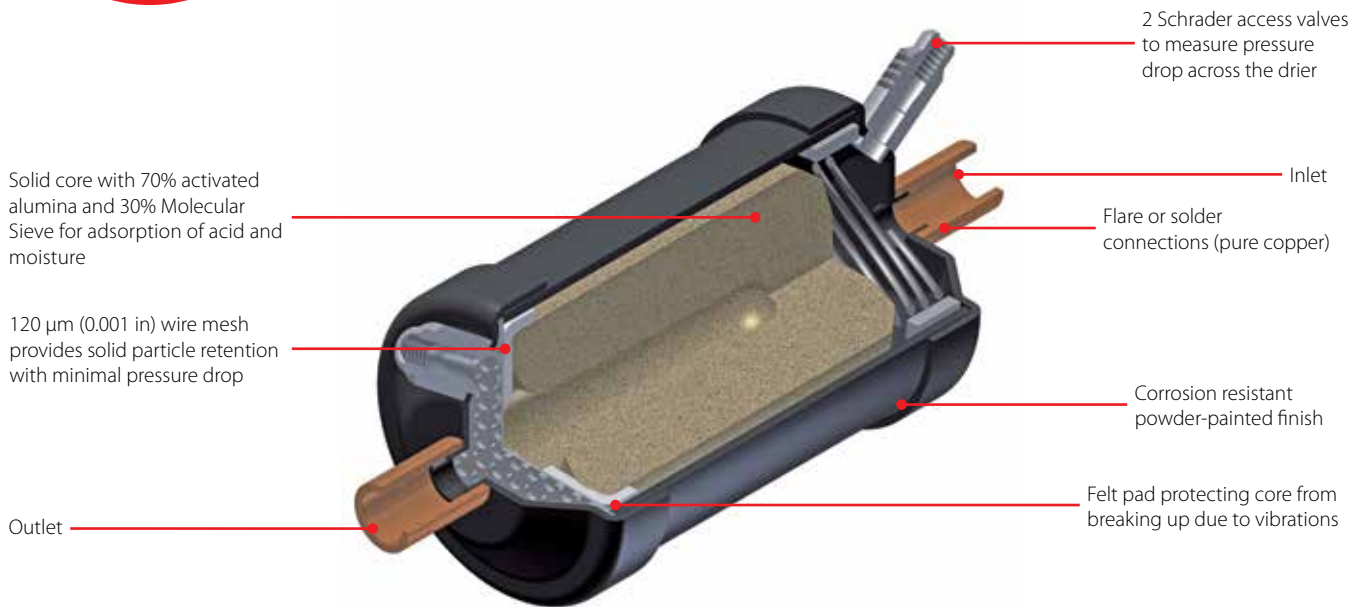
Type	Connection [in]	Code no.	Multi-pack Code no.
DMT 082s	1/4	023Z8408	023Z8415
DMT 083s	3/8	023Z8409	023Z8416
DMT 084s	1/2	023Z8412	023Z8417
DMT 133s	3/8	023Z8402	023Z8418
DMT 134s	1/2	023Z8411	023Z8419

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DAS, Hermetic burn-out filter drier

DAS **ELIMINATOR**® hermetic burn-out filter driers are used in the suction line to clean up refrigeration and air conditioning systems with fluorinated refrigerants after a compressor motor burn-out.

The solid core, which is composed of 70% activated alumina and 30% Molecular Sieve, adsorbs harmful acids as well as moisture, in order to protect the new compressor against failure.



Facts

Application:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration
- Applicable to R143a, R407C, R410A and R507

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- The large diameter of the hermetic burn-out filter drier means that flow velocity is suitably low and the pressure drop minimal
- Bonded solid core grains eliminate powder formation
- Corrosion resistant powder-painted finish, tested for 500 hrs in salt spray
- Installation with any orientation provided the flow is in the arrow direction
- Available in sizes from 8 to 60 cubic inches

Technical data and ordering

DAS - Hermetic burn-out filter drier

Rated acid capacities

Type	Rated capacity, Q_n ¹⁾						Acid capacity ²⁾	Max. working pressure PS / MWP [bar / psig]
	R407C / R410A		R134a		R404A / R507			
	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[g]	
DAS 083	1.5	5.3	1.0	3.5	1.3	4.5	3.8	35 / 507
DAS 084	2.6	9.1	1.6	5.5	2.3	8.0	3.8	35 / 507
DAS 085	4.1	14.5	2.6	9.0	3.6	12.5	3.8	35 / 507
DAS 086	5.4	19.0	3.3	11.5	4.7	16.5	3.8	35 / 507
DAS 164	2.7	9.5	1.7	6.0	2.4	8.5	8.7	35 / 507
DAS 165	4.2	14.7	2.7	9.5	3.7	13.0	8.7	35 / 507
DAS 166	5.6	19.6	3.5	12.2	4.9	17.0	8.7	35 / 507
DAS 167	6.2	21.7	3.9	13.5	5.4	19.0	8.7	35 / 507
DAS 305	5.0	17.5	3.1	11.0	4.3	15.0	17.3	35 / 507
DAS 306	6.3	22.0	4.0	14.0	5.4	19.0	17.3	35 / 507
DAS 307	7.3	25.6	4.6	16.0	6.3	22.0	17.3	35 / 507
DAS 309	8.8	30.7	5.5	19.3	7.6	26.6	17.3	35 / 507
DAS 417	8.1	28.4	5.0	17.5	7.0	24.5	22.6	35 / 507
DAS 419	9.8	34.3	6.1	21.5	8.5	29.8	22.6	35 / 507
DAS 607	5.5	19.2	3.9	13.7	5.5	19.2	34.6	35 / 507

¹⁾ Rated capacity is stated at:
 evaporating temperature $t_e = 4\text{ }^\circ\text{C} / 39.2\text{ }^\circ\text{F}$
 pressure drop $\Delta p = 0.07\text{ bar} / 1\text{ psig}$

²⁾ Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)

Capacities for other temperatures than $4\text{ }^\circ\text{C} / 39.2\text{ }^\circ\text{F}$ are calculated by use of correction factors. Divide your actual evaporator capacity with the correction factor given for your actual evaporating temperature. Look up the capacity table for the necessary rated capacity

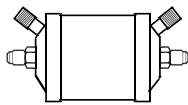
$$Q_e / F_e = Q_n$$

Q_e = Actual evaporator capacity

Q_n = Nominal capacity

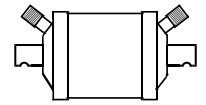
F_e = Correction factor

DAS - Flare Ordering



Type	Connection	Code no.
	[in]	
DAS 084VV	1/2	023Z1002
DAS 164VV	1/2	023Z1007
DAS 165VV	5/8	023Z1008

DAS - Solder (pure copper) Ordering



Type	Connection	Code no.
	[in]	
DAS 084sVV	1/2	023Z1004
DAS 085sVV	5/8	023Z1005
DAS 086sVV	3/4	023Z1006
DAS 164sVV	1/2	023Z1009
DAS 165sVV	5/8	023Z1010
DAS 166sVV	3/4	023Z1011
DAS 167sVV	7/8	023Z1012
DAS 305sVV	5/8	023Z1013
DAS 306sVV	3/4	023Z1014
DAS 307sVV	7/8	023Z1015
DAS 309sVV	1 1/8	023Z1016
DAS 417sVV	7/8	023Z1017
DAS 419sVV	1 1/8	023Z1018
DAS 607sVV	7/8	023Z1019
DAS 609sVV	1 1/8	023Z1020

Correction factors F_e for evaporating temperatures $[\text{ }^\circ\text{C}] / [^\circ\text{F}]$

$[\text{ }^\circ\text{C}] / [^\circ\text{F}]$	4 / 39.2	0 / 32	-5 / 23	-10 / 14	-15 / 5	-20 / -4	-25 / -13	-30 / -22	-35 / -31	-40 / -40
F_e	1	0.9	0.75	0.6	0.5	0.4	0.35	0.25	0.2	0.15

Example

To select a hermetic burn-out filter drier for a plant with an evaporator capacity at $8.5\text{ kW} / 2.41\text{ TR}$ at $-20 / -4\text{ }^\circ\text{F}$ you may use a hermetic burn-out filter drier with a rated capacity of

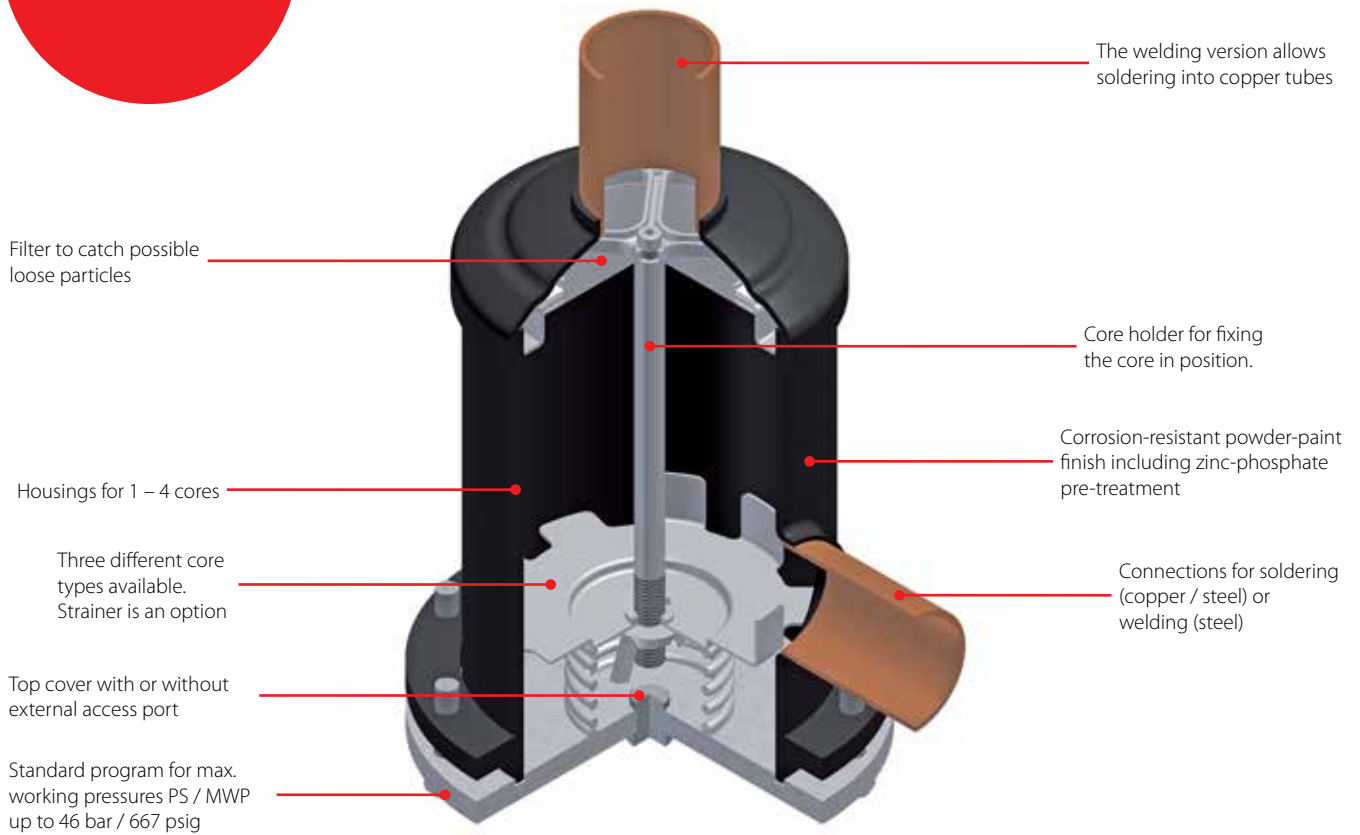
$$8.5 / 0.4 = 21.25\text{ kW} / 6.02\text{ TR}$$

For example DAS 306

DCR, Filter drier with replaceable solid core

DCR **ELIMINATOR**® filter driers with replaceable solid core protect refrigeration, freezing and air conditioning systems from moisture, acids and solid particles. Besides being able to meet the demanding requirements of high working pressure levels when operating with R410A thanks to replaceable solid cores the DCR programme offers flexibility with respect to different applications.

- Core types:
- 48-DC for HFC, HCFC systems and mineral or AB oils
 - 48-DM for HFC, HCFC systems and POE or PAG oils
 - 48-DA for acid adsorption after burnout
 - 48-F strainer for retaining dirt
- Cores / inserts are ordered separately.



Facts

Application:

- Highly efficient dirt retaining capabilities on both the suction and the liquid line
- Can be used in all environments. Shell is zinc-phosphated, and with corrosion resistant powder-painted finish, tested for 500 hrs in salt spray (acc. to ASTM B117, ISO 12944-6 (blistering))
- The core holder requires minimum free space to remove the core for replacement
- Applicable to R134a, R404A, R410A, R407C, R23, R1234ze, R407f, R452A, R449A, R448A and R450A
- For convenient filter drier commissioning, Shell is designed to remain in place while cores, cover and housing are assembled
- Can be installed in any position
- 48-DM core for liquid line application (100% molecular sieve). Provides high moisture adsorption at low and high condensing temperatures. Effective protection against impurities
- 48-DC core with 80% molecular sieve and 20% activated alumina, adsorbs moisture and acid in the system throughout the entire temperature range
- 48-DA 30% molecular sieve and 70% activated alumina solid core suitable after compressor burn-out: high acid adsorption and standard water adsorption
- 48-F strainer:
 - Retains dirt particles larger than 15 µm
 - For use direct in DCR housings
 - Utilized in the suction or liquid line

Technical data and ordering

DCR - Filter drier with replaceable solid core

Drying and liquid capacity, type 48-DM (SI units)

Type	Number of cores	Drying capacity [kg] of refrigerant ¹⁾										Liquid capacity [kW] ²⁾					Max. working pressure PS [bar]
		R134a		R404A		R507		R407C		R410A		R134a	R404A	R507	R407C	R410A	
		[°C]															
24	52	24	52	24	52	24	52	24	52	24	52						
DCR 0485	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	63.59	43.91	42.88	69.82	65.48	46
DCR 0487	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	89.95	62.11	60.65	98.76	92.62	46
DCR 0489	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	148.28	102.39	99.98	162.81	152.67	46
DCR 04811	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	176.70	122.01	119.15	194.01	181.94	46
DCR 04813	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	172.98	119.44	116.64	189.93	178.11	46
DCR 04817	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	229.70	158.61	154.88	252.21	236.51	46
DCR 04821	1	80.1	75.4	86.3	81.6	88.0	80.9	81.1	74.6	80.1	73.6	287.09	198.23	193.58	315.22	295.60	46
DCR 0967	2	160.2	150.9	172.7	163.1	175.9	161.7	162.3	149.3	160.2	147.3	121.81	84.11	82.14	133.75	125.42	46
DCR 0969	2	160.2	150.9	172.7	163.1	175.9	161.7	162.3	149.3	160.2	147.3	173.20	119.59	116.78	190.17	178.33	46
DCR 09611	2	160.2	150.9	172.7	163.1	175.9	161.7	162.3	149.3	160.2	147.3	196.80	135.89	132.70	216.08	202.63	46
DCR 09613	2	160.2	150.9	172.7	163.1	175.9	161.7	162.3	149.3	160.2	147.3	234.26	161.75	157.96	257.21	241.20	46
DCR 09617	2	160.2	150.9	172.7	163.1	175.9	161.7	162.3	149.3	160.2	147.3	311.07	214.79	209.75	341.55	320.29	35 ³⁾ / 46 ⁴⁾
DCR 1449	3	240.3	226.3	259.0	244.7	263.9	242.6	243.4	223.9	240.3	220.9	193.08	133.32	130.19	211.99	198.80	35 ³⁾ / 46 ⁴⁾
DCR 14411	3	240.3	226.3	259.0	244.7	263.9	242.6	243.4	223.9	240.3	220.9	239.14	165.12	161.24	262.56	246.22	35 ³⁾ / 46 ⁴⁾
DCR 14413	3	240.3	226.3	259.0	244.7	263.9	242.6	243.4	223.9	240.3	220.9	284.65	196.55	191.93	312.54	293.09	35 ³⁾ / 46 ⁴⁾
DCR 14417	3	240.3	226.3	259.0	244.7	263.9	242.6	243.4	223.9	240.3	220.9	377.99	261.00	254.87	415.02	389.19	28 ³⁾ / 40 ⁴⁾
DCR 19211	4	320.4	301.7	345.3	326.2	351.8	323.4	324.6	298.5	320.5	294.5	275.14	189.98	185.52	302.09	283.29	28 ³⁾ / 40 ⁴⁾
DCR 19213	4	320.4	301.7	345.3	326.2	351.8	323.4	324.6	298.5	320.5	294.5	327.51	226.14	220.83	359.59	337.21	28 ³⁾ / 40 ⁴⁾
DCR 19217	4	320.4	301.7	345.3	326.2	351.8	323.4	324.6	298.5	320.5	294.5	465.33	321.30	313.76	510.91	479.12	28 ³⁾ / 40 ⁴⁾

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W

In accordance with ARI 710-2004

²⁾ Given in accordance with ARI 710-2004 for:

- $t_a = -15\text{ °C}$
- $t_c = 30\text{ °C}$
- $\Delta p = 0.07\text{ bar}$

³⁾ For usage with strainer or as a receiver application

⁴⁾ For "drier" application using all the permissible cores

Technical data and ordering

DCR - Filter drier with replaceable solid core

Drying and liquid capacity, type 48-DM (US units)

Type	Number of cores	Drying capacity [lb] of refrigerant ¹⁾										Liquid capacity [TR] ²⁾					Max. working pressure MWP [psig]
		R134a		R404A		R507		R407C		R410A		R134a	R404A	R507	R407C	R410A	
		[°F]															
		75	125	75	125	75	125	75	125	75	125						
DCR 0485	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	18.17	12.55	12.25	19.95	18.71	667
DCR 0487	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	25.70	17.75	17.33	28.22	26.46	667
DCR 0489	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	42.37	29.25	28.57	46.52	43.62	667
DCR 04811	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	50.49	34.86	34.04	55.43	51.98	667
DCR 04813	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	49.42	34.13	33.33	54.27	50.89	667
DCR 04817	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	65.63	45.32	44.25	72.06	67.57	667
DCR 04821	1	176.6	166.3	190.3	179.8	193.9	178.3	178.9	164.5	176.6	162.3	82.03	56.64	55.31	90.06	84.46	667
DCR 0967	2	353.2	332.6	380.7	359.6	387.8	356.5	357.8	329.1	353.2	324.7	34.80	24.03	23.47	38.21	35.84	667
DCR 0969	2	353.2	332.6	380.7	359.6	387.8	356.5	357.8	329.1	353.2	324.7	49.49	34.17	33.37	54.33	50.95	667
DCR 09611	2	353.2	332.6	380.7	359.6	387.8	356.5	357.8	329.1	353.2	324.7	56.23	38.83	37.91	61.74	57.90	667
DCR 09613	2	353.2	332.6	380.7	359.6	387.8	356.5	357.8	329.1	353.2	324.7	66.93	46.22	45.13	73.49	68.92	667
DCR 09617	2	353.2	332.6	380.7	359.6	387.8	356.5	357.8	329.1	353.2	324.7	88.88	61.37	59.93	97.58	91.51	667
DCR 1449	3	529.7	498.9	571.0	539.4	581.8	534.8	536.7	493.6	529.9	487.0	55.16	38.09	37.20	60.57	56.80	507 ³⁾ / 667 ⁴⁾
DCR 14411	3	529.7	498.9	571.0	539.4	581.8	534.8	536.7	493.6	529.9	487.0	68.32	47.18	46.07	75.02	70.35	507 ³⁾ / 667 ⁴⁾
DCR 14413	3	529.7	498.9	571.0	539.4	581.8	534.8	536.7	493.6	529.9	487.0	81.33	56.16	54.84	89.30	83.74	507 ³⁾ / 667 ⁴⁾
DCR 14417	3	529.7	498.9	571.0	539.4	581.8	534.8	536.7	493.6	529.9	487.0	108.00	74.57	72.82	118.58	111.20	507 ³⁾ / 667 ⁴⁾
DCR 19211	4	706.3	665.1	761.3	719.2	775.7	713.1	715.5	658.1	706.5	649.3	78.61	54.28	53.01	86.31	80.94	406 ³⁾ / 580 ⁴⁾
DCR 19213	4	706.3	665.1	761.3	719.2	775.7	713.1	715.5	658.1	706.5	649.3	93.57	64.61	63.09	102.74	96.35	406 ³⁾ / 580 ⁴⁾
DCR 19217	4	706.3	665.1	761.3	719.2	775.7	713.1	715.5	658.1	706.5	649.3	132.95	91.80	89.65	145.98	136.89	406 ³⁾ / 580 ⁴⁾

¹⁾ Drying capacity is based on the following moisture contents before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W

In accordance with ARI 710-2004

²⁾ Liquid capacity given in accordance with ARI 710-2002 evaporating temperature:

- $t_e = 5\text{ }^\circ\text{F}$
- $t_c = 86\text{ }^\circ\text{F}$
- $\Delta p = 1\text{ psig}$

³⁾ For usage with strainer or as a receiver application

⁴⁾ For "drier" application using all the permissible cores

Technical data and ordering

DCR - Filter drier with replaceable solid core

Drying and liquid capacity, type 48-DC (SI units)

Type	Number of cores	Drying capacity [kg] of refrigerant ¹⁾										Liquid capacity [kW] ²⁾					Max. working pressure PS [bar]
		R134a		R404A		R507		R407C		R410A		R134a	R404A	R507	R407C	R410A	
		[°C]															
		24	52	24	52	24	52	24	52	24	52						
DCR 0485	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	63.59	43.91	42.88	69.82	65.48	46
DCR 0487	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	89.95	62.11	60.65	98.76	92.62	46
DCR 0489	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	148.28	102.39	99.98	162.81	152.67	46
DCR 04811	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	176.70	122.01	119.15	194.01	181.94	46
DCR 04813	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	172.98	119.44	116.64	189.93	178.11	46
DCR 04817	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	229.70	158.61	154.88	252.21	236.51	46
DCR 04821	1	62.4	58.8	67.3	63.6	68.6	63.0	63.2	58.2	62.4	57.4	287.09	198.23	193.58	315.22	295.60	46
DCR 0967	2	124.9	117.6	134.6	127.1	137.1	126.1	126.5	116.3	124.9	114.8	121.81	84.11	82.14	133.75	125.42	46
DCR 0969	2	124.9	117.6	134.6	127.1	137.1	126.1	126.5	116.3	124.9	114.8	173.20	119.59	116.78	190.17	178.33	46
DCR 09611	2	124.9	117.6	134.6	127.1	137.1	126.1	126.5	116.3	124.9	114.8	196.80	135.89	132.70	216.08	202.63	46
DCR 09613	2	124.9	117.6	134.6	127.1	137.1	126.1	126.5	116.3	124.9	114.8	234.26	161.75	157.96	257.21	241.20	46
DCR 09617	2	124.9	117.6	134.6	127.1	137.1	126.1	126.5	116.3	124.9	114.8	311.07	214.79	209.75	341.55	320.29	35 ³⁾ / 46 ⁴⁾
DCR 1449	3	187.3	176.4	201.9	190.7	205.7	189.1	189.7	174.5	187.3	172.2	193.08	133.32	130.19	211.99	198.80	35 ³⁾ / 46 ⁴⁾
DCR 14411	3	187.3	176.4	201.9	190.7	205.7	189.1	189.7	174.5	187.3	172.2	239.14	165.12	161.24	262.56	246.22	35 ³⁾ / 46 ⁴⁾
DCR 14413	3	187.3	176.4	201.9	190.7	205.7	189.1	189.7	174.5	187.3	172.2	284.65	196.55	191.93	312.54	293.09	35 ³⁾ / 46 ⁴⁾
DCR 14417	3	187.3	176.4	201.9	190.7	205.7	189.1	189.7	174.5	187.3	172.2	377.99	261.00	254.87	415.02	389.19	28 ³⁾ / 40 ⁴⁾
DCR 19211	4	249.7	235.2	269.2	254.3	274.3	252.1	253.0	232.7	249.8	229.6	275.14	189.98	185.52	302.09	283.29	28 ³⁾ / 40 ⁴⁾
DCR 19213	4	249.7	235.2	269.2	254.3	274.3	252.1	253.0	232.7	249.8	229.6	327.51	226.14	220.83	359.59	337.21	28 ³⁾ / 40 ⁴⁾
DCR 19217	4	249.7	235.2	269.2	254.3	274.3	252.1	253.0	232.7	249.8	229.6	465.33	321.30	313.76	510.91	479.12	28 ³⁾ / 40 ⁴⁾
DCR 19221	4	258.9	244.7	278.3	263.8	283.2	261.7	259.4	239.7	236.1	217.6	442.5	321.7	311.7	460.2	475.8	28 ³⁾ / 40 ⁴⁾

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W

In accordance with ARI 710-2004

²⁾ Given in accordance with ARI 710-2004 for:

- $t_e = -15\text{ °C}$
- $t_c = 30\text{ °C}$
- $\Delta p = 0.07\text{ bar}$

³⁾ For usage with strainer or as a receiver application

⁴⁾ For "drier" application using all the permissible cores

Technical data and ordering

DCR - Filter drier with replaceable solid core

Drying and liquid capacity, type 48-DC (US units)

Type	Number of cores	Drying capacity [lb] of refrigerant ¹⁾										Liquid capacity [TR] ²⁾					Max. working pressure MWP [psig]
		R134a		R404A		R507		R407C		R410A		R134a	R404A	R507	R407C	R410A	
		[°F]															
		75	125	75	125	75	125	75	125	75	125						
DCR 0485	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	18.17	12.55	12.25	19.95	18.71	667
DCR 0487	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	25.70	17.75	17.33	28.22	26.46	667
DCR 0489	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	42.37	29.25	28.57	46.52	43.62	667
DCR 04811	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	50.49	34.86	34.04	55.43	51.98	667
DCR 04813	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	49.42	34.13	33.33	54.27	50.89	667
DCR 04817	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	65.63	45.32	44.25	72.06	67.57	667
DCR 04821	1	137.6	129.6	148.4	140.1	151.2	139.0	139.4	128.2	137.7	126.5	82.03	56.64	55.31	90.06	84.46	667
DCR 0967	2	275.3	259.2	296.7	280.3	302.3	277.9	278.9	256.5	275.4	253.1	34.80	24.03	23.47	38.21	35.84	667
DCR 0969	2	275.3	259.2	296.7	280.3	302.3	277.9	278.9	256.5	275.4	253.1	49.49	34.17	33.37	54.33	50.95	667
DCR 09611	2	275.3	259.2	296.7	280.3	302.3	277.9	278.9	256.5	275.4	253.1	56.23	38.83	37.91	61.74	57.90	667
DCR 09613	2	275.3	259.2	296.7	280.3	302.3	277.9	278.9	256.5	275.4	253.1	66.93	46.22	45.13	73.49	68.92	667
DCR 09617	2	275.3	259.2	296.7	280.3	302.3	277.9	278.9	256.5	275.4	253.1	88.88	61.37	59.93	97.58	91.51	667
DCR 1449	3	412.9	388.9	445.1	420.4	453.5	416.9	418.3	384.7	413.0	379.6	55.16	38.09	37.20	60.57	56.80	507 ³⁾ / 667 ⁴⁾
DCR 14411	3	412.9	388.9	445.1	420.4	453.5	416.9	418.3	384.7	413.0	379.6	68.32	47.18	46.07	75.02	70.35	507 ³⁾ / 667 ⁴⁾
DCR 14413	3	412.9	388.9	445.1	420.4	453.5	416.9	418.3	384.7	413.0	379.6	81.33	56.16	54.84	89.30	83.74	507 ³⁾ / 667 ⁴⁾
DCR 14417	3	412.9	388.9	445.1	420.4	453.5	416.9	418.3	384.7	413.0	379.6	108.00	74.57	72.82	118.58	111.20	507 ³⁾ / 667 ⁴⁾
DCR 19211	4	550.6	518.5	593.4	560.6	604.6	555.8	557.8	513.0	550.7	506.1	78.61	54.28	53.01	86.31	80.94	406 ³⁾ / 580 ⁴⁾
DCR 19213	4	550.6	518.5	593.4	560.6	604.6	555.8	557.8	513.0	550.7	506.1	93.57	64.61	63.09	102.74	96.35	406 ³⁾ / 580 ⁴⁾
DCR 19217	4	550.6	518.5	593.4	560.6	604.6	555.8	557.8	513.0	550.7	506.1	132.95	91.80	89.65	145.98	136.89	406 ³⁾ / 580 ⁴⁾

¹⁾ Drying capacity is based on the following moisture contents before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W

In accordance with ARI 710-2004

²⁾ Liquid capacity given in accordance with ARI 710-2004

- $t_e = 5^\circ\text{F}$
- $t_c = 86^\circ\text{F}$
- $\Delta p = 1 \text{ psig}$

³⁾ For usage with strainer or as a receiver application

⁴⁾ For "drier" application using all the permissible cores

Technical data and ordering

DCR - Filter drier with replaceable solid core

Drying capacity [g] of water ³⁾, type 48-DA (SI units)

Type	Number of cores	Evaporating temperature t _e [°C]												Acid capacity ⁴⁾ [g]
		-40	-20	4.4	-30	-20	4.4	-40	-20	4.4	-40	-20	4.4	
		R407C			R134a			R404A / R507			R410A			
DCR 048	1	28	19	12	45	38	27	47	30	19	42	35	25	26.6
DCR 096	2	56	37	24	90	77	54	94	60	37	84	70	50	53.3
DCR 144	3	84	56	36	135	115	81	142	90	56	126	105	75	79.9
DCR 192	4	112	74	48	180	153	108	189	120	75	168	140	100	106.5

³⁾ Drying capacity is expressed during drying in:

R134a: EPD = 50 ppm W, corresponding to a dew point temperature = -37 °C

R404A: EPD = 10 ppm W, corresponding to a dew point temperature = -40 °C

R407C: EPD = 10 ppm W, corresponding to a dew point temperature = -40 °C

⁴⁾ Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)

DCR - Filter drier with replaceable solid core

Drying capacity [lb] of refrigerant ³⁾, type 48-DA (US units)

Type	Number of cores	Evaporating temperature t _e [°F]												Acid capacity ⁴⁾ [g]
		-40	-4	40	-22	-4	40	-40	-4	40	-40	-4	40	
		R407C			R134a			R404A / R507			R410A			
DCR 048	1	28	19	12	45	38	27	47	30	19	42	35	25	0.94
DCR 096	2	56	37	24	90	77	54	94	60	37	84	70	50	1.88
DCR 144	3	84	56	36	135	115	81	142	90	56	126	105	75	2.82
DCR 192	4	112	74	48	180	153	108	189	120	75	168	140	100	3.76

³⁾ Drying capacity is expressed during drying in:

R134a: EPD = 50 ppm W, corresponding to a dew point temperature = -34.6 °F

R404A: EPD = 10 ppm W, corresponding to a dew point temperature = -40 °F

R407C: EPD = 10 ppm W, corresponding to a dew point temperature = -40 °F

⁴⁾ Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)

DCR - Filter drier with replaceable solid core

Recommended plant capacity [kW] in suction line - burn-out, type 48-DA (SI units)

Type	Evaporating temperature t _e [°C]											
	-40	-20	4.4	-30	-20	4.4	-40	-20	4.4	-40	-20	4.4
	Pressure drop Δp [bar]											
	0.04	0.10	0.21	0.04	0.07	0.14	0.04	0.10	0.21	0.04	0.10	0.21
	R407C			R134a			R404A / R507			R410A		
DCR 0485	3.1	8.9	21.0	3.0	5.4	13.0	2.4	7.1	17.5	3.1	8.9	21.0
DCR 0487	5.8	16.1	37.8	5.6	9.9	23.4	4.5	12.9	31.2	5.8	16.1	37.8
DCR 0489	7.8	21.6	50.7	7.5	13.3	31.5	6.0	17.2	41.8	7.8	21.6	50.7
DCR 04811	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 04813	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 04817	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 04821	10.0	27.3	63.3	9.6	16.8	39.5	7.7	21.8	51.9	10.0	27.3	63.3
DCR 0965	3.3	9.1	21.4	3.2	5.7	13.4	2.5	7.4	18.0	3.3	9.1	21.6
DCR 0967	5.8	16.2	38.1	5.6	9.9	23.6	4.5	12.9	31.4	5.8	16.2	38.1
DCR 0969	8.7	24.6	58.3	8.4	15.0	35.9	6.8	19.7	48.1	8.7	24.6	58.3
DCR 09611	11.9	33.4	79.3	11.4	20.4	48.9	9.3	26.8	65.4	11.9	33.4	79.3
DCR 09613	14.1	39.9	95.2	13.6	24.3	58.5	11.0	32.0	78.7	14.1	39.9	95.2
DCR 09617	14.1	39.9	95.2	13.6	24.3	58.5	11.0	32.0	78.7	14.1	39.9	95.2
DCR 09621	14.1	39.9	95.2	13.6	24.3	58.5	11.0	32.0	78.7	14.1	39.9	95.2
DCR 1445	3.5	10.0	22.8	3.4	6.0	14.0	2.7	7.7	18.9	3.5	10.0	22.8
DCR 1447	6.6	18.9	42.9	6.3	11.2	26.4	5.1	14.5	35.6	6.6	18.9	42.9
DCR 1449	8.8	25.1	57.2	8.4	15.0	35.2	6.8	19.4	47.5	8.8	25.1	57.2
DCR 14411	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 14413	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 14417	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 14421	13.2	38.1	92.2	12.7	23.0	56.2	10.3	30.7	76.6	13.2	38.1	92.2
DCR 1925	4.2	11.5	27.3	4.0	7.1	16.8	3.2	9.2	22.7	4.2	11.5	27.3
DCR 1927	7.9	21.6	51.4	7.6	13.4	31.6	6.1	17.4	42.7	7.9	21.6	51.4
DCR 1929	10.6	28.9	68.9	10.2	18.0	42.1	8.2	23.3	57.2	10.6	28.9	68.9
DCR 19211	14.8	41.8	99.4	14.3	25.5	61.2	11.6	33.6	82.2	14.8	41.8	99.4
DCR 19213	18.0	51.1	122.1	17.4	31.1	75.0	14.1	41.1	101.0	18.0	51.1	122.1
DCR 19217	18.0	51.1	122.1	17.4	31.1	75.0	14.1	41.1	101.0	18.0	51.1	122.1
DCR 19221	18.0	51.1	122.1	17.4	31.1	75.0	14.1	41.1	101.0	18.0	51.1	122.1

Data given in accordance with ARI-Standard 710-2004 for:

t_e = 4.4 °C

t_e = 32.2 °C

Technical data and ordering

DCR - Filter drier with replaceable solid core

Recommended plant capacity [TR], type 48-DA (US units)

Type	Evaporating temperature t_e [°F]											
	-40	-4	40	-22	-4	40	-40	-4	40	-40	-4	40
	Pressure drop [psig]											
	0.58	1.45	3.05	0.58	1	2.03	0.58	1.45	3.05	0.58	1.45	3.05
	R407C			R134a			R404A / R507			R410A		
DCR 0485	0.9	2.5	6.0	0.9	1.5	3.7	0.7	2.0	5.0	0.9	2.5	6.0
DCR 0487	1.6	4.6	10.7	1.6	2.8	6.7	1.3	3.7	8.9	1.6	4.6	10.7
DCR 0489	2.2	6.1	14.4	2.1	3.8	9.0	1.7	4.9	11.9	2.2	6.1	14.4
DCR 04811	2.8	7.8	18.0	2.7	4.8	11.2	2.2	6.2	14.8	2.8	7.8	18.0
DCR 04813	2.8	7.8	18.0	2.7	4.8	11.2	2.2	6.2	14.8	2.8	7.8	18.0
DCR 04817	2.8	7.8	18.0	2.7	4.8	11.2	2.2	6.2	14.8	2.8	7.8	18.0
DCR 04821	2.8	7.8	18.0	2.7	4.8	11.2	2.2	6.2	14.8	2.8	7.8	18.0
DCR 0965	0.9	2.6	6.1	0.9	1.6	3.8	0.7	2.1	5.1	0.9	2.6	6.1
DCR 0967	1.6	4.6	10.8	1.6	2.8	6.7	1.3	3.7	8.9	1.6	4.6	10.8
DCR 0969	2.5	7.0	16.6	2.4	4.3	10.2	1.9	5.6	13.7	2.5	7.0	16.6
DCR 09611	3.4	9.5	22.5	3.2	5.8	13.9	2.6	7.6	18.6	3.4	9.5	22.5
DCR 09613	4.0	11.3	27.1	3.9	6.9	16.6	3.1	9.1	22.4	4.0	11.3	27.1
DCR 09617	4.0	11.3	27.1	3.9	6.9	16.6	3.1	9.1	22.4	4.0	11.3	27.1
DCR 09621	4.0	11.3	27.1	3.9	6.9	16.6	3.1	9.1	22.4	4.0	11.3	27.1
DCR 1445	1.0	2.8	6.5	1.0	1.7	4.0	0.8	2.2	5.4	1.0	2.8	6.5
DCR 1447	1.9	5.4	12.2	1.8	3.2	7.5	1.5	4.1	10.1	1.9	5.4	12.2
DCR 1449	2.5	7.1	16.3	2.4	4.3	10.0	1.9	5.5	13.5	2.5	7.1	16.3
DCR 14411	3.8	10.8	26.2	3.6	6.5	16.0	2.9	8.7	21.8	3.8	10.8	26.2
DCR 14413	3.8	10.8	26.2	3.6	6.5	16.0	2.9	8.7	21.8	3.8	10.8	26.2
DCR 14417	3.8	10.8	26.2	3.6	6.5	16.0	2.9	8.7	21.8	3.8	10.8	26.2
DCR 14421	3.8	10.8	26.2	3.6	6.5	16.0	2.9	8.7	21.8	3.8	10.8	26.2
DCR 1925	1.2	3.3	7.8	1.1	2.0	4.8	0.9	2.6	6.5	1.2	3.3	7.8
DCR 1927	2.2	6.1	14.6	2.2	3.8	9.0	1.7	4.9	12.1	2.2	6.1	14.6
DCR 1929	3.0	8.2	19.6	2.9	5.1	12.0	2.3	6.6	16.3	3.0	8.2	19.6
DCR 19211	4.2	11.9	28.3	4.1	7.3	17.4	3.3	9.6	23.4	4.2	11.9	28.3
DCR 19213	5.1	14.5	34.7	4.9	8.8	21.3	4.0	11.7	28.7	5.1	14.5	34.7
DCR 19217	5.1	14.5	34.7	4.9	8.8	21.3	4.0	11.7	28.7	5.1	14.5	34.7
DCR 19221	5.1	14.5	34.7	4.9	8.8	21.3	4.0	11.7	28.7	5.1	14.5	34.7

Data given in accordance with ARI-Standard 710-2002 for:

$t_e = 40\text{ °F}$

$t_c = 90\text{ °F}$

Strainer mounted in suction line, type 48-F (SI units)

Refrigerant	R407C			R134a			R404A / R507			R410A		
Evaporating temperature [°C]	-40	-20	4.4	-30	-20	4.4	-40	-20	4.4	-40	-20	4.4
Pressure drop Δp [bar]	0.04	0.10	0.21	0.04	0.07	0.14	0.04	0.10	0.21	0.04	0.10	0.21
Recommended system capacity [kW]	15	47	113	15	28	69	12	38	93	15	47	113

Strainer mounted in liquid line

Refrigerant	R407C	R134a	R404A / R507	R410A
Recommended system capacity [kW]	390	350	260	390

The data given apply to DCR 04811 with 48-F-core

Liquid capacity is given in accordance with 710-2004 for:

$t_e = -15\text{ °C}$

$t_c = 30\text{ °C}$

$\Delta p = 0.07\text{ bar}$

Strainer mounted in suction line, type 48-F (US units)

Refrigerant	R407C			R134a			R404A / R507			R410A		
Evaporating temperature [°F]	-40	-4	40	-22	-4	40	-40	-4	40	-40	-4	40
Pressure drop Δp [psig]	0.59	1.47	3.09	0.59	1.03	2.06	0.59	1.47	3.09	0.59	1.47	3.09
Recommended system capacity [TR]	4	13	32	4	8	20	3	11	26	4	13	32

Strainer mounted in liquid line

Refrigerant	R407C	R134a	R404A / R507	R410A
Recommended system capacity [TR]	111	100	74	111

The data given apply to DCR 04811 with 48-F-core

Liquid capacity is given in accordance with ARI 710-2002 for:

$t_e = 5\text{ °F}$

$t_c = 86\text{ °F}$

$\Delta p = 1\text{ psi}$

Technical data and ordering

DCR - Filter drier with replaceable solid core

Housing + top cover

Type	Number of cores	Steel connectors			Cover type	Max. working pressure PS [bar]	Max. working pressure MWP [psig]	Code no.
		Solder		Butt weld				
		ODF [in]	ODF [mm]	[in]				
DCR 0485	1	5/8	16	1/2	Plug	46	667	023U7050
DCR 0487	1	7/8	22	3/4	Plug	46	667	023U7051
DCR 0487	1	7/8	22	3/4	-	46	667	023U7151
DCR 0489	1	-	28	1	Plug	46	667	023U7052
DCR 0489	1	1 1/8	-	1	Plug	46	667	023U7053
DCR 04811	1	1 3/8	35	1 1/4	Plug	46	667	023U7054
DCR 04813	1	1 3/8	-	1 1/2	Plug	46	667	023U7055
DCR 04813	1	-	42	1 1/2	Plug	46	667	023U7056
DCR 04817	1	2 1/8	54	2	Plug	46	667	023U7057
DCR 04821	1	2 3/8	-	2 1/2	Plug	46	667	023U7076
DCR 0967	2	7/8	22	3/4	Plug	46	667	023U7058
DCR 0969	2	-	28	1	Plug	46	667	023U7059
DCR 0969	2	1 1/8	-	1	Plug	46	667	023U7060
DCR 09611	2	1 3/8	35	1 1/4	Plug	46	667	023U7061
DCR 09611	2	1 3/8	35	1 1/4	-	46	667	023U7161
DCR 09613	2	1 5/8	-	1 1/2	Plug	46	667	023U7062
DCR 09613	2	-	42	1 1/2	Plug	46	667	023U7063
DCR 09617	2	2 1/8	54	2	Plug	46	667	023U7064
DCR 1449	3	-	28	1	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7065
DCR 1449	3	1 1/8	-	1	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7066
DCR 14411	3	1 3/8	35	1 1/4	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7067
DCR 14413	3	1 5/8	-	1 1/2	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7068
DCR 14413	3	-	42	1 1/2	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7069
DCR 14417	3	2 1/8	54	2	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7070
DCR 19211	4	1 3/8	35	1 1/4	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7071
DCR 19213	4	1 5/8	-	1 1/2	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7072
DCR 19213	4	-	42	1 1/2	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7073
DCR 19217	4	2 1/8	54	2	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7074
DCR 19221	4	2 5/8	-	2 1/2	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7086

¹⁾ For usage with strainer or as a receiver application

²⁾ For "drier" application all the permissible cores

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Technical data and ordering

DCR - Filter drier with replaceable solid core

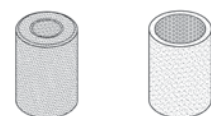
Housing + top cover

Type	Number of cores	Copper connectors		Cover type	Max. working pressure PS [bar]	Max. working pressure MWP [psig]	Code no.
		Solder					
		ODF [in]	ODF [mm]				
DCR 0485s	1	5/8	16	Plug	46	667	023U7250
DCR 0487s	1	7/8	22	Plug	46	667	023U7251
DCR 0487s	1	7/8	22	-	46	667	023U7571
DCR 0489s	1	-	28	Plug	46	667	023U7252
DCR 0489s	1	1 1/8	-	Plug	46	667	023U7253
DCR 0489s	1	-	28	-	46	667	023U7268
DCR 04811s	1	1 3/8	35	Plug	46	667	023U7254
DCR 04813s	1	1 5/8	-	Plug	46	667	023U7255
DCR 04813s	1	-	42	Plug	46	667	023U7256
DCR 04813s	1	-	42	-	46	667	023U7303
DCR 04817s	1	2 1/8	54	Plug	46	667	023U7257
DCR 04821s	1	2 5/8	-	Plug	46	667	023U7276
DCR 0967s	2	7/8	22	Plug	46	667	023U7258
DCR 0969s	2	-	28	Plug	46	667	023U7259
DCR 0969s	2	1 1/8	-	Plug	46	667	023U7260
DCR 0969s	2	1 1/8	-	-	46	667	023U7278
DCR 09611s	2	1 3/8	35	Plug	46	667	023U7261
DCR 09613s	2	1 5/8	-	Plug	46	667	023U7262
DCR 09613s	2	-	42	Plug	46	667	023U7263
DCR 09613s	2	-	42	-	46	667	023U7463
DCR 09617s	2	2 1/8	54	Plug	46	667	023U7264
DCR 09617s	2	2 1/8	54	-	46	667	023U7290
DCR 09621s	2	2 5/8	-	Plug	46	667	023U7281
DCR 1449s	3	-	28	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7265
DCR 14411s	3	1 3/8	35	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7267
DCR 14411s	3	1 3/8	-	-	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7275
DCR 14413s	3	1 5/8	-	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7282
DCR 14413s	3	-	42	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7269
DCR 14413s	3	1 5/8	42	-	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7297
DCR 14417s	3	2 1/8	54	Plug	35 ¹⁾ / 46 ²⁾	507 ¹⁾ / 667 ²⁾	023U7270
DCR 19211s	4	1 3/8	-	-	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7083
DCR 19213s	4	1 5/8	-	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7272
DCR 19213s	4	-	42	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7273
DCR 19213s	4	1 5/8	-	-	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7082
DCR 19217s	4	2 1/8	54	Plug	28 ¹⁾ / 40 ²⁾	406 ¹⁾ / 580 ²⁾	023U7274

¹⁾ For usage with strainer or as a receiver application

²⁾ For "drier" application all the permissible cores

Technical data and ordering



Solid core Strainer

DCR - Inserts with gasket

Ordering

Type	Material	Code no.		
		Industrial pack		Multi pack
		With gasket	Without gasket	With gasket
48-DM solid core	100% molecular sieve	023U1392	023U1393	023U1391
48-DC solid core	80% molecular sieve and 20% Al ₂ O ₃	023U4381	023U4382	023U4380
48-DA solid core	30% molecular sieve and 70% Al ₂ O ₃	023U5381	023U5382	023U5380
48-F strainer	Felt-gasket, 15 µm	023U1921	-	-

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DMB, Hermetic bi-flow filter drier

DMB **ELIMINATOR**[®] hermetic bi-flow filter drier series are for use in liquid lines on heat pumps, and have built-in check valves to ensure that refrigerant liquid flows through the filter drier from the outer side of the filter core towards the center. They ensure fast and effective adsorption of moisture as well as organic and inorganic acids, and all dirt particles are retained irrespective of flow direction.

DMB hermetic bi-flow filter driers contain a solid core consisting of 100% 3 Å Molecular Sieve, and are especially suitable for heat pumps with HFC refrigerants and polyolester oil with additives.



Facts

Application:

- Traditional refrigeration
- Heat pumps
- Air conditioning units
- Applicable to R134A, R404A, R407C, R410A, R407F, R1233zd, R1234ze, R290*), R600*), R32*), R454B*), R452B*), R444B*), R454A*), R450A*), R1234yf*)

**) Approved for Filter drier models with connection sizes less than 25 mm*

- No dirt released by reversing the flow direction
- The check valves are not sensitive to dirt and give minimum restriction, irrespective of flow direction
- When building heat pump systems, the use of hermetic bi-flow filter driers can save up to ten solder connections. This reduces production costs and the number of potential leakage points
- DMB filter driers are especially suitable for heat pumps with HFC refrigerant and polyolester oil with additives
- Optimum flow characteristics and dirt retention
- Available in sizes from 05 to 30 cubic inches
- Available with flare, solder (pure copper, cu-plated) connections

Technical data

DMB - Hermetic bi-flow filter drier

Drying and liquid capacity (SI units)

Type	Drying capacity [kg of refrigerant ¹⁾														Liquid capacity [kW] ²⁾							Max working pressure PS [bar]
	R134a		R404A		R507		R407C		R410A		R290		R32		R134a	R404A	R507	R407C	R410A	R290	R32	
	[°C]																					
	24	52	24	52	24	52	24	52	24	52	24	52	24	52								
DMB 053s	4.7	4.4	5.1	4.8	5.2	4.8	4.7	4.3	4.3	3.9	5.71	4.61	4.41	3.99	9.3	6.30	6.14	9.22	9.04	11.12	13.52	46.00
DMB 082 / 082s	8.7	8.1	9.3	8.8	9.5	8.7	8.7	8.0	7.8	7.2	10.49	8.47	8.09	7.33	5.6	3.78	3.68	5.54	5.42	6.68	8.11	46.00
DMB 083 / 083s	8.7	8.1	9.3	8.8	9.5	8.7	8.7	8.0	7.8	7.2	10.49	8.47	8.09	7.33	8.9	6.04	5.88	8.84	8.66	10.10	12.27	46.00
DMB 084 / 084s	8.7	8.1	9.3	8.8	9.5	8.7	8.7	8.0	7.8	7.2	10.49	8.47	8.09	7.33	11.3	7.62	7.43	11.17	10.94	13.30	16.45	46.00
DMB 162	16.3	15.4	17.6	16.6	17.9	16.5	16.3	15.0	14.8	13.6	19.79	15.98	15.27	13.83	6.3	4.27	4.16	6.26	6.13	7.54	9.17	46.00
DMB 163 / 163s	16.3	15.4	17.6	16.6	17.9	16.5	16.3	15.0	14.8	13.6	19.79	15.98	15.27	13.83	15.2	10.30	10.04	15.09	14.78	18.20	22.05	46.00
DMB 164 / 164s	16.3	15.4	17.6	16.6	17.9	16.5	16.3	15.0	14.8	13.6	19.79	15.98	15.27	13.83	21.5	14.54	14.17	21.29	20.86	25.55	31.15	46.00
DMB 165 / 165s	16.3	15.4	17.6	16.6	17.9	16.5	16.3	15.0	14.8	13.6	19.79	15.98	15.27	13.83	27.6	18.69	18.22	27.37	26.81	32.90	40.25	46.00
DMB 303	39.8	37.5	42.9	40.5	43.7	40.2	39.8	36.6	36.1	33.1	48.27	38.97	37.24	33.73	17.7	11.99	11.68	17.56	17.20	21.17	25.73	46.00
DMB 304 / 304s	39.8	37.5	42.9	40.5	43.7	40.2	39.8	36.6	36.1	33.1	48.27	38.97	37.24	33.73	21.4	14.53	14.16	21.28	20.84	25.55	31.15	46.00
DMB 305 / 305s	39.8	37.5	42.9	40.5	43.7	40.2	39.8	36.6	36.1	33.1	48.27	38.97	37.24	33.73	29.2	19.75	19.25	28.93	28.34	34.65	42.00	46.00
DMB 307s	39.8	37.5	42.9	40.5	43.7	40.2	39.8	36.6	36.1	33.1	48.27	38.97	37.24	33.73	41.2	27.91	27.21	40.88	40.04	49.30	59.92	46.00

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W
- R290: 565 - 15 ppm W
- R32: 1040 - 50 ppm W

In accordance with ARI 710-2004

²⁾ Given in accordance with ARI 710-2004 for:

- $t_e = -15\text{ °C}$
- $t_c = 30\text{ °C}$
- $\Delta p = 0.07\text{ bar}$

DMB - Hermetic bi-flow filter drier

Drying and liquid capacity (US units)

Type	Drying capacity [lb] of refrigerant ¹⁾														Liquid capacity [TR] ²⁾							Max. working pressure MWP [psig]
	R134a		R404A		R507		R407C		R410A		R290		R32		R134a	R404A	R507	R407C	R410A	R290	R32	
	[°F]																					
	75	125	75	125	75	125	75	125	75	125	75	125	75	125								
DMB 053s	10.4	9.8	11.2	10.6	11.4	10.5	10.4	9.5	9.4	8.6	9.7	8.8	9.4	8.6	2.7	1.80	1.75	2.64	2.58	3.18	3.86	667.00
DMB 082 / 082s	19.1	18.0	20.6	19.4	21.0	19.3	19.1	17.5	17.3	15.8	17.8	16.2	17.3	15.8	1.6	1.08	1.05	1.58	1.55	1.91	2.32	667.00
DMB 083 / 083s	19.1	18.0	20.6	19.4	21.0	19.3	19.1	17.5	17.3	15.8	17.8	16.2	17.3	15.8	2.5	1.72	1.68	2.53	2.47	2.89	3.51	667.00
DMB 084 / 084s	19.1	18.0	20.6	19.4	21.0	19.3	19.1	17.5	17.3	15.8	17.8	16.2	17.3	15.8	3.2	2.18	2.12	3.19	3.12	3.80	4.70	667.00
DMB 162	36.0	33.9	38.8	36.6	39.5	36.3	36.0	33.1	32.6	29.9	33.7	30.5	32.6	29.9	1.8	1.22	1.19	1.79	1.75	2.16	2.62	667.00
DMB 163 / 163s	36.0	33.9	38.8	36.6	39.5	36.3	36.0	33.1	32.6	29.9	33.7	30.5	32.6	29.9	4.3	2.94	2.87	4.31	4.22	5.20	6.30	667.00
DMB 164 / 164s	36.0	33.9	38.8	36.6	39.5	36.3	36.0	33.1	32.6	29.9	33.7	30.5	32.6	29.9	6.1	4.15	4.05	6.08	5.96	7.30	8.90	667.00
DMB 165 / 165s	36.0	33.9	38.8	36.6	39.5	36.3	36.0	33.1	32.6	29.9	33.7	30.5	32.6	29.9	7.9	5.34	5.20	7.82	7.66	9.40	11.50	667.00
DMB 303	87.8	82.7	94.6	89.4	96.4	88.6	87.8	80.7	79.6	72.9	82.1	74.4	79.6	72.9	5.1	3.42	3.34	5.02	4.91	6.05	7.35	667.00
DMB 304 / 304s	87.8	82.7	94.6	89.4	96.4	88.6	87.8	80.7	79.6	72.9	82.1	74.4	79.6	72.9	6.1	4.15	4.05	6.08	5.96	7.30	8.90	667.00
DMB 305 / 305s	87.8	82.7	94.6	89.4	96.4	88.6	87.8	80.7	79.6	72.9	82.1	74.4	79.6	72.9	8.3	5.64	5.50	8.27	8.10	9.90	12.00	667.00
DMB 307s	87.8	82.7	94.6	89.4	96.4	88.6	87.8	80.7	79.6	72.9	82.1	74.4	79.6	72.9	11.8	7.97	7.77	11.68	11.44	14.09	17.12	667.00

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 - 50 ppm W
- R404A, R507: 1020 - 50 ppm W
- R407C: 1020 - 50 ppm W
- R410A: 1050 - 50 ppm W
- R290: 565 - 15 ppm W
- R32: 1040 - 50 ppm W

In accordance with ARI 710-2004

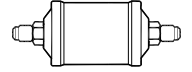
²⁾ Given in accordance with ARI 710-2004 for:

- $t_e = 5\text{ °F}$
- $t_c = 85\text{ °F}$
- $\Delta p = 1\text{ psig}$

Ordering

DMB - Flare

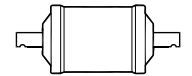
Ordering



Type	Connection		Code no.
	[in]	[mm]	
DMB 082	1/4	6	023Z1412
DMB 083	3/8	10	023Z1411
DMB 084	1/2	12	023Z1410
DMB 163	3/8	10	023Z1415
DMB 164	1/2	12	023Z1414
DMB 165	5/8	16	023Z1413
DMB 303	3/8	10	023Z1419
DMB 304	1/2	12	023Z1418
DMB 305	5/8	16	023Z1417

DMB - Solder (pure copper)

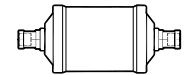
Ordering



Type	Connection		Code no.	Connection		Code no.
	[in]			[mm]		
DMB 082s	1/4		023Z1443	–		–
DMB 083s	3/8		023Z1442	10		023Z1424
DMB 084s	1/2		023Z1441	–		–
DMB 163s	3/8		023Z1446	10		023Z1422
DMB 164s	1/2		023Z1445	–		–
DMB 165s	5/8		023Z1444	–		–
DMB 304s	1/2		023Z1449	–		–
DMB 305s	5/8		023Z1448	–		–
DMB 307s	7/8		023Z1447	–		–

DMB - Solder (cu-plated)

Ordering



Type	Connection		Code no.	Connection		Code no.
	[in]			[mm]		
DMB 082s	1/4		023Z1473	6		023Z1461
DMB 083s	3/8		023Z1472	10		023Z1459
DMB 084s	1/2		023Z1471	12		023Z1457
DMB 163s	3/8		023Z1476	10		023Z1455
DMB 164s	1/2		023Z1475	12		023Z1453
DMB 165s	5/8		023Z1474	–		–
DMB 303s	3/8		023Z1481	–		–
DMB 304s	1/2		023Z1479	12		023Z1451
DMB 305s	5/8		023Z1478	–		–
DMB 307s	7/8		023Z1477	–		–

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DMC, Hermetic receiver filter drier

DMC **ELIMINATOR**[®] are combined hermetic receiver and filter driers optimized to systems where the condenser is incapable of containing the total quantity of refrigerants. DMC filters contain a solid core consisting of 100% Molecular Sieve, and are especially suitable for air conditioning systems with HFC, HCFC refrigerants and polyolester oil with additives.

DMC filters contain a solid core consisting of 3 Å Molecular Sieve and activated aluminium oxide, and are especially suitable for air conditioning systems with HCFC refrigerants and mineral oil, and also with HFC refrigerants and polyolester oil.



Facts

Application:

- Air conditioning systems
- Heat pumps
- Transport refrigeration
- Applicable to R32, R134a, R404A, R410A, R407C, R23, R600, R1234yf, R1234ze, R407f, R290, R452A, R444B, R449A, R448A and R450A
- Combined filter drier and receiver to keep down number of components
- Space-saving
- Fast installation
- High drying capacity at high and low liquid temperatures
- DMC filters contain a solid core consisting of 100% 3 Å Molecular Sieve
- Available with solder connections (cu-plated steel connectors)
- Optimum flow characteristics and dirt retention
- Approved as HP container according to PED 2014/68/EU -a4p3
- 25 µm (0.001 in) filter provides high retention with minimal pressure drop
- Thermally stable up to 120 °C / 250 °F

Technical data and ordering

DMC - Solder (cu-plated)

Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant ¹⁾										Liquid capacity [kW] ²⁾					Max working pressure PS [bar]
	R134a		R404A		R507		R407C		R410A		R134a	R404A	R507	R407C	R410A	
	[°C]															
	24	52	24	52	24	52	24	52	24	52						
DMC 0432s	6.1	5.8	6.6	6.2	6.7	6.2	6.1	5.6	5.6	5.1	6.3	4.24	4.14	6.22	6.09	42
DMC 0732s	6.1	5.8	6.6	6.2	6.7	6.2	6.1	5.6	5.6	5.1	6.3	4.24	4.14	6.22	6.09	42
DMC 2032s	6.1	5.8	6.6	6.2	6.7	6.2	6.1	5.6	5.6	5.1	6.3	4.28	4.17	6.26	6.13	42
DMC 2033s	6.1	5.8	6.6	6.2	6.7	6.2	6.1	5.6	5.6	5.1	12.4	8.37	8.16	12.26	12.01	42
DMC 2034s	6.1	5.8	6.6	6.2	6.7	6.2	6.1	5.6	5.6	5.1	19.1	12.97	12.64	18.99	18.60	42
DMC 40163s	27.1	25.5	29.2	27.6	29.8	27.3	27.1	24.9	24.6	22.5	22.0	14.92	14.55	21.86	21.41	42
DMC 40164s	27.1	25.5	29.2	27.6	29.8	27.3	27.1	24.9	24.6	22.5	29.3	19.82	19.32	29.03	28.43	42

¹⁾ Drying capacity is based on following moisture content test standards before and after drying:

- R134a: 1050 – 50 ppm W
- R404A, R507: 1020 – 50 ppm W
- R407C: 1020 – 50 ppm W
- R410A: 1050 – 50 ppm W

In accordance with ARI 710-2004

²⁾ Given in accordance with ARI 710-2004 for:

- $t_e = -15\text{ °C} / 5\text{ °F}$
- $t_c = 30\text{ °C} / 85\text{ °F}$
- $\Delta p = 0.07\text{ bar} / 1\text{ psig}$

DMC - Solder (cu-plated)

Ordering

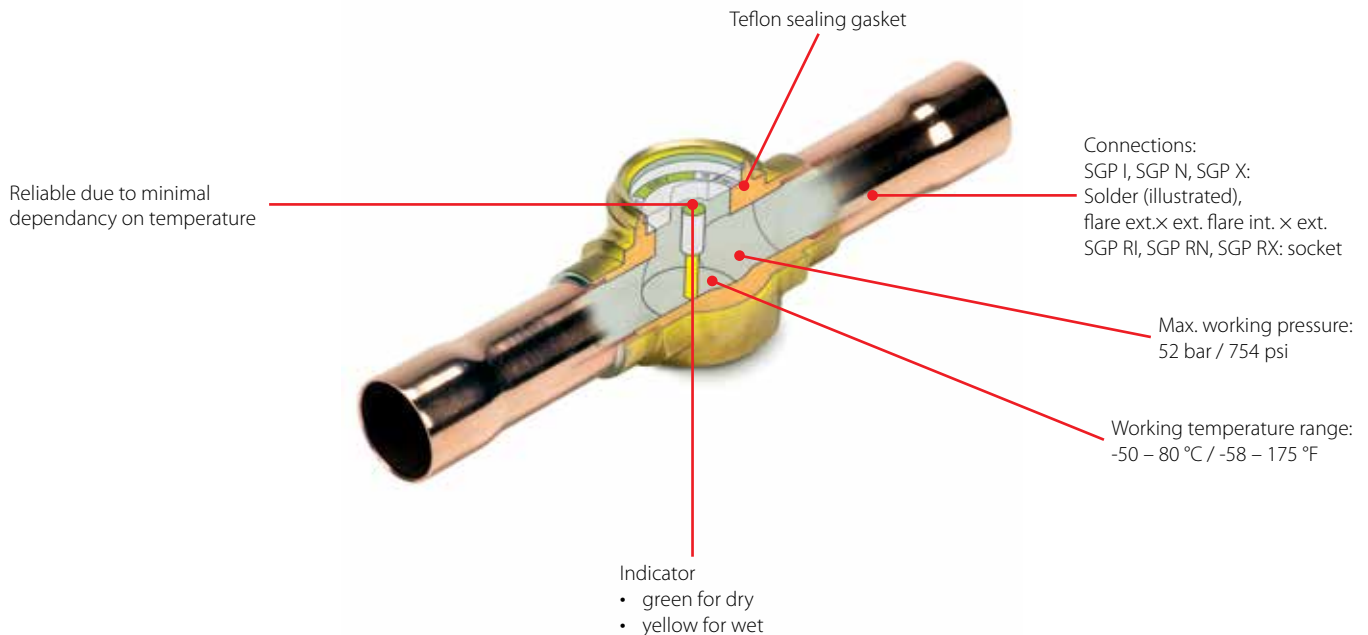


Type	Connection		Code no.
	[mm]	[in]	
DMC 0432s	6	–	023Z7019
DMC 0732s	6	–	023Z7020
DMC 2032s	6	–	023Z7021
	–	1/4	023Z7022
DMC 2033s	10	–	023Z7023
	–	3/16	023Z7024
DMC 2034s	–	1/2	023Z7026
DMC 40163s	10	–	023Z7027
	–	3/8	023Z7028
DMC 40164s	12	–	023Z7029
	–	1/2	023Z7030

SGP, Sight glass (high pressure)

SGP are sight glasses for high pressure applications (Max Working Pressure PS / MWP: 52 bar / 754 psi). SGP is available with flare, solder and socket connections, and with and without moisture indicators. SGP I / SGP N and SGP RI / SGP RN are equipped with sensitive

indicators that reflect a change in colour, depending on the moisture content in the refrigerant. SGP X and SGP RX, without moisture indicator, are mainly used to indicate the condition of the refrigerant in the liquid line or the flow in the oil return line from the oil separator.



Facts

Application:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration
- Solder versions are compliant with ATEX hazard zone 2

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

Type SGP X / SGP RX (without indicator)

- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Indicates liquid level in receiver
- Indicates oil level in compressor

Type SGP I / SGP RI (with I type indicator)

- For R290, R600, R600a, R1234yf refrigerants
- Indicates too high moisture content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency

Type SGP N / SGP RN (with N type indicator)

- For R32, R134a, R404A, R407C, R507, R410A, R1270, R407A, R407F, R448A, R449A, R450A,

R452A, R452B, R454B, R513A, R1234ze, R744(CO₂) refrigerants

- Indicates too high moisture content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Connections:
 - Solder ODF x ODF
 - Solder ODF x ODM
 - Flare ext. x ext.
 - Flare int. x ext.
 - Socket
- Wide range with connection sizes from 6 to 22 mm or 1/4 to 7/8 in.

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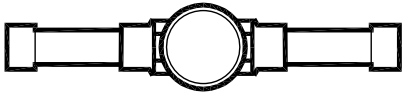
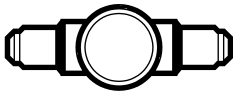




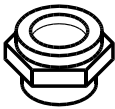


Technical data

Max. working pressure: PS / MWP = 52 bar / 754 psi

Media temperature: -50 – 80 °C / -58 – 175 °F

Approvals: UL, EAC

Available types

		
Solder version ODF x ODF SGP X without indicator	Flare External x External SGP X without indicator	Flare Internal x External SGP I and SGP N with indicator
		
Solder version ODF x ODM SGP I and SGP N with indicator	Solder version ODF x ODF SGP I and SGP N with indicator	Flare External x External SGP I and SGP N with indicator
		
Socket SGP RX without indicator	Socket SGP RI and SGP RN with indicator	Saddle SGS

SGP I for R290, R600, R600a, R1234yf refrigerants

Technical data

Refrigerant	Moisture content ppm = parts per million					
	SGP I / SGP RI					
	Media temperature 25 °C / 77 °F			Media temperature 43 °C / 109 °F		
	Green / dry	Intermed. color	Yellow / wet	Green / dry	Intermed. color	Yellow / wet
R290	< 25	25 – 50	> 50	< 50	50 – 100	> 100
R600	< 10	10 – 20	> 20	< 28	28 – 55	> 55
R600a	< 11	11 – 22	> 22	< 30	30 – 60	> 60
R1234yf	< 93	93 – 130	> 130	< 130	130 – 247	> 247

Technical data and ordering

SGP N for R32, R134a, R404A, R407C, R507, R410A, R1270, R407A, R407F, R448A, R449A, R450A, R452A, R452B, R454B, R513A, R1234ze, R744(CO₂) refrigerants

Technical data

Refrigerant	Moisture content ppm = parts per million					
	SGP N / SGP RN					
	Media temperature 25 °C / 77 °F			Media temperature 43 °C / 109 °F		
	Green / dry	Intermed. color	Yellow / wet	Green / dry	Intermed. color	Yellow / wet
R32	< 64	64 – 289	> 289	< 116	116 – 459	> 459
R134a	< 30	30 – 100	> 100	< 45	45 – 170	> 170
R404A	< 20	20 – 70	> 70	< 25	25 – 100	> 100
R407C	< 30	30 – 140	> 140	< 60	60 – 225	> 225
R507	< 15	15 – 60	> 60	< 30	30 – 110	> 110
R410A	< 66	66 – 266	> 266	< 135	135 – 540	> 540
R1270	< 16	16 – 62	> 62	< 29	29 – 115	> 115
R407A	< 29	29 – 115	> 115	< 48	48 – 192	> 192
R407F	< 30	30 – 168	> 168	< 60	60 – 240	> 240
R448A	< 28	28 – 110	> 110	< 70	70 – 227	> 227
R449A	< 29	29 – 105	> 105	< 53	53 – 200	> 200
R450A	< 23	23 – 148	> 148	< 46	46 – 245	> 245
R452A	< 20	20 – 79	> 79	< 30	30 – 143	> 143
R452B	< 70	70 – 260	< 260	< 144	144 – 260	> 260
R454B	< 29	29 – 161	> 161	< 58	58 – 250	> 250
R513A	< 22	22 – 75	> 75	< 22	22 – 123	> 123
R1234ze	< 26	26 – 132	> 132	< 28	28 – 165	> 165



Note

-This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance to standard EN13463-1.
-For colours reflecting moisture values of other refrigerants, please contact Danfoss.


Technical data and ordering

SGP X without indicator

Ordering - Solder / Flare type

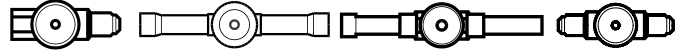


Type	Connection type	Connection [in]	Connection [mm]	Code no.
SGP 10 X	Flare ext. x ext.	$\frac{3}{8} \times \frac{3}{8}$	10 x 10	014L0080
SGP 12s X	Solder ODF x ODF	$\frac{1}{2} \times \frac{1}{2}$	–	014L0086
SGP 16s X	Solder ODF x ODF	$\frac{5}{8} \times \frac{5}{8}$	16 x 16	014L0087
SGP 22s X	Solder ODF x ODF	$\frac{7}{8} \times \frac{7}{8}$	22 x 22	014L1207

 **Note**
Only solder versions are allowed for flammable refrigerants.


SGP I with I type indicator

Ordering



Type	Connection type	Connection [in]	Connection [mm]	Code no.
SGP 6 I	Flare ext. x ext.	$\frac{1}{4} \times \frac{1}{4}$	6 x 6	014L0007
SGP 10 I	Flare ext. x ext.	$\frac{3}{8} \times \frac{3}{8}$	10 x 10	014L0008
SGP 12 I	Flare ext. x ext.	$\frac{1}{2} \times \frac{1}{2}$	12 x 12	014L0009
SGP 16 I	Flare ext. x ext.	$\frac{5}{8} \times \frac{5}{8}$	16 x 16	014L0024
SGP 19 I	Flare ext. x ext.	$\frac{3}{4} \times \frac{3}{4}$	19 x 19	014L0028
SGP 6 I	Flare int. x ext. ¹⁾	$\frac{1}{4} \times \frac{1}{4}$	6 x 6	014L0021
SGP 10 I	Flare int. x ext. ¹⁾	$\frac{3}{8} \times \frac{3}{8}$	10 x 10	014L0022
SGP 12 I	Flare int. x ext. ¹⁾	$\frac{1}{2} \times \frac{1}{2}$	12 x 12	014L0025
SGP 16 I	Flare int. x ext. ¹⁾	$\frac{5}{8} \times \frac{5}{8}$	16 x 16	014L0026
SGP 19 I	Flare int. x ext. ¹⁾	$\frac{3}{4} \times \frac{3}{4}$	19 x 19	014L0043
SGP 6s I	ODF x ODF solder	$\frac{1}{4} \times \frac{1}{4}$	–	014L0034
SGP 10s I	ODF x ODF solder	$\frac{3}{8} \times \frac{3}{8}$	–	014L0035
SGP 12s I	ODF x ODF solder	$\frac{1}{2} \times \frac{1}{2}$	–	014L0036
SGP 16s I	ODF x ODF solder	$\frac{5}{8} \times \frac{5}{8}$	16 x 16	014L0044
SGP 19s I	ODF x ODF solder	$\frac{3}{4} \times \frac{3}{4}$	19 x 19	014L0047
SGP 22s I	ODF x ODF solder	$\frac{7}{8} \times \frac{7}{8}$	22 x 22	014L0039
SGP 6s I	ODF x ODF solder	–	6 x 6	014L0040
SGP 10s I	ODF x ODF solder	–	10 x 10	014L0041
SGP 12s I	ODF x ODF solder	–	12 x 12	014L0042
SGP 18s I	ODF x ODF solder	–	18 x 18	014L0045
SGP 6s I	ODF x ODM solder	$\frac{1}{4} \times \frac{1}{4}$	–	014L0125
SGP 10s I	ODF x ODM solder	$\frac{3}{8} \times \frac{3}{8}$	–	014L0126
SGP 12s I	ODF x ODM solder	$\frac{1}{2} \times \frac{1}{2}$	–	014L0127
SGP 16s I	ODF x ODM solder	$\frac{5}{8} \times \frac{5}{8}$	16 x 16	014L0128
SGP 22s I	ODF x ODM solder	$\frac{7}{8} \times \frac{7}{8}$	22 x 22	014L0130

¹⁾ Can be screwed directly into the filter drier.

 **Note**
Only solder versions are allowed for flammable refrigerants.

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Technical data and ordering

SGP N with N type indicator

Ordering



Type	Version	Connection		Code no.
		[in]	[mm]	
SGP 6 N	Flare ext. x ext.	1/4 x 1/4	6 x 6	014L0161
SGP 10 N	Flare ext. x ext.	3/8 x 3/8	10 x 10	014L0162
SGP 12 N	Flare ext. x ext.	1/2 x 1/2	12 x 12	014L0163
SGP 16 N	Flare ext. x ext.	5/8 x 5/8	16 x 16	014L0165
SGP 19 N	Flare ext. x ext.	3/4 x 3/4	19 x 19	014L0166
SGP 6 N	Flare int. x ext. ¹⁾	1/4 x 1/4	6 x 6	014L0171
SGP 10 N	Flare int. x ext. ¹⁾	3/8 x 3/8	10 x 10	014L0172
SGP 12 N	Flare int. x ext. ¹⁾	1/2 x 1/2	12 x 12	014L0173
SGP 16 N	Flare int. x ext. ¹⁾	5/8 x 5/8	16 x 16	014L0174
SGP 19 N	Flare int. x ext. ¹⁾	3/4 x 3/4	19 x 19	014L0175
SGP 6s N	ODF x ODF solder	1/4 x 1/4	–	014L0181
SGP 10s N	ODF x ODF solder	3/8 x 3/8	–	014L0182
SGP 12s N	ODF x ODF solder	1/2 x 1/2	–	014L0183
SGP 16s N	ODF x ODF solder	5/8 x 5/8	16 x 16	014L0184
SGP 19s N	ODF x ODF solder	3/4 x 3/4	19 x 19	014L0185
SGP 22s N	ODF x ODF solder	7/8 x 7/8	22 x 22	014L0186
SGP 22s N ²⁾	ODF x ODF solder	1 1/8 x 1 1/8	–	014L0187
SGP 6s N	ODF x ODF solder	–	6 x 6	014L0191
SGP 10s N	ODF x ODF solder	–	10 x 10	014L0192
SGP 12s N	ODF x ODF solder	–	12 x 12	014L0193
SGP 18s N	ODF x ODF solder	–	18 x 18	014L0195
SGP 6s N	ODF x ODM solder	1/4 x 1/4	–	014L0201
SGP 10s N	ODF x ODM solder	3/8 x 3/8	–	014L0202
SGP 12s N	ODF x ODM solder	1/2 x 1/2	–	014L0203
SGP 16s N	ODF x ODM solder	5/8 x 5/8	16 x 16	014L0204
SGP 22s N	ODF x ODM solder	7/8 x 7/8	22 x 22	014L0206

¹⁾ Can be screwed directly into the filter drier.

²⁾ Oversize connections.



Note

Only solder versions are allowed for flammable refrigerants.

SGP - socket type and SGS saddle

Ordering



Type	Version	Connection		Floating ball [pc]	O-ring	Code no.
		1	2			
SGP 3/4 RX (no indicator)	G thread	G 3/4 A ¹⁾	–	1	No	014L0004
	NPT	3/4 – 14 NPT ²⁾	–	1	No	014L0005
SGP 1/2 RX (no indicator)	NPT	1/2 – 14 NPT ²⁾	–	3	No	014L0002
SGP 1/2 RI (I type indicator)	NPT	1/2 – 14 NPT ²⁾	–	3	No	014L0131
SGP 24 RI (I type indicator)	M thread	M24 x 1	–	–	Yes	014L1154
SGP 1/2 RN (N type indicator)	NPT	1/2 – 14 NPT ²⁾	–	3	No	014L0006
SGP 24 RN (N type indicator)	M thread	M24 x 1	–	–	Yes	014L1155
SGP 20 RN (N type indicator)	M thread	M20 x 1.5	–	–	No	014L1601
SGS (saddle)	Tube fitting	M20 x 1.5	1 1/8	–	–	014-1071
	Tube fitting	M20 x 1.5	1 3/8	–	–	014-1074
	Tube fitting	M24 x 1	7/8	–	–	014-1059
	Tube fitting	M24 x 1	1 1/8	–	–	014-1056
	Tube fitting	M24 x 1	1 3/8	–	–	014-1057
	Tube fitting	M24 x 1	1 5/8	–	–	014-1058
Tube fitting	M24 x 1	2 1/8	–	–	014-1067	

¹⁾ ISO 228-1.

²⁾ ANSI / ASME B1.20.1



Note

Only solder versions are allowed for flammable refrigerants.

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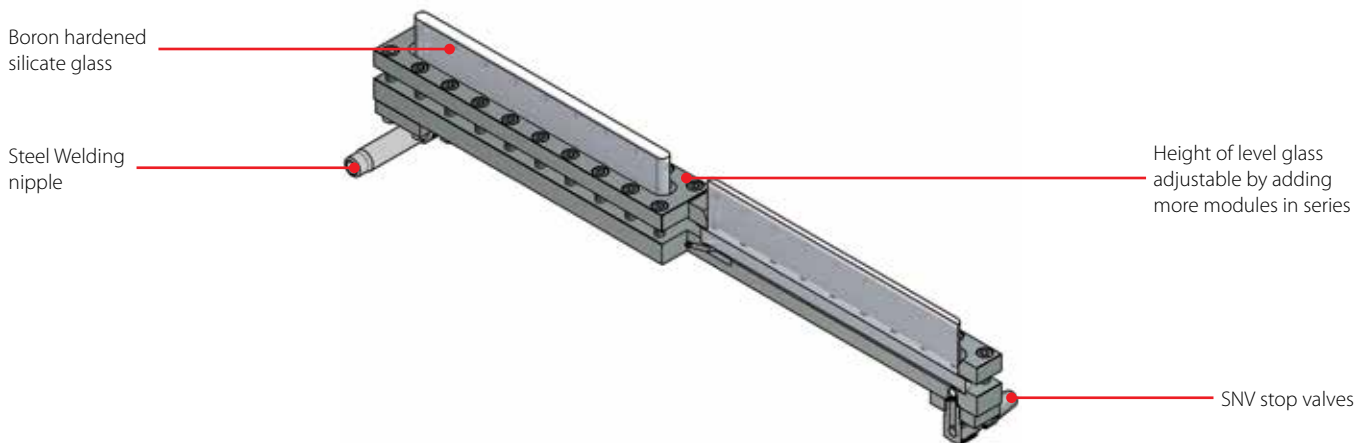
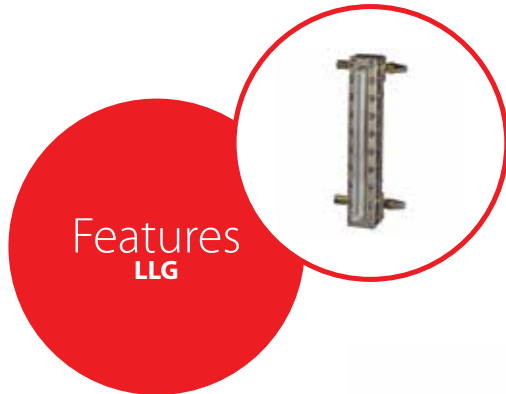
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LLG, Sight glass

LLG columnar sight glasses are made of ductile steel which meets the strictest requirements on industrial and marine refrigeration installations.

LLG has sufficient flow areas to secure the highest possible degree of synchronous operation, and have a specially hardened reflection glass for quick reading. The recessed bolts makes insulation easy while front access to the bolts facilitates inspection and service.



Facts

- All LLG sight glasses are equipped as standard with a built-in safety system (non return device). If a glass is damaged, the pressure of the refrigerant will activate the safety system and refrigerant loss will be limited to an absolute minimum
 - Applicable to R717. Flammable hydrocarbons are not recommended. *For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.*
 - Temperature range -10 – 100 °C / -50 – 30 °F
 - Maximum operating pressure: 25 bar/psi g. Equipped with boron-silicate glass, hardened by an accurately controlled heat treatment process
 - The range of sight glasses is based on 3 basic liquid level glasses: LLG 185, LLG 335 and LLG 740. The other standard lengths are combined by using variations of basic glass lengths. High reliability and durability due to maximum internal and external tightness
 - The sight glasses are offered in 4 different versions:
 - with welding nipples (LLG)
 - with stop valves equipped with caps (LLG S)
 - with sight adapter in acrylic glass ready for insulation on site (LLG F)
 - with stop valves and sight adapter in acrylic glass ready for insulation on site (LLG SF)
- Place LLG sight glass in CE approved applications with the stop valves in front i.e. LLG S or LLG SF

Technical data and ordering

LLG - Sight glass

Technical data

Temperatur range [°C / °F]	LLG S: -10 – 100 / 14 – 212 LLG SF: -50 – 30 / -58 – 86
Max. operating pressure [bar / psi g]	25 / 363
Strength test pressure [bar / psi g]	50 / 725
Leakage test pressure [bar / psi g]	25 / 363

Ordering

LLG with safety system and welding nipples

Type	Size		Code no.
	[in]	[mm]	
LLG 185	7 1/4	185	2512+049
LLG 335	13 1/4	335	2512+050
LLG 590	23 1/4	590	2512+051
LLG 740	29 1/4	740	2512+052
LLG 995	39 1/4	995	2512+053
LLG 1145	45	1145	2512+054
LLG 1550	61	1550	2512+055

LLG S with safety system and stop valves (SNV-ST)

Type	Size		Code no.
	[in]	[mm]	
LLG 185 S	7 1/4	185	2512+056
LLG 335 S	13 1/4	335	2512+057
LLG 590 S	23 1/4	590	2512+058
LLG 740 S	29 1/4	740	2512+059
LLG 995 S	39 1/4	995	2512+060
LLG 1145 S	45	1145	2512+061
LLG 1550 S	61	1550	2512+062

LLG F with safety system and sight adapter

Type	Size		Code no.
	[in]	[mm]	
LLG 185 F	7 1/4	185	2512+078
LLG 335 F	13 1/4	335	2512+079
LLG 590 F	23 1/4	590	2512+080
LLG 740 F	29 1/4	740	2512+081
LLG 995 F	39 1/4	995	2512+082
LLG 1145 F	45	1145	2512+083
LLG 1550 F	61	1550	2512+084

LLG SF with safety system, stop valves (SNV-ST) and sight adapter

Type	Size		Code no.
	[in]	[mm]	
LLG 185 SF	7 1/4	185	2512+066
LLG 335 SF	13 1/4	335	2512+067
LLG 590 SF	23 1/4	590	2512+068
LLG 740 SF	29 1/4	740	2512+069
LLG 995 SF	39 1/4	995	2512+070
LLG 1145 SF	45	1145	2512+071
LLG 1550 SF	61	1550	2512+072

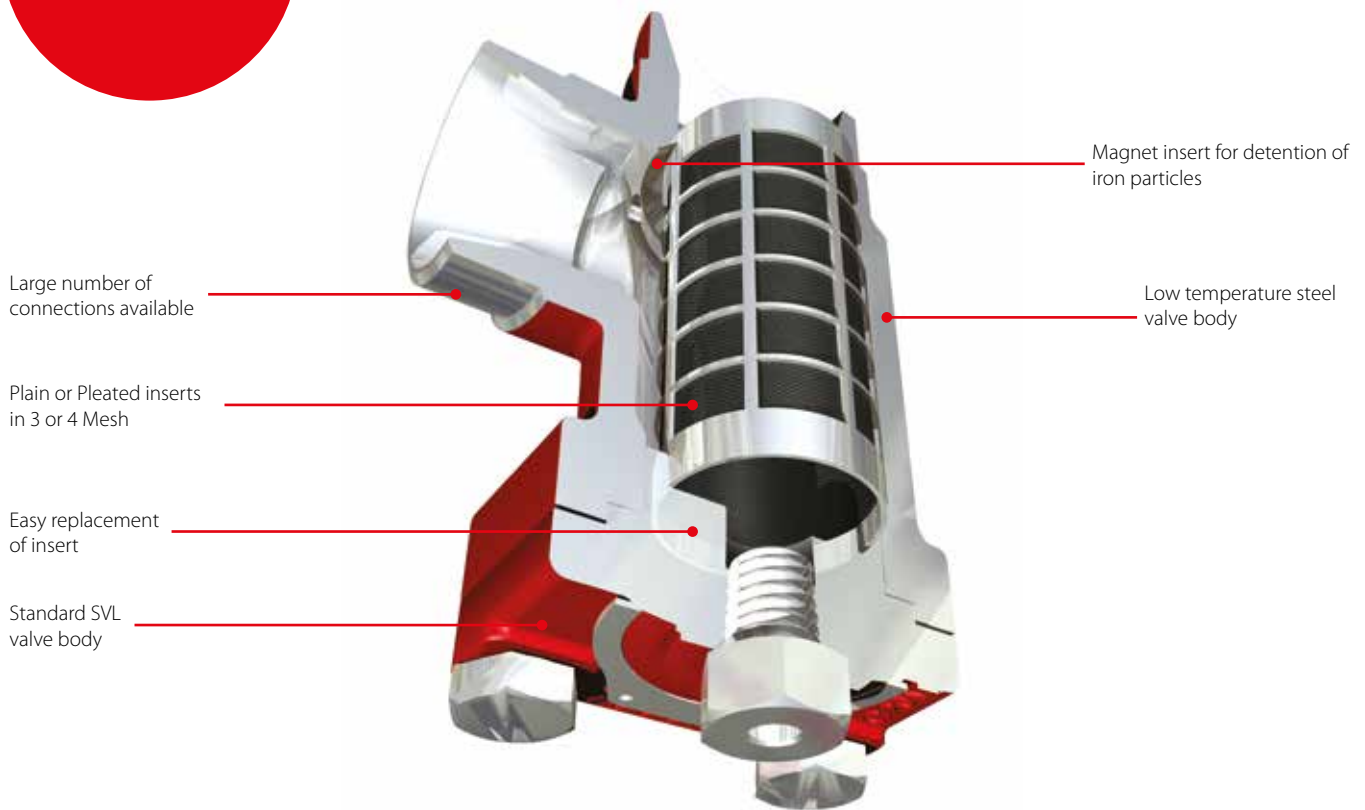
Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

FIA, Strainer - 52 bar / 754 psi

FIA strainers are a range of angleway and straightway strainers, carefully designed to give favourable flow conditions. The design makes the strainer easy to install, and ensures quick filter inspection and cleaning. The strainer is based on three main components – valve body, top cover, and strainer insert – and is available both as complete strainers and as parts programme.

FIA strainers are members of the SVL modular concept product family, so each valve body is available with several different connection types and sizes, and it is possible to convert FIA to any other product in the SVL family by replacing the complete top part. FIA strainers are used ahead of automatic controls, pumps, compressors etc., for initial plant start-up and where permanent filtration of the refrigerant is required. The strainer reduces the risk of system breakdowns and reduces wear and tear on plant components.



Facts

- Valve body is standard SVL angleway or straightway valve body allowing other inserts from the SVL platform to be installed
- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Strainer insert of stainless steel mounted directly without extra gaskets for easy servicing
- Two types of strainer inserts are available:
 - A plain insert of stainless steel
 - A pleated insert (DN 15 – 200) with extra large surface, which ensures low pressure drop and long intervals between cleaning
- **FIA 15 – 40 (1/2 – 1 1/2 in):**
A special insert (50µ) can be used in combination with a standard version when cleaning a plant during commissioning
- **FIA 50 – FIA 200 (2 – 8 in):**
A large capacity filter bag (50µ) can be inserted for cleaning plant during commissioning
- **FIA 80 – FIA 300 (3 – 12 in):**
can be equipped with a magnetic insert for detention of iron particles and other magnetic particles
- Valve body and bonnet of low temperature steel in accordance with the requirements of the Pressure Equipment Directive and those of other international classification authorities
- Temperature range:
-60 – 150 °C / -76 – 302 °F
- Max. working pressure:
FIA 15-200: 52 bar g / 754 psi g
FIA 250-300: 40 bar g / 580 psi g

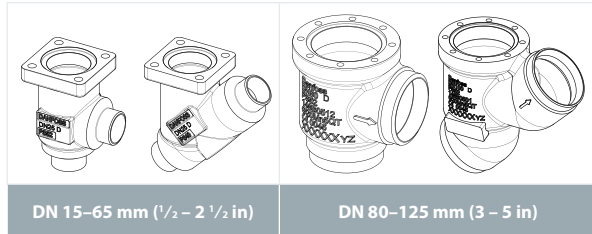
Technical data

The Concept

Each valve housing is available with several different connection types and sizes.

It is possible to convert FIA strainers to any other product in the SVL family (shut-off valve, hand regulating valve, check & stop valve or check valve) just by replacing the complete top part.

The valve body



Connection type

D / F	GOST	A	SOC	FPT
Butt-weld DIN Butt-weld F	Butt-weld GOST	Butt-weld ANSI	Socket weld ANSI	Female Pipe Thread

Selection of strainer size

The mesh aperture size of the strainer must satisfy the requirements stated by the suppliers of the equipment to be protected. The following recommendations of aperture size apply in general to refrigeration installations:

All lines

First start up: _____ 50 μ

(Use strainer insert with removable insert for FIA DN15 – 40 or separate filter bag for FIA DN 50 – 200. 50μ insert should normally be removed after the first 24 hours of operation).

Liquid Lines

Ahead of pumps: _____ 500 μ [38 mesh]

After pumps: _____ 150 μ [100 mesh] / 250 μ [72 mesh]

In front of AKVA valves: _____ 100 μ [150 mesh]

Protection of automatic regulation equipment

Generally: _____ 150 μ [100 mesh] / 250 μ [72 mesh]

Sensitive equipment, e.g. suction regulators with low temperature: _____ 250 μ [72 mesh]

Suction Lines

Ahead of screw compressor: _____ 250 μ [72 mesh]

Ahead of piston compressor: _____ 150 μ [100 mesh]

Flow coefficient

(DIN / ANSI)

Connection size (DN) FIA	[μ]	[mesh]	wire [mm]	wire [in]	free space [%]	screen area			
						Plain inserts		Pleated inserts	
						[cm ²]	[in ²]	[cm ²]	[in ²]
15 – 20 (1/2 – 3/4 in)	100	–	0.068	0.003	35	25	3.9	45	7.0
	150	100	0.10	0.004	36	25	3.9	45	7.0
	250	72	0.10	0.004	51	25	3.9	45	7.0
	500	38	0.16	0.006	57.6	25	3.9	45	7.0
25 – 40 (1 – 1 1/2 in)	100	–	0.068	0.003	35	71	11	160	25.0
	150	100	0.10	0.004	36	71	11	160	25.0
	250	72	0.10	0.004	51	71	11	160	25.0
	500	38	0.16	0.006	57.6	71	11	160	25.0
50 (2 in)	100	–	0.068	0.003	35	71	11	200	31.2
	150	100	0.10	0.004	36	87	13.5	200	31.2
	250	72	0.10	0.004	51	87	13.5	200	31.2
	500	38	0.16	0.006	57.6	87	13.5	200	31.2
65 (2 1/2 in)	150	100	0.10	0.004	36	127	19.7	305	47.6
	250	72	0.10	0.004	51	127	19.7	305	47.6
	500	38	0.16	0.006	57.6	127	19.7	305	47.6
	150	100	0.10	0.004	36	205	31.8	450	70.2
80 (3 in)	250	72	0.10	0.004	51	205	31.8	450	70.2
	500	38	0.16	0.006	57.6	205	31.8	450	70.2
	150	100	0.10	0.004	36	370	57.4	790	123.2
	250	72	0.10	0.004	51	370	57.4	790	123.2
100 (4 in)	500	38	0.16	0.006	57.6	370	57.4	790	123.2
	150	100	0.10	0.004	36	510	79.1	1105	172.4
	250	72	0.10	0.004	51	510	79.1	1105	172.4
	500	38	0.16	0.006	57.6	510	79.1	1105	172.4
125 (5 in)	150	100	0.10	0.004	36	726	112.5	1600	249.6
	250	72	0.10	0.004	51	726	112.5	1600	249.6
	500	38	0.16	0.006	57.6	726	112.5	1600	249.6
	150	100	0.10	0.004	36	1315	203.8	2900	453.1
150 (6 in)	250	72	0.10	0.004	51	1315	203.8	2900	453.1
	500	38	0.16	0.006	57.6	1315	203.8	2900	453.1
	150	100	0.10	0.004	36	1800	70.9	–	–
	250	72	0.10	0.004	51	1800	70.9	–	–
200 (8 in)	500	38	0.16	0.006	57.6	2590	102.0	–	–
	150	100	0.10	0.004	36	–	–	–	–
	250	72	0.10	0.004	51	–	–	–	–
	500	38	0.16	0.006	57.6	–	–	–	–
250 (10 in)	150	100	0.10	0.004	36	–	–	–	–
300 (12 in)	150	100	0.10	0.004	36	–	–	–	–

Mesh is the number of threads per inch. μ (microns) is the distance between two threads (1 μ = 1/1000 mm).

Technical data

Selection of strainer size

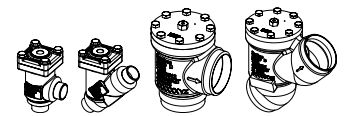
K_v values

DN	FIA angle – plain strainer insert				FIA angle – pleated strainer insert		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	3.3	3.4	3.5	3.7	4.2	–	–
20	6.9	7.1	7.3	7.7	8.8	–	–
25	13.8	14.0	14.5	15.2	17.2	17.9	–
32	23.0	23.8	24.7	25.5	29.2	30.5	–
40	25.1	25.5	26.4	28.1	31.4	32.6	–
50	45.1	45.9	47.6	50.2	56.7	58.8	62.0
65	–	56.1	57.8	60.4	69.3	71.4	74.6
80	–	104.6	108.0	113.1	129.2	133.4	139.7
100	–	162.4	167.5	176.0	200.6	206.9	217.4
125	–	275.4	283.9	298.4	340.2	350.7	368.6
150	–	362.1	373.2	391.9	447.3	462.9	–
200	–	572.9	590.8	620.5	–	–	–
250	–	784.5	808.9	–	–	–	–
300	–	1062.3	1095.4	–	–	–	–

DN	FIA straight – plain strainer insert				FIA straight – pleated strainer insert		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	2.5	2.6	2.7	2.8	3.3	–	–
20	5.3	5.4	5.6	5.9	6.9	–	–
25	10.5	10.7	11.1	11.6	13.8	14.5	–
32	17.6	18.2	18.9	19.5	23.9	24.7	–
40	19.2	19.5	20.2	21.5	25.5	26.4	–
50	34.5	35.1	36.4	38.4	45.9	47.6	50.2
65	–	42.9	44.2	46.2	56.1	57.8	60.4
80	–	80.0	82.6	86.5	104.6	108.0	113.1
100	–	124.2	128.1	134.6	162.4	167.5	176.0
125	–	210.6	217.1	228.2	275.4	283.9	298.4
150	–	276.9	285.4	299.7	362.1	374.0	–
200	–	438.1	451.8	474.5	–	–	–

FIA - Strainer - 52 bar / 754 psi

Ordering FIA strainer without strainer insert

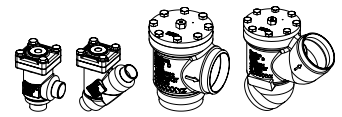


Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 15 angleway	1/2	15	Butt weld, EN 10220	D	148B5242
	1/2	15	Butt weld, ANSI (B 36.10)	A	148B5244
	1/2	15	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5246
	1/2	15	Socket weld, ANSI (B 16.11)	SOC	148B5245
FIA 15 straightway	1/2	15	Butt weld, EN 10220	D	148B5243
	1/2	15	Butt weld, ANSI (B 36.10)	A	148B5247
	1/2	15	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5249
	1/2	15	Socket weld, ANSI (B 16.11)	SOC	148B5248
FIA 20 angleway	3/4	20	Butt weld, EN 10220	D	148B5342
	3/4	20	Butt weld, ANSI (B 36.10)	A	148B5344
	3/4	20	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5346
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	148B5345
FIA 20 straightway	3/4	20	Butt weld, EN 10220	D	148B5343
	3/4	20	Butt weld, ANSI (B 36.10)	A	148B5347
	3/4	20	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5349
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	148B5348
FIA 25 angleway	1	25	Butt weld, EN 10220	D	148B5442
	1	25	Butt weld, ANSI (B 36.10)	A	148B5444
	1	25	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5446
	1	25	Socket weld, ANSI (B 16.11)	SOC	148B5445
FIA 25 straightway	1	25	Butt weld, EN 10220	D	148B5443
	1	25	Butt weld, ANSI (B 36.10)	A	148B5447
	1	25	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5449
	1	25	Socket weld, ANSI (B 16.11)	SOC	148B5448
FIA 32 angleway	1 1/4	32	Butt weld, EN 10220	D	148B5543
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	148B5545
	1 1/4	32	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5547
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	148B5546

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FIA - Strainer - 52 bar / 754 psi (count.)

Ordering FIA strainer without strainer insert



Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 32 straightway	1 1/4	32	Butt weld, EN 10220	D	148B5544
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	148B5552
	1 1/4	32	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5549
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	148B5548
FIA 40 angleway	1 1/2	40	Butt weld, EN 10220	D	148B5624
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	148B5642
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	148B5643
FIA 40 straightway	1 1/2	40	Butt weld, EN 10220	D	148B5625
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	148B5644
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	148B5645
FIA 50 angleway	2	50	Butt weld, EN 10220	D	148B5712
	2	50	Butt weld, ANSI (B 36.10)	A	148B5714
	2	50	Socket weld, ANSI (B 16.11)	SOC	148B5715
FIA 50 straightway	2	50	Butt weld, EN 10220	D	148B5713
	2	50	Butt weld, ANSI (B 36.10)	A	148B5716
	2	50	Socket weld, ANSI (B 16.11)	SOC	148B5717
FIA 65 angleway	2 1/2	65	Butt weld, EN 10220	D	148B5812
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B5814
FIA 65 straightway	2 1/2	65	Butt weld, EN 10220	D	148B5813
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B5815
FIA 80 angleway	3	80	Butt weld, EN 10220	D	148B5905
	3	80	Butt weld, ANSI (B 36.10)	A	148B5907
FIA 80 straightway	3	80	Butt weld, EN 10220	D	148B5906
	3	80	Butt weld, ANSI (B 36.10)	A	148B5908
FIA 100 angleway	4	100	Butt weld, EN 10220	D	148B6006
	4	100	Butt weld, ANSI (B 36.10)	A	148B6008
FIA 100 straightway	4	100	Butt weld, EN 10220	D	148B6007
	4	100	Butt weld, ANSI (B 36.10)	A	148B6009
	4	100	Butt weld, EN 10220	D	148B6105
FIA 125 angleway	5	125	Butt weld, EN 10220	D	148B6107
	5	125	Butt weld, ANSI (B 36.10)	A	148B6106
FIA 125 straightway	5	125	Butt weld, EN 10220	D	148B6106
	5	125	Butt weld, ANSI (B 36.10)	A	148B6108
	6	150	Butt weld, EN 10220	D	148B6202
FIA 150 angleway	6	150	Butt weld, ANSI (B 36.10)	A	148B6204
	6	150	Butt weld, F	F	148B6442
	6	150	Butt weld, GOST	G	148B6206
FIA 150 straightway	6	150	Butt weld, EN 10220	D	148B6203
	6	150	Butt weld, ANSI (B 36.10)	A	148B6205
	6	150	Butt weld, F	F	148B6444
	6	150	Butt weld, GOST	G	148B6207
FIA 200 angleway	8	200	Butt weld, EN 10220	D	148B6302
	8	200	Butt weld, ANSI (B 36.10)	A	148B6304
	8	200	Butt weld, F	F	148B6443
FIA 200 straightway	8	200	Butt weld, EN 10220	D	148B6303
	8	200	Butt weld, ANSI (B 36.10)	A	148B6305
	8	200	Butt weld, F	F	148B6445
FIA 250 angleway	10	250	Butt weld, EN 10220	D	148H3171
	10	250	Butt weld, ANSI (B 36.10)	A	148H3173
FIA 300 angleway	12	300	Butt weld, EN 10220	D	148H3172
	12	300	Butt weld, ANSI (B 36.10)	A	148H3174

Technical data and ordering



FIA - Strainer - 52 bar / 754 psi

Ordering - plain strainer insert

For strainer	[μ]	[mesh]	Code no.
FIA 15 – 20	100	150	148H3122
	150	100	148H3124
	250	72	148H3126
FIA 25 – 40	500	38	148H3128
	100	150	148H3123
	150	100	148H3125
FIA 50	250	72	148H3127
	500	38	148H3129
	100	150	148H3157
FIA 65	150	100	148H3130
	250	72	148H3138
	500	38	148H3144
FIA 80	150	100	148H3131
	250	72	148H3139
	500	38	148H3145
FIA 100	150	100	148H3119
	250	72	148H3120
	500	38	148H3121
FIA 125	150	100	148H3132
	250	72	148H3140
	500	38	148H3146
FIA 150	150	100	148H3133
	250	72	148H3141
	500	38	148H3147
FIA 200	150	100	148H3134
	250	72	148H3142
	500	38	148H3148
FIA 250	150	100	148H3135
	250	72	148H3143
	500	38	148H3149
FIA 300	150	100	148H3136
	250	72	148H3175
	500	38	148H3137
	250	72	148H3176

Ordering - pleated strainer insert

For strainer	[μ]	[mesh]	Code no.
FIA 15 – 20	150	100	148H3303
	250	72	148H3363
FIA 25 – 40	150	100	148H3304
	250	72	148H3269
FIA 50	150	100	148H3179
	250	72	148H3184
	500	38	148H3189
FIA 65	150	100	148H3180
	250	72	148H3185
	500	38	148H3190
FIA 80	150	100	148H3181
	250	72	148H3186
	500	38	148H3191
FIA 100	150	100	148H3182
	250	72	148H3187
	500	38	148H3192
FIA 125	150	100	148H3183
	250	72	148H3188
	500	38	148H3193
FIA 150	150	100	148H3226
	250	72	148H3293 *)
	500	38	148H3226
FIA 200	150	100	148H3297
	250	72	148H3294 *)

*) mesh 60

Technical data and ordering

Accessories

Part	Accessory for	Code no.
Magnet insert	FIA 80 – 100	148H3447
	FIA 125 – 300	148H3448
Strainer insert μ 150 with removable insert μ 50 for the first start up	FIA 15 – 20	148H3301
	FIA 25 – 40	148H3302
Filter bag	FIA 50	148H3150
	FIA 65	148H3151
	FIA 80	148H3152
	FIA 100	148H3153
	FIA 125	148H3154
	FIA 150	148H3155
Purge valve complete	FIA 200	148H3156
Blind nut with gasket	FIA 50 – 300	148B3745
	FIA 50 – 300	148H3450

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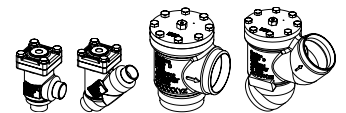
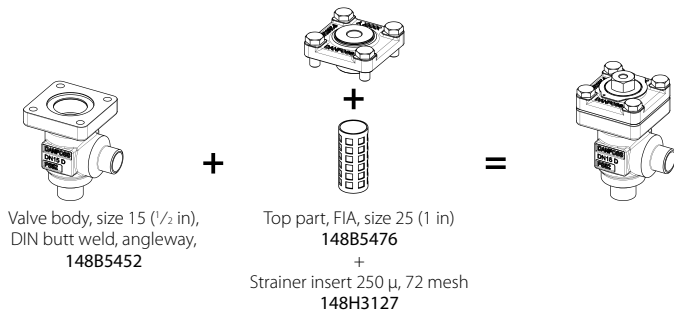
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Technical data and ordering

Ordering from the parts programme (valve body + top part + strainer insert)

(For strainer insert code numbers; please see the section "ordering plain strainer inserts" or "ordering pleated strainer inserts")

Example



FIA 15 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 15 angleway	1/2	15	Butt weld, EN 10220	D	148B5252
	1/2	15	Butt weld, ANSI (B 36.10)	A	148B5254
	1/2	15	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5258
	1/2	15	Socket weld, ANSI (B 16.11)	SOC	148B5256
	1/2	15	Butt weld, F	F	148B6414
	1/2	15	Butt weld, GOST	G	148B5391
FIA 15 straightway	1/2	15	Butt weld, EN 10220	D	148B5253
	1/2	15	Butt weld, ANSI (B 36.10)	A	148B5255
	1/2	15	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5259
	1/2	15	Socket weld, ANSI (B 16.11)	SOC	148B5257
	1/2	15	Butt weld, F	F	148B6424
	1/2	15	Butt weld, GOST	G	148B5392

FIA 15 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 15	148B5284

FIA 20 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 20 angleway	3/4	20	Butt weld, EN 10220	D	148B5352
	3/4	20	Butt weld, ANSI (B 36.10)	A	148B5354
	3/4	20	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5358
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	148B5356
	3/4	20	Butt weld, F	F	148B6415
	3/4	20	Butt weld, GOST	G	148B5393
FIA 20 straightway	3/4	20	Butt weld, EN 10220	D	148B5353
	3/4	20	Butt weld, ANSI (B 36.10)	A	148B5355
	3/4	20	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5359
	3/4	20	Socket weld, ANSI (B 16.11)	SOC	148B5357
	3/4	20	Butt weld, F	F	148B6425
	3/4	20	Butt weld, GOST	G	148B5394

FIA 20 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 20	148B5284

FIA 25 - Valve body - 52 bar / 754 psi

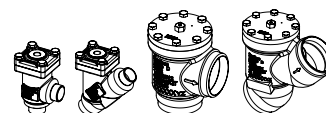
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 25 angleway	1	25	Butt weld, EN 10220	D	148B5452
	1	25	Butt weld, ANSI (B 36.10)	A	148B5454
	1	25	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5458
	1	25	Socket weld, ANSI (B 16.11)	SOC	148B5456
	1	25	Butt weld, F	F	148B6416
	1	25	Butt weld, GOST	G	148B6498
FIA 25 straightway	1	25	Butt weld, EN 10220	D	148B5453
	1	25	Butt weld, ANSI (B 36.10)	A	148B5455
	1	25	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5459
	1	25	Socket weld, ANSI (B 16.11)	SOC	148B5457
	1	25	Butt weld, F	F	148B6426
	1	25	Butt weld, GOST	G	148B6499

FIA 25 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 25	148B5484

¹⁾ Including gaskets and bolts.

Technical data and ordering



FIA 32 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 32 angleway	1 1/4	32	Butt weld, EN 10220	D	148B5576
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	148B5578
	1 1/4	32	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5582
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	148B5580
	1 1/4	32	Butt weld, F	F	148B6417
FIA 32 straightway	1 1/4	32	Butt weld, GOST	G	148B5593
	1 1/4	32	Butt weld, EN 10220	D	148B5577
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	148B5579
	1 1/4	32	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5583
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	148B5581
	1 1/4	32	Butt weld, F	F	148B6427
	1 1/4	32	Butt weld, GOST	G	148B5594

FIA 32 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 32	148B5484

FIA 40 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code number
	[in]	[mm]			
FIA 40 angleway	1 1/2	40	Butt weld, EN 10220	D	148B5652
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	148B5654
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 1/2	40	Butt weld, F	F	148B6418
	1 1/2	40	Butt weld, GOST	G	148B5681
FIA 40 straightway	1 1/2	40	Butt weld, EN 10220	D	148B5653
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	148B5655
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 1/2	40	Butt weld, F	F	148B6428
	1 1/2	40	Butt weld, GOST	G	148B5682

FIA 40 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 40	148B5484

FIA 50 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 50 angleway	2	50	Butt weld, EN 10220	D	148B5741
	2	50	Butt weld, ANSI (B 36.10)	A	148B5743
	2	50	Socket weld, ANSI (B 16.11)	SOC	148B5745
	2	50	Butt weld, F	F	148B6419
	2	50	Butt weld, GOST	G	148B5759
FIA 50 straightway	2	50	Butt weld, EN 10220	D	148B5742
	2	50	Butt weld, ANSI (B 36.10)	A	148B5744
	2	50	Socket weld, ANSI (B 16.11)	SOC	148B5746
	2	50	Butt weld, F	F	148B6429
	2	50	Butt weld, GOST	G	148B5760

FIA 50 - top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 50	148B5748

FIA 65 - Valve body - 52 bar / 754 psi

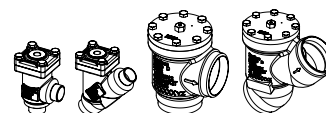
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 65 angleway	2 1/2	65	Butt weld, EN 10220	D	148B5816
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B5818
	2 1/2	65	Butt weld, F	F	148B6420
	2 1/2	65	Butt weld, GOST	G	148B5816
	2 1/2	65	Butt weld, EN 10220	D	148B5817
FIA 65 straightway	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B5819
	2 1/2	65	Butt weld, F	F	148B6430
	2 1/2	65	Butt weld, GOST	G	148B5817

FIA 65 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 65	148B5832

¹⁾Including gaskets and bolts.

Technical data and ordering



FIA 80 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 80 angleway	3	80	Butt weld, EN 10220	D	148B5912
	3	80	Butt weld, ANSI (B 36.10)	A	148B5914
	3	80	Butt weld, F	F	148B6421
	3	80	Butt weld, GOST	G	148B5912
FIA 80 straightway	3	80	Butt weld, EN 10220	D	148B5913
	3	80	Butt weld, ANSI (B 36.10)	A	148B5915
	3	80	Butt weld, F	F	148B6431
	3	80	Butt weld, GOST	G	148B5913

FIA 80 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 80	148B5922

FIA 100 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 100 angleway	4	100	Butt weld, EN 10220	D	148B6014
	4	100	Butt weld, ANSI (B 36.10)	A	148B6016
	4	100	Butt weld, F	F	148B6422
	4	100	Butt weld, GOST	G	148B6033
FIA 100 straightway	4	100	Butt weld, EN 10220	D	148B6015
	4	100	Butt weld, ANSI (B 36.10)	A	148B6017
	4	100	Butt weld, F	F	148B6432
	4	100	Butt weld, GOST	G	148B6034

FIA 100 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 100	148B6024

FIA 125 - Valve body - 52 bar / 754 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 125 angleway	5	125	Butt weld, EN 10220	D	148B6112
	5	125	Butt weld, ANSI (B 36.10)	A	148B6114
	5	125	Butt weld, F	F	148B6423
	5	125	Butt weld, GOST	G	148B6133
FIA 125 straightway	5	125	Butt weld, EN 10220	D	148B6113
	5	125	Butt weld, ANSI (B 36.10)	A	148B6115
	5	125	Butt weld, F	F	148B6433
	5	125	Butt weld, GOST	G	148B6134

FIA 125 - Top part - 52 bar / 754 psi ¹⁾

Type	Code no.
FIA 125	148B6122

¹⁾Including gaskets and bolts.

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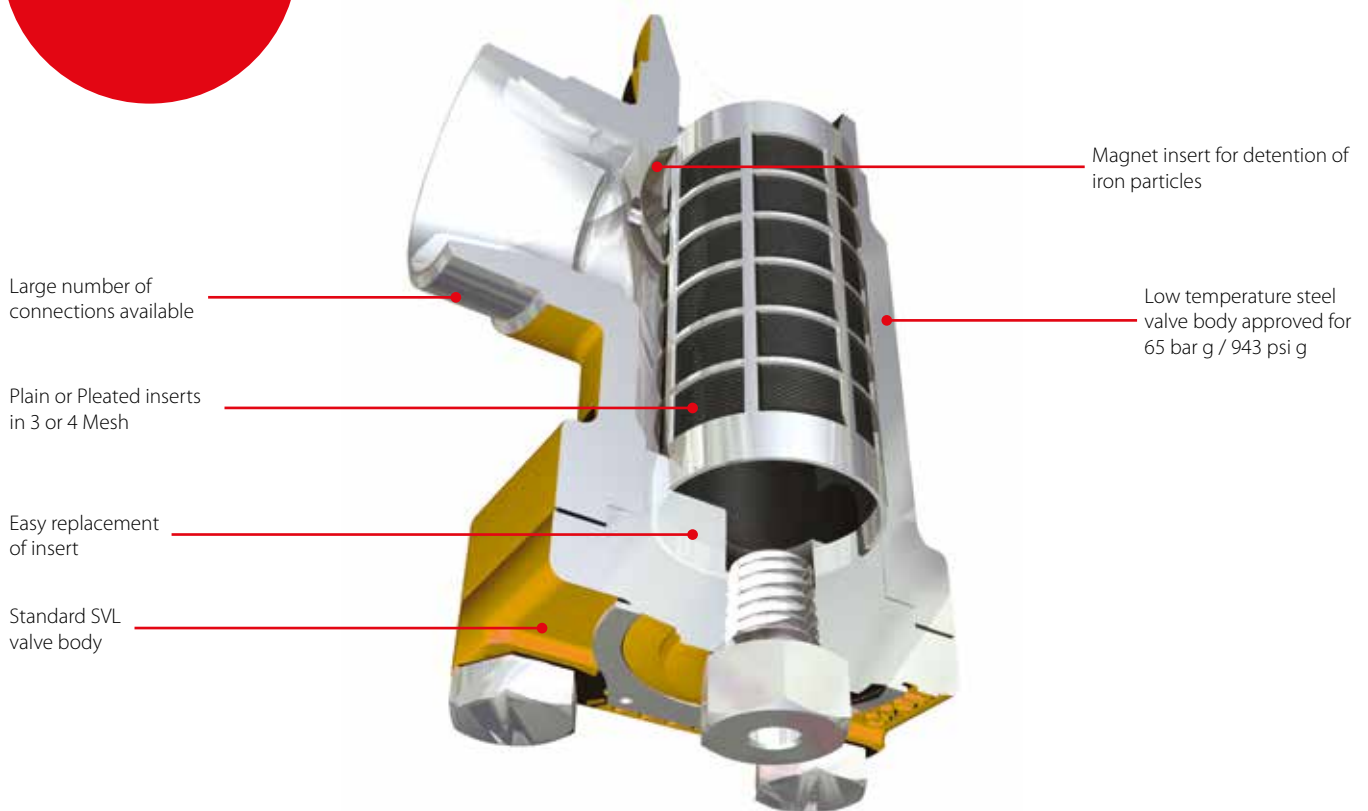
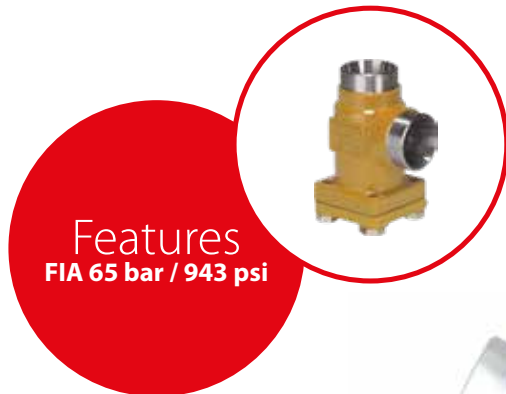
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FIA, Strainer - 65 bar / 943 psi

FIA strainers are a range of angleway and straightway strainers, carefully designed to give favourable flow conditions. The design makes the strainer easy to install, and ensures quick filter inspection and cleaning. The strainer is based on three main components – valve body, top cover, and strainer insert – and is available both as complete strainers and as parts programme.

FIA strainers are members of the SVL modular concept product family, so each valve body is available with several different connection types and sizes, and it is possible to convert FIA to any other product in the SVL family by replacing the complete top part. FIA strainers are used ahead of automatic controls, pumps, compressors etc., for initial plant start-up and where permanent filtration of the refrigerant is required. The strainer reduces the risk of system breakdowns and reduces wear and tear on plant components.



Facts

- Valve body is standard SVL angleway or straightway valve body allowing other inserts from the SVL platform to be installed
- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Strainer insert of stainless steel mounted directly without extra gaskets for easy servicing
- Two types of strainer inserts are available:
 - A plain insert of stainless steel
 - A pleated insert (DN 15 – 200) with extra large surface, which ensures low pressure drop and long intervals between cleaning
- **FIA 15 – 40 (1/2 – 1 1/2 in):**
A special insert (50µ) can be used in combination with a standard version when cleaning a plant during commissioning
- **FIA 50 – FIA 200 (2 – 8 in):**
A large capacity filter bag (50µ) can be inserted for cleaning plant during commissioning
- **FIA 80 – FIA 200 (3 – 8 in):**
can be equipped with a magnetic insert for detention of iron particles and other magnetic particles
- Valve body and bonnet of low temperature steel in accordance with the requirements of the Pressure Equipment Directive and those of other international classification authorities
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Max. working pressure: 65 bar g / 943 psi g
- Equipped with 42CrMo5 bolts to withstand high pressure

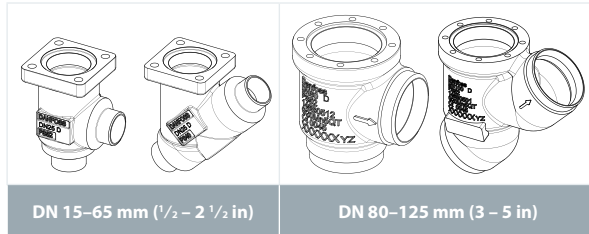
Technical data

The Concept

Each valve housing is available with several different connection types and sizes.

It is possible to convert FIA strainers to any other product in the SVL family (shut-off valve, hand regulating valve, check & stop valve or check valve) just by replacing the complete top part.

The valve body



Connection type

D / F	GOST	A	SOC	FPT
Butt-weld DIN Butt-weld F	Butt-weld GOST	Butt-weld ANSI	Socket weld ANSI	Female Pipe Thread

Selection of strainer size

The mesh aperture size of the strainer must satisfy the requirements stated by the suppliers of the equipment to be protected. The following recommendations of aperture size apply in general to refrigeration installations:

All lines

First start up: _____ 50 μ

(Use strainer insert with removable insert for FIA DN15 – 40 or separate filter bag for FIA DN 50 – 200. 50μ insert should normally be removed after the first 24 hours of operation).

Liquid Lines

Ahead of pumps: _____ 500 μ [38 mesh]
 After pumps: _____ 150 μ [100 mesh] / 250 μ [72 mesh]
 In front of AKVA valves: _____ 100 μ [150 mesh]

Protection of automatic regulation equipment

Generally: _____ 150 μ [100 mesh] / 250 μ [72 mesh]
 Sensitive equipment, e.g. suction regulators with low temperature: _____ 250 μ [72 mesh]

Suction Lines

Ahead of screw compressor: _____ 250 μ [72 mesh]
 Ahead of piston compressor: _____ 150 μ [100 mesh]

Flow coefficient

(DIN / ANSI)

Connection size (DN) FIA	[μ]	[mesh]	wire [mm]	wire [in]	free space [%]	screen area			
						Plain inserts		Pleated inserts	
						[cm ²]	[in ²]	[cm ²]	[in ²]
15 – 20 (1/2 – 3/4 in)	100	–	0.068	0.003	35	25	3.9	45	7.0
	150	100	0.10	0.004	36	25	3.9	45	7.0
	250	72	0.10	0.004	51	25	3.9	45	7.0
	500	38	0.16	0.006	57.6	25	3.9	45	7.0
25 – 40 (1 – 1 1/2 in)	100	–	0.068	0.003	35	71	11	160	25.0
	150	100	0.10	0.004	36	71	11	160	25.0
	250	72	0.10	0.004	51	71	11	160	25.0
	500	38	0.16	0.006	57.6	71	11	160	25.0
50 (2 in)	100	–	0.068	0.003	35	71	11	200	31.2
	150	100	0.10	0.004	36	87	13.5	200	31.2
	250	72	0.10	0.004	51	87	13.5	200	31.2
	500	38	0.16	0.006	57.6	87	13.5	200	31.2
65 (2 1/2 in)	150	100	0.10	0.004	36	127	19.7	305	47.6
	250	72	0.10	0.004	51	127	19.7	305	47.6
	500	38	0.16	0.006	57.6	127	19.7	305	47.6
	150	100	0.10	0.004	36	205	31.8	450	70.2
80 (3 in)	250	72	0.10	0.004	51	205	31.8	450	70.2
	500	38	0.16	0.006	57.6	205	31.8	450	70.2
	150	100	0.10	0.004	36	370	57.4	790	123.2
	250	72	0.10	0.004	51	370	57.4	790	123.2
100 (4 in)	500	38	0.16	0.006	57.6	370	57.4	790	123.2
	150	100	0.10	0.004	36	510	79.1	1105	172.4
	250	72	0.10	0.004	51	510	79.1	1105	172.4
	500	38	0.16	0.006	57.6	510	79.1	1105	172.4

Mesh is the number of threads per inch. μ (microns) is the distance between two threads (1 μ = 1/1000 mm).

Technical data

Selection of strainer size

K_v values

DN	FIA angle – plain strainer insert				FIA angle – pleated strainer insert		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	3.3	3.4	3.5	3.7	4.2	–	–
20	6.9	7.1	7.3	7.7	8.8	–	–
25	13.8	14.0	14.5	15.2	17.2	17.9	–
32	23.0	23.8	24.7	25.5	29.2	30.5	–
40	25.1	25.5	26.4	28.1	31.4	32.6	–
50	45.1	45.9	47.6	50.2	56.7	58.8	62.0
65	–	56.1	57.8	60.4	69.3	71.4	74.6
80	–	104.6	108.0	113.1	129.2	133.4	139.7
100	–	162.4	167.5	176.0	200.6	206.9	217.4
125	–	275.4	283.9	298.4	340.2	350.7	368.6

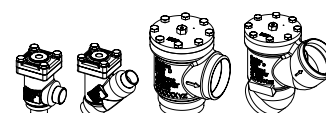
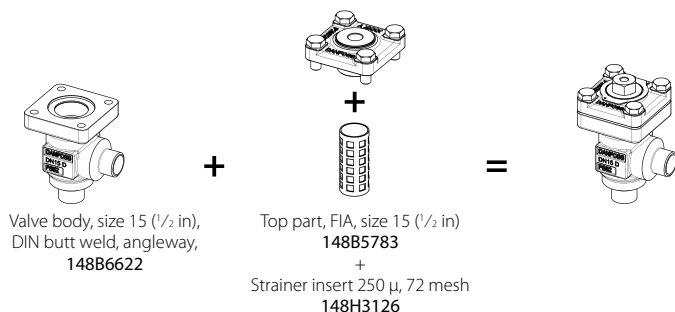
DN	FIA straight – plain strainer insert				FIA straight – pleated strainer insert		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	2.5	2.6	2.7	2.8	3.3	–	–
20	5.3	5.4	5.6	5.9	6.9	–	–
25	10.5	10.7	11.1	11.6	13.8	14.5	–
32	17.6	18.2	18.9	19.5	23.9	24.7	–
40	19.2	19.5	20.2	21.5	25.5	26.4	–
50	34.5	35.1	36.4	38.4	45.9	47.6	50.2
65	–	42.9	44.2	46.2	56.1	57.8	60.4
80	–	80.0	82.6	86.5	104.6	108.0	113.1
100	–	124.2	128.1	134.6	162.4	167.5	176.0
125	–	210.6	217.1	228.2	275.4	283.9	298.4

Technical data and ordering

Ordering from the parts programme (valve body + top part + strainer insert)

(For strainer insert code numbers; please see the section "ordering plain strainer inserts" or "ordering pleated strainer inserts")

Example



FIA 15 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 15 angleway	1/2	15	Butt weld, EN 10220	D	148B6622
	1/2	15	Butt weld, ANSI (B 36.10)	A	148B6612
FIA 15 straightway	1/2	15	Butt weld, EN 10220	D	148B6642
	1/2	15	Butt weld, ANSI (B 36.10)	A	148B6632

FIA 15 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 15	148B5783

FIA 20 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 20 angleway	3/4	20	Butt weld, EN 10220	D	148B6623
	3/4	20	Butt weld, ANSI (B 36.10)	A	148B6613
FIA 20 straightway	3/4	20	Butt weld, EN 10220	D	148B6643
	3/4	20	Butt weld, ANSI (B 36.10)	A	148B6633

FIA 20 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 20	148B5783

FIA 25 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 25 angleway	1	25	Butt weld, EN 10220	D	148B6624
	1	25	Butt weld, ANSI (B 36.10)	A	148B6614
FIA 25 straightway	1	25	Butt weld, EN 10220	D	148B6644
	1	25	Butt weld, ANSI (B 36.10)	A	148B6634

FIA 25 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 25	148B5784

FIA 32 - Valve body - 65 bar / 943 psi

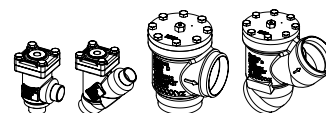
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 32 angleway	1 1/4	32	Butt weld, EN 10220	D	148B6625
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	148B6615
FIA 32 straightway	1 1/4	32	Butt weld, EN 10220	D	148B6645
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	148B6635

FIA 32 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 32	148B5784

¹⁾ Including gaskets and bolts.

Technical data and ordering



FIA 40 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code number
	[in]	[mm]			
FIA 40 angleway	1 1/2	40	Butt weld, EN 10220	D	148B6626
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	148B6616
FIA 40 straightway	1 1/2	40	Butt weld, EN 10220	D	148B6646
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	148B6636

FIA 40 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 40	148B5784

FIA 50 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 50 angleway	2	50	Butt weld, EN 10220	D	148B6627
	2	50	Butt weld, ANSI (B 36.10)	A	148B6617
FIA 50 straightway	2	50	Butt weld, EN 10220	D	148B6647
	2	50	Butt weld, ANSI (B 36.10)	A	148B6637

FIA 50 - top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 50	148B5785

FIA 65 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 65 angleway	2 1/2	65	Butt weld, EN 10220	D	148B6628
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B6618
FIA 65 straightway	2 1/2	65	Butt weld, EN 10220	D	148B6648
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B6638

FIA 65 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 65	148B5786

FIA 80 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 80 angleway	3	80	Butt weld, EN 10220	D	148B6629
	3	80	Butt weld, ANSI (B 36.10)	A	148B6619
FIA 80 straightway	3	80	Butt weld, EN 10220	D	148B6649
	3	80	Butt weld, ANSI (B 36.10)	A	148B6639

FIA 80 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 80	148B5787

FIA 100 - Valve body - 65 bar / 943 psi

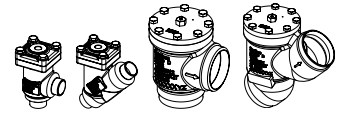
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 100 angleway	4	100	Butt weld, EN 10220	D	148B6630
	4	100	Butt weld, ANSI (B 36.10)	A	148B6620
FIA 100 straightway	4	100	Butt weld, EN 10220	D	148B6650
	4	100	Butt weld, ANSI (B 36.10)	A	148B6640

FIA 100 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 100	148B5788

¹⁾ Including gaskets and bolts.

Technical data and ordering



FIA 125 - Valve body - 65 bar / 943 psi

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 125 angleway	5	125	Butt weld, EN 10220	D	148B6631
	5	125	Butt weld, ANSI (B 36.10)	A	148B6621
FIA 125 straightway	5	125	Butt weld, EN 10220	D	148B6651
	5	125	Butt weld, ANSI (B 36.10)	A	148B6641

FIA 125 - Top part - 65 bar / 943 psi ¹⁾

Type	Code no.
FIA 125	148B5789

¹⁾ Including gaskets and bolts.

FIA - Strainer

Ordering - plain strainer insert

For strainer	[μ]	[mesh]	Code no.
FIA 15 – 20	100	150	148H3122
	150	100	148H3124
	250	72	148H3126
	500	38	148H3128
FIA 25 – 40	100	150	148H3123
	150	100	148H3125
	250	72	148H3127
	500	38	148H3129
FIA 50	100	150	148H3157
	150	100	148H3130
	250	72	148H3138
	500	38	148H3144
FIA 65	150	100	148H3131
	250	72	148H3139
	500	38	148H3145
FIA 80	150	100	148H3119
	250	72	148H3120
	500	38	148H3121
FIA 100	150	100	148H3132
	250	72	148H3140
	500	38	148H3146
FIA 125	150	100	148H3133
	250	72	148H3141
	500	38	148H3147

Ordering - pleated strainer insert

For strainer	[μ]	[mesh]	Code no.
FIA 15 – 20	150	100	148H3303
	250	72	148H3363
FIA 25 – 40	150	100	148H3304
	250	72	148H3269
FIA 50	150	100	148H3179
	250	72	148H3184
	500	38	148H3189
FIA 65	150	100	148H3180
	250	72	148H3185
	500	38	148H3190
FIA 80	150	100	148H3181
	250	72	148H3186
	500	38	148H3191
FIA 100	150	100	148H3182
	250	72	148H3187
	500	38	148H3192
FIA 125	150	100	148H3183
	250	72	148H3188
	500	38	148H3193

Technical data and ordering

Accessories

Part	Accessory for	Code no.
Magnet insert	FIA 80 – 100	148H3447
	FIA 125	148H3448
Strainer insert μ 150 with removable insert μ 50 for the first start up	FIA 15 – 20	148H3301
	FIA 25 – 40	148H3302
	FIA 50	148H3150
Filter bag	FIA 65	148H3151
	FIA 80	148H3152
	FIA 100	148H3153
	FIA 125	148H3154
	Purge valve complete	FIA 50 – 125
Blind nut with gasket	FIA 50 – 125	148H3450

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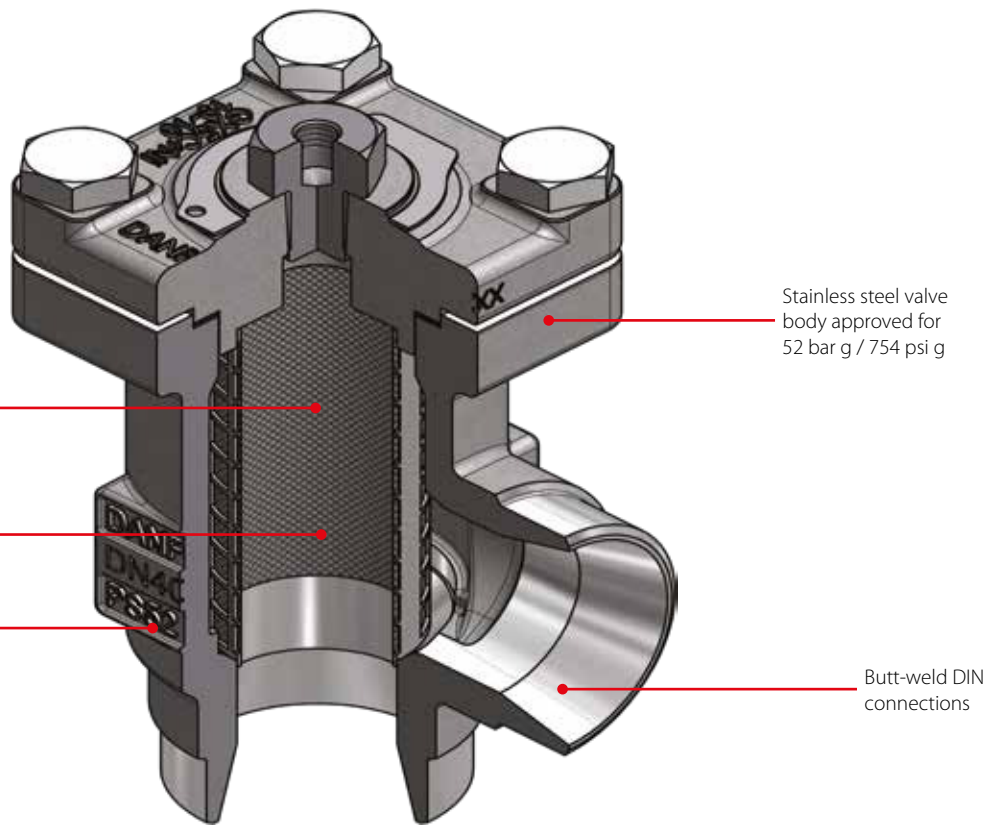
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FIA SS, Strainer

FIA SS strainers are a range of angle-way and straight-way stainless steel strainers, carefully designed to give favourable flow conditions. The design makes the strainer easy to install, and ensures quick strainer inspection and cleaning.

FIA SS strainers are used ahead of automatic controls, pumps, compressors etc., for initial plant start-up and where permanent filtration of the refrigerant is required. The strainer reduces the risk of undesirable system breakdowns and reduces wear and tear on plant components.



Plain or Pleated inserts
in 3 or 4 Mesh

Easy replacement
of insert

Standard SVL SS
valve body

Stainless steel valve
body approved for
52 bar g / 754 psi g

Butt-weld DIN
connections

Facts

- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Strainer insert of stainless steel mounted directly without extra gaskets for easy servicing
- Two types of strainer inserts are available:
 - A plain insert of stainless steel
 - A pleated insert (DN 15 – 65) with extra large surface, which ensures low pressure drop and long intervals between cleaning
- **FIA SS 15 – 40 (1/2 – 1 1/2 in):**
A special insert (50 µ) can be used in combination with a standard version when cleaning a plant during commissioning
- **FIA SS 50 – 65 (2 – 2 1/2 in):**

A large capacity filter bag (50 µ) can be inserted for cleaning plant during commissioning.

- Valve body and bonnet in stainless steel
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Max. working pressure: 52 bar g / 754 psi g

Technical data

Selection of strainer size

The mesh aperture size of the strainer must satisfy the requirements stated by the suppliers of the equipment to be protected. The following recommendations of aperture size apply in general to refrigeration installations:

All lines

First start up: _____ 50 μ

(Use strainer insert with removable insert for FIA SS DN15 – 40 or separate filter bag for FIA SS DN 50–65. 50μ insert should normally be removed after the first 24 hours of operation)

Liquid Lines

Ahead of pumps: _____ 500 μ [38 mesh]
 After pumps: _____ 150 μ [100 mesh] / 250 μ [72 mesh]
 In front of AKVA valves: _____ 100 μ [150 mesh]

Protection of automatic regulation equipment

Generally: _____ 150 μ [100 mesh] / 250 μ [72 mesh]
 Sensitive equipment, e.g. suction regulators with low temperature: _____ 250 μ [72 mesh]

Suction Lines

Ahead of screw compressor: _____ 250 μ [72 mesh]
 Ahead of piston compressor: _____ 150 μ [100 mesh]

Flow coefficient

(DIN / ANSI)

Connection size (DN) FIA SS	[μ]	[mesh]	wire [mm]	wire [in]	free space [%]	screen area			
						Plain inserts		Pleated inserts	
						[cm ²]	[in ²]	[cm ²]	[in ²]
15–20 (1/2–3/4 in)	100	–	0.068	0.003	35	25	3.9	45	7.0
	150	100	0.10	0.004	36	25	3.9	45	7.0
	250	72	0.10	0.004	51	25	3.9	45	7.0
	500	38	0.16	0.006	57.6	25	3.9	45	7.0
25–40 (1 – 1 1/2 in)	100	–	0.068	0.003	35	71	11	160	25.0
	150	100	0.10	0.004	36	71	11	160	25.0
	250	72	0.10	0.004	51	71	11	160	25.0
	500	38	0.16	0.006	57.6	71	11	160	25.0
50 (2 in)	100	–	0.068	0.003	35	71	11	200	31.2
	150	100	0.10	0.004	36	87	13.5	200	31.2
	250	72	0.10	0.004	51	87	13.5	200	31.2
	500	38	0.16	0.006	57.6	87	13.5	200	31.2
65 (2 1/2 in)	150	100	0.10	0.004	36	127	19.7	305	47.6
	250	72	0.10	0.004	51	127	19.7	305	47.6
	500	38	0.16	0.006	57.6	127	19.7	305	47.6

Mesh is the number of threads per inch. μ (microns) is the distance between two threads (1 μ = 1/1000 mm).

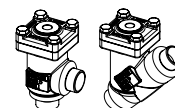
Selection of strainer size

K_v values

DN	FIA SS angle – plain strainer insert				FIA SS angle – pleated strainer insert		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	3.3	3.4	3.5	3.7	4.2	–	–
20	6.9	7.1	7.3	7.7	8.8	–	–
25	13.8	14.0	14.5	15.2	17.2	17.9	–
32	23.0	23.8	24.7	25.5	29.2	30.5	–
40	25.1	25.5	26.4	28.1	31.4	32.6	–
50	45.1	45.9	47.6	50.2	56.7	58.8	62.0
65	–	56.1	57.8	60.4	69.3	71.4	74.6

DN	FIA SS straight – plain strainer insert				FIA SS straight – pleated strainer insert		
	μ 100	μ 150	μ 250	μ 500	μ 150	μ 250	μ 500
15	2.5	2.6	2.7	2.8	3.3	–	–
20	5.3	5.4	5.6	5.9	6.9	–	–
25	10.5	10.7	11.1	11.6	13.8	14.5	–
32	17.6	18.2	18.9	19.5	23.9	24.7	–
40	19.2	19.5	20.2	21.5	25.5	26.4	–
50	34.5	35.1	36.4	38.4	45.9	47.6	50.2
65	–	42.9	44.2	46.2	56.1	57.8	60.4

Technical data and ordering



FIA SS - Strainer without strainer insert

Ordering

Type	Connection size		Connection type	Connection designation	Code number
	[in]	[mm]			
FIA SS 15 angleway	1/2	15	Butt weld DIN, EN 10220	D	148B5295
FIA SS 15 straightway	1/2	15	Butt weld DIN, EN 10220	D	148B5296
FIA SS 15 straightway	1/2	15	Butt weld ANSI, B 36.19M	A	148B6493
FIA SS 20 angleway	3/4	20	Butt weld DIN, EN 10220	D	148B5383
FIA SS 20 straightway	3/4	20	Butt weld DIN, EN 10220	D	148B5384
FIA SS 20 straightway	3/4	20	Butt weld ANSI, B 36.19M	A	148B6494
FIA SS 25 angleway	1	25	Butt weld DIN, EN 10220	D	148B5492
FIA SS 25 straightway	1	25	Butt weld DIN, EN 10220	D	148B5493
FIA SS 25 straightway	1	25	Butt weld ANSI, B 36.19M	A	148B6495
FIA SS 32 angleway	1 1/4	32	Butt weld DIN, EN 10220	D	148B5587
FIA SS 32 straightway	1 1/4	32	Butt weld DIN, EN 10220	D	148B5588
FIA SS 32 straightway	1 1/4	32	Butt weld ANSI, B 36.19M	A	148B6496
FIA SS 40 angleway	1 1/2	40	Butt weld DIN, EN 10220	D	148B5666
FIA SS 40 straightway	1 1/2	40	Butt weld DIN, EN 10220	D	148B5667
FIA SS 40 straightway	1 1/2	40	Butt weld ANSI, B 36.19M	A	148B6497
FIA SS 50 angleway	2	50	Butt weld DIN, EN 10220	D	148B5757
FIA SS 50 straightway	2	50	Butt weld DIN, EN 10220	D	148B5758
FIA SS 65 angleway	2 1/2	65	Butt weld DIN, EN 10220	D	148B5851
FIA SS 65 angleway	2 1/2	65	Butt weld ANSI, B 36.19M	A	148B6498
FIA SS 65 straightway	2 1/2	65	Butt weld DIN, EN 10220	D	148B5852
FIA SS 65 straightway	2 1/2	65	Butt weld ANSI, B 36.19M	A	148B6499

FIA SS - Plain strainer insert

Ordering

For strainer	[μ]	[mesh]	Code number
FIA SS 15-20	100	150	148H3122
	150	100	148H3124
	250	72	148H3126
	500	38	148H3128
FIA SS 25-40	100	150	148H3123
	150	100	148H3125
	250	72	148H3127
	500	38	148H3129
FIA SS 50	100	150	148H3157
	150	100	148H3130
	250	72	148H3138
	500	38	148H3144
FIA SS 65	150	100	148H3131
	250	72	148H3139
	500	38	148H3145



Technical data and ordering

FIA SS - Pleated strainer insert

Ordering

For strainer	[μ]	[mesh]	Code number
FIA SS 15–20	150	100	148H3303
	250	72	148H3363
FIA SS 25–40	150	100	148H3304
	250	72	148H3269
FIA SS 50	150	100	148H3179
	250	72	148H3184
	500	38	148H3189
FIA SS 65	150	100	148H3180
	250	72	148H3185
	500	38	148H3190

Ordering accessories

Part	Accessory for	Code number
Strainer insert μ150 with removable insert μ50 for the first start up	FIA SS 15 – 20	148H3301
	FIA SS 25 – 40	148H3302
Filter bag	FIA SS 50	148H3150
	FIA SS 65	148H3151
Purge valve complete	FIA SS 50 – 65	148B3745
Blind nut with gasket	FIA SS 50 – 65	148H3450

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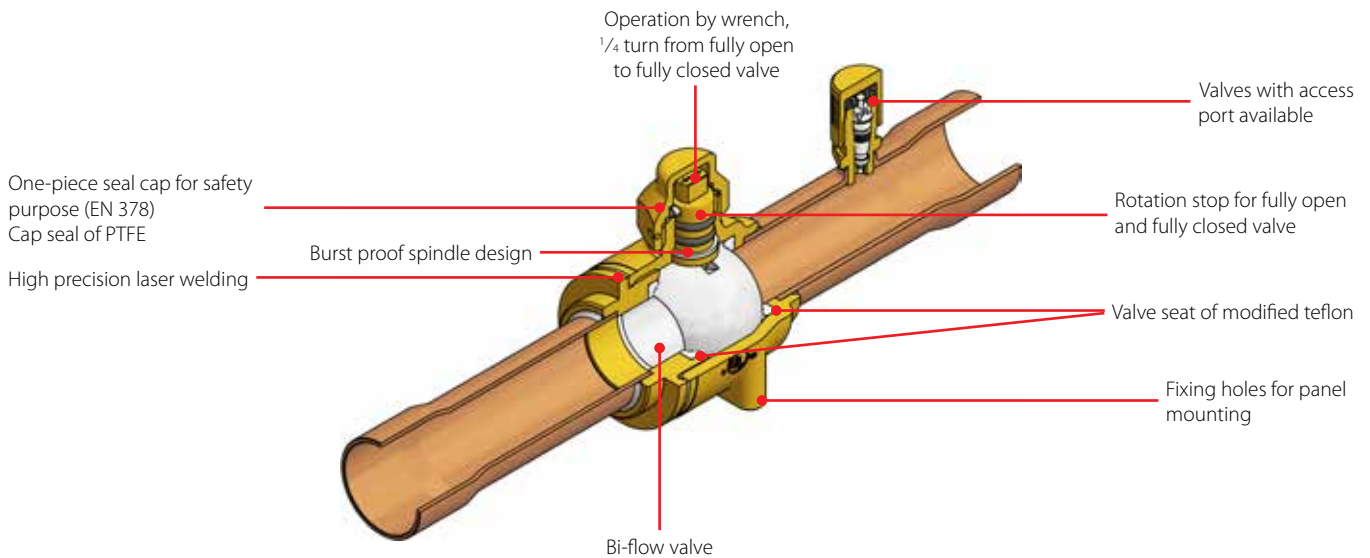
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GBC version 2, Shut-off ball valve

GBC v2 shut-off ball valves are manually operated valves suitable for bi-directional flow. Shut-off ball valves are used in liquid, suction and hot gas lines in refrigeration, freezing and air conditioning systems.

The GBC v2 bi-directional shut-off ball valves can be delivered with or without external access port. The valves have one-piece wire seal cap to prevent unintentional cap removal or tampering between services.



Facts

Application:

- GBC valves are used in liquid, suction and hot gas lines in all refrigeration and air-conditioning systems with fluorinated refrigerants
 - Applicable to R134a, R407C, R404A / R507, R407A, R407F, R410A, R448A, R449A, R450A, R452A, R513A, R1234ze.
 - GBC 6s – GBC 28s can be used with R32, R454B, R452B, R290.
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers,

where refrigerants are listed as part of product specifications.

- Full flow with minimum pressure drop
- Bi-directional flow, i.e. valve orientation is unimportant
- 1/4 turn from fully open to fully closed
- Burst proof spindle design
- Selected Teflon and O-ring material to secure the best tightness and long lifetime
- Versions with access port helps in reducing cost if service of the system is necessary
- One-piece seal cap for safety purpose

Complies with European Safety Directive EN 378 (Safety and environmental requirements)

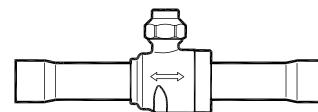
- Ball status indicator on spindle top indicating open or closed position
- Laser welded construction
- Drilled and tapped for panel mounting
- Double O-ring stem seal design
- Customized brass material ensures consistent performance under aggressive environment
- Approvals: C UL US LISTED, EAC, CE

Technical data and ordering

Type	Media temperature range	Max. working pressure (PS/MWP)
GBC 6s – GBC 42s	-40 – 150 °C / -40 – 300 °F (short term for 150 °C / 300 °F) For long term use in high temperature application, please consult Danfoss.	45 bar / 650 psig
GBC 54s – GBC 79s	-40 – 121 °C / -40 – 250 °F	45 bar / 650 psig

GBC v2 without access port, Solder ODF / ODF

Ordering

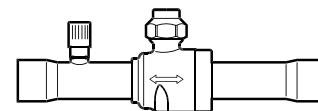


Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBC 6s	–	6	45	650	1.83	2.12	009L7030
GBC 6s	1/4	–	45	650	1.83	2.12	009L7020
GBC 10s	–	10	45	650	8.04	9.29	009L7031
GBC 10s	3/8	–	45	650	8.04	9.29	009L7021
GBC 12s	–	12	45	650	13.17	15.22	009L7032
GBC 12s	1/2	–	45	650	13.17	15.22	009L7022
GBC 16s	5/8	16	45	650	15.6	18.1	009L7023
GBC 18s	–	18	45	650	21.9	25.3	009L7035
GBC 18s	3/4	–	45	650	21.9	25.3	009L7024
GBC 22s	7/8	22	45	650	33.3	38.5	009L7025
GBC 28s	–	28	45	650	62	71	009L7033
GBC 28s	1 1/8	–	45	650	62	71	009L7026
GBC 35s	1 3/8	35	45	650	92	107	009L7027
GBC 42s	–	42	45	650	134	155	009L7034
GBC 42s	1 5/8	–	45	650	134	155	009L7028
GBC 54s	2 1/8	54	45	650	240	277	009L7029
GBC 67s	2 5/8	–	45	650	367	424	009L7959
GBC 67s RP	2 5/8	–	45	650	203	234	009L7036
GBC 79s	3 1/8	–	45	650	528	611	009L7980
GBC 79s RP	3 1/8	–	45	650	171	198	009L7037

¹⁾ Calculated based on fluid dynamic equations. RP: Reduced Port

GBC v2 with access port, Solder ODF / ODF

Ordering

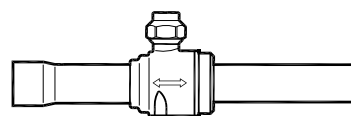


Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBC 6s	–	6	45	650	1.83	2.12	009L7060
GBC 6s	1/4	–	45	650	1.83	2.12	009L7050
GBC 10s	–	10	45	650	8.04	9.29	009L7061
GBC 10s	3/8	–	45	650	8.04	9.29	009L7051
GBC 12s	–	12	45	650	13.17	15.22	009L7062
GBC 12s	1/2	–	45	650	13.17	15.22	009L7052
GBC 16s	5/8	16	45	650	15.6	18.1	009L7053
GBC 18s	–	18	45	650	21.9	25.3	009L7065
GBC 18s	3/4	–	45	650	21.9	25.3	009L7054
GBC 22s	7/8	22	45	650	33.3	38.5	009L7055
GBC 28s	–	28	45	650	62	71	009L7063
GBC 28s	1 1/8	–	45	650	62	71	009L7056
GBC 35s	1 3/8	35	45	650	92	107	009L7057
GBC 42s	–	42	45	650	134	155	009L7064
GBC 42s	1 5/8	–	45	650	134	155	009L7058
GBC 54s	2 1/8	54	45	650	240	277	009L7059
GBC 67s	2 5/8	–	45	650	367	424	009L7960
GBC 67s RP	2 5/8	–	45	650	203	234	009L7066
GBC 79s	3 1/8	–	45	650	528	611	009L7981
GBC 79s RP	3 1/8	–	45	650	171	198	009L7067

¹⁾ Calculated based on fluid dynamic equations. RP: Reduced Port

Technical data and ordering

GBC v2 without access port, Solder ODF / ODM

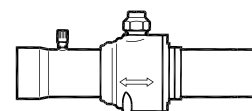


Ordering

Type	Solder ODF / ODM connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBC 22s	7/8	22	45	650	33.3	38.5	009L7000
GBC 28s	1 1/8	–	45	650	62	71	009L7001
GBC 35s	1 3/8	35	45	650	92	107	009L7002
GBC 42s	1 5/8	–	45	650	134	155	009L7003
GBC 79s	3 1/8	–	45	650	528	611	009L7969

¹⁾ Calculated based on fluid dynamic equations.

GBC v2 with access port, Solder ODF / ODM



Ordering

Type	Solder ODF / ODM connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBC 28s	7/8	–	45	650	62	71	009L7097
GBC 35s	1 1/8	35	45	650	92	107	009L7098
GBC 42s	1 3/8	–	45	650	134	155	009L7099
GBC 54s	1 5/8	54	45	650	240	277	009L7069
GBC 67s	3 1/8	–	45	650	367	424	009L7958
GBC 79s	3 1/8	–	45	650	528	611	009L7970

¹⁾ Calculated based on fluid dynamic equations.

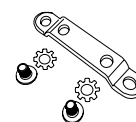
Spare parts - Seal cap kit



Ordering

Type	Valve connection size		Industrial pack	Code no.
	[in]	[mm]		
GBC 6s - GBC 12s	1/4 - 1/2	6 - 12	6	009L7209
GBC 16s - GBC 22s	5/8 - 7/8	16 - 22	6	009L7210
GBC 28s - GBC 35s	1 1/8 - 1 3/8	28 - 35	4	009L7211
GBC 42s - GBC 79s	1 5/8 - 3 1/8	42 - 79	4	009L7212

Spare parts - Bracket kit



Ordering

Type	Valve connection size		Industrial pack	Code no.
	[in]	[mm]		
GBC 6s - GBC 12s	1/4 - 1/2	6 - 12	12	009G7089
GBC 16s	5/8	16	12	009G7084
GBC 18s - GBC 22s	3/4 - 7/8	18 - 22	12	009G7085
GBC 28s	1 1/8	28	10	009G7086
GBC 35s	1 3/8	35	5	009G7087
GBC 42s	1 5/8	42	4	009G7088

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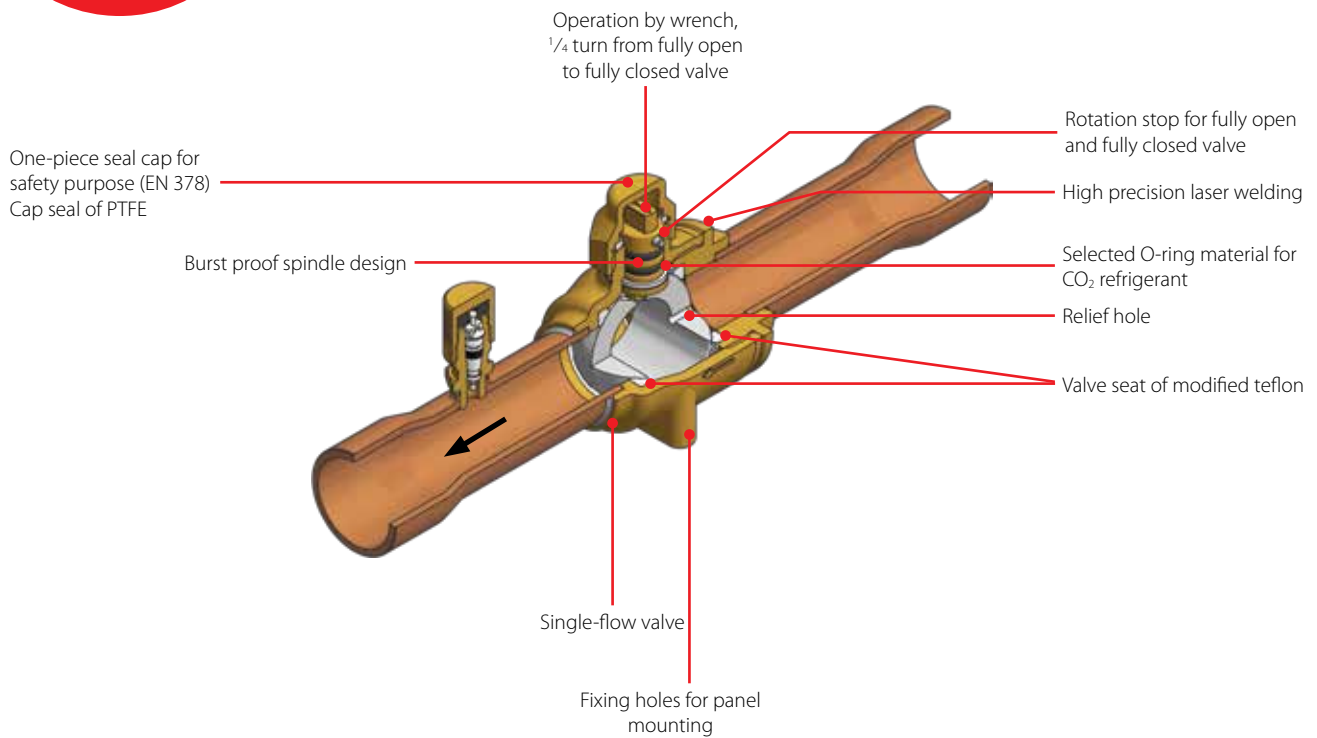
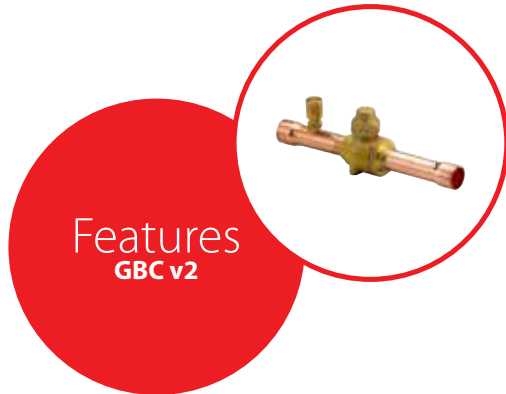
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GBC version 2, Shut-off ball valve for R744 (CO₂) low pressure

Danfoss shut-off ball valves, type GBC v2 for CO₂ are manually operated shut-off valves only for single-flow direction. The valves are approved for applications in liquid, suction and hot-gas lines in refrigeration and air conditioning systems. The valves offer maximum tightness across the seat/seal with minimum pressure drop.

These ball valves give maximum flow in the fully open position. They are designed for operation within a broad temperature range. The valves are equipped with a one-piece seal cap to prevent tampering.



Facts

Application:

- The valves can be used for applications in liquid, suction and hot-gas lines in refrigeration and air-conditioning systems
- Applicable to R744 (CO₂)

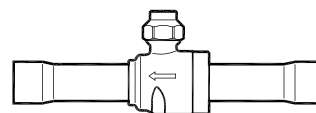
- Slimline body - easier to install and service
- 1/4 turn from fully open to fully closed
- Rotation stops at fully open and fully closed positions
- Indicator on spindle top shows degree of opening
- Precision laser welded construction
- Burst-proof spindle design
- Valve seal of low friction, tight-sealing modified PTFE Teflon®
- Double O-ring stem seal design
- Selected O-ring material for CO₂ refrigerant

- Customized brass material ensures consistent performance under aggressive environment
- Drilled and tapped for panel mounting
- Relief hole design to release entrapped liquid
- Media temperature range: -40 – 100 °C / -40 – 212 °F
- Max. working pressure (PS / MWP): 45 bar / 650 psig
- Flow direction: Single-flow
- Approval: C UL US LISTED, EAC, CE

Technical data and ordering

GBC without access port, solder ODF / ODF

Ordering

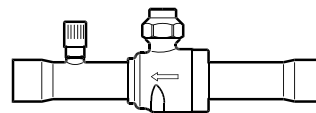


Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBC 6s	–	6	45	650	1.74	2.01	009L7570
GBC 6s	1/4	–	45	650	1.74	2.01	009L7520
GBC 10s	–	10	45	650	7.52	8.69	009L7571
GBC 10s	3/8	–	45	650	7.52	8.69	009L7521
GBC 12s	–	12	45	650	12.9	14.9	009L7572
GBC 12s	1/2	–	45	650	12.9	14.9	009L7522
GBC 16s	5/8	16	45	650	15.7	18.1	009L7523
GBC 18s	–	18	45	650	21.9	25.4	009L7574
GBC 18s	3/4	–	45	650	21.9	25.4	009L7524
GBC 22s	7/8	22	45	650	33.3	38.5	009L7525
GBC 28s	–	28	45	650	62	71	009L7576
GBC 28s	1 1/8	–	45	650	62	71	009L7526
GBC 35s	1 3/8	35	45	650	92	107	009L7528
GBC 42s	–	42	45	650	134	155	009L7579
GBC 42s	1 5/8	–	45	650	134	155	009L7529

¹⁾ calculated based on fluid dynamic equations

GBC with access port, solder ODF / ODF

Ordering



Type	Solder ODF / ODF connection		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]			
GBC 6s	1/4	–	1.74	2.01	009L7553
GBC 6s	–	6	1.74	2.01	009L7554
GBC 10s	3/8	–	7.52	8.69	009L7555
GBC 10s	–	10	7.52	8.69	009L7556
GBC 12s	1/2	–	12.92	14.94	009L7557
GBC 12s	–	12	12.92	14.94	009L7558
GBC 16s	5/8	16	15.66	18.1	009L7534
GBC 18s	3/4	–	21.93	25.35	009L7563
GBC 18s	–	18	21.93	25.35	009L7564
GBC 22s	7/8	22	33.34	38.54	009L7536
GBC 28s	1 1/8	–	62.25	71.96	009L7565
GBC 28s	–	28	62.25	71.96	009L7566
GBC 35s	1 3/8	35	92.76	107.23	009L7567
GBC 42s	1 5/8	–	134.76	155.78	009L7568
GBC 42s	–	42	134.76	155.78	009L7569

¹⁾ calculated based on fluid dynamic equations

Spare parts - Seal cap kit

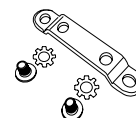
Ordering



Type	Valve connection size		Industrial pack	Code no.
	[in]	[mm]		
GBC 6s - GBC 22s	1/4 – 7/8	6 – 22	6	009L7210
GBC 28s - GBC 35s	1 1/8 – 1 3/8	28 – 35	4	009L7211
GBC 42s	1 5/8	42	4	009L7212

Spare parts - Bracket kit

Ordering

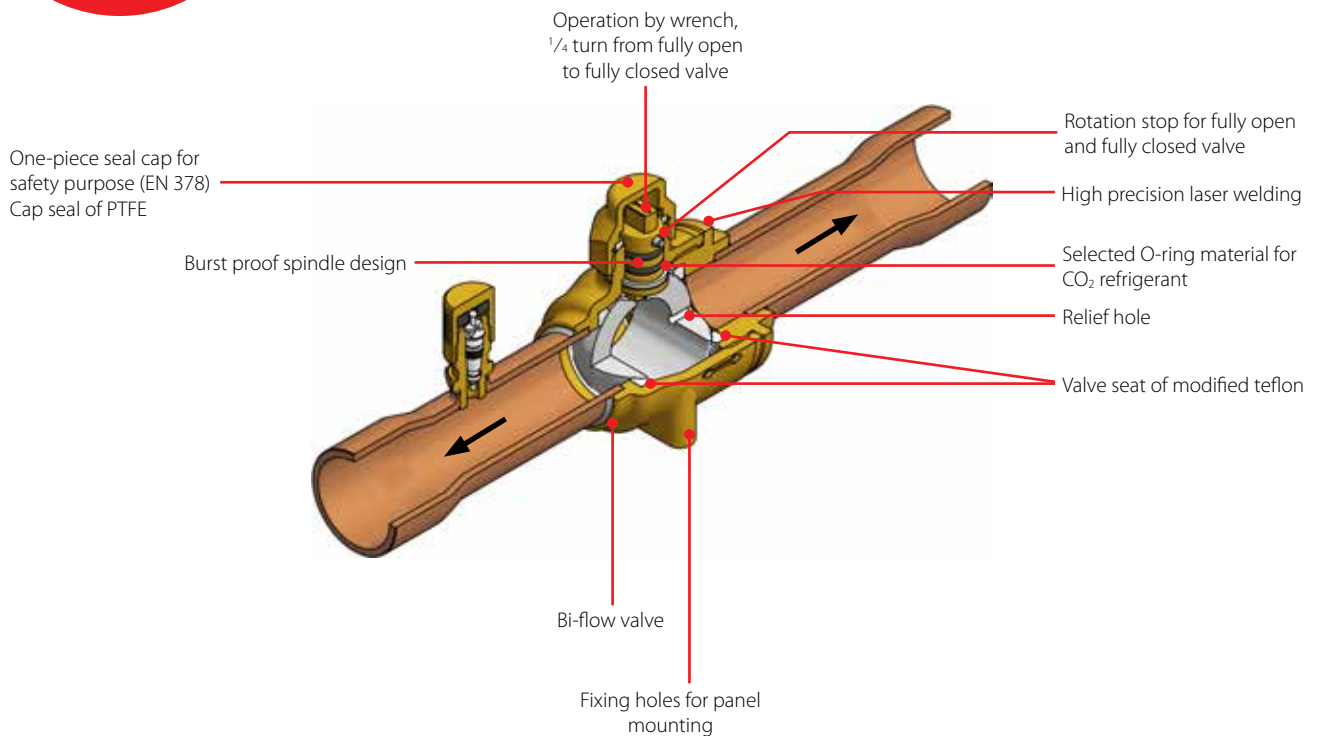
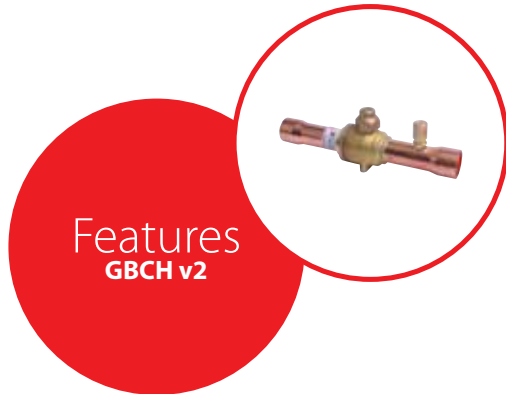


Type	Valve connection size		Industrial pack	Code no.
	[in]	[mm]		
GBC 6s - GBC 16s	1/4 – 5/8	6 – 16	12	009G7084
GBC 18s - GBC 22s	3/4 – 7/8	18 – 22	12	009G7085
GBC 28s	1 1/8	28	10	009G7086
GBC 35s	1 3/8	35	5	009G7087
GBC 42s	1 5/8	42	4	009G7088

GBCH version 2, Shut-off ball valve for R744 (CO₂) high pressure

Danfoss shut-off ball valves, type GBCH v2 for CO₂ high pressure are manually operated shut-off valves. The valves are specifically designed for intrinsic standstill security, meaning that the valves can withstand pressures normally arising when the refrigeration system is shut off, i.e. during servicing or during unexpected power failure.

The valves are approved for use in all parts of the system with pressure ratings lower than the below stated Maximum Working Pressure, typically the liquid, suction, gas-bypass, lines.



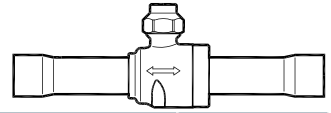
Facts

Application:

- The valves can be used for applications in liquid, suction lines in refrigeration and air-conditioning systems
- Applicable to R744 (CO₂)
- 1/4 turn from fully open to fully closed
- Rotation stops at fully open and fully closed positions
- Indicator on spindle top shows degree of opening
- Precision laser welded construction
- Burst-proof spindle design
- Valve seal of low friction, tight-sealing modified PTFE Teflon®
- Selected O-ring material for CO₂ refrigerant
- Double O-ring stem seal design
- Customized brass material ensures consistent performance under aggressive environment
- Advanced design ensures trusted bi-flow function
- Drilled and tapped for panel mounting
- Relief hole design to release entrapped liquid
- Temperature range
-40 – 100 °C / -40 – 212 °F
- Max. working pressure (PS / MWP)
GBCH 6s - 28s : 90 bar / 1305 psig
- GBCH 35s - 42s : 75 bar / 1085 psig
- Flow direction: Bi-flow
- Approval: CE, UL, EAC

Technical data and ordering

GBCH v2 without access port, solder ODF/ODF, copper connections

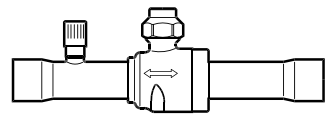


Ordering

Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBCH 6s	1/4	–	90	1305	1.78	2.06	009L7415
	–	6	90	1305	1.78	2.06	009L7395
GBCH 10s	3/8	–	90	1305	6.31	7.29	009L7416
	–	10	90	1305	6.31	7.29	009L7396
GBCH 12s	1/2	–	90	1305	12.8	14.8	009L7417
	–	12	90	1305	12.8	14.8	009L7397
GBCH 16s	5/8	16	90	1305	11.7	13.6	009L7418
GBCH 18s	3/4	–	90	1305	31.0	35.9	009L7419
	–	18	90	1305	31.0	35.9	009L7399
GBCH 22s	7/8	22	90	1305	24.4	28.2	009L7420

¹⁾ Calculation based on fluid dynamic equations

GBCH v2 with access port, solder ODF/ODF, copper connections



Ordering

Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[in]	[mm]	[bar]	[psig]			
GBCH 6s	1/4	–	90	1305	1.78	2.06	009L7581
	–	6	90	1305	1.78	2.06	009L7580
GBCH 10s	3/8	–	90	1305	6.31	7.29	009L7582
	–	10	90	1305	6.31	7.29	009L7583
GBCH 12s	1/2	–	90	1305	12.8	14.8	009L7585
	–	12	90	1305	12.8	14.8	009L7584
GBCH 16s	5/8	16	90	1305	11.7	13.6	009L7586
GBCH 18s	3/4	–	90	1305	31.0	35.9	009L7588
	–	18	90	1305	31.0	35.9	009L7587
GBCH 22s	7/8	22	90	1305	24.4	28.2	009L7589

¹⁾ Calculation based on fluid dynamic equations

GBCH v2 without access port, butt weld, stainless steel connections

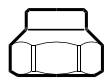


Ordering

Type	Solder ODF / ODF connection	Max. working pressure PS / MWP		K _v value ¹⁾ [m ³ /h]	C _v value ¹⁾ [gal/min]	Code no.
	[mm]	[bar]	[psig]			
GBC 28s	28	90	1305	96	111	009L7406
GBC 35s	35	75	1085	106	123	009L7410
GBC 42s	42	75	1085	150	174	009L7411

¹⁾ Calculation based on fluid dynamic equations

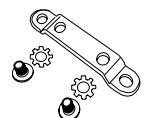
Spare parts - Seal cap kit



Ordering

Type	Valve connection size		Industrial pack	Code no.
	[in]	[mm]		
GBC 6s - 22s	1/4 - 7/8	6 - 22	6	009L7210
GBC 28s - 35s	1 1/8 - 1 3/8	28 - 35	4	009L7211
GBC 42s	1 5/8	42	4	009L7212

Spare parts - Bracket kit



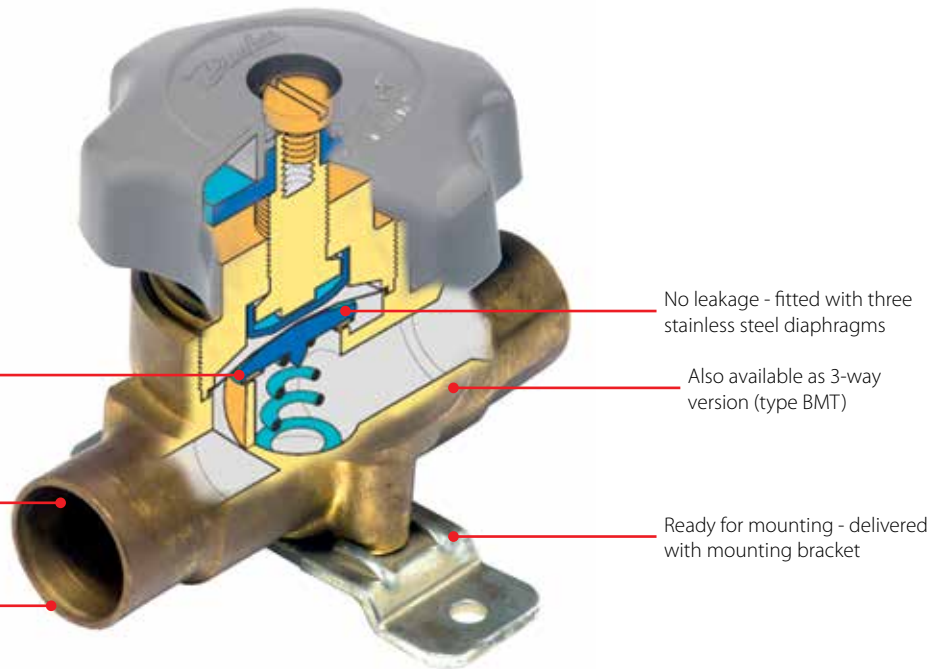
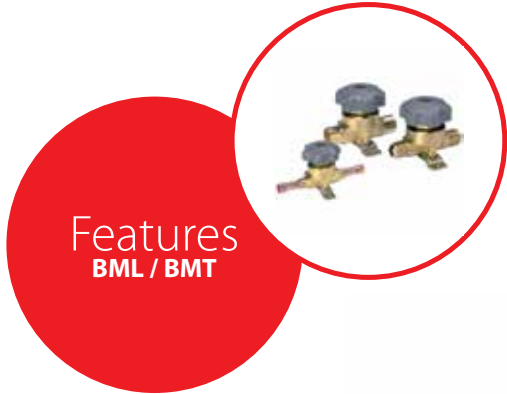
Ordering

Type	Valve connection size		Industrial pack	Code no.
	[in]	[mm]		
GBC 6s - 16s	1/4 - 5/8	6 - 16	12	009G7084
GBC 18s - 22s	3/4 - 7/8	18 - 22	12	009G7085
GBC 28s	1 1/8	28	10	009G7086
GBC 35s	1 3/8	35	5	009G7087
GBC 42s	1 5/8	42	4	009G7088

BML / BMT, Shut-off diaphragm valves

BML are manual shut-off diaphragm valves designed for installation in the liquid, suction and hot gas lines of refrigeration plants. BML valves can be delivered with flare, ODF solder or ODF solder with extended ends.

In the same product category, BMT 6 is a three-way manual shut-off valve with similar characteristics.



Complete shut-off with minimum torque due to valve plate in nylon

No leakage - fitted with three stainless steel diaphragms

Also available as 3-way version (type BMT)

Available with solder brass or copper connections and flare

Ready for mounting - delivered with mounting bracket

Connections: 6 mm (1/4 in) up to 22 mm (7/8 in)

Facts

Application:

- Traditional refrigeration
- Applicable to R134a, R407C, R404A / R507, R290, R600, R600a, R1270, R513A, R450A, R1234ze, R1234yf

Only solder versions are allowed for flammable refrigerant.

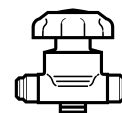
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Fitted with three stainless steel diaphragms which ensure long operating life
- Valve plate of polyamide nylon to give complete shut-off with minimum torque
- Valve cover with counter-seat to prevent the ingress of moisture in fully open position

- Temperature range: -55 – 100 °C / -67 – 212 °F
- Max. working pressure PS / MWP: 28 bar / 406 psig
- Working range: $\Delta p = -1 - 21$ bar / -14 - 304 psig
- Approvals: C UL US LISTED, EAC
- Solder versions are compliant with ATEX hazard zone 2

Technical data and ordering

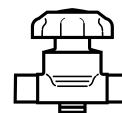
BML flare, with hand wheel



Ordering

Type	Version	Flare connection		Max. working pressure PS / MWP		K _v value [m ³ /h]	C _v value [gal/min]	Code no.
		[in]	[mm]	[bar]	[psi]			Flare
BML 6	Straight way	1/4	–	28	406	0.30	0.35	009G0101
BML 10	Straight way	3/8	–	28	406	0.84	0.98	009G0127
BML 12	Straight way	1/2	–	28	406	1.50	1.75	009G0141
BML 15	Straight way	5/8	–	28	406	2.20	2.57	009G0168
BML 18	Straight way	3/4	–	28	406	2.90	3.38	009G0183

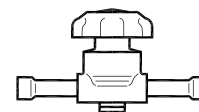
BML ODF solder, with hand wheel



Ordering

Type	Version	[in]	[mm]	Max. working pressure PS / MWP		K _v value [m ³ /h]	C _v value [gal/min]	Code no.
				[bar]	[psi]			
BML 6s	Straight way	1/4	–	28	406	0.30	0.35	009G0102
	Straight way	–	6	28	406	0.30	0.35	009G0108
BML 10s	Straight way	3/8	–	28	406	0.84	0.98	009G0122
	Straight way	–	10	28	406	0.84	0.98	009G0128
BML 12s	Straight way	1/2	–	28	406	1.50	1.75	009G0142
	Straight way	–	12	28	406	1.50	1.75	009G0148
BML 15s	Straight way	5/8	16	28	406	2.20	2.57	009G0170
BML 18s	Straight way	3/4	–	28	406	2.90	3.38	009G0181
	Straight way	–	18	28	406	2.90	3.38	009G0184
BML 22s	Straight way	7/8	22	28	406	2.90	3.38	009G0191

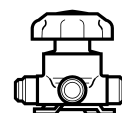
BML ODF solder extended connections, with hand wheel



Ordering

Type	Version	[in]	[mm]	Max. working pressure PS / MWP		K _v value [m ³ /h]	C _v value [gal/min]	Code no.
				[bar]	[psi]			
BML 6s	Straight way	1/4	–	28	406	0.30	0.35	009G0202
	Straight way	–	6	28	406	0.30	0.35	009G0208
BML 10s	Straight way	3/8	–	28	406	0.84	0.98	009G0222
	Straight way	–	10	28	406	0.84	0.98	009G0228
BML 12s	Straight way	1/2	–	28	406	1.50	1.75	009G0242
	Straight way	–	12	28	406	1.50	1.75	009G0248
BML 15s	Straight way	5/8	16	28	406	2.20	2.57	009G0262
BML 22s	Straight way	7/8	22	28	406	2.90	3.38	009G0291

BMT 3-way flare, with hand wheel



Ordering

Type	Version	Flare connection		Max. working pressure PS / MWP		K _v value [m ³ /h]	C _v value [gal/min]	Code no.
		[in]	[mm]	[bar]	[psi]			Flare
BMT 6	Three-way	1/4	–	28	406	0.3	0.35	009G0105

Note

Only solder versions are approved for flammable refrigerants now

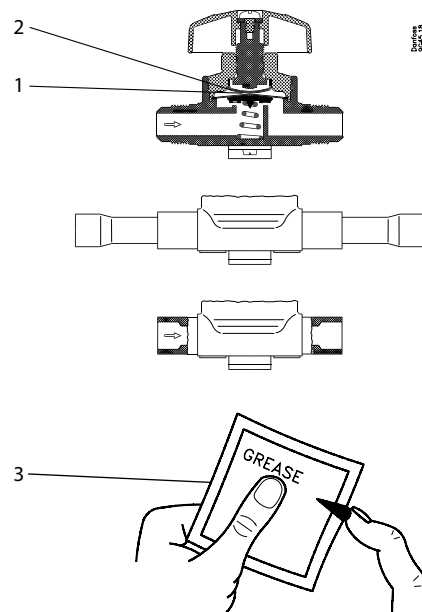
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Technical data and ordering

Spare parts

Ordering

Type	Pos.	Description	Qty.	Code no.
BML 6	1	Diaphragm assy without Teflon	1	009G0025
	2	Diaphragm	2	
	3	Fag with grease	1	
BMT 6	1	Diaphragm assy without Teflon	1	
	2	Diaphragm	2	
	3	Fag with grease	1	
BML 10	1	Diaphragm assy without Teflon	1	009G0026
	2	Diaphragm	2	
	3	Fag with grease	1	
BML 12	1	Diaphragm assy without Teflon	1	009G0027
	2	Diaphragm	2	
	3	Fag with grease	1	
BML 15	1	Diaphram assy without Teflon	2	009G0028
	2	Diaphragm	1	
	3	Fag with grease	2	
BML 18	1	Diaphram assy without Teflon	1	009G0029
	2	Diaphragm	2	
	3	Fag with grease	1	
BML 22	1	Diaphram assy without Teflon	1	
	2	Diaphragm	2	
	3	Fag with grease	1	



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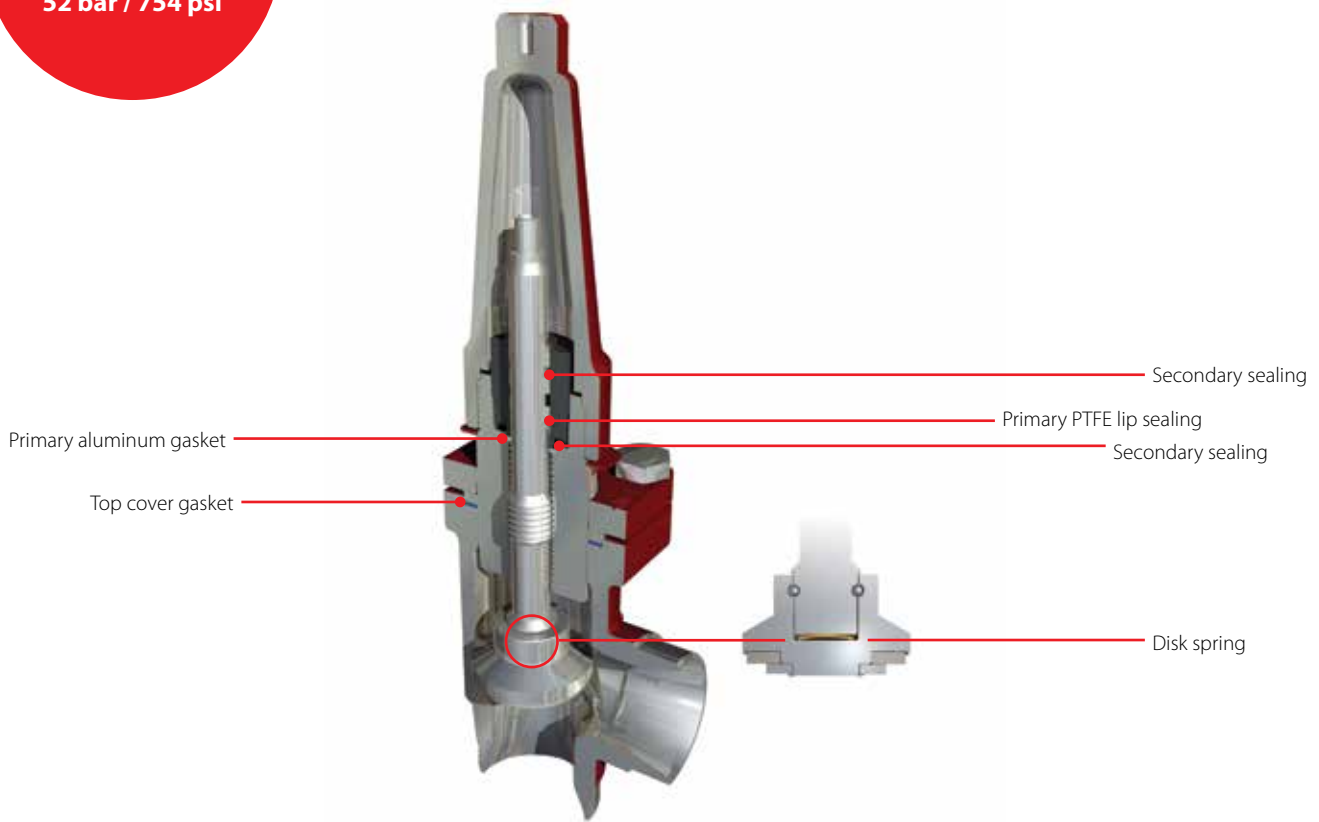
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SVA-S / SVA-L, Shut-off valve - 52 bar / 754 psi

SVA-S / L shut-off valves are available in angleway and straightway versions and with Standard neck (SVA-S) and Long neck (SVA-L). Each valve housing is available with several different connection types and sizes, and it is possible to convert SVA-S or SVA-L to any other product in the SVL family by replacing the complete top part.

The shut-off valves are designed to meet all industrial refrigeration application requirements, to provide favourable flow characteristics, and are easy to dismantle and repair when necessary. The valve cone is designed to ensure perfect closing and withstand a high system pulsation and vibration, which can be present specifically in the discharge line.

Features SVA-S / SVA-L 52 bar / 754 psi



Facts

- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Available in angleway and straightway versions with Standard neck, or Long neck (DN 15 to DN 40) for insulated systems
- Each valve type is clearly marked with type, size and performance range
- The valves and caps are prepared for sealing, to prevent operation by un-authorized persons, using a seal wire
- Internal metal backseating:
 - DN 6 – 65 (1/4 – 2 1/2 in)
- Internal PTFE backseating:
 - DN 80 – 200 (3 – 8 in)
- Can accept flow in both directions
- Housing and bonnet material is low temperature steel according to

- requirements of the Pressure Equipment Directive and other international classification authorities
- Equipped with stainless steel bolts
- Optional accessories:
 - Heavy duty industrial hand wheel for frequent operation
 - Cap for infrequent operation
- Max. working pressure: 52 bar g / 754 psig
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Classification: DNV, CRN, BV etc

Technical data and ordering

SVA-S / SVA-L, Shut-off valve

Technical data

Type	Description
Pressure range	The valves are designed for max. working pressure 52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

Available connection sizes

SVA-S:

The S means Standard bonnet length (sizes from DN50 to DN200 are insulation friendly).

SVA-L:

The L means Long bonnet length (insulation friendly).



Size	SVA-S	SVA-L
DN 6 (1/4)	x	–
DN 10 (3/8)	x	–
DN 15 (1/2)	x	x
DN 20 (3/4)	x	x
DN 25 (1)	x	x
DN 32 (1 1/4)	x	x
DN 40 (1 1/2)	x	x
DN 50 (2)	x	–
DN 65 (2 1/2)	x	–
DN 80 (3)	x	–
DN 100 (4)	x	–
DN 125 (5)	x	–
DN 150 (6)	x	–
DN 200 (8)	x	–

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range. For further information please contact your local Danfoss Sales Company.

Valve type	Connection size		Available connections				
	[mm]	[in]	A / D	SOC	FPT	T	F
	6	DN 6 (1/4)	x			x	
	10	DN 10 (3/8)	x				
	15	DN 15 (1/2)	x	x	x		x
	20	DN 20 (3/4)	x	x	x		x
	25	DN 25 (1)	x	x	x		x
	32	DN 32 (1 1/4)	x	x	x		x
	40	DN 40 (1 1/2)	x	x			x
	50	DN 50 (2)	x	x			x
	65	DN 65 (2 1/2)	x				x
	80	DN 80 (3)	x				x
	100	DN 100 (4)	x				x
	125	DN 125 (5)	x				x
	150	DN 150 (6)	x				x
200	DN 200 (8)	x				x	
Connections	A	Butt-weld connection: ANSI B 36.10 schedule 80, DN 15 - 40 (1/2 – 1 1/2 in)					
	D	Butt-weld connection: ANSI B 36.10 schedule 40, DN 50 - 200 (2 – 8 in)					
	G	Butt-weld connection: DIN EN 10220					
	SOC	Butt-weld connection: GOST (8734-75 and 8732-78)					
	FPT	Socket weld: ANSI B 16.11					
	T	Female Pipe Thread NPT: ANSI / ASME B 1.20.1					
	F	Outside threaded connections ISO 228/1 Pipe thread Butt-weld connection F: Thickness DN 15 – 65 = 2 mm Thickness DN 80 – 200 = 3 mm					
Valve housing	ANG	Angle flow					
	STR	Straight flow					
Equipment	H-WHEEL	Hand wheel					
	CAP	Cap					

Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

Ordering factory assembled SVA-S angleway valve

SVA-S, Shut-off valve - 52 bar / 754 psi

Ordering

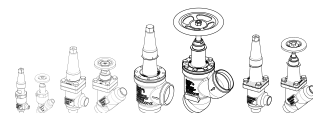


Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-S 6	6	1/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5000
	6	1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5020
	6	1/4	Angleway	Butt weld, EN 10220	D	Cap	148B5001
	6	1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5021
	6	1/4	Angleway	Outside pipe thread, (ISO 228/1)	T	Cap	148B5032
SVA-S 10	10	3/8	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5100
	10	3/8	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5120
	10	3/8	Angleway	Butt weld, EN 10220	D	Cap	148B5101
	10	3/8	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5121
SVA-S 15	15	1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5200
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5220
	15	1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5222
	15	1/2	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5224
	15	1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5201
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5221
	15	1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5223
	15	1/2	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5225
SVA-S 20	20	3/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5300
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5320
	20	3/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5322
	20	3/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5324
	20	3/4	Angleway	Butt weld, EN 10220	D	Cap	148B5301
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5321
	20	3/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5323
	20	3/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5325
SVA-S 25	25	1	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5400
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5420
	25	1	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5422
	25	1	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5424
	25	1	Angleway	Butt weld, EN 10220	D	Cap	148B5401
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5421
	25	1	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5423
	25	1	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5425
SVA-S 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5500
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5520
	32	1 1/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5522
	32	1 1/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5524
	32	1 1/4	Angleway	Butt weld, EN 10220	D	Cap	148B5501
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5521
	32	1 1/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5523
	32	1 1/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5525
SVA-S 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5600
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5620
	40	1 1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5622
	40	1 1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5601
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5621
	40	1 1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5623
SVA-S 50	50	2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5700
	50	2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5720
	50	2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5722
	50	2	Angleway	Butt weld, EN 10220	D	Cap	148B5701
	50	2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5721
	50	2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5723
SVA-S 65	65	2 1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5800
	65	2 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5820
	65	2 1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5801
	65	2 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5821
SVA-S 80	80	3	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5900
	80	3	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5920
	80	3	Angleway	Butt weld, EN 10220	D	Cap	148B5901
	80	3	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5921
	80	3	Angleway	Butt weld, EN 10220	D	Cap	148B6000
SVA-S 100	100	4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6000
	100	4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6020
	100	4	Angleway	Butt weld, EN 10220	D	Cap	148B6001
	100	4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B6021
SVA-S 125	125	5	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6100
	125	5	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6120
	125	5	Angleway	Butt weld, EN 10220	D	Cap	148B6101
	125	5	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B6121
SVA-S 150	150	6	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6200
	150	6	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6220
	150	6	Angleway	Butt weld, F	F	Hand wheel	148B6434
	150	6	Angleway	Butt weld, GOST	G	Hand wheel	148B6240
	150	6	Angleway	Butt weld, EN 10220	D	Cap	148B6201
	150	6	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B6221
	150	6	Angleway	Butt weld, F	F	Cap	148B6436
	150	6	Angleway	Butt weld, GOST	G	Cap	148B6241
SVA-S 200	200	8	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6300
	200	8	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6320
	200	8	Angleway	Butt weld, F	F	Hand wheel	148B6435
	200	8	Angleway	Butt weld, EN 10220	D	Cap	148B6301
	200	8	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B6321
	200	8	Angleway	Butt weld, F	F	Cap	148B6437

Ordering factory assembled SVA-S straightway valve

SVA-S, Shut-off valve - 52 bar / 754 psi

Ordering



Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-S 6	6	1/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5010
	6	1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5030
	6	1/4	Straightway	Butt weld, EN 10220	D	Cap	148B5011
	6	1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5031
SVA-S 10	10	3/8	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5110
	10	3/8	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5130
	10	3/8	Straightway	Butt weld, EN 10220	D	Cap	148B5111
	10	3/8	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5131
SVA-S 15	15	1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5210
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5230
	15	1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5232
	15	1/2	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5234
	15	1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5211
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5231
	15	1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5233
	15	1/2	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5235
SVA-S 20	20	3/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5310
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5330
	20	3/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5332
	20	3/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5334
	20	3/4	Straightway	Butt weld, EN 10220	D	Cap	148B5311
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5331
	20	3/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5333
	20	3/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5335
SVA-S 25	25	1	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5410
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5430
	25	1	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5432
	25	1	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5434
	25	1	Straightway	Butt weld, EN 10220	D	Cap	148B5411
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5431
	25	1	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5433
	25	1	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5435
SVA-S 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5510
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5530
	32	1 1/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5532
	32	1 1/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5534
	32	1 1/4	Straightway	Butt weld, EN 10220	D	Cap	148B5511
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5531
	32	1 1/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5533
	32	1 1/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5535
SVA-S 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5610
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5630
	40	1 1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5632
	40	1 1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5611
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5631
SVA-S 50	50	2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5633
	50	2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5710
	50	2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5730
	50	2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5732
	50	2	Straightway	Butt weld, EN 10220	D	Cap	148B5711
SVA-S 65	50	2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5733
	65	2 1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5810
	65	2 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5830
	65	2 1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5811
SVA-S 80	65	2 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5831
	80	3	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5910
	80	3	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5930
	80	3	Straightway	Butt weld, EN 10220	D	Cap	148B5911
SVA-S 100	80	3	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5931
	100	4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6010
	100	4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6030
	100	4	Straightway	Butt weld, EN 10220	D	Cap	148B6011
SVA-S 125	100	4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6031
	125	5	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6110
	125	5	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6130
	125	5	Straightway	Butt weld, EN 10220	D	Cap	148B6111
SVA-S 150	125	5	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6131
	150	6	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6210
	150	6	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6230
	150	6	Straightway	Butt weld, F	F	Hand wheel	148B6438
	150	6	Straightway	Butt weld, GOST	G	Hand wheel	148B6250
	150	6	Straightway	Butt weld, EN 10220	D	Cap	148B6211
	150	6	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6231
	150	6	Straightway	Butt weld, F	F	Cap	148B6440
SVA-S 200	150	6	Straightway	Butt weld, GOST	G	Cap	148B6251
	200	8	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6310
	200	8	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B6330
	200	8	Straightway	Butt weld, F	F	Hand wheel	148B6439
	200	8	Straightway	Butt weld, EN 10220	D	Cap	148B6311
	200	8	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6331
	200	8	Straightway	Butt weld, F	F	Cap	148B6441

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Ordering factory assembled SVA-L angleway valve

SVA-L, Shut-off valve - 52 bar / 754 psi

Ordering



Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-L 15	15	1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5240
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5260
	15	1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5262
	15	1/2	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5264
	15	1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5241
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5261
	15	1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5263
	15	1/2	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5265
SVA-L 20	20	3/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5340
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5360
	20	3/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5362
	20	3/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5364
	20	3/4	Angleway	Butt weld, EN 10220	D	Cap	148B5341
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5361
	20	3/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5363
	20	3/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5365
SVA-L 25	25	1	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5440
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5460
	25	1	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5462
	25	1	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5464
	25	1	Angleway	Butt weld, EN 10220	D	Cap	148B5441
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5461
	25	1	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5463
	25	1	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5465
SVA-L 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5540
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5560
	32	1 1/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5562
	32	1 1/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5564
	32	1 1/4	Angleway	Butt weld, EN 10220	D	Cap	148B5541
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5561
	32	1 1/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5563
	32	1 1/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5565
SVA-L 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5640
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5660
	40	1 1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5662
	40	1 1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5641
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B5661
	40	1 1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5663

Ordering factory assembled SVA-L straightway valve

SVA-L, Shut-off valve - 52 bar / 754 psi

Ordering



Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-L 15	15	1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5250
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5270
	15	1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5272
	15	1/2	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5274
	15	1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5251
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5271
	15	1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5273
	15	1/2	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5275
SVA-L 20	20	3/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5350
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5370
	20	3/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5372
	20	3/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5374
	20	3/4	Straightway	Butt weld, EN 10220	D	Cap	148B5351
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5371
	20	3/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5373
	20	3/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5375
SVA-L 25	25	1	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5450
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5470
	25	1	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5472
	25	1	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5474
	25	1	Straightway	Butt weld, EN 10220	D	Cap	148B5451
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5471
	25	1	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5473
	25	1	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5475
SVA-L 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5550
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5570
	32	1 1/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5572
	32	1 1/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Hand wheel	148B5574
	32	1 1/4	Straightway	Butt weld, EN 10220	D	Cap	148B5551
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5571
	32	1 1/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5573
	32	1 1/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	Cap	148B5575
SVA-L 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5650
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B5670
	40	1 1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Hand wheel	148B5672
	40	1 1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5651
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5671
	40	1 1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5673

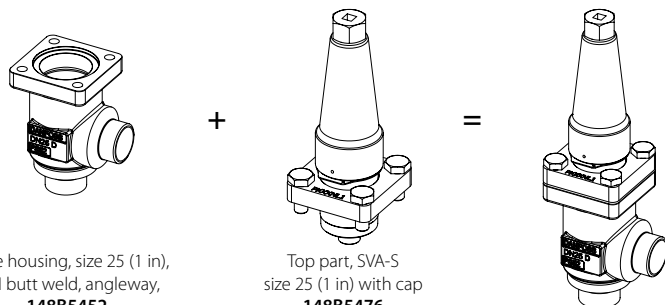
Accessories

6T Nipple Kit solution	Code no.
ACCESSORY WELD.NIPPLE DN6 A + UNION NUT	148B4245
ACCESSORY WELD.NIPPLE DN6 D + UNION NUT	148B4184

Technical data and ordering

Ordering from the parts programme (valve body + top part)

Example:

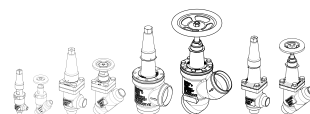


Valve housing, size 25 (1 in),
DIN butt weld, angleway,
148B5452
Table 1

Top part, SVA-S
size 25 (1 in) with cap
148B5476
Table 2

SVA-S 6 - 52 bar / 754 psi

Valve body



Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 6	1/4	6	Angleway	Butt weld, EN 10220	D	148B5002
	1/4	6	Angleway	Butt weld, ANSI (B 36.10)	A	148B5004
	1/4	6	Angleway	Outside pipe thread, (ISO 228 / 1)	T	148B5012
SVA-S 6	1/4	6	Straightway	Butt weld, EN 10220	D	148B5003
	1/4	6	Straightway	Butt weld, ANSI (B 36.10)	A	148B5005

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 6	Cap	148B5013
SVA-S 6	Hand wheel	148B5014

SVA-S 10 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 10	3/8	10	Angleway	Butt weld, EN 10220	D	148B5122
	3/8	10	Angleway	Butt weld, ANSI (B 36.10)	A	148B5124
	3/8	10	Angleway	Butt weld, GOST	G	148B5134
SVA-S 10	3/8	10	Straightway	Butt weld, EN 10220	D	148B5123
	3/8	10	Straightway	Butt weld, ANSI (B 36.10)	A	148B5125
	3/8	10	Straightway	Butt weld, GOST	G	148B5135

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 10	Cap	148B5013
SVA-S 10	Hand wheel	148B5014

SVA-S / L 15 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5252
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B5254
	1/2	15	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5258
	1/2	15	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5256
	1/2	15	Angleway	Butt weld, F	F	148B6414
	1/2	15	Angleway	Butt weld, GOST	G	148B5391
SVA-S / L 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B5253
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B5255
	1/2	15	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5259
	1/2	15	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5257
	1/2	15	Straightway	Butt weld, F	F	148B6424
	1/2	15	Straightway	Butt weld, GOST	G	148B5392

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 15	Cap	148B5276
SVA-S 15	Hand wheel	148B5277
SVA-L 15	Cap	148B5278
SVA-L 15	Hand wheel	148B5279

¹⁾ Including gaskets and bolts

Technical data and ordering

Ordering from the parts programme (valve body + top part)



SVA-S / L 20 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5352
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B5354
	3/4	20	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5358
	3/4	20	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5356
	3/4	20	Angleway	Butt weld, F	F	148B6415
SVA-S / L 20	3/4	20	Angleway	Butt weld, GOST	G	148B5393
	3/4	20	Straightway	Butt weld, EN 10220	D	148B5353
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B5355
	3/4	20	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5359
	3/4	20	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5357
3/4	20	Straightway	Butt weld, F	F	148B6425	
3/4	20	Straightway	Butt weld, GOST	G	148B5394	

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 20	Cap	148B5276
SVA-S 20	Hand wheel	148B5277
SVA-L 20	Cap	148B5278
SVA-L 20	Hand wheel	148B5279

SVA-S / L 25 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 25	1	25	Angleway	Butt weld, EN 10220	D	148B5452
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B5454
	1	25	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5458
	1	25	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5456
	1	25	Angleway	Butt weld, F	F	148B6416
SVA-S / L 25	1	25	Angleway	Butt weld, GOST	G	148B5498
	1	25	Angleway	Butt weld, EN 10220	D	148B5453
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B5455
	1	25	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5459
	1	25	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5457
1	25	Straightway	Butt weld, F	F	148B6426	
1	25	Straightway	Butt weld, GOST	G	148B5499	

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 25	Cap	148B5476
SVA-S 25	Hand wheel	148B5477
SVA-L 25	Cap	148B5478
SVA-L 25	Hand wheel	148B5479

SVA-S / L 32 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5576
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B5578
	1 1/4	32	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5582
	1 1/4	32	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5580
	1 1/4	32	Angleway	Butt weld, F	F	148B6417
SVA-S / L 32	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B5577
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B5579
	1 1/4	32	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5583
	1 1/4	32	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5581
1 1/4	32	Straightway	Butt weld, F	F	148B6427	
1 1/4	32	Straightway	Butt weld, GOST	G	148B5594	

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 32	Cap	148B5476
SVA-S 32	Hand wheel	148B5477
SVA-L 32	Cap	148B5478
SVA-L 32	Hand wheel	148B5479

¹⁾ Including gaskets and bolts

Technical data and ordering

Ordering from the parts programme (valve body + top part)



SVA-S / L 40 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5652
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5654
	1 1/2	40	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 1/2	40	Angleway	Butt weld, F	F	148B6418
	1 1/2	40	Angleway	Butt weld, GOST	G	148B5681
SVA-S / L 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B5653
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B5655
	1 1/2	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 1/2	40	Straightway	Butt weld, F	F	148B6428
	1 1/2	40	Straightway	Butt weld, GOST	G	148B5682

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 40	Cap	148B5476
SVA-S 40	Hand wheel	148B5477
SVA-L 40	Cap	148B5478
SVA-L 40	Hand wheel	148B5479

SVA-S 50 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 50	2	50	Angleway	Butt weld, EN 10220	D	148B5741
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B5743
	2	50	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5745
	2	50	Angleway	Butt weld, F	F	148B6419
	2	50	Angleway	Butt weld, GOST	G	148B5759
SVA-S 50	2	50	Straightway	Butt weld, EN 10220	D	148B5742
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B5744
	2	50	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5746
	2	50	Straightway	Butt weld, F	F	148B6429
	2	50	Straightway	Butt weld, GOST	G	148B5760

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 50	Cap	148B5728
SVA-S 50	Hand wheel	148B5729

SVA-S 65 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B5816
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5818
	2 1/2	65	Angleway	Butt weld, F	F	148B6420
	2 1/2	65	Angleway	Butt weld, GOST	G	148B5816
SVA-S 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B5817
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B5819
	2 1/2	65	Straightway	Butt weld, F	F	148B6430
	2 1/2	65	Straightway	Butt weld, GOST	G	148B5817

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 65	Cap	148B5822
SVA-S 65	Hand wheel	148B5823

¹⁾ Including gaskets and bolts

Technical data and ordering

Ordering from the parts programme (valve body + top part)

SVA-S 80 - 52 bar / 754 psi

Valve body



Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 80	3	80	Angleway	Butt weld, EN 10220	D	148B5912
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B5914
	3	80	Angleway	Butt weld, F	F	148B6421
	3	80	Angleway	Butt weld, GOST	G	148B5912
SVA-S 80	3	80	Straightway	Butt weld, EN 10220	D	148B5913
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B5915
	3	80	Straightway	Butt weld, F	F	148B6431
	3	80	Straightway	Butt weld, GOST	G	148B5913

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 80	Cap	148B5916
SVA-S 80	Hand wheel	148B5917

SVA-S 100 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 100	4	100	Angleway	Butt weld, EN 10220	D	148B6014
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6016
	4	100	Angleway	Butt weld, F	F	148B6422
	4	100	Angleway	Butt weld, GOST	G	148B6033
SVA-S 100	4	100	Straightway	Butt weld, EN 10220	D	148B6015
	4	100	Straightway	Butt weld, ANSI (B 36.10)	A	148B6017
	4	100	Straightway	Butt weld, F	F	148B6432
	4	100	Straightway	Butt weld, GOST	G	148B6034

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 100	Cap	148B6012
SVA-S 100	Hand wheel	148B6018

SVA-S 125 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 125	5	125	Angleway	Butt weld, EN 10220	D	148B6112
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6114
	5	125	Angleway	Butt weld, F	F	148B6423
	5	125	Angleway	Butt weld, GOST	G	148B6133
SVA-S 125	5	125	Straightway	Butt weld, EN 10220	D	148B6113
	5	125	Straightway	Butt weld, ANSI (B 36.10)	A	148B6115
	5	125	Straightway	Butt weld, F	F	148B6433
	5	125	Straightway	Butt weld, GOST	G	148B6134

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 125	Cap	148B6116
SVA-S 125	Hand wheel	148B6117

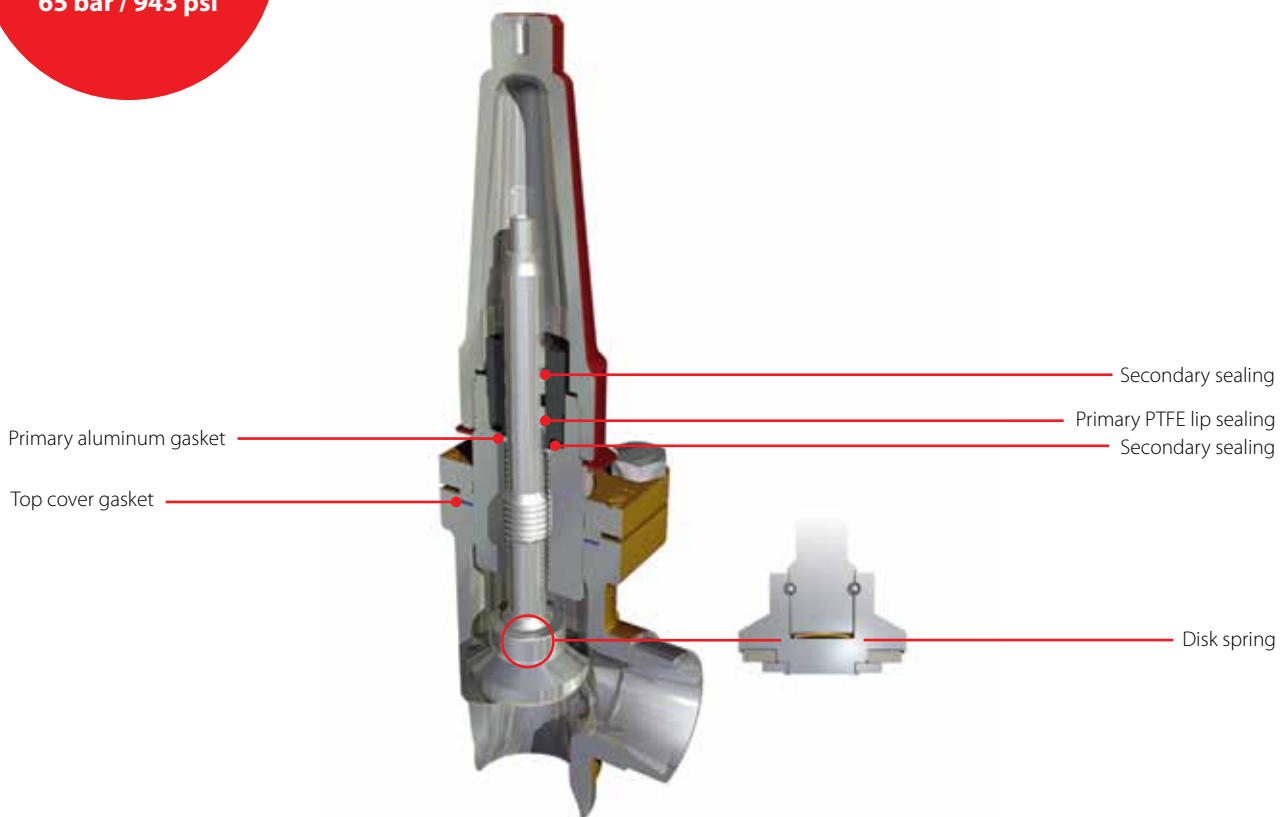
¹⁾ Including gaskets and bolts

SVA-S / SVA-L, Shut-off valves - 65 bar / 943 psi

SVA-S / L shut-off valves are available in angleway and straightway versions and with Standard neck (SVA-S) and Long neck (SVA-L). Each valve housing is available with several different connection types and sizes, and it is possible to convert SVA-S or SVA-L to any other product in the SVL family by replacing the complete top part.

The shut-off valves are designed to meet all industrial refrigeration application requirements, to provide favourable flow characteristics, and are easy to dismantle and repair when necessary. The valve cone is designed to ensure perfect closing and withstand a high system pulsation and vibration, which can be present specifically in the discharge line.

Features SVA-S / SVA-L 65 bar / 943 psi



Facts

- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Available in angleway and straightway versions with Standard neck, or Long neck (DN 15 to DN 40) for insulated systems
- Each valve type is clearly marked with type, size and performance range
- The valves and caps are prepared for sealing, to prevent operation by un-authorized persons, using a seal wire
- Internal metal backseating:
 - DN 6 – 65 (1/4 – 2 1/2 in)
- Internal PTFE backseating:
 - DN 80 – 200 (3 – 8 in)
- Can accept flow in both directions
- Housing and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities
- Equipped with 42CrMo5 bolts to withstand high pressure
- Optional accessories:
 - Heavy duty industrial hand wheel for frequent operation
 - Cap for infrequent operation
- Max. working pressure: 65 bar g / 943 psig
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Classification: DNV, CRN, BV etc

Technical data and ordering

SVA-S / SVA-L, Shut-off valve

Technical data

Type	Description
Pressure range	The valves are designed for max. working pressure 65 bar g / 943 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

Available connection sizes

SVA-S:

The S means Standard bonnet length (sizes from DN50 to DN200 are insulation friendly).

SVA-L:

The L means Long bonnet length (insulation friendly).



Size	SVA-S	SVA-L
DN 6 (1/4)	x	-
DN 10 (3/8)	x	-
DN 15 (1/2)	x	x
DN 20 (3/4)	x	x
DN 25 (1)	x	x
DN 32 (1 1/4)	x	x
DN 40 (1 1/2)	x	x
DN 50 (2)	x	-
DN 65 (2 1/2)	x	-
DN 80 (3)	x	-
DN 100 (4)	x	-
DN 125 (5)	x	-
DN 150 (6)	x	-
DN 200 (8)	x	-

Valve type	Connection size		Available connections
	Nominal size [mm]		
	[mm]	[in]	A / D
	6	DN 6 (1/4)	x
	10	DN 10 (3/8)	x
	15	DN 15 (1/2)	x
	20	DN 20 (3/4)	x
	25	DN 25 (1)	x
	32	DN 32 (1 1/4)	x
	40	DN 40 (1 1/2)	x
	50	DN 50 (2)	x
	65	DN 65 (2 1/2)	x
	80	DN 80 (3)	x
	100	DN 100 (4)	x
	125	DN 125 (5)	x
	150	DN 150 (6)	x
	200	DN 200 (8)	x
Connections	A	Butt-weld connection: ANSI B 36.10 schedule 80, DN 15 - 40 (1/2 – 1 1/2 in)	
	D	Butt-weld connection: ANSI B 36.10 schedule 40, DN 50 - 200 (2 – 8 in) Butt-weld connection: DIN EN 10220	
Valve housing	ANG	Angle flow	
	STR	Straight flow	
Equipment	CAP	Cap	

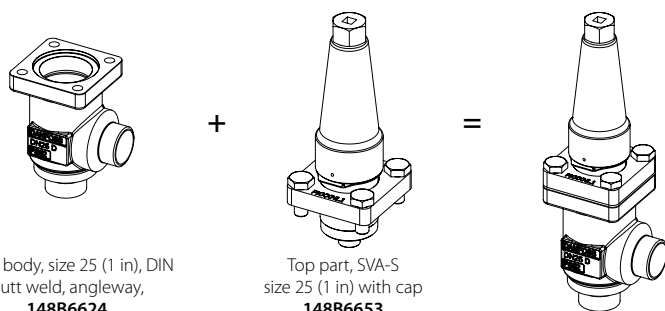
Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

Technical data and ordering

Ordering from the parts programme (valve body + top part)

Example:



Valve body, size 25 (1 in), DIN
butt weld, angleway,
148B6624

Top part, SVA-S
size 25 (1 in) with cap
148B6653

SVA-S 6 - 65 bar / 943 psi



Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 6	1/4	6	Angleway	Butt weld, EN 10220	D	148B6689
	1/4	6	Angleway	Butt weld, ANSI (B 36.10)	A	148B6687
SVA-S 6	1/4	6	Straightway	Butt weld, EN 10220	D	148B6693
	1/4	6	Straightway	Butt weld, ANSI (B 36.10)	A	148B6691

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 6	Cap	148B6695

SVA-S 10 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 10	3/8	10	Angleway	Butt weld, EN 10220	D	148B6690
	3/8	10	Angleway	Butt weld, ANSI (B 36.10)	A	148B6688
SVA-S 10	3/8	10	Straightway	Butt weld, EN 10220	D	148B6694
	3/8	10	Straightway	Butt weld, ANSI (B 36.10)	A	148B6692

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 10	Cap	148B6695

SVA-S / L 15 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B6622
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B6612
SVA-S / L 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B6642
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B6632

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 15	Cap	148B6652
SVA-L 15	Cap	148B6659

SVA-S / L 20 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B6623
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B6613
SVA-S / L 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B6643
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B6633

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 20	Cap	148B6652
SVA-L 20	Cap	148B6659

Technical data and ordering

Ordering from the parts programme (valve body + top part)



SVA-S / L 25 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 25	1	25	Angleway	Butt weld, EN 10220	D	148B6624
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B6614
SVA-S / L 25	1	25	Angleway	Butt weld, EN 10220	D	148B6644
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B6634

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 25	Cap	148B6653
SVA-L 25	Cap	148B6660

¹⁾ Including gaskets and bolts

SVA-S / L 32 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B6625
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B6615
SVA-S / L 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6645
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B6635

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 32	Cap	148B6653
SVA-L 32	Cap	148B6660

SVA-S / L 40 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B6626
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B6616
SVA-S / L 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6646
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B6636

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 40	Cap	148B6653
SVA-L 40	Cap	148B6660

SVA-S 50 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 50	2	50	Angleway	Butt weld, EN 10220	D	148B6627
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B6617
SVA-S 50	2	50	Straightway	Butt weld, EN 10220	D	148B6647
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B6637

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 50	Cap	148B6654

Technical data and ordering

Ordering from the parts programme (valve body + top part)

SVA-S 65 - 65 bar / 943 psi



Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B6628
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B6618
SVA-S 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B6648
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B6638

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 65	Cap	148B6655

¹⁾ Including gaskets and bolts

SVA-S 80 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 80	3	80	Angleway	Butt weld, EN 10220	D	148B6629
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B6619
SVA-S 80	3	80	Straightway	Butt weld, EN 10220	D	148B6649
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B6639

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 80	Cap	148B6656

SVA-S 100 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 100	4	100	Angleway	Butt weld, EN 10220	D	148B6630
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6620
SVA-S 100	4	100	Straightway	Butt weld, EN 10220	D	148B6650
	4	100	Straightway	Butt weld, ANSI (B 36.10)	A	148B6640

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 100	Cap	148B6657

SVA-S 125 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 125	5	125	Angleway	Butt weld, EN 10220	D	148B6631
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6621
SVA-S 125	5	125	Straightway	Butt weld, EN 10220	D	148B6651
	5	125	Straightway	Butt weld, ANSI (B 36.10)	A	148B6641

Top part ¹⁾

Type	Equipment	Code no.
SVA-S 125	Cap	148B6658

¹⁾ Including gaskets and bolts

Technical data and ordering

Ordering from the parts programme (valve body + top part)

SVA-S 150 and 200 - 65 bar / 943 psi

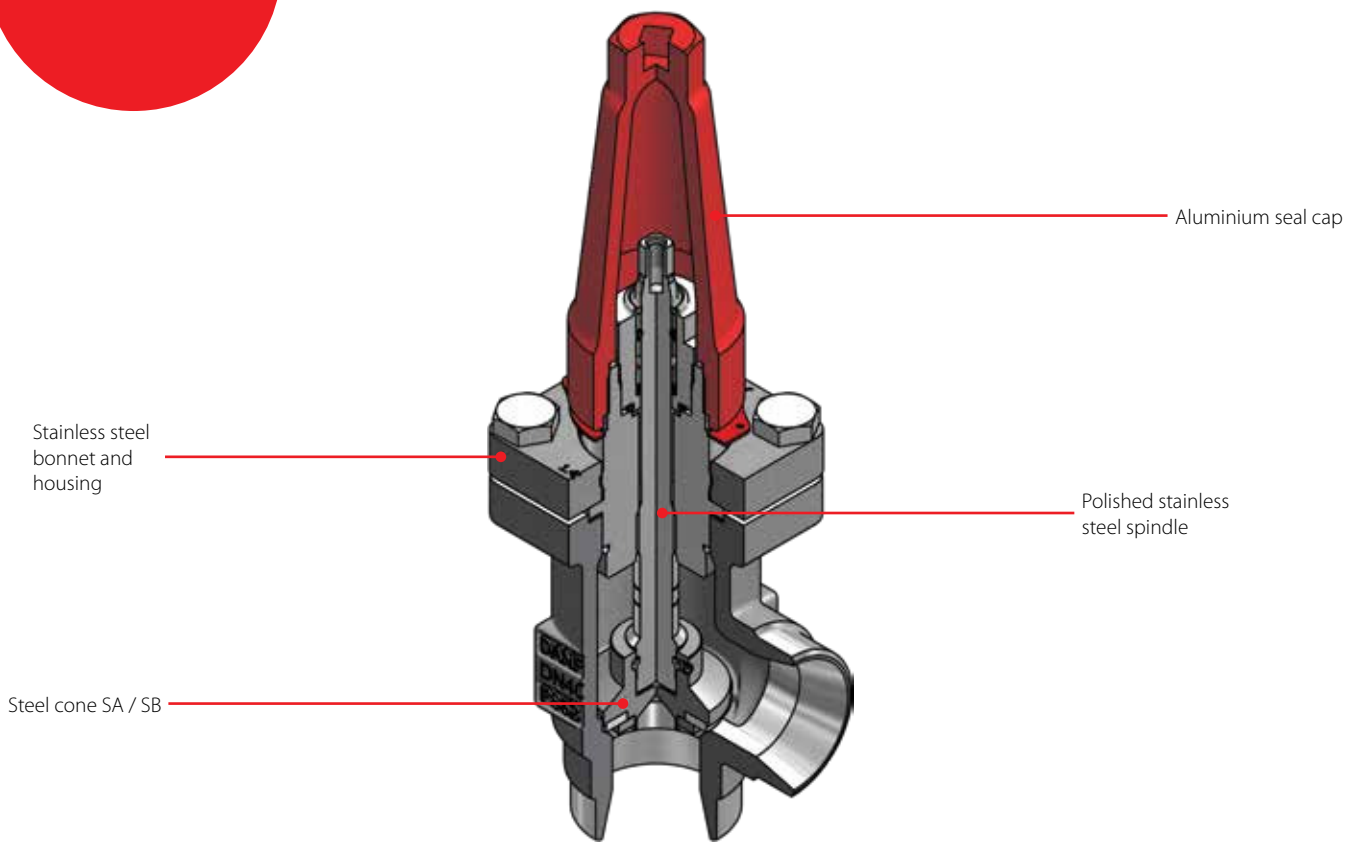
Ordering complete factory assembled valves

Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[in]	[mm]					
SVA-S 150	6	150	Angleway	Butt weld, EN 10220	D	Cap	148B6665
	6	150	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B6667
SVA-S 150	6	150	Straightway	Butt weld, EN 10220	D	Cap	148B6666
	6	150	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6668
SVA-S 200	8	200	Angleway	Butt weld, EN 10220	D	Cap	148B6673
	8	200	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B6675
SVA-S 200	8	200	Straightway	Butt weld, EN 10220	D	Cap	148B6674
	8	200	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6676

SVA-S SS / SVA-L SS, Shut-off valves

SVA-S SS and SVA-L SS are angleway and straightway stainless steel shut-off valves, which are designed to meet all industrial refrigeration application requirements.

The valves are designed to give favourable flow characteristics and are easy to dismantle and repair when necessary. The valve cone is designed to ensure perfect closing.



Stainless steel bonnet and housing

Steel cone SA / SB

Aluminium seal cap

Polished stainless steel spindle

Facts

- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170
For a fully updated list of approved refrigerants, visit www.products.danfoss.com

and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Available in angleway and straightway versions
- Each valve type is clearly marked with type, size and performance range
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Can accept flow in both directions
- Housing and bonnet material is stainless steel

- Equipped with stainless steel bolts
- Optional accessories:
 - Heavy duty industrial hand wheel for frequent operation
 - Cap for infrequent operation
- Max. working pressure
 - DN 15 – 65: 52 bar g / 754 psig
 - DN 80 – 125: 50 bar / 725 psig
- Temperature range:
 - 60 – 150 °C / -76 – 302 °F

Technical data and ordering

SVA-S SS and SVA-L SS, Shut-off valves

Technical data

Type	Description
Pressure range	DN 15 – 65: Max. working pressure PS / MWP 52 bar g / 754 psig DN 80 – 125: Max. working pressure PS / MWP 50 bar / 725 psig
Temperature range	-60 – 150 °C / -76 – 302 °F



SVA-S SS, Shut-off valves

Ordering angleway valves

Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-S SS 15	15	1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5289
	15	1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5290
	15	1/2	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B5396
SVA-S SS 20	20	3/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5377
	20	3/4	Angleway	Butt weld, EN 10220	D	Cap	148B5378
	20	3/4	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B5395
SVA-S SS 25	25	1	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5486
	25	1	Angleway	Butt weld, EN 10220	D	Cap	148B5487
	25	1	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B6477
SVA-S SS 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5566
	32	1 1/4	Angleway	Butt weld, EN 10220	D	Cap	148B5567
	32	1 1/4	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B5595
SVA-S SS 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5646
	40	1 1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5647
	40	1 1/2	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B5683
SVA-S SS 50	50	2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5753
	50	2	Angleway	Butt weld, EN 10220	D	Cap	148B5754
	50	2	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B5754
SVA-S SS 65	65	2 1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B5847
	65	2 1/2	Angleway	Butt weld, EN 10220	D	Cap	148B5848
	65	2 1/2	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B6448
SVA-S SS 80	80	3	Angleway	Butt weld, EN 10220	D	Cap	148B5928
	80	3	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B5928
SVA-S SS 100	100	4	Angleway	Butt weld, EN 10220	D	Cap	148B6032
	100	4	Angleway	Butt weld ANSI, B 36.19M	A	Cap	148B6035
SVA-S SS 125	125	5	Angleway	Butt weld, EN 10220	D	Cap	148B6126



SVA-S SS, Shut-off valves

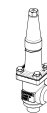
Ordering straightway valves

Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-S SS 15	15	1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5291
	15	1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5292
	15	1/2	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B5397
SVA-S SS 20	20	3/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5379
	20	3/4	Straightway	Butt weld, EN 10220	D	Cap	148B5380
	20	3/4	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B5398
SVA-S SS 25	25	1	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5488
	25	1	Straightway	Butt weld, EN 10220	D	Cap	148B5489
	25	1	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B5399
SVA-S SS 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5568
	32	1 1/4	Straightway	Butt weld, EN 10220	D	Cap	148B5569
	32	1 1/4	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B5596
SVA-S SS 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5648
	40	1 1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5649
	40	1 1/2	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B5684
SVA-S SS 50	50	2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5755
	50	2	Straightway	Butt weld, EN 10220	D	Cap	148B5756
	50	2	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B5756
SVA-S SS 65	65	2 1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5849
	65	2 1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5850
	65	2 1/2	Straightway	Butt weld ANSI, B 36.19M	A	Cap	148B6449

Technical data and ordering

SVA-L SS, Shut-off valves

Ordering angleway valves



Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-L SS 15	15	1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6546
	15	1/2	Angleway	Butt weld, EN 10220	D	Cap	148B6547
SVA-L SS 20	20	3/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6550
	20	3/4	Angleway	Butt weld, EN 10220	D	Cap	148B6551
SVA-L SS 25	25	1	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6554
	25	1	Angleway	Butt weld, EN 10220	D	Cap	148B6555
SVA-L SS 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6558
	32	1 1/4	Angleway	Butt weld, EN 10220	D	Cap	148B6559
SVA-L SS 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	Hand wheel	148B6562
	40	1 1/2	Angleway	Butt weld, EN 10220	D	Cap	148B6563

SVA-L SS, Shut-off valves

Ordering straightway valves



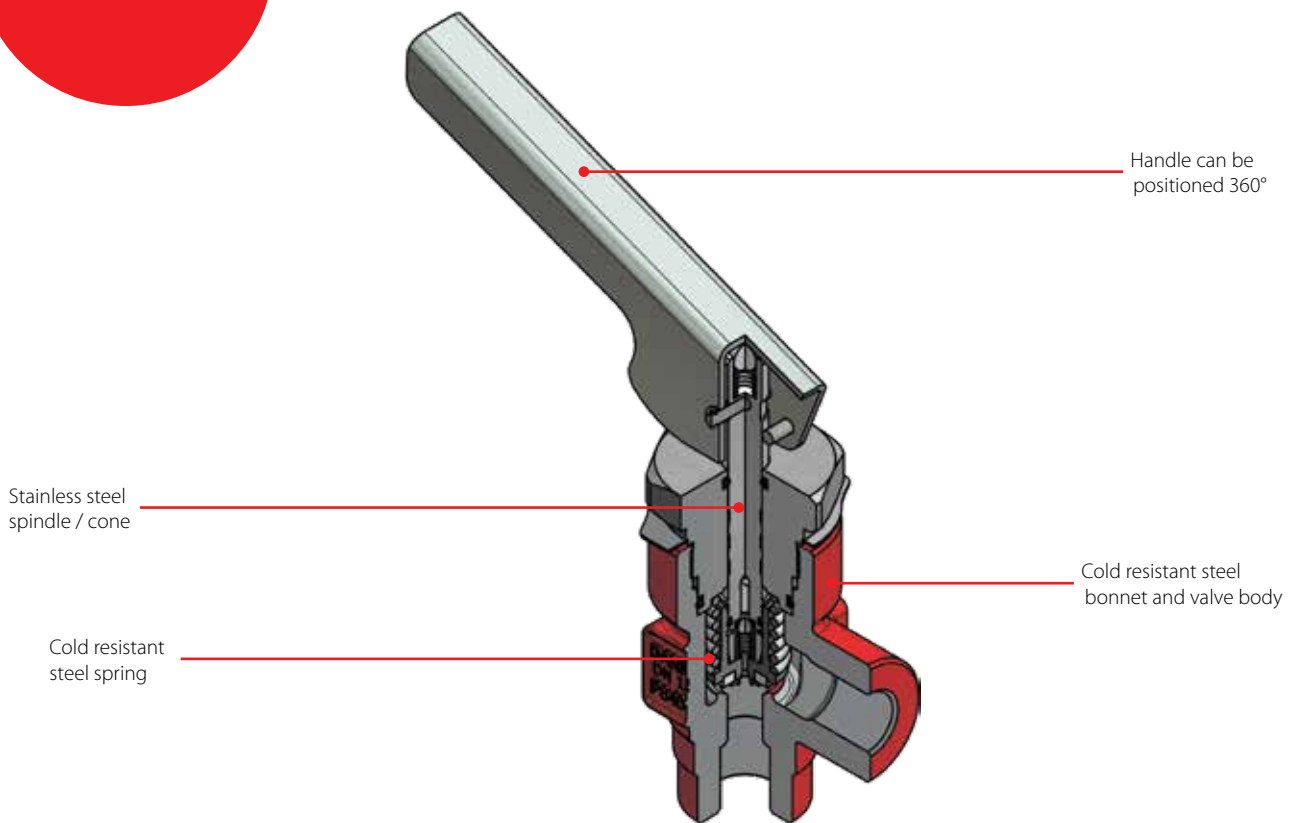
Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-L SS 15	15	1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6548
	15	1/2	Straightway	Butt weld, EN 10220	D	Cap	148B6549
SVA-L SS 20	20	3/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6552
	20	3/4	Straightway	Butt weld, EN 10220	D	Cap	148B6553
SVA-L SS 25	25	1	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6556
	25	1	Straightway	Butt weld, EN 10220	D	Cap	148B6557
SVA-L SS 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6560
	32	1 1/4	Straightway	Butt weld, EN 10220	D	Cap	148B6561
SVA-L SS 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B6564
	40	1 1/2	Straightway	Butt weld, EN 10220	D	Cap	148B6565

QDV, Shut-off valve

QDV are quick closing shut-off valves for oil drain, designed particularly for draining oil from systems containing refrigerant (ammonia) under pressure.

The valve closes immediately on release of the handle, thus protecting user and environment against unnecessary refrigerant leaks.

QDV is applicable to R717 (Ammonia), and is designed to meet the safety demands specified by national and international authorities within industrial refrigeration.



Facts

- QDV is designed for use with R717 (ammonia), but the valve is also applicable to all other common non flammable refrigerants and non corrosive gases / liquids dependent on sealing material compatibility
- QDV is a backpressure dependent valve. If any tube or hose is mounted on the outlet of the QDV it has to be calculated to prevent back pressure building up when relieving.
For further information please see installation instruction for QDV Flammable hydrocarbons are not recommended.
- Meets the safety demands within industrial refrigeration
- Handle can be positioned 360°
- Built-in integral relief device (opening over 25 bar g to prevent hydraulic pressure building up between stop valve and QDV)
- Can be supplied together with a stop valve for quick on site mounting
- Max. operating pressure: 40 bar g / 580 psig
- Temperature range: -50 – 150 °C / -58 – 302 °F

Technical data and ordering

QDV, Shut-off valve

Technical data

Type	Description
Pressure range	The valve is designed for: Maximum operating pressure of 40 bar g / 580 psig
Temperature range	-50 – 150 °C / -58 – 302 °F

QDV, Shut-off valve

Ordering

Type	Inlet	Outlet	Code no.
QDV 15 DN 15	DN 15	G 3/4 in	148H3272
QDV 15 1/2 in FPT	1/2 in FPT	1/2 in FPT	148H3273
QDV 15 3/4 in FPT	3/4 in FPT	3/4 in FPT	148H3274
QDV 15 DN 15 + SVA-ST DN 15 H-WHEEL *)	DN 15	G 3/4 in	148H3310
QDV 15 1/2 in FPT + SVA-ST SOC 1/2 in H-WHEEL *)	1/2 in SOC	1/2 in FPT	148H3311
Fittings for hose connection - G 3/4 in	–	–	148H3451
Fittings for welding connection - G 3/4 in	–	–	148H3452

*) Two valves are supplied in one box and should be mounted on site. The indicated inlet is for the stop valve - The indicated outlet is for the oil drain valve.

Important

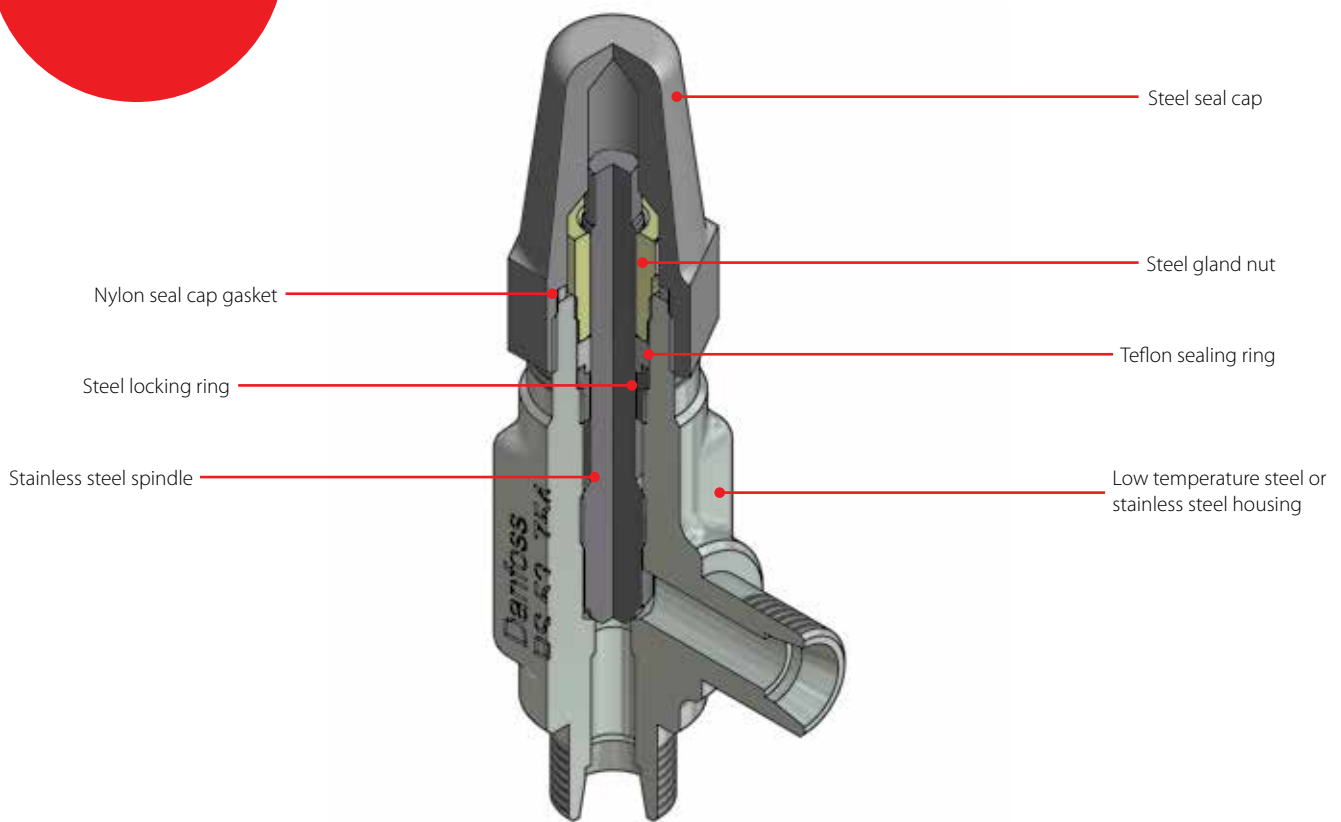
Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

SNV-ST / SNV-SS, Gauge valves

SNV stop gauge are designed as service valves with a very sturdy construction. SNV-ST are made in steel approved for low temperature operations, SVA-SS are stainless steel versions.

SNV valves have internal backseating (metal to metal), enabling the spindle seal to be replaced while the valve is still under pressure.

Features SNV-ST / SNV-SS



Facts

- Applicable to R717, R744, R113, R114, R1233zd(E), R1234yf, R1234ze(E), R125, R1270, R1336mzz(Z), R134a, R152a, R170, R227ea, R23, R236fa, R290, R32, R401A, R402A, R402B, R404A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R417A, R421A, R422A, R422B, R422D, R427A, R438A, R444B, R447A, R448A, R449A, R449B, R450A, R452A, R454B, R455A, R502, R503, R507, R513A, R600, R600a and RE170

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers,

where refrigerants are listed as part of product specifications.

- Suitable for "heavy duty" industrial applications having a very sturdy and safe design including high pressures and wide temperature range
- The SNV-ST and SNV-SS valves have backseating (metal to metal)
- Compact and light valve for easy handling and installation
- No special flow direction required
- Provide high flow characteristics
- Each valve type is clearly marked with type and size

- Housing and bonnet material is low temperature steel (stainless steel for SNV-SS) according to requirements of the Pressure Equipment Directive and other international classification authorities
- Valve safety is enhanced with the spindle being secured such that it cannot be unscrewed
- Max. operating pressure: 52 bar g / 754 psig
Valves for higher operating pressure available on request
- Temperature range: -60 – 150 °C / -76 – 302 °F

Technical data and ordering

SNV-ST / SNV-SS, Gauge valve

Technical data

Type	Description
Pressure range	Maximum operating pressure of 52 bar g / 754 psig. Valves for higher operating pressure available on request.
Temperature range	-60 – 150 °C / -76 – 302 °F

How to order

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range. For further information please contact your local Danfoss Sales Company.

Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

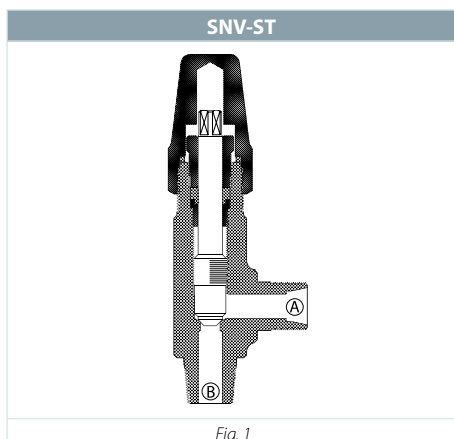
SNV-ST, See figure 1

Ordering

Type	Side branch connection [Ⓐ]	Bottom branch connection [Ⓑ]	Quantity [pcs.]	Code no.
SNV-ST CD10-CD10	CD 10	CD 10	1	148B3740
SNV-ST CD10-CD10	CD 10	CD 10	30	148B4177
SNV-ST CD10-1/4MPT	CD 10	1/4 MPT	1	148B3741
SNV-ST CD6-1/4MPT	CD 6	1/4 MPT	1	148B3742
SNV-ST CD10-3/8MPT	CD 10	3/8 MPT	1	148B3743
SNV-ST CD6-3/8MPT	CD 6	3/8 MPT	1	148B3744
SNV-ST G1/2-G1/2	G 1/2 (external)	G 1/2 (external)	1	148B3745
SNV-ST G1/2-G1/2	G 1/2 (external)	G 1/2 (external)	30	148B4179
SNV-ST 1/4FPT-1/4MPT	1/4 FPT	1/4 MPT	1	148B3746
SNV-ST 1/4FPT-1/4MPT	1/4 FPT	1/4 MPT	30	148B4180
SNV-SS 1/4FPT-1/4MPT	1/4 FPT	1/4 MPT	1	148B4771
SNV-ST 1/4FPT-1/4MPT **)	1/4 FPT	1/4 MPT	1	148B4772
SNV-ST 1/4FPT-1/4FPT	1/4 FPT	1/4 FPT	1	148B4568
SNV-ST 1/4FPT-1/4FPT	1/4 FPT	1/4 FPT	30	148B4223
SNV-ST 3/8FPT-3/8MPT	3/8 FPT	3/8 MPT	1	148B3747
SNV-ST 3/8FPT-3/8MPT	3/8 FPT	3/8 MPT	30	148B4181
SNV-SS 3/8FPT-3/8MPT	3/8 FPT	3/8 MPT	1	148B3750
SNV-ST 3/8FPT-1/2MPT	3/8 FPT	1/2 MPT	1	148B4565
SNV-ST 3/8FPT-1/2MPT	3/8 FPT	1/2 MPT	30	148B4233
SNV-ST 3/8FPT-3/8FPT	3/8 FPT	3/8 FPT	1	148B4572
SNV-ST 3/8FPT-3/8FPT	3/8 FPT	3/8 FPT	30	148B4225
SNV-ST 1/2MPT-1/2MPT	1/2 MPT	1/2 MPT	1	148B4564
SNV-ST 1/2MPT-1/2MPT	1/2 MPT	1/2 MPT	30	148B4224
SNV-ST 1/2MPT-3/8FPT	1/2 MPT	3/8 FPT	30	148B4226
SNV-ST CD6-1/4MPT *)	CD 6	1/4 MPT	30	148B4216
SNV-ST 7/16UNF-1/4MPT	7/16 UNF	1/4 MPT	1	148B4566
SNV-ST 7/16UNF-1/4MPT	7/16 UNF	1/4 MPT	30	148B4230
SNV-ST 3/8RC-3/8R	3/8 RC	3/8 R	30	148B4227
SNV-ST 1/4RC-3/8R	1/4 RC	3/8 R	30	148B4228
SNV-ST 1/4RC-1/4R	1/4 RC	1/4 R	30	148B4229

*) With handwheel.

**) Including adaptor for connection to ICS/PM/ICFD valve (1/4 in. NPT – G1/4)



Technical data and ordering

SNV-ST / SNV-SS (extended Branch) - see figure 2

Ordering

Type	Side branch connection (A)	Bottom branch connection (B)	Quantity [pcs.]	Code no.
SNV-ST CD10-W½ L100	CD10	W½ L100	1	148B3768
SNV-SS CD10-W½ L100	CD10	W½ L100	30	148B4210
SNV-ST G½-W½ L50	G½ (external)	W½ L50	1	148B4570
SNV-SS G½-W½ L50	G½ (external)	W½ L50	30	148B4218
SNV-ST G½-W½ L100	G½ (external)	W½ L100	1	148B3769
SNV-SS G½-W½ L100	G½ (external)	W½ L100	30	148B4211
SNV-ST G½-W½ L125	G½ (external)	W½ L125	30	148B4219
SNV-ST ¼FPT-¼MPT L100	¼ FPT	¼ MPT L100	1	148B4567
SNV-SS ¼FPT-¼MPT L100	¼ FPT	¼ MPT L100	30	148B4232
SNV-ST ¼FPT-W½ L100	¼ FPT	W½ L100	20	148B4495
SNV-SS G½-W½ L50	G½ (external)	W½ L50	1	148B4265
SNV-SS G½-W½ L50	G½ (external)	W½ L50	30	148B4263
SNV-SS G½-W½ L150	G½ (external)	W½ L150	1	148B4266
SNV-SS G½-W½ L150	G½ (external)	W½ L150	30	148B4264

L50 = 50 mm / 2 in, L100 = 100 mm / 4 in, L125 = 125 mm / 5 in, L150 = 150 mm / 6 in.

SNV-ST (Manometer connection) - see figure 3

Ordering

Type	Side branch connection (A)	Bottom branch connection (B)	Quantity [pcs.]	Code no.
SNV-ST G½ Man	G½	G½	1	148B3778**)
SNV-SS G½ Man	G½	G½	1	148B6545***)

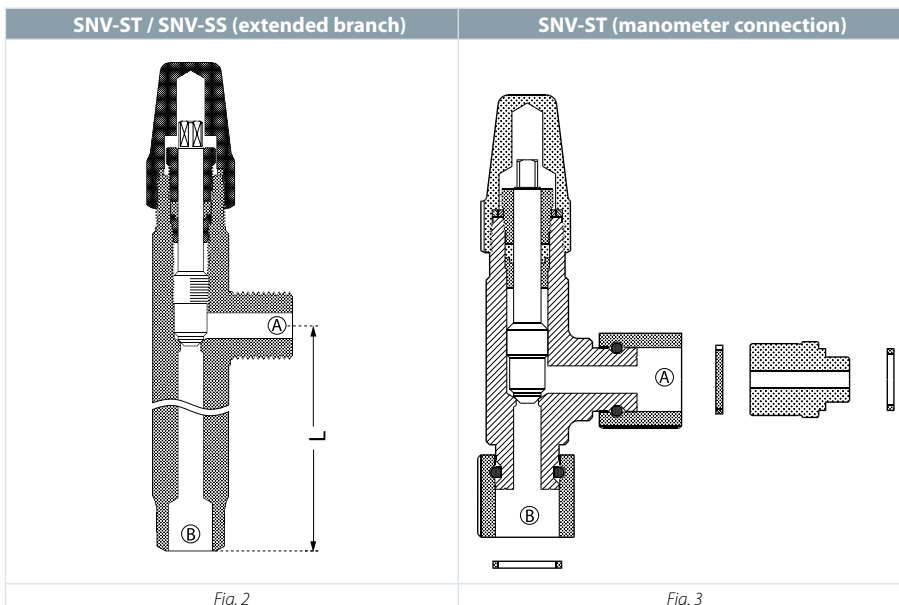
***) Including adaptor for connection to ICS / PM valve (G½ – G¼)

****) Including adaptor for connection to ICF valve (G½ – G¾).

Ordering valves for 65 bar

Type	Side branch connection (A)	Bottom branch connection (B)	Quantity [pcs.]	Code no.
SNV-ST CD10-CD10	CD10	CD 10	1	148B6400
SNV-ST CD10-W½ L100	CD10	W½ L100	30	148B4223
SNV-SS G½-W½ L50	G½ (external)	W½ L50	1	148B4581
SNV-SS G½-W½ L150	G½ (external)	W½ L150	1	148B4582

For additional equipment; please consult the spare parts and accessories documentation.



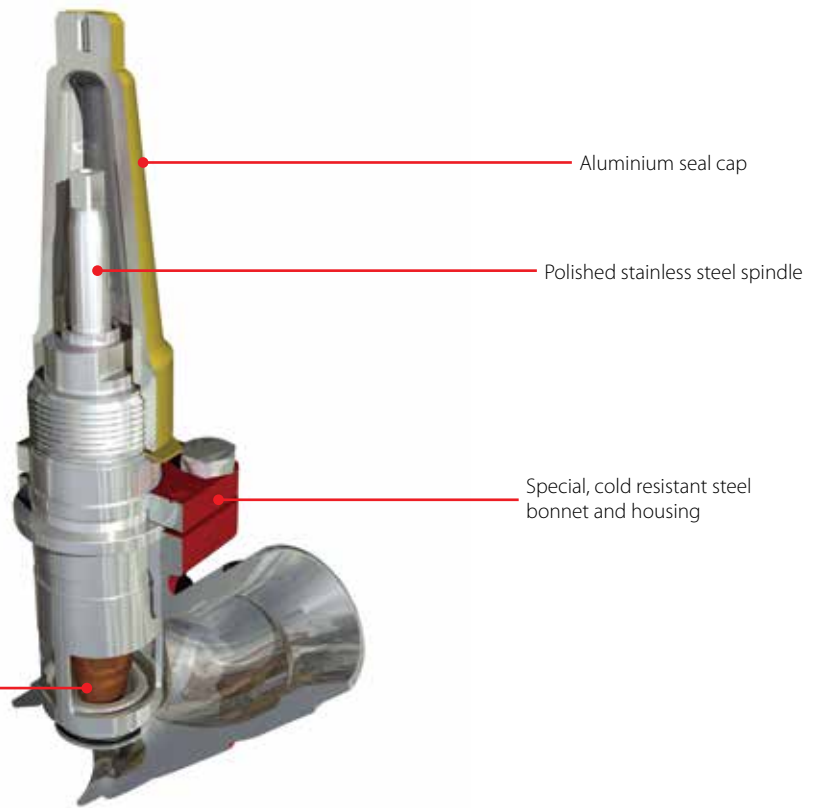
REG-SA / REG-SB, Hand-operated regulating valves - 52 bar / 754 psi

REG-SA and REG-SB are angleway and straightway hand-operated regulating valves, which act as normal shut-off valves in closed position.

REG-SA and REG-SB are members of the SVL modular concept product family, so each valve housing is available with several different connection types and sizes, and it is possible to convert

REG-SA or REG-SB to any other product in the SVL family by replacing the complete top part.

The valves are available in four different versions – REG-SA (S = short neck) and REG-LA (L = long neck) is for use in expansion lines (cone type A), while REG-SB and REG-LB is designed for regulation purposes in liquid lines (cone type B).



Facts

- Standard SVL angleway or straightway valve body allowing other top parts from the SVL platform to be installed
- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Designed to ensure perfect regulation
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Easy to disassemble for inspection and possible repair
- Max. operating pressure: 52 bar g / 754 psig
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Acts as a normal shut-off valve in closed position
- Valve body and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities

Technical data and ordering

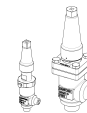
REG-SA / REG-SB, Hand-operated regulating valve

Technical data

Type	Description
Pressure range	52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F
Flow coefficients	Flow coefficients for fully opened valves from $K_v = 0.15 - 80 \text{ m}^3/\text{h}$ ($C_v = 0.17 - 92.5 \text{ USgal}/\text{min}$)

REG-SA / REG-SB, Hand-operated regulating valve

Available combination between valve size, cone type and valve connection



Size	DN 10 (3/8 in)		DN 15 (1/2 in)		DN 20 (3/4 in)		DN 25 (1 in)		DN 32 (1 1/4 in)		DN 40 (1 1/2 in)		DN 50 (2 in)		DN 65 (2 1/2 in)	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
DIN	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
ANSI	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GOST	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SOC			x	x	x	x	x	x	x	x	x	x	x	x	x	x
FPT			x	x	x	x	x	x	x	x						
F			x	x	x	x	x	x	x	x	x	x	x	x	x	x

x = available

How to order

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range. For further information please contact your local Danfoss Sales Company.

Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

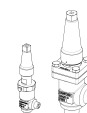
REG-SA / REG-SB - Hand-operated regulating valve

Type codes

Valve type	REG	Regulating Valves					
			Available connection types				
			A	D	SOC	FPT	F
Nominal size in [mm] (Valve size measured on the connection diameter)	10	DN 10	x	x			
	15	DN 15	x	x	x	x	
	20	DN 20	x	x	x	x	
	22	DN 22					
	25	DN 25	x	x	x	x	
	32	DN 32	x	x	x	x	
	40	DN 40	x	x	x	x	
	50	DN 50	x	x	x	x	
65	DN 65	x	x				
Connections	A	Welding branches: ANSI B 36.10 schedule 80, 15 – 40 (1/2 – 1 1/2 in) Welding branches: ANSI B 36.10 schedule 40, 50 – 65 (2 – 2 1/2 in)					
	D	Welding branches: EN 10220					
	G	Butt-weld connection: GOST (8734-75 and 8732-78)					
	SOC	Socket weld: ANSI B 16.11					
	FPT	NPT inside pipe thread: ANSI / ASME B1.20.1					
F	Butt-weld connection F: Thickness DN 15 – 65 = 2 mm						
Valve housing	ANG	Angle flow					
	STR	Straight flow					
Cone A	Size:	Flow area [mm ²]					
	DN 10	3.02					
	DN 15	36.5					
	DN 20	36.5					
	DN 25	178					
	DN 32	178					
DN 40	178						
Cone B	Size:	Flow area [mm ²]					
	DN 10	16					
	DN 15	115					
	DN 20	115					
	DN 25	531					
	DN 32	531					
	DN 40	531					
DN 50	822						
DN 65	1978						

Technical data and ordering

REG-SA - 52 bar / 754 psi (Cone type A - for expansion lines)



Ordering factory assembled angleway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA 10	10	3/8	Angleway	Butt weld, EN 10220	D	148B5102
	10	3/8	Angleway	Butt weld, ANSI (B 36.10)	A	148B5106
REG-SA 15	15	1/2	Angleway	Butt weld, EN 10220	D	148B5226
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	148B5202
	15	1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5204
	15	1/2	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5206
REG-SA 20	20	3/4	Angleway	Butt weld, EN 10220	D	148B5326
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	148B5302
	20	3/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5304
	20	3/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5306
REG-SA 25	25	1	Angleway	Butt weld, EN 10220	D	148B5426
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	148B5402
	25	1	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5404
	25	1	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5406
REG-SA 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	148B5527
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	148B5502
	32	1 1/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5504
	32	1 1/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5506
REG-SA 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	148B5627
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	148B5602
	40	1 1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5604

REG-SA - 52 bar / 754 psi (Cone type A - for expansion lines)

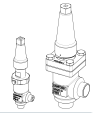


Ordering factory assembled straightway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA 10	10	3/8	Straightway	Butt weld, EN 10220	D	148B5104
	10	3/8	Straightway	Butt weld, ANSI (B 36.10)	A	148B5116
REG-SA 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5228
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	148B5212
	15	1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5214
	15	1/2	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5216
REG-SA 20	20	3/4	Straightway	Butt weld, EN 10220	D	148B5328
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	148B5312
	20	3/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5314
	20	3/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5316
REG-SA 25	25	1	Straightway	Butt weld, EN 10220	D	148B5428
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	148B5412
	25	1	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5414
	25	1	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5416
REG-SA 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	148B5528
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	148B5512
	32	1 1/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5514
	32	1 1/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5516
REG-SA 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	148B5629
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	148B5612
	40	1 1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5614

Technical data and ordering

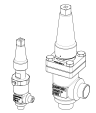
REG-SB - 52 bar / 754 psi (Cone type B - for liquid lines)



Ordering factory assembled angleway

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SB 10	10	3/8	Angleway	Butt weld, EN 10220	D	148B5103
	10	3/8	Angleway	Butt weld, ANSI (B 36.10)	A	148B5107
REG-SB 15	15	1/2	Angleway	Butt weld, EN 10220	D	148B5227
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	148B5203
	15	1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5205
	15	1/2	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5207
REG-SB 20	20	3/4	Angleway	Butt weld, EN 10220	D	148B5327
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	148B5303
	20	3/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5305
	20	3/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5307
REG-SB 25	25	1	Angleway	Butt weld, EN 10220	D	148B5427
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	148B5403
	25	1	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5405
	25	1	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5407
REG-SB 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	148B5526
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	148B5503
	32	1 1/4	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5505
	32	1 1/4	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5507
REG-SB 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	148B5626
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	148B5603
	40	1 1/2	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5605
REG-SB 50	50	2	Angleway	Butt weld, EN 10220	D	148B5726
	50	2	Angleway	Butt weld, ANSI (B 36.10)	A	148B5706
	50	2	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5727
REG-SB 65	65	2 1/2	Angleway	Butt weld, EN 10220	D	148B5826
	65	2 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	148B5806

REG-SB - 52 bar / 754 psi (Cone type B - for liquid lines)



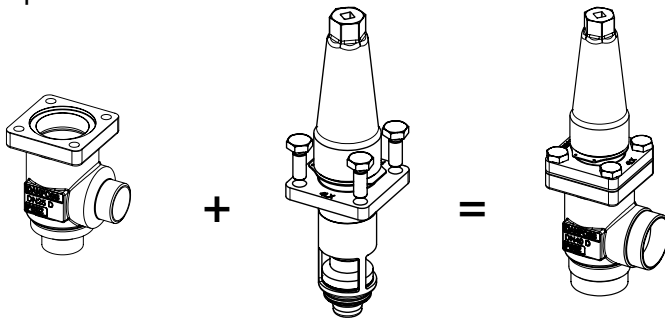
Ordering factory assembled straightway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SB 10	10	3/8	Straightway	Butt weld, EN 10220	D	148B5105
	10	3/8	Straightway	Butt weld, ANSI (B 36.10)	A	148B5117
REG-SB 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5229
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	148B5213
	15	1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5215
	15	1/2	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5217
REG-SB 20	20	3/4	Straightway	Butt weld, EN 10220	D	148B5329
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	148B5313
	20	3/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5315
	20	3/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5317
REG-SB 25	25	1	Straightway	Butt weld, EN 10220	D	148B5429
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	148B5413
	25	1	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5415
	25	1	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5417
REG-SB 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	148B5529
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	148B5513
	32	1 1/4	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5515
	32	1 1/4	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5517
REG-SB 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	148B5628
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	148B5613
	40	1 1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5615
REG-SB 50	50	2	Straightway	Butt weld, ANSI (B 36.10)	A	148B5724
REG-SB 65	65	2 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	148B5809
REG-SB 50	50	2	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5725

Technical data and ordering

Ordering from the parts programme (valve body + top part)

Example:



Valve housing, size 25 (1 in),
DIN butt weld, angleway,
148B5452

Top part, REG-SA
size 25 (1 in)
148B5480

REG-SA / SB 10 - 52 bar / 754 psi



Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 10	3/8	10	Angleway	Butt weld, EN 10220	D	148B5122
	3/8	10	Angleway	Butt weld, ANSI (B 36.10)	A	148B5124
	3/8	10	Angleway	Butt weld, GOST	G	148B5134
REG-SA / SB 10	3/8	10	Straightway	Butt weld, EN 10220	D	148B5123
	3/8	10	Straightway	Butt weld, ANSI (B 36.10)	A	148B5125
	3/8	10	Straightway	Butt weld, GOST	G	148B5135

Top part ¹⁾

Type	Code no.
REG-SA 10	148B5112
REG-SB 10	148B5113

REG-SA / SB / LA / LB 15 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB / LA / LB 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5252
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B5254
	1/2	15	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5258
	1/2	15	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5256
	3/8	10	Angleway	Butt weld, F	F	148B6414
	1/2	15	Angleway	Butt weld, GOST	G	148B5391
REG-SA / SB / LA / LB 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B5253
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B5255
	1/2	15	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5259
	1/2	15	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5257
	3/8	10	Straightway	Butt weld, F	F	148B6424
	1/2	15	Straightway	Butt weld, GOST	G	148B5392

Top part ¹⁾

Type	Code no.
REG-SA 15	148B5280
REG-SB 15	148B5281
REG-LA 15	148B6401
REG-LB 15	148B6402

¹⁾ Including gaskets and bolts

Technical data and ordering

Ordering from the parts programme (valve body + top part)



REG-SA / SB / LA / LB 20 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB / LA / LB 20	3/4	20	Angleway	Butt weld, EN 10220	D	14885352
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	14885354
	3/4	20	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	14885358
	3/4	20	Angleway	Socket weld, ANSI (B 16.11)	SOC	14885356
	3/4	20	Angleway	Butt weld, F	F	14886415
REG-SA / SB / LA / LB 20	3/4	20	Angleway	Butt weld, GOST	G	14885393
	3/4	20	Straightway	Butt weld, EN 10220	D	14885353
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	14885355
	3/4	20	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	14885359
	3/4	20	Straightway	Socket weld, ANSI (B 16.11)	SOC	14885357
REG-SA / SB / LA / LB 20	3/4	20	Straightway	Butt weld, F	F	14886425
	3/4	20	Straightway	Butt weld, GOST	G	14885394

Top part ¹⁾

Type	Code no.
REG-SA 20	14885280
REG-SB 20	14885281
REG-LA 20	14886401
REG-LB 20	14886402

REG-SA / SB / LA / LB 25 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB / LA / LB 25	1	25	Angleway	Butt weld, EN 10220	D	14885452
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	14885454
	1	25	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	14885458
	1	25	Angleway	Socket weld, ANSI (B 16.11)	SOC	14885456
	1	25	Angleway	Butt weld, F	F	14886416
REG-SA / SB / LA / LB 25	1	25	Angleway	Butt weld, GOST	G	14885498
	1	25	Straightway	Butt weld, EN 10220	D	14885453
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	14885455
	1	25	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	14885459
	1	25	Straightway	Socket weld, ANSI (B 16.11)	SOC	14885457
REG-SA / SB / LA / LB 25	1	25	Straightway	Butt weld, F	F	14886426
	1	25	Straightway	Butt weld, GOST	G	14885499

Top part ¹⁾

Type	Code no.
REG-SA 25	14885480
REG-SB 25	14885481
REG-LA 25	14886403
REG-LB 25	14886404

REG-SA / SB / LA / LB 32 - 52 bar / 754 psi

Valve body

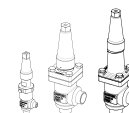
Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB / LA / LB 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	14885576
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	14885578
	1 1/4	32	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	14885582
	1 1/4	32	Angleway	Socket weld, ANSI (B 16.11)	SOC	14885580
	1 1/4	32	Angleway	Butt weld, F	F	14886417
REG-SA / SB / LA / LB 32	1 1/4	32	Angleway	Butt weld, GOST	G	14885593
	1 1/4	32	Straightway	Butt weld, EN 10220	D	14885577
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	14885579
	1 1/4	32	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	14885583
	1 1/4	32	Straightway	Socket weld, ANSI (B 16.11)	SOC	14885581
REG-SA / SB / LA / LB 32	1 1/4	32	Straightway	Butt weld, F	F	14886427
	1 1/4	32	Straightway	Butt weld, GOST	G	14885594

Top part ¹⁾

Type	Code no.
REG-SA 32	14885480
REG-SB 32	14885481
REG-LA 32	14886403
REG-LB 32	14886404

¹⁾ Including gaskets and bolts

Technical data and ordering



REG-SA / SB / LA / LB 40 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB / LA / LB 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5652
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5654
	1 1/2	40	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 1/2	40	Angleway	Butt weld, F	F	148B6418
	1 1/2	40	Angleway	Butt weld, GOST	G	148B5681
REG-SA / SB / LA / LB 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B5653
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B5655
	1 1/2	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 1/2	40	Straightway	Butt weld, F	F	148B6428
	1 1/2	40	Straightway	Butt weld, GOST	G	148B5682

Top part ¹⁾

Type	Code no.
REG-SA 40	148B5480
REG-SB 40	148B5481
REG-LA 40	148B6403
REG-LB 40	148B6404

REG-SA / SB 50 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 50	2	50	Angleway	Butt weld, EN 10220	D	148B5741
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B5743
	2	50	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5745
	2	50	Angleway	Butt weld, F	F	148B6419
	2	50	Angleway	Butt weld, GOST	G	148B5759
REG-SA / SB 50	2	50	Straightway	Butt weld, EN 10220	D	148B5742
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B5744
	2	50	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5746
	2	50	Straightway	Butt weld, F	F	148B6429
	2	50	Straightway	Butt weld, GOST	G	148B5760

Top part ¹⁾

Type	Code no.
REG-SB 50	148B5734

REG-SA / SB 65 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B5816
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5818
	2 1/2	65	Angleway	Butt weld, F	F	148B6420
	2 1/2	65	Angleway	Butt weld, GOST	G	148B5816
REG-SA / SB 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B5817
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B5819
	2 1/2	65	Straightway	Butt weld, F	F	148B6430
	2 1/2	65	Straightway	Butt weld, GOST	G	148B5817

Top part ¹⁾

Type	Code no.
REG-SB 65	148B5824

¹⁾ Including gaskets and bolts

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REG-SA / REG-SB, Hand-operated regulating valves, 65 bar / 943 psi

REG-SA and REG-SB are angleway and straightway hand-operated regulating valves, which act as normal shut-off valves in closed position.

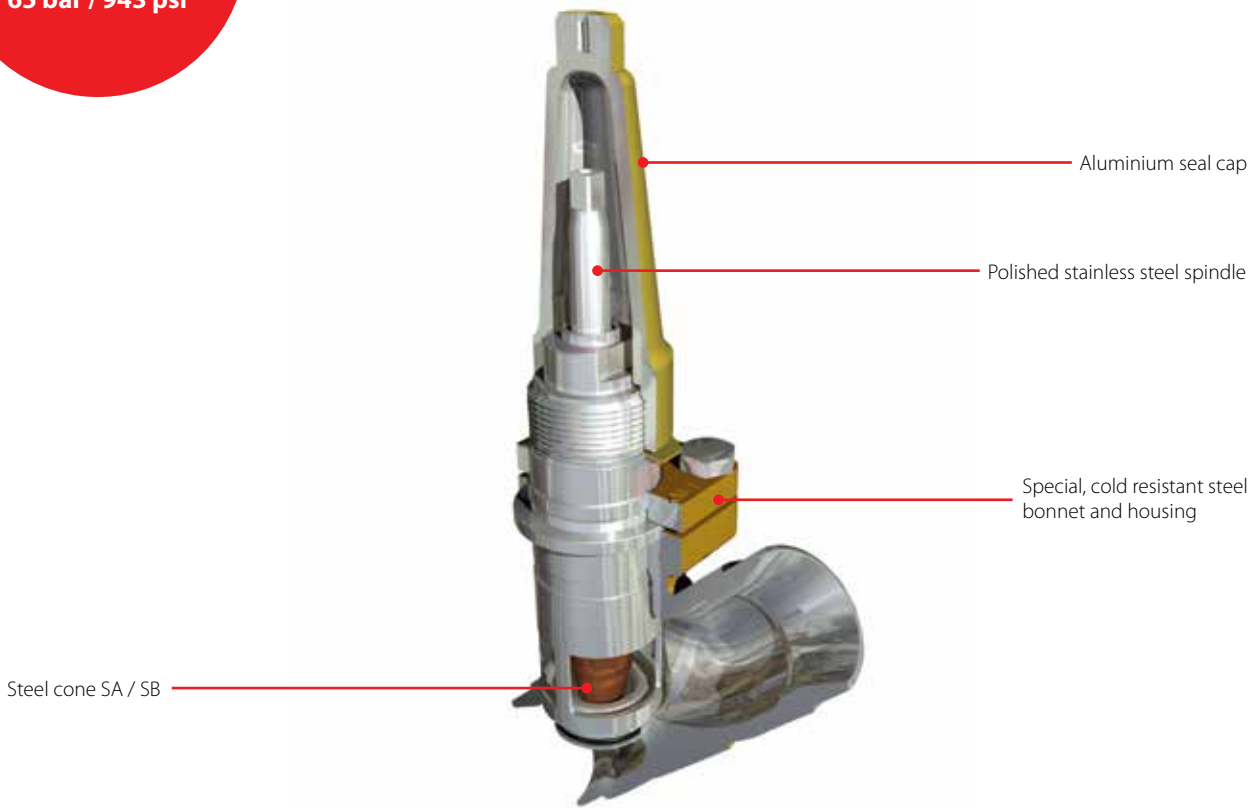
REG-SA and REG-SB are members of the SVL modular concept product family, so each valve housing is available with several different connection types and sizes, and it is possible to convert

REG-SA or REG-SB to any other product in the SVL family by replacing the complete top part.

The valves are available in two different versions – REG-SA and REG-SB designed for regulation purposes in liquid and expansion lines.



Features
REG-SA / REG-SB
65 bar / 943 psi



Facts

- Standard SVL angleway or straightway valve body allowing other top parts from the SVL platform to be installed
- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Designed to ensure perfect regulation
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Easy to disassemble for inspection and possible repair
- Max. operating pressure: 65 bar g / 943 psig
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Equipped with 42CrMo5 bolts to withstand high pressure.
- Acts as a normal shut-off valve in closed position
- Valve body and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities

Technical data and ordering

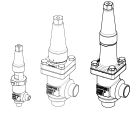
REG-SA / REG-SB, Hand-operated regulating valve

Technical data

Type	Description
Pressure range	65 bar g / 943 psig
Temperature range	-60 – 150 °C / -76 – 302 °F
Flow coefficients	Flow coefficients for fully opened valves from $K_v = 0.15 - 80 \text{ m}^3/\text{h}$ ($C_v = 0.17 - 92.5 \text{ USgal}/\text{min}$)

REG-SA / REG-SB, Hand-operated regulating valve

Available combination between valve size, cone type and valve connection



Size	DN 10 (3/8 in)		DN 15 (1/2 in)		DN 20 (3/4 in)		DN 25 (1 in)		DN 32 (1 1/4 in)		DN 40 (1 1/2 in)		DN 50 (2 in)		DN 65 (2 1/2 in)		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
DIN	x	x	x	x	x	x	x	x	x	x	x	x	x	-	x	-	x
ANSI	x	x	x	x	x	x	x	x	x	x	x	x	x	-	x	-	x

x = available

How to order

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range. For further information please contact your local Danfoss Sales Company.

Important!

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

REG-SA / REG-SB - Hand-operated regulating valve

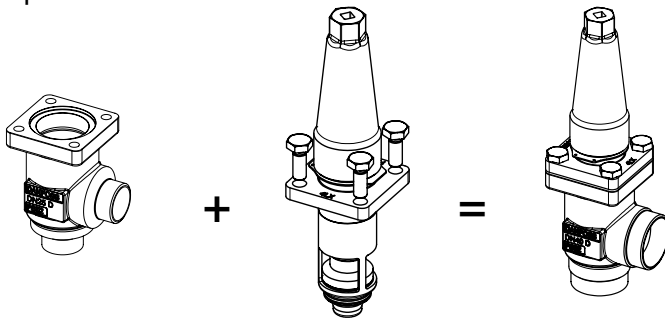
Type codes

Valve type	REG	Regulating Valves	
		Available connection types	
		A	D
Nominal size in [mm] (Valve size measured on the connection diameter)	10	DN 10	x
	15	DN 15	x
	20	DN 20	x
	22	DN 22	
	25	DN 25	x
	32	DN 32	x
	40	DN 40	x
	50	DN 50	x
	65	DN 65	x
Connections	A	Welding branches: ANSI B 36.10 schedule 80, 15 – 40 (1/2 – 1 1/2 in) Welding branches: ANSI B 36.10 schedule 40, 50 – 65 (2 – 2 1/2 in)	
	D	Welding branches: EN 10220	
Valve housing	ANG	Angle flow	
	STR	Straight flow	
Cone A	Size:	Flow area [mm ²]	
	DN 10	3.02	
	DN 15	36.5	
	DN 20	36.5	
	DN 25	178	
	DN 32	178	
Cone B	Size:	Flow area [mm ²]	
	DN 10	16	
	DN 15	115	
	DN 20	115	
	DN 25	531	
	DN 32	531	
	DN 40	531	
DN 50	822		
DN 65	1978		

Technical data and ordering

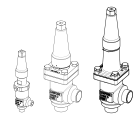
Ordering from the parts programme (valve body + top part)

Example:



Valve housing, size 25 (1 in),
DIN butt weld, angleway,
148B6624

Top part, REG-SA
size 25 (1 in)
148B5763



REG-SA / SB 10, 65 bar (943 psi)

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 10	3/8	10	Angleway	Butt weld, EN 10220	D	148B6690
	3/8	10	Angleway	Butt weld, ANSI (B 36.10)	A	148B6688
REG-SA / SB 10	3/8	10	Straightway	Butt weld, EN 10220	D	148B6694
	3/8	10	Straightway	Butt weld, ANSI (B 36.10)	A	148B6692

Top part ¹⁾

Type	Code no.
REG-SA 10	148B5761
REG-SB 10	148B5764

REG-SA / SB 15, 65 bar (943 psi)

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B6622
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B6612
REG-SA / SB 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B6642
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B6632

Top part ¹⁾

Type	Code no.
REG-SA 15	148B5762
REG-SB 15	148B5765

REG-SA / SB 20, 65 bar (943 psi)

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B6623
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B6613
REG-SA / SB 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B6643
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B6633

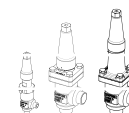
Top part ¹⁾

Type	Code no.
REG-SA 20	148B5762
REG-SB 20	148B5765

¹⁾ Including gaskets and bolts

Technical data and ordering

Ordering from the parts programme (valve body + top part)



REG-SA / SB 25

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 25	1	25	Angleway	Butt weld, EN 10220	D	148B6624
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B6614
REG-SA / SB 25	1	25	Straightway	Butt weld, EN 10220	D	148B6644
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B6634

Top part ¹⁾

Type	Code no.
REG-SA 25	148B5763
REG-SB 25	148B5766

REG-SA / SB 32

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B6625
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B6615
REG-SA / SB 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6645
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B6635

Top part ¹⁾

Type	Code no.
REG-SA 32	148B5763
REG-SB 32	148B5766

REG-SA / SB 40.65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B6626
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B6616
REG-SA / SB 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6646
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B6636

Top part ¹⁾

Type	Code no.
REG-SA 40	148B5763
REG-SB 40	148B5766

REG-SB 50.65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 50	2	50	Angleway	Butt weld, EN 10220	D	148B6627
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B6617
REG-SA / SB 50	2	50	Straightway	Butt weld, EN 10220	D	148B6647
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B6637

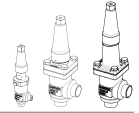
Top part ¹⁾

Type	Code no.
REG-SB 50	148B5767

¹⁾ Including gaskets and bolts

Technical data and ordering

REG-SB 65.65 bar / 943 psi



Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B6628
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B6618
REG-SA / SB 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B6648
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B6638

Top part ¹⁾

Type	Code no.
REG-SB 65	148B5768

¹⁾ Including gaskets and bolts

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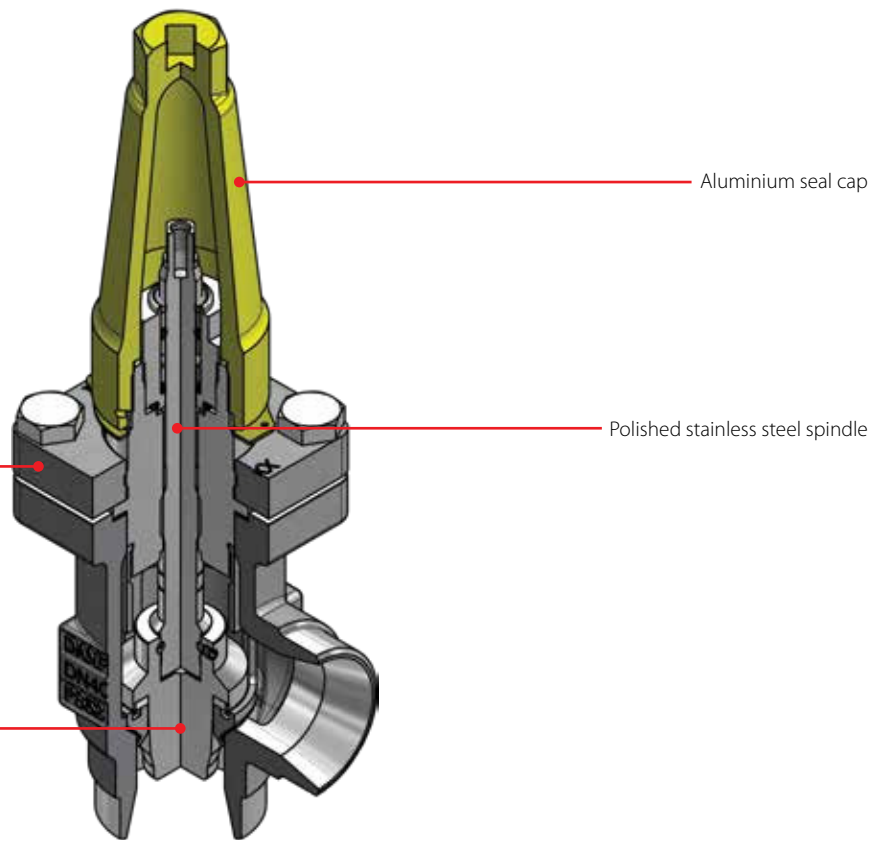
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REG-SA SS / REG-SB SS, Hand-operated regulating valves

REG-SA SS and REG-SB SS are angle-way and straight-way stainless steel hand-operated regulating valves, acting as normal shut-off valves in closed position. The valves are designed to meet the strict quality requirements on refrigerating installations specified by the international

classification societies and are carefully designed to present favourable flow conditions and accurate linear characteristics. The valves are equipped with vented cap and have internal backseating enabling the spindle seal to be replaced with the valve still under pressure.



Stainless steel bonnet and housing

Aluminium seal cap

Polished stainless steel spindle

Steel cone SA / SB

Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Compact and light valves for easy handling and installation
- Max. operating pressure: 52 bar g / 754 psig
- Temperature range: -60 – 150 °C / -76 – 302 °F
- Acts as a normal shut-off valve in closed position
- Valve body and bonnet material is stainless steel
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure

Technical data and ordering

REG-SA SS / REG-SB SS, Hand-operated regulating valves

Technical data

Type	Description
Pressure range	52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F
Flow coefficients	Flow coefficients for fully opened valves from $K_v = 0.15$ to $80 \text{ m}^3/\text{h}$ ($C_v = 0.17 - 92.5 \text{ USgal}/\text{min}$)



REG-SA SS (Cone type A - for expansion lines)

Ordering angleway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA SS 15	15	1/2	Angleway	Butt weld, EN 10220	D	148B5297
	15	1/2	Angleway	Butt weld ANSI, B 36.19M	A	148B6482
REG-SA SS 20	20	3/4	Angleway	Butt weld, EN 10220	D	148B5385
REG-SA SS 25	25	1	Angleway	Butt weld, EN 10220	D	148B5494
	25	1	Angleway	Butt weld ANSI, B 36.19M	A	148B6483
REG-SA SS 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	148B5589
	32	1 1/4	Angleway	Butt weld ANSI, B 36.19M	A	148B6484
REG-SA SS 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	148B5674

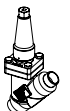
REG-SB SS (Cone type B - for liquid lines)

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SB SS 15	15	1/2	Angleway	Butt weld, EN 10220	D	148B5387
REG-SB SS 20	20	3/4	Angleway	Butt weld, EN 10220	D	148B5389
	20	3/4	Angleway	Butt weld ANSI, B 36.19M	A	148B6487
REG-SB SS 25	25	1	Angleway	Butt weld, EN 10220	D	148B5496
REG-SB SS 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	148B5591
REG-SB SS 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	148B5676
	40	1 1/2	Angleway	Butt weld ANSI, B 36.19M	A	148B5686

REG-SA SS (Cone type A - for expansion lines)

Ordering straightway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA SS 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5298
	15	1/2	Straightway	Butt weld ANSI, B 36.19M	A	148B5299
REG-SA SS 20	20	3/4	Straightway	Butt weld, EN 10220	D	148B5386
REG-SA SS 25	25	1	Straightway	Butt weld, EN 10220	D	148B5495
	25	1	Straightway	Butt weld ANSI, B 36.19M	A	148B6485
REG-SA SS 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	148B5590
	32	1 1/4	Straightway	Butt weld ANSI, B 36.19M	A	148B6486
REG-SA SS 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	148B5675



REG-SB (Cone type B - for liquid lines)

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SB 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5388
REG-SB 20	20	3/4	Straightway	Butt weld, EN 10220	D	148B5390
	20	3/4	Straightway	Butt weld ANSI, B 36.19M	A	148B6488
REG-SB 25	25	1	Straightway	Butt weld, EN 10220	D	148B5497
	25	1	Straightway	Butt weld ANSI, B 36.19M	A	148B6479
REG-SB 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	148B5592
REG-SB 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	148B5677
	40	1 1/2	Straightway	Butt weld ANSI, B 36.19M	A	148B5685

NRV / NRVH, Check valves

NRV and NRVH check valves can be used in liquid, suction and hot gas lines in refrigeration and air conditioning plants. Special versions, with a max. working pressure of 90 bar / 1305 psig are available for CO₂ applications. The valves ensure the correct flow direction and prevent back-condensation from a warm part of the system to the cold evaporator.

The hermetic tight design of solder versions meet the environmental demands for today and future. A built-in damping piston makes the valves suitable for installation in lines where pulsation can occur, e. g. in the discharge line from the compressor.

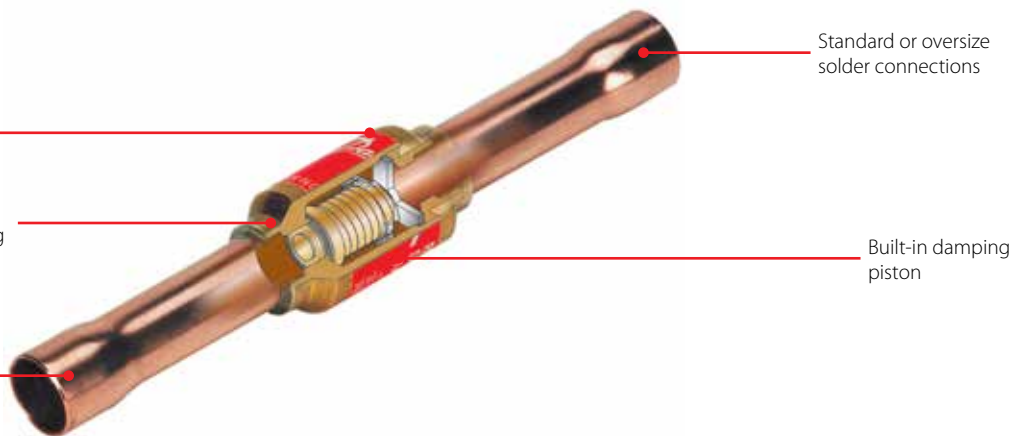
Features NRV / NRVH



Min. pressure drop
NRV 0.04 – 0.07 bar / 0.58 – 1.01 psig
NRVH 0.3 bar / 4.35 psig

Max. working pressure
PS / MWP 46 bar / 667 psig

Flare and solder version
NRV 6 – 19
NRV 6s – 35s
NRVH 6s – 35s



Facts

Application:

- Traditional refrigeration
 - Heat pump systems
 - Air conditioning units
 - Liquid coolers
 - Transport refrigeration
 - Applicable to R134a, R407C, R404A / R507, R407A, R407F, R410A, R32, R290, R600, R600a, R1270, R448A, R449A, R450A, R452A, R452B, R454B, R513A, R1234ze, R1234yf
- For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers,

where refrigerants are listed as part of product specifications.

- Resonance problems can be avoided at partial load in the refrigeration plant
- Oversize connections provide flexibility in use
- Prevents back-condensation from warm to cold system part
- Ensures correct flow direction
- Hermetic tight design for solder versions.
- Built-in damping piston that makes the valves suitable for installation in lines where pulsation can occur, e.g. in the discharge line from the compressor.

- Available in both straightway and angleway versions
- Solder versions are compliant with ATEX hazard zone 2
- NRVH type check valve is with stronger spring and it's recommended to use for compressors in parallel (i.e. power packs) where higher level of pulsation and vibration are expected.

Technical data and ordering

NRV / NRVH - Check valves

Technical data

Type	Description
Temperature range	-50 – 140 °C / -58 – 285 °F
Max. working pressure (PS / MWP)	46 bar / 667 psig
Approvals	C UL US LISTED, EAC



Note

-Only solder version, connection sizes from 6 s to 22 s are allowed for flammable refrigerant.
-R1234ze can be used for NRV size up to 35s according to the PED category I, Fluid II.

NRV - Check valve, straight-way, flare



Ordering

Type	Connection type	Connection		Pressure drop across valve		K _v - value ²⁾	C _v - value ²⁾	Code no.
		[in]	[mm]	Δp [bar] ¹⁾	Δp [psig] ¹⁾	[m ³ /h]	[gal/min]	
NRV6	Straight-way - flare	1/4	6	0.07	1.01	0.56	0.65	020-1040
NRV 10	Straight-way - flare	3/8	10	0.07	1.01	1.20	1.39	020-1041
NRV 12	Straight-way - flare	1/2	12	0.05	0.72	2.05	2.37	020-1042
NRV 16	Straight-way - flare	5/8	16	0.05	0.72	3.60	4.16	020-1043
NRV 19	Straight-way - flare	3/4	19	0.05	0.72	5.50	6.36	020-1044

¹⁾ Δp = the minimum pressure at which the valve is completely open.

²⁾ The K_v / C_v value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

NRV - Check valve, straight-way, solder ODF



Ordering

Type	Connection type	Connection		Pressure drop across valve		K _v - value ²⁾	C _v - value ²⁾	Code no.
		[in]	[mm]	Δp [bar] ¹⁾	Δp [psig] ¹⁾	[m ³ /h]	[gal/min]	
NRV 6s	Straight-way - Solder	1/4	–	0.07	1.01	0.56	0.65	020-1010
	Straight-way - Solder	–	6	0.07	1.01	0.56	0.65	020-1014
NRV 6s ³⁾	Straight-way - Solder	3/8	–	0.07	1.01	0.56	0.65	020-1057
	Straight-way - Solder	–	10	0.07	1.01	0.56	0.65	020-1050
NRV 10s	Straight-way - Solder	3/8	–	0.07	1.01	1.20	1.39	020-1011
	Straight-way - Solder	–	10	0.07	1.01	1.20	1.39	020-1015
NRV 10s ³⁾	Straight-way - Solder	1/2	–	0.07	1.01	1.20	1.39	020-1058
	Straight-way - Solder	–	12	0.07	1.01	1.20	1.39	020-1051
NRV 12s	Straight-way - Solder	1/2	–	0.05	0.72	2.05	2.37	020-1012
	Straight-way - Solder	–	12	0.05	0.72	2.05	2.37	020-1016
NRV 12s ³⁾	Straight-way - Solder	5/8	16	0.05	0.72	2.05	2.37	020-1052
NRV 16s	Straight-way - Solder	5/8	16	0.05	0.72	3.60	4.16	020-1018
NRV 16s ³⁾	Straight-way - Solder	–	18	0.05	0.72	3.60	4.16	020-1053
	Straight-way - Solder	3/4	19	0.05	0.72	3.60	4.16	020-1059
NRV 19s	Straight-way - Solder	–	18	0.05	0.72	5.50	6.36	020-1017
	Straight-way - Solder	3/4	19	0.05	0.72	5.50	6.36	020-1019
NRV 19s ³⁾	Straight-way - Solder	7/8	22	0.05	0.72	5.50	6.36	020-1054

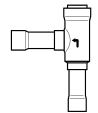
¹⁾ Δp = the minimum pressure at which the valve is completely open.

²⁾ The K_v / C_v value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

³⁾ Oversize connections.

This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance to standard EN13463-1.

NRV - Check valve, angle-way, solder ODF



Ordering

Type	Connection type	Connection		Pressure drop across valve		K _v - value ²⁾	C _v - value ²⁾	Code no.
		[in]	[mm]	Δp [bar] ¹⁾	Δp [psig] ¹⁾	[m ³ /h]	[gal/min]	
NRV 22s	Angle-way - solder	7/8	22	0.04	0.58	8.5	9.83	020-1020
NRV 22s ³⁾	Angle-way - solder	1 1/8	–	0.04	0.58	8.5	9.83	020-1060
	Angle-way - solder	–	28	0.04	0.58	8.5	9.83	020-1055
NRV 28s	Angle-way - solder	1 1/8	–	0.04	0.58	16.5	19.07	020-1021
	Angle-way - solder	–	28	0.04	0.58	16.5	19.07	020-1025
NRV 28s ³⁾	Angle-way - solder	1 3/8	35	0.04	0.58	16.5	19.07	020-1056
NRV 35s	Angle-way - solder	1 3/8	35	0.04	0.58	29.0	33.52	020-1026
NRV 35s ³⁾	Angle-way - solder	1 5/8	–	0.04	0.58	29.0	33.52	020-1061
	Angle-way - solder	–	42	0.04	0.58	29.0	33.52	020-1027

¹⁾ Δp = the minimum pressure at which the valve is completely open.

²⁾ The K_v / C_v value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

³⁾ Oversize connections.

Technical data and ordering

NRVH - Check valve, straight-way, solder ODF



Ordering

Type	Version	Connection		Pressure drop across valve		Kv - value ²⁾	Cv - value ²⁾	Code no.
		[in]	[mm]	Δp [bar] ¹⁾	Δp [psig] ¹⁾	[m ³ /h]	[gal/min]	
NRVH 6s ³⁾	Straight-way - solder	3/8	–	0.30	4.35	0.56	0.65	020-1069
	Straight-way - solder	–	10	0.30	4.35	0.56	0.65	020-1062
NRVH 10s	Straight-way - solder	3/8	–	0.30	4.35	1.20	1.39	020-1046
	Straight-way - solder	–	10	0.30	4.35	1.20	1.39	020-1036
NRVH 10s ³⁾	Straight-way - solder	1/2	–	0.30	4.35	1.20	1.39	020-1070
	Straight-way - solder	–	12	0.30	4.35	1.20	1.39	020-1063
NRVH 12s	Straight-way - solder	1/2	–	0.30	4.35	2.05	2.37	020-1039
	Straight-way - solder	–	12	0.30	4.35	2.05	2.37	020-1037
NRVH 12s ³⁾	Straight-way - solder	5/8	16	0.30	4.35	2.05	2.37	020-1064
NRVH 16s	Straight-way - solder	5/8	16	0.30	4.35	3.60	4.16	020-1038
NRVH 16s ³⁾	Straight-way - solder	–	18	0.30	4.35	3.60	4.16	020-1065
	Straight-way - solder	3/4	19	0.30	4.35	3.60	4.16	020-1071
NRVH 19s	Straight-way - solder	–	18	0.30	4.35	5.50	6.36	020-1008
	Straight-way - solder	3/4	19	0.30	4.35	5.50	6.36	020-1023
NRVH 19s ³⁾	Straight-way - solder	7/8	22	0.30	4.35	5.50	6.36	020-1066

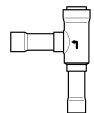
¹⁾ Δp = the minimum pressure at which the valve is completely open. The NRVH with a stronger spring is used in the discharge line from compressors connected in parallel.

²⁾ The Kv/Cv value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

³⁾ Oversize connections.

This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance to standard EN13463-1.

NRVH - Check valve, angle-way, solder ODF



Ordering

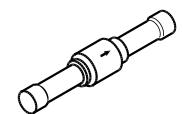
Type	Connection type	Connection		Pressure drop across valve		Kv - value ²⁾	Cv - value ²⁾	Code no.
		[in]	[mm]	Δp [bar] ¹⁾	Δp [psig] ¹⁾	[m ³ /h]	[gal/min]	
NRVH 22s	Angle-way - solder	7/8	22	0.30	4.35	8.5	9.83	020-1032
NRVH 22s ³⁾	Angle-way - solder	1 1/8	–	0.30	4.35	8.5	9.83	020-1072
	Angle-way - solder	–	28	0.30	4.35	8.5	9.83	020-1067
NRVH 28s	Angle-way - solder	1 1/8	–	0.30	4.35	16.5	19.07	020-1029
	Angle-way - solder	–	28	0.30	4.35	16.5	19.07	020-1033
NRVH 28s ³⁾	Angle-way - solder	1 3/8	35	0.30	4.35	16.5	19.07	020-1068
NRVH 35s	Angle-way - solder	1 3/8	35	0.30	4.35	29.0	33.52	020-1034
NRVH 35s ³⁾	Angle-way - solder	1 5/8	–	0.30	4.35	29.0	33.52	020-1073
	Angle-way - solder	–	42	0.30	4.35	29.0	33.52	020-1035

¹⁾ Δp = the minimum pressure at which the valve is completely open. The NRVH with a stronger spring is used in the discharge line from compressors connected in parallel.

²⁾ The Kv/Cv value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

³⁾ Oversize connections.

NRV 10s H - Check valve for R744 (CO₂)



Technical data

Type	Description
Refrigerants	R744 (CO ₂)
Oil	POE, PAG
Temperature range	-50 – 140 °C / -58 – 285 °F
Max. working pressure (PS / MWP)	90 bar / 1305 psig
Approvals	C UL US LISTED, EAC

NRV 10s H - Check valve, straight-way - solder ODF

Ordering

Type	Connection type	Connection size		Differential pressure to start opening the valve		Pressure drop across valve ΔP ₂		Kv - value ²⁾	Cv - value ²⁾	Code no.
		[in]	[mm]	[bar] ¹⁾	[psi] ¹⁾	[bar] ¹⁾	[psi] ¹⁾	[m ³ /h]	[gal/min]	
NRV 10s H	Straightway Solder ODF	3/8	–	0.4	5.8	1.0	14.5	0.9	1.04	020-4000
	Straightway Solder ODF	–	10	0.4	5.8	1.0	14.5	0.9	1.04	020-4300

¹⁾ ΔP₁ = the minimum pressure at which the valve start opening.

ΔP₂ = the minimum pressure at which the valve is completely open.

²⁾ The Kv/Cv value is the flow of water in [m³/h] / [gal/min] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

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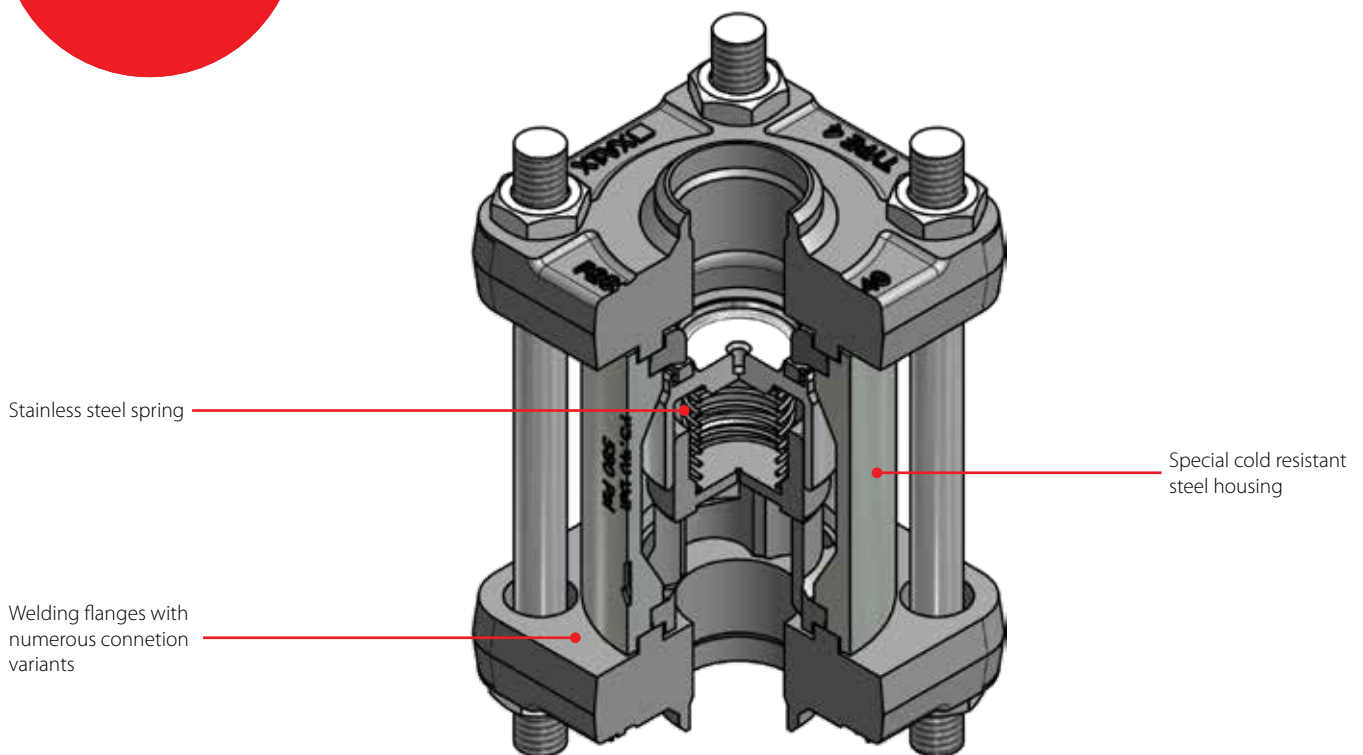
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NRVA, Check valve

NRVA check valves can be used in liquid, suction and hot gas lines in refrigeration and air conditioning plants.

The valves ensure the correct flow direction and prevent back-condensation from a warm part of the system to the cold evaporator.

Features NRVA



Facts

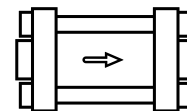
- Applicable to R717, R134a, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502 and R507
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Ensures correct direction of flow
- Valve housing made of steel
- Available for 40 bar g / 580 psig working pressure
- Large range of flanges with connection dimensions in accordance with standards: DIN, ANSI, SOC, SA and FPT
- Fitted with damping piston that makes the valves suitable for installation in lines where pulsation can occur, e.g. in the discharge line from the compressor

Technical data and ordering

NRVA - Check valve

Technical data

Type	Description
Pressure range	Max. working pressure PS / MWP: 40 bar g / 580 psig
Temperature range	-50 – 140 °C / -58 – 284 °F



NRVA - Complete valves incl. DIN 2448 flange

Ordering

Type	Weld flange connection	Δp ¹⁾				K_v value ²⁾	C_v value ³⁾	Code no.
		With standard spring		With special spring				
		[in]	[bar]	[psig]	[bar]	[psig]	[m ³ /h]	
NRVA 15	1/2	0.12	1.7	0.3	4.4	5	6	020-2000
NRVA 20	3/4	0.12	1.7	0.3	4.4	6	7	020-2001
NRVA 25	1	0.12	1.7	0.3	4.4	19	22	020-2002
NRVA 32	1 1/4	0.12	1.7	0.3	4.4	20	23	020-2003
NRVA 40	1 1/2	0.07	1.0	0.4	5.8	44	51	020-2004
NRVA 50	2	0.07	1.0	0.4	5.8	44	51	020-2005
NRVA 65	2 1/2	0.07	1.0	0.4	5.8	75	87	020-2006

¹⁾ Δp = the minimum pressure differential at which the valve is completely open.

²⁾ The K_v value is the flow of water in [m³/h] at a pressure drop across valve of 1 [bar, ρ] = 1000 [kg/m³].

³⁾ The C_v value is the flow of water in [gal/min] at a pressure drop across valve of 1 [psig, ρ] = 10 [lbs/gal].

Special spring for NRVA used in liquid lines where cold, thick oil or impurities may be present

Ordering

For type	Code no.
NRVA 15	020-2307
NRVA 20	020-2307
NRVA 25	020-2317
NRVA 32	020-2317
NRVA 40	020-2327
NRVA 50	020-2327
NRVA 65	020-2337

Valve body without flanges

Ordering

Type	Code no.
NRVA 15	020-2020
NRVA 20	020-2020
NRVA 25	020-2022
NRVA 32	020-2022
NRVA 40	020-2024
NRVA 50	020-2024
NRVA 65	020-2026

For ordering flanges, please consult the spare parts and accessories documentation.

Staybolts and gaskets

Ordering

Type	Dimensions	Code no.
NRVA 15 / 20	M 12 × 115 mm	006-1107
NRVA 25 / 32	M 12 × 148 mm	006-1135
NRVA 40 / 50	M 12 × 167 mm	006-1137
NRVA 65	M 16 × 200 mm	006-1138

SCA-X, Check and stop valve / CHV-X, Check valve - 52 bar / 754 psi

SCA-X are check valves with a built-in shut-off valve function. SCA-X valves are available in angleway versions. CHV-X are check valves only. CHV-X are available in both angleway and straightway versions. The SCA-X is equipped with vented cap and has internal backseating enabling the spindle seal to be replaced whilst the valve still under pressure.

SCA-X and CHV-X are members of the SVL modular concept product family, so each valve housing is available with several different connection types and sizes, and it is possible to convert SCA-X or CHV-X to any other product in the SVL family by replacing the complete top part.

The valves are designed to open at very low differential pressures, allow favourable flow conditions and are easy to disassemble for inspection and service.

Features SCA-X / CHV-X 52 bar / 754 psi



Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Housing is Standard SVL angleway housing allowing other inserts from the SVL platform to be installed
- Designed to open at a very low differential pressure of 0.04 bar / 0.58 psig
- Designed with a built-in damping chamber preventing valve flutter in case of low refrigerant velocity and / or low density
- Each valve is clearly marked with type, size and performance range
- Easy to disassemble for inspection and service
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Optimal flow characteristics ensuring quick opening to the fully open position
- Protection against pulsation by built-in damping facility
- Housing and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities
- Equipped with Stainless steel bolts
- Max. working pressure PS / MWP: 52 bar g / 754 psi g
- Temperature range: -60 – 150 °C / -76 – 302 °F

Technical data and ordering

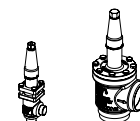
SCA-X / CHV-X, Check valves

Technical data

Type	Description
Pressure range	52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

For installation in heat pump applications, please contact Danfoss.

SCA-X, Check and stop valve, factory assembled - 52 bar / 754 psi

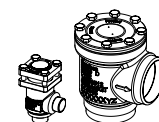


Ordering

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5208
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B5209
SCA-X 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5308
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B5309
SCA-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B5408
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B5409
SCA-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5508
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B5509
SCA-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5608
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5609
SCA-X 50	2	50	Angleway	Butt weld, EN 10220	D	148B5702
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B5703
	2	50	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5704
SCA-X 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B5803
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5802
SCA-X 80	3	80	Angleway	Butt weld, EN 10220	D	148B5902
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B5903
SCA-X 100	4	100	Angleway	Butt weld, EN 10220	D	148B6002
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6004
SCA-X 125	5	125	Angleway	Butt weld, EN 10220	D	148B6102
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6103

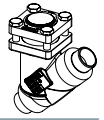
CHV-X, Check valve, factory assembled - 52 bar / 754 psi

Ordering angleway valves



Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5236
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B5237
CHV-X 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5336
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B5337
CHV-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B5436
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B5437
CHV-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5536
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B5537
	1 1/4	32	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5539
CHV-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5636
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5637
CHV-X 50	2	50	Angleway	Butt weld, EN 10220	D	148B5736
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B5737
	2	50	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5740
CHV-X 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B5838
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5837
CHV-X 80	3	80	Angleway	Butt weld, EN 10220	D	148B5936
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B5937
CHV-X 100	4	100	Angleway	Butt weld, EN 10220	D	148B6036
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6037
CHV-X 125	5	125	Angleway	Butt weld, EN 10220	D	148B6136
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6137

Ordering



CHV-X, Check valve, factory assembled - 52 bar / 754 psi

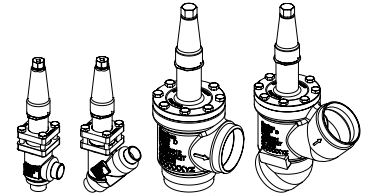
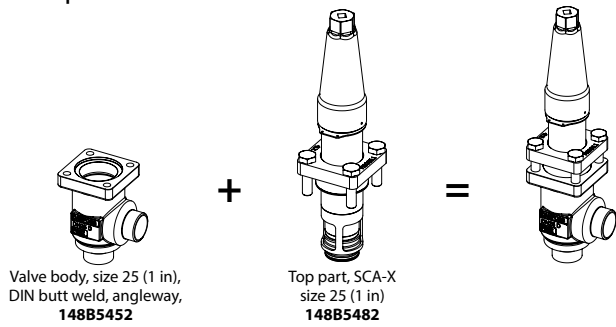
Ordering straightway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B6581
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B6582
	1/2	15	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B6601
CHV-X 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B6583
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B6584
	3/4	20	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B6602
CHV-X 25	1	25	Straightway	Butt weld, EN 10220	D	148B6585
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B6586
	1	25	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B6603
CHV-X 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6587
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B6588
	1 1/4	32	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B6604
CHV-X 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6589
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B6590
	1 1/2	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B6605
CHV-X 50	2	50	Straightway	Butt weld, EN 10220	D	148B6591
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B6592
	2	50	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B6606
CHV-X 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B6593
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B6594
CHV-X 80	3	80	Straightway	Butt weld, EN 10220	D	148B6595
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B6596
CHV-X 100	4	100	Straightway	Butt weld, EN 10220	D	148B6597
	4	100	Straightway	Butt weld, ANSI (B 36.10)	A	148B6598
CHV-X 125	5	125	Straightway	Butt weld, EN 10220	D	148B6599
	5	125	Straightway	Butt weld, ANSI (B 36.10)	A	148B6600

Ordering

Ordering SCA-X from the parts programme (valve body + top part)

Example:



SCA-X 15 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5252
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B5254
	1/2	15	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5258
	1/2	15	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5256
	1/2	15	Angleway	Butt weld, F	F	148B6414
	1/2	15	Angleway	Butt weld, GOST	G	148B5391
SCA-X 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B5253
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B5255
	1/2	15	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5259
	1/2	15	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5257
	1/2	15	Straightway	Butt weld, F	F	148B6424
	1/2	15	Straightway	Butt weld, GOST	G	148B5392

Top part ¹⁾

Type	Code no.
SCA-X 15	148B5282

SCA-X 20 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5352
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B5354
	3/4	20	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5358
	3/4	20	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5356
	3/4	20	Angleway	Butt weld, F	F	148B6415
	3/4	20	Angleway	Butt weld, GOST	G	148B5393
SCA-X 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B5353
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B5355
	3/4	20	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5359
	3/4	20	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5357
	3/4	20	Straightway	Butt weld, F	F	148B6425
	3/4	20	Straightway	Butt weld, GOST	G	148B5394

Top part ¹⁾

Type	Code no.
SCA-X 20	148B5282

SCA-X 25 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B5452
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B5454
	1	25	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5458
	1	25	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5456
	1	25	Angleway	Butt weld, F	F	148B6416
	1	25	Angleway	Butt weld, GOST	G	148B5498
SCA-X 25	1	25	Straightway	Butt weld, EN 10220	D	148B5453
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B5455
	1	25	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5459
	1	25	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5457
	1	25	Straightway	Butt weld, F	F	148B6426
	1	25	Straightway	Butt weld, GOST	G	148B5499

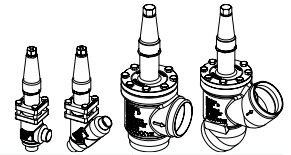
Top part ¹⁾

Type	Code no.
SCA-X 25	148B5482

¹⁾ Including gaskets and bolts.

Ordering

Ordering SCA-X from the parts programme (valve body + top part)



SCA-X 32 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5576
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B5578
	1 1/4	32	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5582
	1 1/4	32	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5580
	1 1/4	32	Angleway	Butt weld, F	F	148B6417
SCA-X 32	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B5577
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B5579
	1 1/4	32	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5583
	1 1/4	32	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5581
	1 1/4	32	Straightway	Butt weld, F	F	148B6427
	1 1/4	32	Straightway	Butt weld, GOST	G	148B5594

Top part ¹⁾

Type	Code no.
SCA-X 32	148B5482

SCA-X 40 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5652
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5654
	1 1/2	40	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 1/2	40	Angleway	Butt weld, F	F	148B6418
	1 1/2	40	Angleway	Butt weld, GOST	G	148B5681
SCA-X 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B5653
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B5655
	1 1/2	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 1/2	40	Straightway	Butt weld, F	F	148B6428
	1 1/2	40	Straightway	Butt weld, GOST	G	148B5682

Top part ¹⁾

Type	Code no.
SCA-X 40	148B5482

SCA-X 50 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 50	2	50	Angleway	Butt weld, EN 10220	D	148B5741
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B5743
	2	50	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5745
	2	50	Angleway	Butt weld, F	F	148B6419
	2	50	Angleway	Butt weld, GOST	G	148B5759
SCA-X 50	2	50	Straightway	Butt weld, EN 10220	D	148B5742
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B5744
	2	50	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5746
	2	50	Straightway	Butt weld, F	F	148B6429
	2	50	Straightway	Butt weld, GOST	G	148B5760

Top part ¹⁾

Type	Code no.
SCA-X 50	148B5735

SCA-X 65 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B5816
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5818
	2 1/2	65	Angleway	Butt weld, F	F	148B6420
	2 1/2	65	Angleway	Butt weld, GOST	G	148B5816
SCA-X 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B5817
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B5819
	2 1/2	65	Straightway	Butt weld, F	F	148B6430
	2 1/2	65	Straightway	Butt weld, GOST	G	148B5817

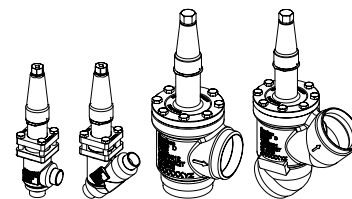
Top part ¹⁾

Type	Code no.
SCA-X 65	148B5825

¹⁾ Including gaskets and bolts.

Ordering

Ordering SCA-X from the parts programme (valve body + top part)



SCA-X 80 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 80	3	80	Angleway	Butt weld, EN 10220	D	148B5912
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B5914
	3	80	Angleway	Butt weld, F	F	148B6421
	3	80	Angleway	Butt weld, GOST	G	148B5912
SCA-X 80	3	80	Straightway	Butt weld, EN 10220	D	148B5913
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B5915
	3	80	Straightway	Butt weld, F	F	148B6431
	3	80	Straightway	Butt weld, GOST	G	148B5913

Top part ¹⁾

Type	Code no.
SCA-X 80	148B5918

SCA-X 100 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 100	4	100	Angleway	Butt weld, EN 10220	D	148B6014
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6016
	4	100	Angleway	Butt weld, F	F	148B6422
	4	100	Angleway	Butt weld, GOST	G	148B6033
SCA-X 100	4	100	Straightway	Butt weld, EN 10220	D	148B6015
	4	100	Straightway	Butt weld, ANSI (B 36.10)	A	148B6017
	4	100	Straightway	Butt weld, F	F	148B6432
	4	100	Straightway	Butt weld, GOST	G	148B6034

Top part ¹⁾

Type	Code no.
SCA-X 100	148B6019

SCA-X 125 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 125	5	125	Angleway	Butt weld, EN 10220	D	148B6112
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6114
	5	125	Angleway	Butt weld, F	F	148B6423
	5	125	Angleway	Butt weld, GOST	G	148B6133
SCA-X 125	5	125	Straightway	Butt weld, EN 10220	D	148B6113
	5	125	Straightway	Butt weld, ANSI (B 36.10)	A	148B6115
	5	125	Straightway	Butt weld, F	F	148B6433
	5	125	Straightway	Butt weld, GOST	G	148B6134

Top part ¹⁾

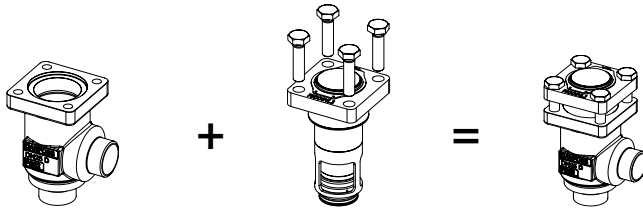
Type	Code no.
SCA-X 125	148B6118

¹⁾ Including gaskets and bolts.

Ordering

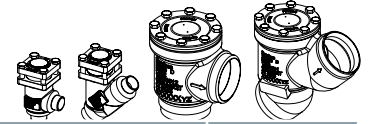
Ordering CHV-X from the parts programme (valve body + top part)

Example:



Valve body, size 25 (1 in),
DIN butt weld, angleway,
148B5452

Top part, CHV-X
size 25 (1 in)
148B5483



CHV-X 15 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5252
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B5254
	1/2	15	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5258
	1/2	15	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5256
	1/2	15	Angleway	Butt weld, F	F	148B6414
	1/2	15	Angleway	Butt weld, GOST	G	148B5391
CHV-X 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B5253
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B5255
	1/2	15	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5259
	1/2	15	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5257
	1/2	15	Straightway	Butt weld, F	F	148B6424
	1/2	15	Straightway	Butt weld, GOST	G	148B5392

Top part ¹⁾

Type	Code no.
CHV-X 15	148B5283

CHV-X 20 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5352
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B5354
	3/4	20	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5358
	3/4	20	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5356
	3/4	20	Angleway	Butt weld, F	F	148B6415
	3/4	20	Angleway	Butt weld, GOST	G	148B5393
CHV-X 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B5353
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B5355
	3/4	20	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5359
	3/4	20	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5357
	3/4	20	Straightway	Butt weld, F	F	148B6425
	3/4	20	Straightway	Butt weld, GOST	G	148B5394

Top part ¹⁾

Type	Code no.
CHV-X 20	148B5283

CHV-X 25 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B5452
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B5454
	1	25	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5458
	1	25	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5456
	1	25	Angleway	Butt weld, F	F	148B6416
	1	25	Angleway	Butt weld, GOST	G	148B5498
CHV-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B5453
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B5455
	1	25	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5459
	1	25	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5457
	1	25	Straightway	Butt weld, F	F	148B6426
	1	25	Straightway	Butt weld, GOST	G	148B5499

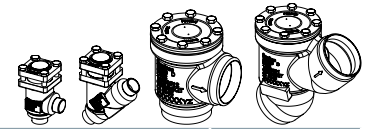
Top part ¹⁾

Type	Code no.
CHV-X 25	148B5483

¹⁾ Including gaskets and bolts.

Ordering

Ordering CHV-X from the parts programme (valve body + top part)



CHV-X 32 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5576
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B5578
	1 1/4	32	Angleway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5582
	1 1/4	32	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5580
	1 1/4	32	Angleway	Butt weld, F	F	148B6417
CHV-X 32	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B5577
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B5579
	1 1/4	32	Straightway	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5583
	1 1/4	32	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5581
	1 1/4	32	Straightway	Butt weld, F	F	148B6427
	1 1/4	32	Straightway	Butt weld, GOST	G	148B5594

Top part ¹⁾

Type	Code no.
CHV-X 32	148B5483

CHV-X 40 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5652
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5654
	1 1/2	40	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 1/2	40	Angleway	Butt weld, F	F	148B6418
	1 1/2	40	Angleway	Butt weld, GOST	G	148B5681
CHV-X 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B5653
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B5655
	1 1/2	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 1/2	40	Straightway	Butt weld, F	F	148B6428
	1 1/2	40	Straightway	Butt weld, GOST	G	148B5682

Top part ¹⁾

Type	Code no.
CHV-X 40	148B5483

CHV-X 50 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 50	2	50	Angleway	Butt weld, EN 10220	D	148B5741
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B5743
	2	50	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5745
	2	50	Angleway	Butt weld, F	F	148B6419
	2	50	Angleway	Butt weld, GOST	G	148B5759
CHV-X 50	2	50	Straightway	Butt weld, EN 10220	D	148B5742
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B5744
	2	50	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5746
	2	50	Straightway	Butt weld, F	F	148B6429
	2	50	Straightway	Butt weld, GOST	G	148B5760

Top part ¹⁾

Type	Code no.
CHV-X 50	148B5747

CHV-X 65 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B5816
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5818
	2 1/2	65	Angleway	Butt weld, F	F	148B6420
	2 1/2	65	Angleway	Butt weld, GOST	G	148B5816
CHV-X 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B5817
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B5819
	2 1/2	65	Straightway	Butt weld, F	F	148B6430
	2 1/2	65	Straightway	Butt weld, GOST	G	148B5817

Top part ¹⁾

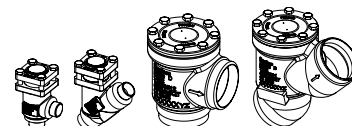
Type	Code no.
CHV-X 65	148B5827

¹⁾ Including gaskets and bolts.

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Ordering

Ordering CHV-X from the parts programme (valve body + top part)



CHV-X 80 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 80	3	80	Angleway	Butt weld, EN 10220	D	148B5912
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B5914
	3	80	Angleway	Butt weld, F	F	148B6421
	3	80	Angleway	Butt weld, GOST	G	148B5912
CHV-X 80	3	80	Straightway	Butt weld, EN 10220	D	148B5913
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B5915
	3	80	Straightway	Butt weld, F	F	148B6431
	3	80	Straightway	Butt weld, GOST	G	148B5913

Top part ¹⁾

Type	Code no.
CHV-X 80	148B5919

CHV-X 100 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 100	4	100	Angleway	Butt weld, EN 10220	D	148B6014
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6016
	4	100	Angleway	Butt weld, F	F	148B6422
	4	100	Angleway	Butt weld, GOST	G	148B6033
CHV-X 100	4	100	Straightway	Butt weld, EN 10220	D	148B6015
	4	100	Straightway	Butt weld, ANSI (B 36.10)	A	148B6017
	4	100	Straightway	Butt weld, F	F	148B6432
	4	100	Straightway	Butt weld, GOST	G	148B6034

Top part ¹⁾

Type	Code no.
CHV-X 100	148B6022

CHV-X 125 - 52 bar / 754 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 125	5	125	Angleway	Butt weld, EN 10220	D	148B6112
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6114
	5	125	Angleway	Butt weld, F	F	148B6423
	5	125	Angleway	Butt weld, GOST	G	148B6133
CHV-X 125	5	125	Straightway	Butt weld, EN 10220	D	148B6113
	5	125	Straightway	Butt weld, ANSI (B 36.10)	A	148B6115
	5	125	Straightway	Butt weld, F	F	148B6433
	5	125	Straightway	Butt weld, GOST	G	148B6134

Top part ¹⁾

Type	Code no.
CHV-X 125	148B6119

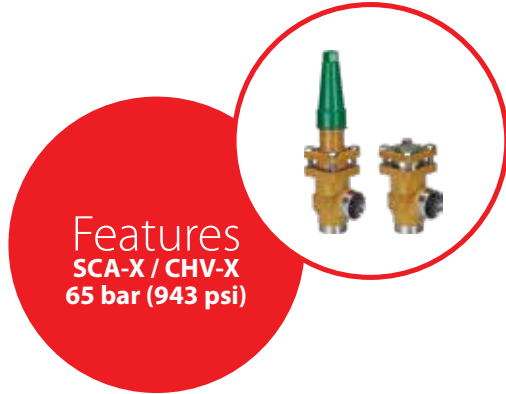
¹⁾ Including gaskets and bolts.

Quick Selection Notes:

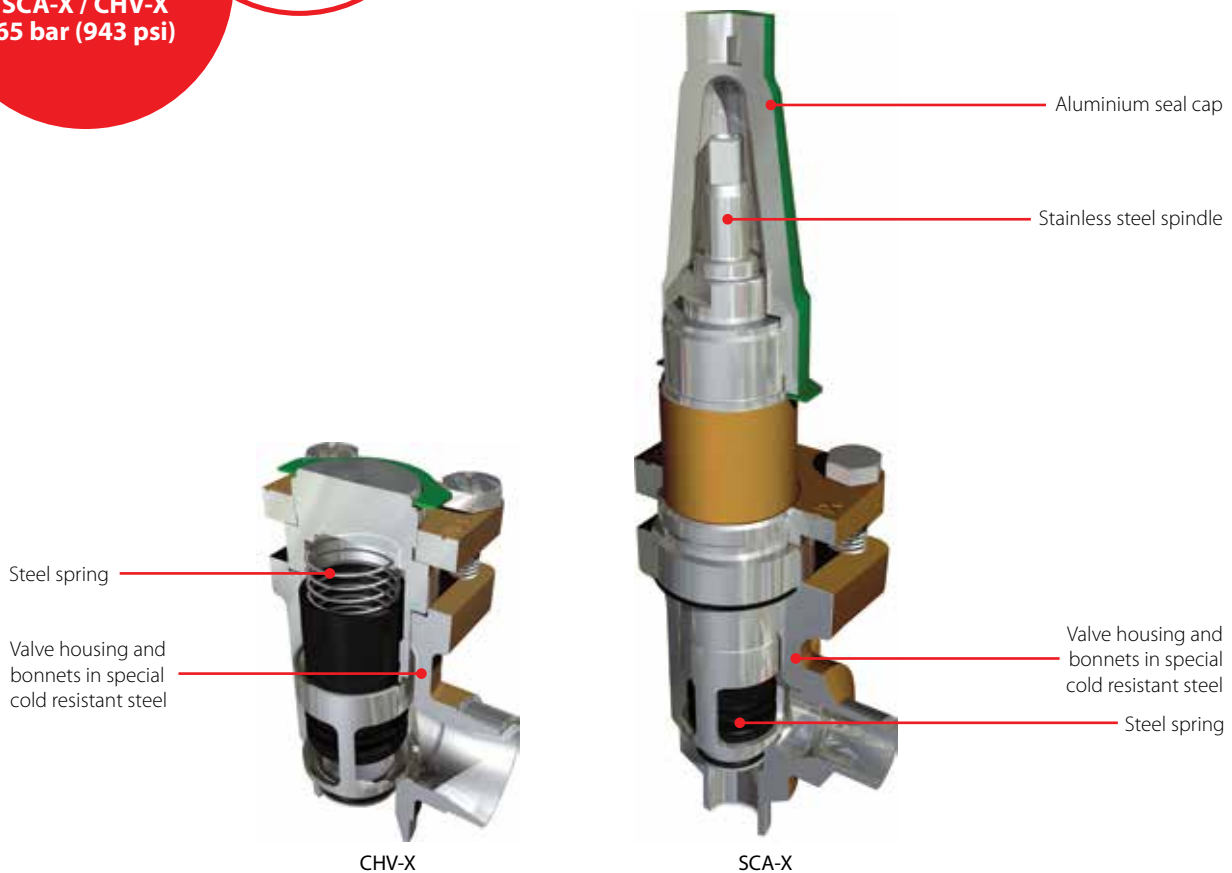
SCA-X, Check and stop valve / CHV-X, Check valve - 65 bar / 943 psi

SCA-X are check valves with a built-in shut-off valve function. SCA-X valves are available in angleway versions. CHV-X are check valves only. The SCA-X is equipped with vented cap and has internal backseating enabling the spindle seal to be replaced whilst the valve still under pressure. SCA-X and CHV-X are members of the SVL modular concept product family, so each valve housing is available with several different

connection types and sizes, and it is possible to convert SCA-X or CHV-X to any other product in the SVL family by replacing the complete top part. The valves are designed to open at very low differential pressures, allow favourable flow conditions and are easy to disassemble for inspection and service.



Features
SCA-X / CHV-X
65 bar (943 psi)



Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
- *For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.*
- Housing is Standard SVL angleway housing allowing other inserts from the SVL platform to be installed
- Designed to open at a very low differential pressure of 0.04 bar / 0.58 psig
- Designed with a built-in damping chamber preventing valve flutter in case of low refrigerant velocity and / or low density
- Each valve is clearly marked with type, size and performance range
- Easy to disassemble for inspection and service
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Optimal flow characteristics ensuring quick opening to the fully open position
- Protection against pulsation by built-in damping facility
- Housing and bonnet material is low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities
- Equipped with Stainless steel bolts
- Max. working pressure PS / MWP: 65 bar g / 943 psi g
- Temperature range: -60 – 150 °C / -76 – 302 °F

Technical data and ordering

SCA-X Check and Stop valves / CHV-X, Check valves

Technical data

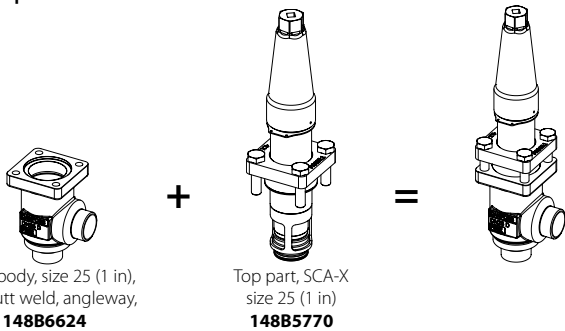
Type	Description
Pressure range	65 bar g / 943 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

For installation in heat pump applications, please contact Danfoss.

Ordering

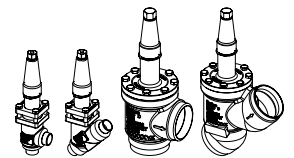
Ordering SCA-X from the parts programme (valve body + top part)

Example:



Valve body, size 25 (1 in),
DIN butt weld, angleway,
148B6624

Top part, SCA-X
size 25 (1 in)
148B5770



SCA-X 15 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B6622
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B6612
SCA-X 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B6642
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B6632

Top part ¹⁾

Type	Code no.
SCA-X 15	148B5769

SCA-X 20 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B6623
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B6613
SCA-X 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B6643
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B6633

Top part ¹⁾

Type	Code no.
SCA-X 20	148B5769

SCA-X 25 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B6624
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B6614
SCA-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B6644
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B6634

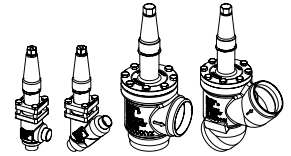
Top part ¹⁾

Type	Code no.
SCA-X 25	148B5770

¹⁾ Including gaskets and bolts.

Ordering

Ordering SCA-X from the parts programme (valve body + top part)



SCA-X 32 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B6625
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B6615
SCA-X 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6645
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B6635

Top part ¹⁾

Type	Code no.
SCA-X 32	148B5770

SCA-X 40 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B6626
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B6616
SCA-X 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6646
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B6636

Top part ¹⁾

Type	Code no.
SCA-X 40	148B5770

SCA-X 50 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 50	2	50	Angleway	Butt weld, EN 10220	D	148B6627
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B6617
SCA-X 50	2	50	Straightway	Butt weld, EN 10220	D	148B6647
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B6637

Top part ¹⁾

Type	Code no.
SCA-X 50	148B5771

SCA-X 65 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B6628
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B6618
SCA-X 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B6648
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B6638

Top part ¹⁾

Type	Code no.
SCA-X 65	148B5772

SCA-X 80 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 80	3	80	Angleway	Butt weld, EN 10220	D	148B6629
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B6619
SCA-X 80	3	80	Straightway	Butt weld, EN 10220	D	148B6649
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B6639

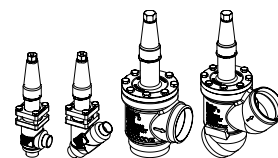
Top part ¹⁾

Type	Code no.
SCA-X 80	148B5773

¹⁾ Including gaskets and bolts.

Ordering

Ordering SCA-X from the parts programme (valve body + top part)



SCA-X 100 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B6630
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B6620
SCA-X 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6650
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B6640

Top part ¹⁾

Type	Code no.
SCA-X 32	148B5774

SCA-X 125 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B6631
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B6621
SCA-X 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6651
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B6641

Top part ¹⁾

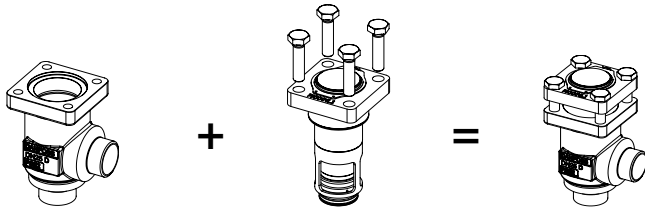
Type	Code no.
SCA-X 40	148B5775

¹⁾ Including gaskets and bolts.

Ordering

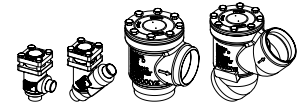
Ordering CHV-X from the parts programme (valve body + top part)

Example:



Valve body, size 25 (1 in), DIN butt weld, angleway, **148B6624**

Top part, CHV-X size 25 (1 in) **148B5777**



CHV-X 15 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B6622
	1/2	15	Angleway	Butt weld, ANSI (B 36.10)	A	148B6612
CHV-X 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B6642
	1/2	15	Straightway	Butt weld, ANSI (B 36.10)	A	148B6632

Top part ¹⁾

Type	Code no.
CHV-X 15	148B5776

CHV-X 20 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B6623
	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	148B6613
CHV-X 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B6643
	3/4	20	Straightway	Butt weld, ANSI (B 36.10)	A	148B6633

Top part ¹⁾

Type	Code no.
CHV-X 20	148B5776

CHV-X 25 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B6624
	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	148B6614
CHV-X 25	1	25	Angleway	Butt weld, EN 10220	D	148B6644
	1	25	Straightway	Butt weld, ANSI (B 36.10)	A	148B6634

Top part ¹⁾

Type	Code no.
CHV-X 25	148B5777

CHV-X 32 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B6625
	1 1/4	32	Angleway	Butt weld, ANSI (B 36.10)	A	148B6615
CHV-X 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6645
	1 1/4	32	Straightway	Butt weld, ANSI (B 36.10)	A	148B6635

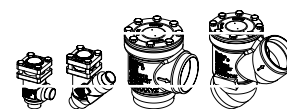
Top part ¹⁾

Type	Code no.
CHV-X 32	148B5777

¹⁾ Including gaskets and bolts.

Ordering

Ordering CHV-X from the parts programme (valve body + top part)



CHV-X 40 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B6626
	1 1/2	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B6616
CHV-X 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6646
	1 1/2	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B6636

Top part ¹⁾

Type	Code no.
CHV-X 40	148B5777

CHV-X 50 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 50	2	50	Angleway	Butt weld, EN 10220	D	148B6627
	2	50	Angleway	Butt weld, ANSI (B 36.10)	A	148B6617
CHV-X 50	2	50	Straightway	Butt weld, EN 10220	D	148B6647
	2	50	Straightway	Butt weld, ANSI (B 36.10)	A	148B6637

Top part ¹⁾

Type	Code no.
CHV-X 50	148B5778

CHV-X 65 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 65	2 1/2	65	Angleway	Butt weld, EN 10220	D	148B6628
	2 1/2	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B6618
CHV-X 65	2 1/2	65	Straightway	Butt weld, EN 10220	D	148B6648
	2 1/2	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B6638

Top part ¹⁾

Type	Code no.
CHV-X 65	148B5779

CHV-X 80 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 80	3	80	Angleway	Butt weld, EN 10220	D	148B6629
	3	80	Angleway	Butt weld, ANSI (B 36.10)	A	148B6619
CHV-X 80	3	80	Straightway	Butt weld, EN 10220	D	148B6649
	3	80	Straightway	Butt weld, ANSI (B 36.10)	A	148B6639

Top part ¹⁾

Type	Code no.
CHV-X 80	148B5780

CHV-X 100 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 100	4	100	Angleway	Butt weld, EN 10220	D	148B6630
	4	100	Angleway	Butt weld, ANSI (B 36.10)	A	148B6620
CHV-X 100	4	100	Straightway	Butt weld, EN 10220	D	148B6650
	4	100	Straightway	Butt weld, ANSI (B 36.10)	A	148B6640

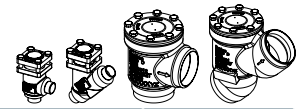
Top part ¹⁾

Type	Code no.
CHV-X 100	148B5781

¹⁾ Including gaskets and bolts.

Ordering

Ordering CHV-X from the parts programme (valve body + top part)



CHV-X 125 - 65 bar / 943 psi

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X 125	5	125	Angleway	Butt weld, EN 10220	D	148B6631
	5	125	Angleway	Butt weld, ANSI (B 36.10)	A	148B6621
CHV-X 125	5	125	Straightway	Butt weld, EN 10220	D	148B6651
	5	125	Straightway	Butt weld, ANSI (B 36.10)	A	148B6641

Top part ¹⁾

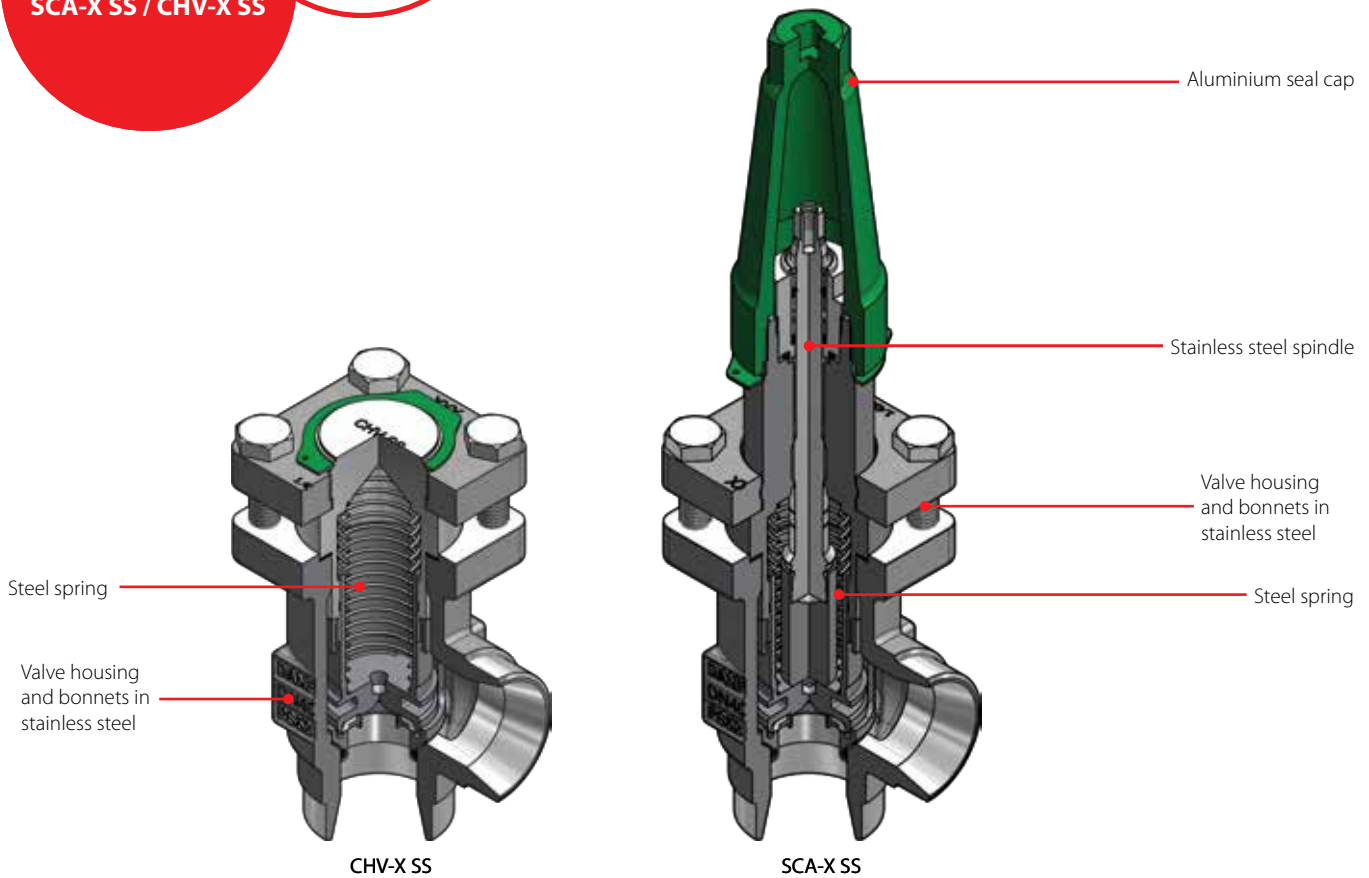
Type	Code no.
CHV-X 125	148B5782

¹⁾ Including gaskets and bolts.

SCA-X SS, Check and stop valve / CHV-X SS, Check valve

SCA-X SS are check valves in stainless steel with a built-in stop valve function. CHV-X SS are stainless steel check valves only. The valves are designed to open at very low differential pressures, allow favourable flow conditions and are easy to disassemble for inspection and service.

The valve cone has a built-in flexibility to ensure a precise and tight closing towards the valve seat. A well balanced dampening effect between the piston and the cylinder gives an optimal protection during low loads and against pulsations.



Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Designed to open at a very low differential pressure of 0.04 bar / 0.58 psig
- Designed with a built-in damping chamber preventing valve flutter in case of low refrigerant velocity and / or low density
- Each valve is clearly marked with type, size and performance range
- Easy to disassemble for inspection and service
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Optimal flow characteristics ensuring quick opening to the fully open position
- Protection against pulsation by built-in damping facility
- Housing and bonnet material is stainless steel
- Equipped with Stainless steel bolts.
- Max. working pressure PS / MWP: 52 bar g / 754 psi g
- Temperature range: -60 – 150 °C / -76 – 302 °F

Technical data and ordering

SCA-X SS / CHV-X SS, Check valves

Technical data

Type	Description
Pressure range	52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

SCA-X SS, Check and Stop valve

Ordering angleway valves



Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SCA-X SS 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5293
SCA-X SS 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5381
	3/4	20	Angleway	Butt weld ANSI, B 36.19M	A	148B6489
SCA-X SS 25	1	25	Angleway	Butt weld, EN 10220	D	148B5490
	1	25	Angleway	Butt weld ANSI, B 36.19M	A	148B6480
SCA-X SS 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5585
	1 1/4	32	Angleway	Butt weld ANSI, B 36.19M	A	148B6490
SCA-X SS 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5664
	1 1/2	40	Angleway	Butt weld ANSI, B 36.19M	A	148B5687

CHV-X SS, Check valve

Ordering angleway valves



Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X SS 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5294
CHV-X SS 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5382
	3/4	20	Angleway	Butt weld ANSI, B 36.19M	A	148B6491
CHV-X SS 25	1	25	Angleway	Butt weld, EN 10220	D	148B5491
	1	25	Angleway	Butt weld ANSI, B 36.19M	A	148B6481
CHV-X SS 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5586
	1 1/4	32	Angleway	Butt weld ANSI, B 36.19M	A	148B6492
CHV-X SS 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5665
	1 1/2	40	Angleway	Butt weld ANSI, B 36.19M	A	148B5688

CHV-X SS, Check valve

Ordering straightway valves



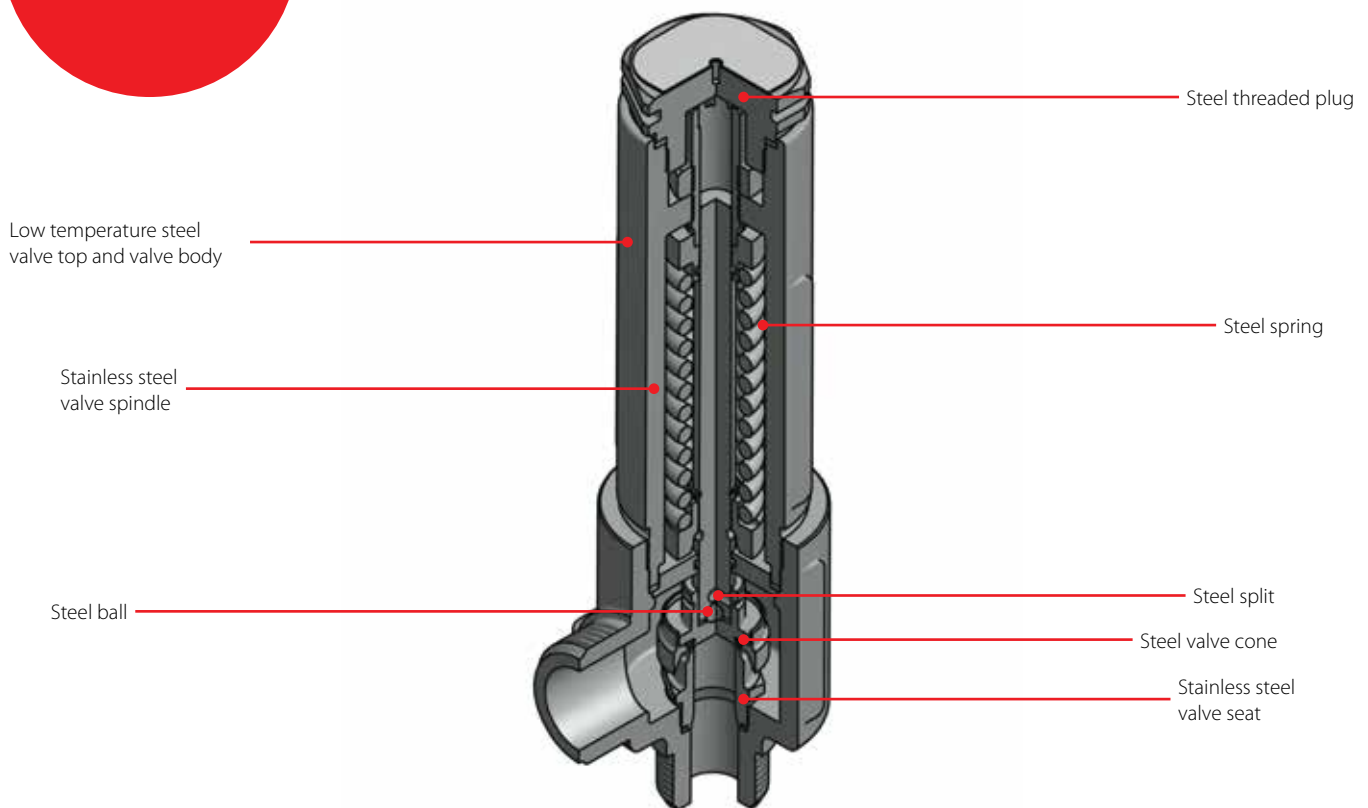
Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X SS 15	1/2	15	Straightway	Butt weld, EN 10220	D	148B5678
CHV-X SS 20	3/4	20	Straightway	Butt weld, EN 10220	D	148B5679
	3/4	20	Straightway	Butt weld ANSI, B 36.19M	A	148B6608
CHV-X SS 25	1	25	Straightway	Butt weld, EN 10220	D	148B5680
	1	25	Straightway	Butt weld ANSI, B 36.19M	A	148B6609
CHV-X SS 32	1 1/4	32	Straightway	Butt weld, EN 10220	D	148B6544
	1 1/4	32	Straightway	Butt weld ANSI, B 36.19M	A	148B6610
CHV-X SS 40	1 1/2	40	Straightway	Butt weld, EN 10220	D	148B6566
	1 1/2	40	Straightway	Butt weld ANSI, B 36.19M	A	148B6611

SFA 15 / SFA 15-50, Safety relief valves

SFA 15 and SFA 15-50 are standard, back pressure dependent safety relief valves in angleway execution, specially designed for protection of vessels and other components against excessive pressure. SFA 15-50 has a 50% reduced capacity compared to SFA 15.

The valve is designed to meet the strict quality demands and safety requirements for refrigeration installations, specified by the international classification societies. The valve is recommended as an external and internal safety relief valve in refrigeration plants.

Features SFA 15 SFA 15 - 50



Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a within a temperature range of -50 °C* / 100 °C (-58 °F* / 212 °F)
- The spring housing is closed tightly to avoid refrigerant leakage
- The valves can be delivered with set pressures between: 10 – 40 bar g / 145 – 580 psi g

*) Below 30 °C / -22 °F full tightness can only be guaranteed when refrigerant pressure is equal to or lower than $0.5 \times P_{set}$.

Technical data and ordering

SFA 15 and SFA 15-50, Safety relief valve

Technical data

Type	Description
Pressure setting range	10 – 40 bar g / 145 – 580 psi g
Pressure setting	The operating pressure of the plant should be at least 15% below the set pressure. This allows a perfect re-seating of the safety relief valve after having been activated.
Temperature range	-50 °C* / 100 °C (-58 °F* / 212 °F)

*) Below 30 °C / -22 °F full tightness can only be guaranteed when refrigerant pressure is equal to or lower than $0.5 \times P_{set}$.

Important:

The SFA safety relief valve is dependent on the back pressure (if the back pressure is higher than the atmospheric pressure, the opening pressure will be higher than stated set pressure).
Special circumstances such as vibrations (which should be avoided) and oscillating pressure may require an increased difference between the operational pressure and the closing pressure.

Certified SFA valves with standard set pressure

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFA 15 T 210	15	1/2	10	145	148F3210
SFA 15 T 211	15	1/2	11	160	148F3211
SFA 15 T 212	15	1/2	12	174	148F3212
SFA 15 T 213	15	1/2	13	189	148F3213
SFA 15 T 214	15	1/2	14	203	148F3214
SFA 15 T 215	15	1/2	15	218	148F3215
SFA 15 T 216	15	1/2	16	232	148F3216
SFA 15 T 217	15	1/2	17	247	148F3217
SFA 15 T 218	15	1/2	18	261	148F3218
SFA 15 T 219	15	1/2	19	276	148F3219
SFA 15 T 220	15	1/2	20	290	148F3220
SFA 15 T 221	15	1/2	21	305	148F3221
SFA 15 T 222	15	1/2	22	319	148F3222
SFA 15 T 223	15	1/2	23	334	148F3223
SFA 15 T 224	15	1/2	24	348	148F3224
SFA 15 T 225	15	1/2	25	363	148F3225
SFA 15 T 226	15	1/2	26	377	148F3226
SFA 15 T 227	15	1/2	27	392	148F3227
SFA 15 T 228	15	1/2	28	406	148F3228
SFA 15 T 229	15	1/2	29	421	148F3229
SFA 15 T 230	15	1/2	30	435	148F3230
SFA 15 T 231	15	1/2	31	450	148F3231
SFA 15 T 232	15	1/2	32	464	148F3232
SFA 15 T 233	15	1/2	33	479	148F3233
SFA 15 T 234	15	1/2	34	493	148F3234
SFA 15 T 235	15	1/2	35	508	148F3235
SFA 15 T 236	15	1/2	36	522	148F3236
SFA 15 T 237	15	1/2	37	537	148F3237
SFA 15 T 238	15	1/2	38	551	148F3238
SFA 15 T 239	15	1/2	39	566	148F3239
SFA 15 T 240	15	1/2	40	580	148F3240

Technical data and ordering

Certified SFA valves with standard set pressure

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFA 15-50 T 210	15	1/2	10	145	148F4000
SFA 15-50 T 211	15	1/2	11	160	148F4001
SFA 15-50 T 212	15	1/2	12	174	148F4002
SFA 15-50 T 213	15	1/2	13	189	148F4003
SFA 15-50 T 214	15	1/2	14	203	148F4004
SFA 15-50 T 215	15	1/2	15	218	148F4005
SFA 15-50 T 216	15	1/2	16	232	148F4006
SFA 15-50 T 217	15	1/2	17	247	148F4007
SFA 15-50 T 218	15	1/2	18	261	148F4008
SFA 15-50 T 219	15	1/2	19	276	148F4009
SFA 15-50 T 220	15	1/2	20	290	148F4010
SFA 15-50 T 221	15	1/2	21	305	148F4011
SFA 15-50 T 222	15	1/2	22	319	148F4012
SFA 15-50 T 223	15	1/2	23	334	148F4013
SFA 15-50 T 224	15	1/2	24	348	148F4014
SFA 15-50 T 225	15	1/2	25	363	148F4015
SFA 15-50 T 226	15	1/2	26	377	148F4016
SFA 15-50 T 227	15	1/2	27	392	148F4017
SFA 15-50 T 228	15	1/2	28	406	148F4018
SFA 15-50 T 229	15	1/2	29	421	148F4019
SFA 15-50 T 230	15	1/2	30	435	148F4020
SFA 15-50 T 231	15	1/2	31	450	148F4021
SFA 15-50 T 232	15	1/2	32	464	148F4022
SFA 15-50 T 233	15	1/2	33	479	148F4023
SFA 15-50 T 234	15	1/2	34	493	148F4024
SFA 15-50 T 235	15	1/2	35	508	148F4025
SFA 15-50 T 236	15	1/2	36	522	148F4026
SFA 15-50 T 237	15	1/2	37	537	148F4027
SFA 15-50 T 238	15	1/2	38	551	148F4028
SFA 15-50 T 239	15	1/2	39	566	148F4029
SFA 15-50 T 240	15	1/2	40	580	148F4030

Technical data and ordering

Certified SFA valves with standard set pressure and TÜV pressure setting certificate with each valve

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFA 15 T 310	15	1/2	10	145	148F3310
SFA 15 T 311	15	1/2	11	160	148F3311
SFA 15 T 312	15	1/2	12	174	148F3312
SFA 15 T 313	15	1/2	13	189	148F3313
SFA 15 T 314	15	1/2	14	203	148F3314
SFA 15 T 315	15	1/2	15	218	148F3315
SFA 15 T 316	15	1/2	16	232	148F3316
SFA 15 T 317	15	1/2	17	247	148F3317
SFA 15 T 318	15	1/2	18	261	148F3318
SFA 15 T 319	15	1/2	19	276	148F3319
SFA 15 T 320	15	1/2	20	290	148F3320
SFA 15 T 321	15	1/2	21	305	148F3321
SFA 15 T 322	15	1/2	22	319	148F3322
SFA 15 T 323	15	1/2	23	334	148F3323
SFA 15 T 324	15	1/2	24	348	148F3324
SFA 15 T 325	15	1/2	25	363	148F3325
SFA 15 T 326	15	1/2	26	377	148F3326
SFA 15 T 327	15	1/2	27	392	148F3327
SFA 15 T 328	15	1/2	28	406	148F3328
SFA 15 T 329	15	1/2	29	421	148F3329
SFA 15 T 330	15	1/2	30	435	148F3330
SFA 15 T 331	15	1/2	31	450	148F3331
SFA 15 T 332	15	1/2	32	464	148F3332
SFA 15 T 333	15	1/2	33	479	148F3333
SFA 15 T 334	15	1/2	34	493	148F3334
SFA 15 T 335	15	1/2	35	508	148F3335
SFA 15 T 336	15	1/2	36	522	148F3336
SFA 15 T 337	15	1/2	37	537	148F3337
SFA 15 T 338	15	1/2	38	551	148F3338
SFA 15 T 339	15	1/2	39	566	148F3339
SFA 15 T 340	15	1/2	40	580	148F3340
SFA 15-50 T 210	15	1/2	10	145	148F4100
SFA 15-50 T 211	15	1/2	11	160	148F4101
SFA 15-50 T 212	15	1/2	12	174	148F4102
SFA 15-50 T 213	15	1/2	13	189	148F4103
SFA 15-50 T 214	15	1/2	14	203	148F4104
SFA 15-50 T 215	15	1/2	15	218	148F4105
SFA 15-50 T 216	15	1/2	16	232	148F4106
SFA 15-50 T 217	15	1/2	17	247	148F4107
SFA 15-50 T 218	15	1/2	18	261	148F4108
SFA 15-50 T 219	15	1/2	19	276	148F4109
SFA 15-50 T 220	15	1/2	20	290	148F4110
SFA 15-50 T 221	15	1/2	21	305	148F4111
SFA 15-50 T 222	15	1/2	22	319	148F4112
SFA 15-50 T 223	15	1/2	23	334	148F4113
SFA 15-50 T 224	15	1/2	24	348	148F4114
SFA 15-50 T 225	15	1/2	25	363	148F4115
SFA 15-50 T 226	15	1/2	26	377	148F4116
SFA 15-50 T 227	15	1/2	27	392	148F4117
SFA 15-50 T 228	15	1/2	28	406	148F4118
SFA 15-50 T 229	15	1/2	29	421	148F4119
SFA 15-50 T 230	15	1/2	30	435	148F4120
SFA 15-50 T 231	15	1/2	31	450	148F4121
SFA 15-50 T 232	15	1/2	32	464	148F4122
SFA 15-50 T 233	15	1/2	33	479	148F4123
SFA 15-50 T 234	15	1/2	34	493	148F4124
SFA 15-50 T 235	15	1/2	35	508	148F4125
SFA 15-50 T 236	15	1/2	36	522	148F4126
SFA 15-50 T 237	15	1/2	37	537	148F4127
SFA 15-50 T 238	15	1/2	38	551	148F4128
SFA 15-50 T 239	15	1/2	39	566	148F4129
SFA 15-50 T 240	15	1/2	40	580	148F4130

SFV, Safety relief valve

SFV 20 – SFV 25 are standard, back pressure dependent safety relief valves in angleway execution, specially designed for protection of vessels and other components against excessive pressure.

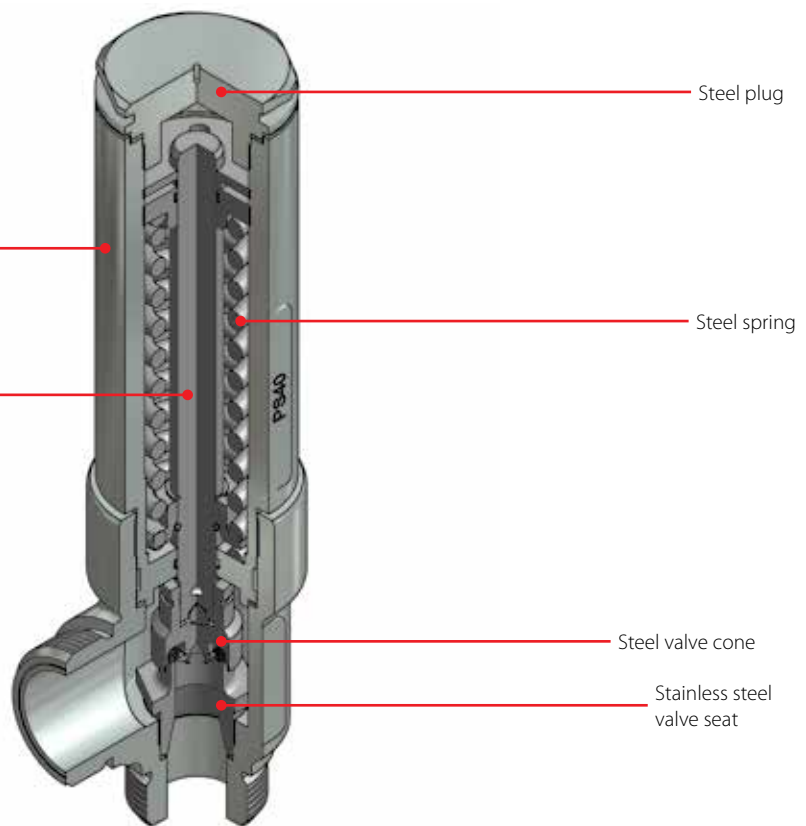
The valve is designed to meet the strict quality demands and safety requirements for refrigeration installations, specified by the international classification societies.

Features SFV



Low temperature
steel valve top and
valve body

Stainless steel
valve spindle



Steel plug

Steel spring

Steel valve cone

Stainless steel
valve seat

Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a within a temperature range:
-30 – 100 °C / -22 – 212 °F
- The inlet flow diameters of the valves are:
 - 18 mm (¾ in) for SFV 20
 - 23 mm (1 in) for SFV 25
- The valves can be delivered with set pressures between:
10 – 25 bar g / 145 – 363 psi g

Technical data and ordering

SFV - Safety relief valve

Technical data

Type	Description
Pressure	Pressure setting range: 10 – 40 bar g / 145 – 580 psi g
Pressure setting	The operating pressure of the plant should be at least 15% below the set pressure. This allows a perfect re-seating of the safety relief valve after having been activated.
Temperature range	-30 – 100 °C / -22 – 212 °F

Important:

the SFA safety relief valve is dependent on the back pressure (if the back pressure is higher than the atmospheric pressure, the opening pressure will be higher than stated set pressure).
Special circumstances such as vibrations (which should be avoided) and oscillating pressure may require an increased difference between the operational pressure and the closing pressure.

Certified SFV valves with standard set pressure

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFV 20 T 210	20	3/4	10	145	2416+254
SFV 20 T 211	20	3/4	11	160	2416+255
SFV 20 T 212	20	3/4	12	174	2416+256
SFV 20 T 213	20	3/4	13	189	2416+150
SFV 20 T 214	20	3/4	14	203	2416+257
SFV 20 T 215	20	3/4	15	218	2416+258
SFV 20 T 216	20	3/4	16	232	2416+259
SFV 20 T 217	20	3/4	17	247	2416+260
SFV 20 T 218	20	3/4	18	261	2416+151
SFV 20 T 219	20	3/4	19	276	2416+261
SFV 20 T 220	20	3/4	20	290	2416+262
SFV 20 T 221	20	3/4	21	305	2416+152
SFV 20 T 222	20	3/4	22	319	2416+241
SFV 20 T 223	20	3/4	23	334	2416+263
SFV 20 T 224	20	3/4	24	348	2416+264
SFV 20 T 225	20	3/4	25	363	2416+183

Certified SFV valves with standard set pressure

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFV 25 T 210	25	1	10	145	2416+265
SFV 25 T 211	25	1	11	160	2416+266
SFV 25 T 212	25	1	12	174	2416+267
SFV 25 T 213	25	1	13	189	2416+153
SFV 25 T 214	25	1	14	203	2416+268
SFV 25 T 215	25	1	15	218	2416+269
SFV 25 T 216	25	1	16	232	2416+270
SFV 25 T 217	25	1	17	247	2416+271
SFV 25 T 218	25	1	18	261	2416+154
SFV 25 T 219	25	1	19	276	2416+272
SFV 25 T 220	25	1	20	290	2416+273
SFV 25 T 221	25	1	21	305	2416+155
SFV 25 T 222	25	1	22	319	2416+242
SFV 25 T 223	25	1	23	334	2416+274
SFV 25 T 224	25	1	24	348	2416+275
SFV 25 T 225	25	1	25	363	2416+184

Technical data and ordering

Certified SFV valves with standard set pressure and TÜV pressure setting certificate with each valve

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFV 20 T 310	20	3/4	10	145	2416+285
SFV 20 T 311	20	3/4	11	160	2416+286
SFV 20 T 312	20	3/4	12	174	2416+287
SFV 20 T 313	20	3/4	13	189	2416+160
SFV 20 T 314	20	3/4	14	203	2416+288
SFV 20 T 315	20	3/4	15	218	2416+289
SFV 20 T 316	20	3/4	16	232	2416+290
SFV 20 T 317	20	3/4	17	247	2416+291
SFV 20 T 318	20	3/4	18	261	2416+161
SFV 20 T 319	20	3/4	19	276	2416+292
SFV 20 T 320	20	3/4	20	290	2416+293
SFV 20 T 321	20	3/4	21	305	2416+162
SFV 20 T 322	20	3/4	22	319	2416+294
SFV 20 T 323	20	3/4	23	334	2416+295
SFV 20 T 324	20	3/4	24	348	2416+296
SFV 20 T 325	20	3/4	25	363	2416+186

Certified SFV valves with standard set pressure and TÜV pressure setting certificate with each valve

Ordering

Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFV 25 T 310	25	1	10	145	2416+297
SFV 25 T 311	25	1	11	160	2416+298
SFV 25 T 312	25	1	12	174	2416+299
SFV 25 T 313	25	1	13	189	2416+163
SFV 25 T 314	25	1	14	203	2416+300
SFV 25 T 315	25	1	15	218	2416+301
SFV 25 T 316	25	1	16	232	2416+302
SFV 25 T 317	25	1	17	247	2416+303
SFV 25 T 318	25	1	18	261	2416+164
SFV 25 T 319	25	1	19	276	2416+304
SFV 25 T 320	25	1	20	290	2416+305
SFV 25 T 321	25	1	21	305	2416+165
SFV 25 T 322	25	1	22	319	2416+306
SFV 25 T 323	25	1	23	334	2416+307
SFV 25 T 324	25	1	24	348	2416+308
SFV 25 T 325	25	1	25	363	2416+187

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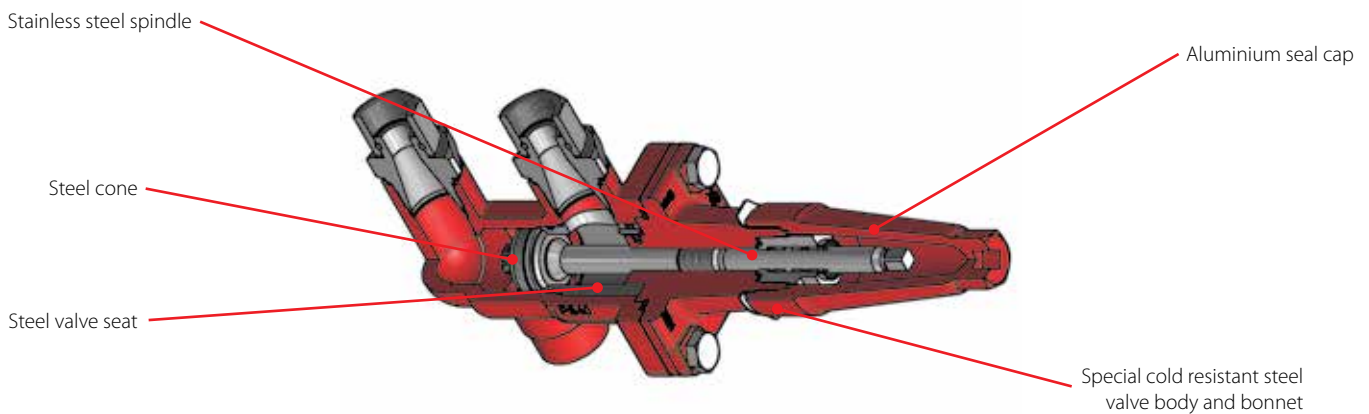
DSV, Change-over valve

DSV are 3-way valves designed specifically for use with double safety valve systems, but also suitable for other purposes. The valves are equipped with threads for nipple / flange connection for easy inspection or replacement of safety valves.

DSV are designed to meet the strict quality demands on industrial refrigeration installations specified by the international classification societies.

DSV valves are carefully designed to establish favourable flow conditions. The valve cone is designed to ensure perfect closing. Even a light tightening of the valve will close the valve effectively. All valves are equipped with vented cap.

Features DSV



Facts

- Applicable to R717, R744, R134a, R170, R290, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502, R507, R600 and R600a
- Each valve type is clearly marked with type, size and performance range
- The valves and caps are prepared for sealing, to prevent operation by unauthorised persons, using a seal wire
- Accepts flow in both directions
- Housing and bonnet are made from low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities
- Max. operating pressure: 0 bar g / 580 psi g
- Temperature range: -50 – 100 °C / -58 – 212 °F
- DSV 1 when fitted with 2 × SFA 15 or DSV 2 when fitted with a combination of either 2 × SFA 15, or 2 × SFV 20, or 2 × SFV 25, meet the requirements according to EN13136 "Safety Valves Calculations" regarding max. 3% pressure drop in upstream line

Technical data

DSV, Change-over valve

Technical data

Type	Description	
Temperature range	-50 – 100 °C / -58 – 212 °F	
Pressure	Pressure setting range: 10 – 40 bar g / 145 – 580 psi g	
Capacity	K _v - value [m ³ /h]	C _v - value [gal/min]
DSV 1	17.5	20.3
DSV 2	30.0	34.8

DSV, Change-over valve

Ordering

Please note that the type codes only serve to identify the valves, some of which may not form part of the standard product range.

Valve type	DSV inlet connection [in]	DSV outlet connection [in]	SFV outlet connection [in]	Safety valve combination	Code no.
DSV 1	D25 (1)	G 3/4 Union	ND20 (3/4)	SFA15	148F3005
DSV 2	FD20 (3/4)	G 3/4 thread flange	ND20 (3/4)	SFA15	148F3006
DSV 2	FD25 (1)	G 3/4 thread flange	ND20 (3/4)	SFA15	148F3007
DSV 2	FD32 (1 1/4)	G 3/4 thread flange	ND20 (3/4)	SFA15	148F3008
DSV 2	FD25 (1)	G 1 1/4 thread flange	FD25 (1)	SFV20	148F3009
DSV 2	FD32 (1 1/4)	G 1 1/4 thread flange	FD25 (1)	SFV20	148F3010
DSV 2	FD32 (1 1/4)	G 1 1/4 thread flange	FD32 (1 1/4)	SFV25	148F3011
Connection fittings:	Weld branches DIN 2448		DSV valves are supplied with DSV inlet connection fittings, DSV outlet connection fittings, and SFA / SFV outlet connection fittings.		
	Weld nipples DIN 2448				
	Weld flanges DIN 2448				

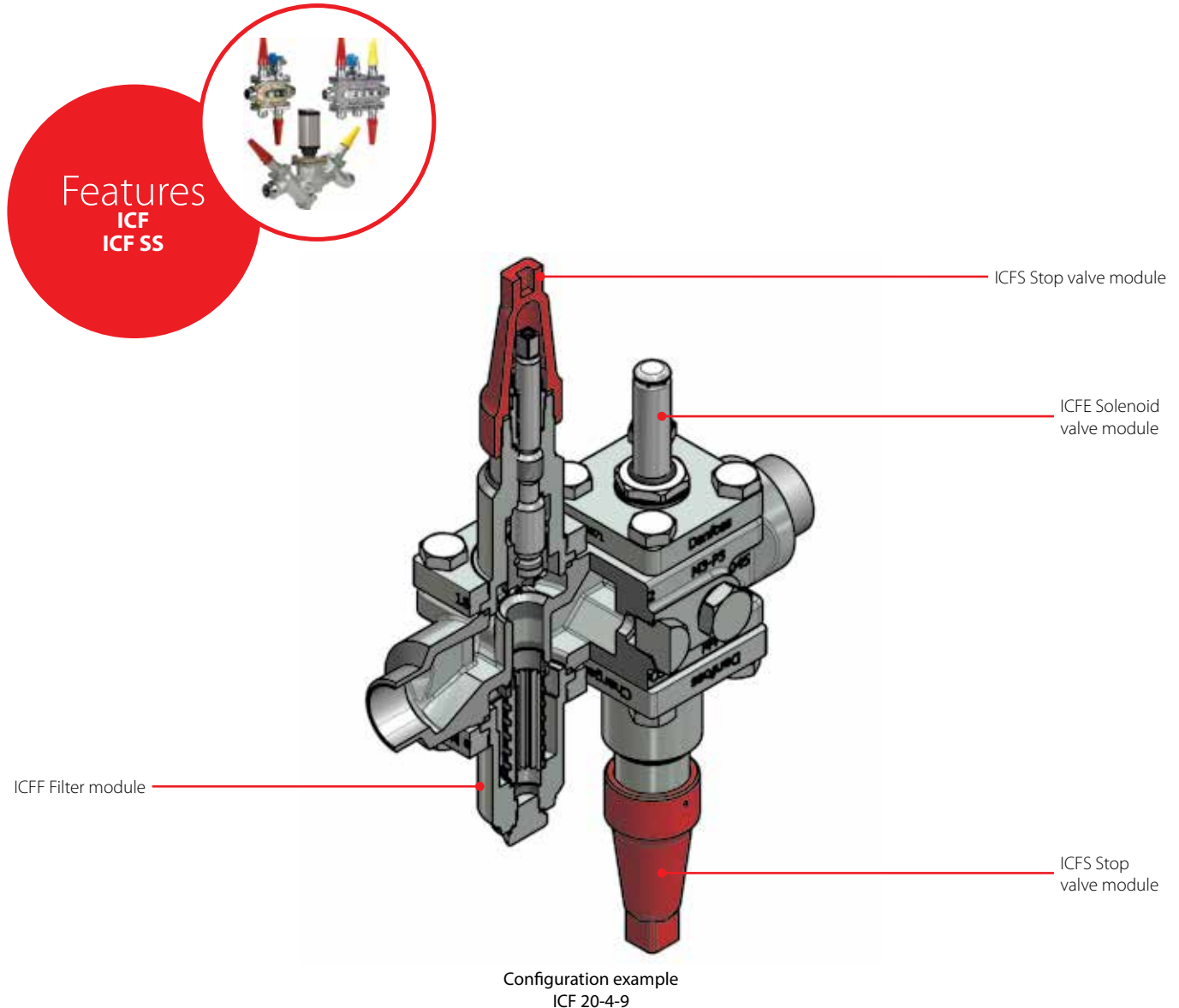
Important:

Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

ICF / ICF SS, Valve stations

ICF and ICF SS (Stainless Steel) valve stations can substitute a series of conventional mechanical, electro-mechanical and electronically operated valves, thereby providing a number of advantages in the design phase of a refrigeration plant as well as in the installation, service and maintenance. ICF valve stations consist of valve housing plus a maximum of four or six function modules.

The ICF valve stations are designed for low and high pressure refrigerants and can be used in liquid lines, compressor injection lines and hot gas lines. ICF is supplied as a complete assembly, it is fully tested at high pressure and its functions are tested under factory controlled conditions.



Facts

- Applicable to R717, R744, R134a, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502 and R507
Exception: ICFD is released for ammonia and land-based applications only. For CO₂, please contact the local Danfoss Sales company.
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- The main components of the ICF valve station are:
 - A valve housing
 - A maximum of four or six function modules
- Designed for low and high pressure refrigerants and can be used in liquid lines, compressor injection and hotgas lines
- The ICF concept is designed to fulfil global refrigeration requirements. For specific approval information, please contact Danfoss
- One code number equals one application solution
- Modular concept: Each housing is available with several different connection types and sizes
- The ICF is leak tested at high pressure and its functions are tested under factory controlled conditions
- The ICF valve is a compact valve train ready for the jobsite. No need to disassembly prior to installation under normal welding procedures
- Down time during service is reduced to a fraction compared to conventional valve trains. The unique design of the ICF ensures a quick pump down and faster access to valve modules
- Valve service is performed by replacing the function module
- Standard side ports to fit service valves, pressure transmitters and sight glasses
- Direct weld connections (no leaks through flanges)
- Available with DIN and ANSI connections
- Low temperature steel housing
- High capacities, low pressure drop
- Compact design
- Low weight design

Technical data and application examples

ICF and ICF SS - Valve stations

Technical data

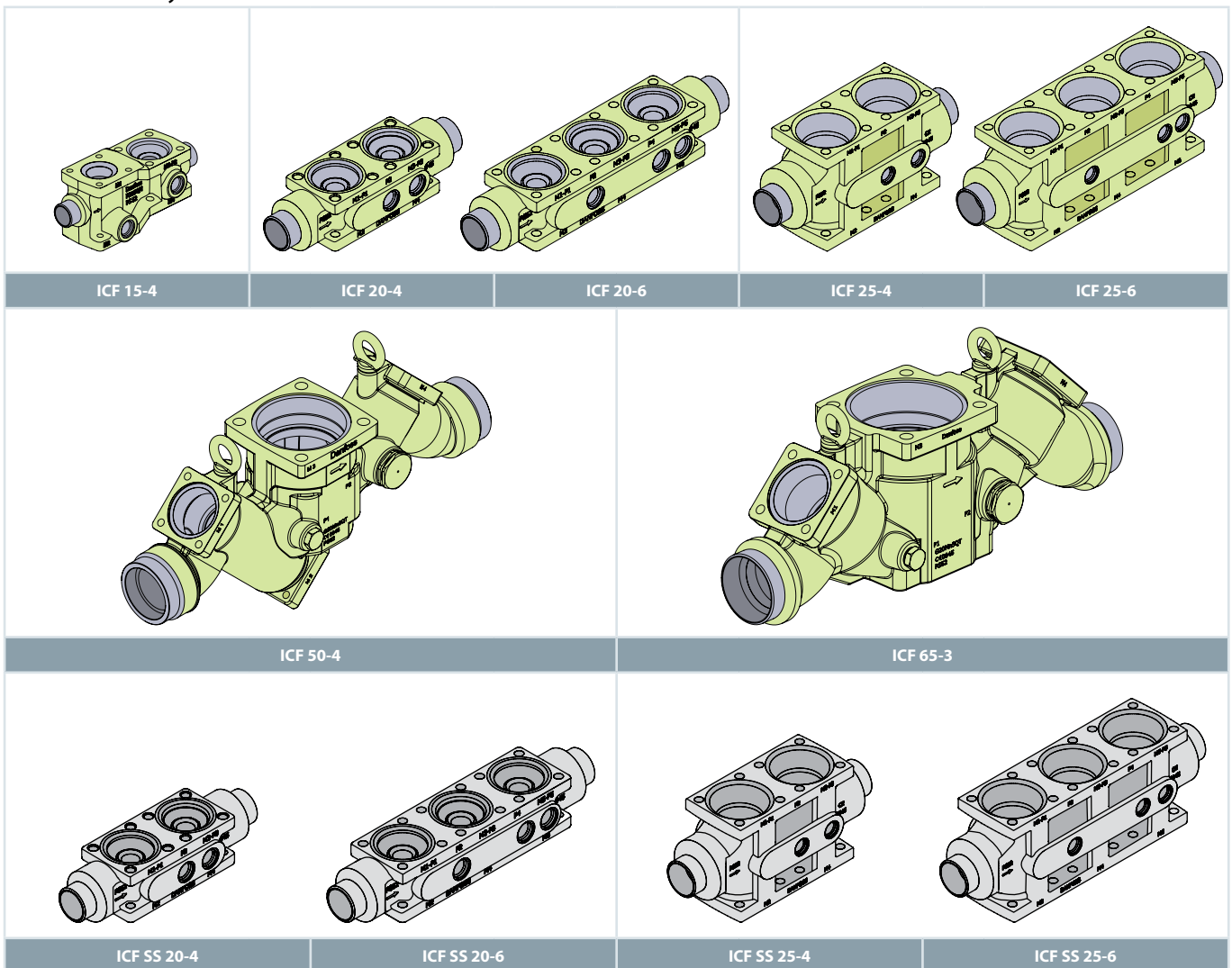
Temperature range	-60 – 120 °C / -76 – 248 °F Exceptions: ICM: If the ICM module is going to be used in liquid refrigerant with a temperature above 75 °C / 167 °F, please contact Danfoss. ICFD: -50 – 50 °C / -58 – 122 °F at 28 bar / 406 psig in ammonia
Pressure range	The ICF is designed for max. working pressure: 52 bar g / 754 psig For ICF with ICFD module the max. working pressure is 28 bar g / 406 psi g. If the refrigeration system include ICFD module, a test pressure of the system must not exceed 28 bar / 406 psig, unless the ICFD float is temporarily taken out before test. ICFD is released for ammonia and land-based applications only. For CO ₂ , please contact the local Danfoss Sales company. Max. working pressure for ICFD without float: 52 bar / 754 psig.
Modules	3, 4 or 6, depending on housing version
Connection types (ICF SS available with DIN connections only)	Butt weld, DIN (EN 10220): 15D (1/2 in) to 80D (3 in) Butt weld, ANSI (B 36.10) : 15A (1/2 in) to 80A (3 in) Socket welding ANSI (B 16.11): 15S (1/2 in) to 50S (2 in) Soldering (DIN 2856): 22Y (7/8 in) Soldering (ANSI B 16.22): 7/8 in (22 mm) Pipe thread (ANSI B 1.20.1): 15F (1/2 in)

The ICF and ICF SS concept

The main components of the ICF valve station are:

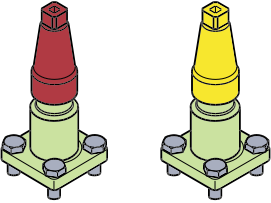
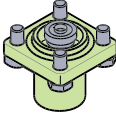
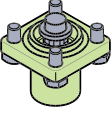
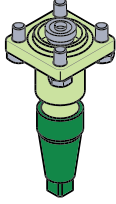
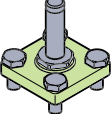
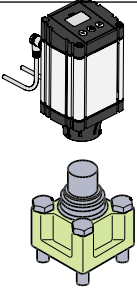
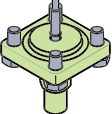

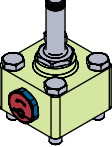
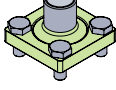
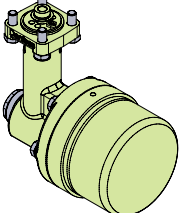
- A housing
- A maximum of four or six function modules (ICF 65 – max. 3)
 - In all ICF 15 the modules M1 and M2 are predefined as shut-off valve and strainer module
 - In all ICF 50 the modules M1 and M2 are predefined as shut-off valve and blind cover (prepared for strainer)
 - In all ICF 65 the module M1 is predefined as shut-off valve

The valve body

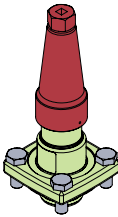
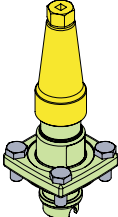
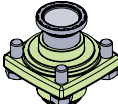
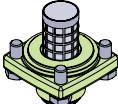
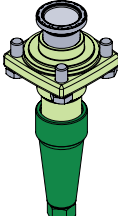
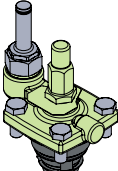
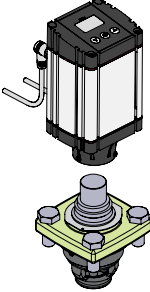
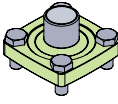
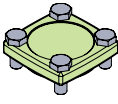


The function modules for ICF 15 and ICF 20

ICF 15 and ICF 20 have the same function modules except for the two fixed modules M1 (stop valve ICFS 15) and M2 (filter ICFF 15) in ICF 15.

<p>ICFS 15 / ICFS 20 Shut-off valve module This module has the function of a stop valve, and has a red cap.</p> <p>ICFR 20A Manual regulating valve module This module has the function of a hand regulating valve, and has a yellow cap.</p>	 <p>ICFS 15/ICFS 20 ICFR 20A</p>	<p>ICFC 20 Check valve module This module has the function of a check valve.</p>	 <p>ICFC 20</p>
<p>ICFF 15/20 / ICFF 20E Strainer module This module functions as a strainer. ICF 15, all connections: Strainer element 150µ (100 mesh) 60 cm² (9.3 in²) ICF 20, with DIN/ANSI connections: Pleated 150µ (100 mesh) 45 cm² (7.0 in²) ICF 20 with SOC connections (ICFF 20E): Pleated 150µ (100 mesh) / 160 cm² (24.8 in²)</p>	 <p>ICFF 15/20 / ICFF 20E</p>	<p>ICFN 20 Stop & check valve module This module has the function of a combined stop and check valve, and has a green cap.</p>	 <p>ICFN 20</p>
<p>ICFE 20 Solenoid valve module This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.</p> <p>ICFA 20 Electronic expansion valve module This module has the function of an electronic pulse width modulating (PWM) expansion valve.</p>	 <p>ICFE 20 / ICFA 20</p>	<p>ICM 20-A, B or C Motor operated valve module This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.</p>	 <p>ICM 20-A, B or C</p>
<p>ICFO 20 Manual opening module This module facilitates the manual opening of the solenoid valve (type ICFE).</p>	 <p>ICFO 20</p>	<p>ICFB 20 Blind top cover This provides a blanking cover for unused module ports.</p>	 <p>ICFB 20</p>
<p>ICFE 20H Solenoid valve module with integrated manual opener This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.</p>	 <p>ICFE 20H</p>	<p>ICFW 20 Welding module 20 DIN or 3/4" SOC This module is used for drain connection during hot-gas defrosting - in case of high capacity.</p>	 <p>ICFW 20</p>
<p>ICFD 20 Float operated valve module. This module opens for liquid flow when the float is lifted by the internal liquid level.</p>	 <p>ICFD 20</p>	<p>Note: At about 10% of maximum mass flow of ICFE 20H, the pressure differential correspond to about 0.07 Bar / 1 psi. ICFE 20H will start to open at these conditions. At a pressure differential of minimum 0.2 Bar / 2.9 psi ICFE 20H will be 100% open.</p>	

The function modules for ICF 25

<p>ICFS 25 Shut-off valve module This module has the function of a stop valve, and has a red cap.</p>	 <p>ICFS 25</p>	<p>ICFR 25, A or B Manual regulating valve module This module has the function of a hand regulating valve, and has a yellow cap.</p>	 <p>ICFR 25</p>
<p>ICFC 25 Check valve module This module has the function of a check valve.</p>	 <p>ICFC 25</p>	<p>ICFF 25 / ICFF 25E Strainer module This module functions as a strainer. Strainer size: ICF with DIN and ANSI (ICFF 25) connections: Pleated 150µ (100 mesh) / 160 cm² (24.8 in²) ICF with SOC connections (ICF 25E): Pleated 150µ (100 mesh) / 330 cm² (51.2 in²)</p>	 <p>ICFF 25 / ICFF 25E</p>
<p>ICFN 25 Stop & check valve module This module has the function of a combined stop and check valve, and has a green cap.</p>	 <p>ICFN 25</p>	<p>ICFE 25 Solenoid valve module This module has the function of a normally closed solenoid valve for controlling the refrigerant flow. It has a built-in manual opening function.</p>	 <p>ICFE 25</p>
<p>ICM 25-A or B Motor operated valve module This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.</p>	 <p>ICM 25-A or B</p>	<p>Please note: At about 10% of maximum mass flow of ICFE 25, the pressure differential correspond to about 0.07 Bar (1 psi). ICFE 25 will start to open at these conditions. At a pressure differential of minimum 0.2 Bar (2.9 psi) ICFE 25 will be 100% open.</p>	
<p>ICFW 25 Welding module, 25 DIN or 25 (1 in) SOC This module is used for drain connection during hot-gas defrosting - in case of high capacity.</p>	 <p>ICFW 25</p>	<p>ICFB 25 Blind top cover This provides a blanking cover for unused module ports.</p>	 <p>ICFB 25</p>

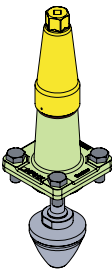
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The function modules for ICF 50 and ICF 65

SVA-S 50 / SVA 65
Shut-off valve module
 This module has the function of a stop valve, and has a red cap.

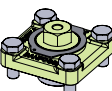
SVA-S 50 / SVA-S 65

REG-SB 50 / REG-SB 65
Manual regulating valve module
 This module has the function of a hand regulating valve, and has a yellow cap.



REG-SB 50 / REG-SB 65

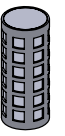
ICFB 50
Blind cover
 Prepared for insert of strainer (see below)



ICFB 50

FIA 50 (option)
Strainer insert
 Please order FIA 50 strainer insert and element from the FIA part programme. For further information please consult the data sheet for FIA strainers.

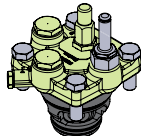
Available elements:
 See below.



FIA 50

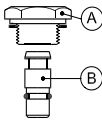
Strainer insert 100µ 150 mesh	Strainer insert 150µ 100 mesh	Strainer insert 250µ 72 mesh	Strainer insert 500µ 38 mesh	Pleated Strainer insert 150µ 100 mesh	Pleated Strainer insert 250µ 72 mesh	Pleated Strainer insert 500µ 38 mesh
148H3157	148H3130	148H3138	148H3144	148H3179	148H3184	148H3189

ICS 50 / ICS 65
Pilot-operated valve module
 This module has the function of a pilot-operated valve for on/off and modulating control of the refrigerant flow.



ICS 50 / ICS 65

All ICS modules are 3-pilot versions. They are supplied with two blanking plugs (A) and one sealing plug (B).

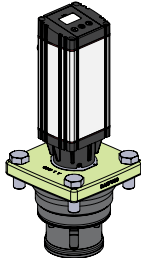


ICS 50 and 65 inserts are available in different capacities:

ICS 50:	ICS 65:
ICS 50	ICS 65
ICS 50-32	ICS 65-40
ICS 50-40	ICS 80

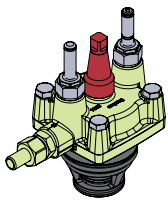
For K_v values please see the ordering section.

ICM 50 / ICM 65 - A or B
Motor operated valve module
 This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.



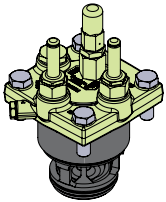
ICM 50 / ICM 65 - A or B

ICLX 50 / ICLX 65
2-step solenoid valve module
 This module has the function of a normally closed gas powered solenoid valve for controlling the refrigerant flow. It has a built-in manual opening function. ICLX is used in suction lines for opening after hot gas defrost in 2 steps.



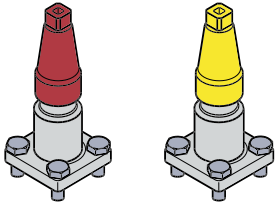
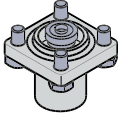
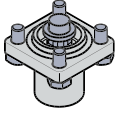
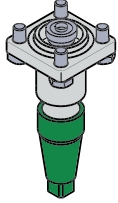
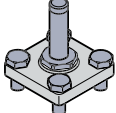
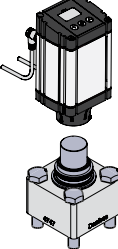
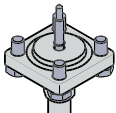
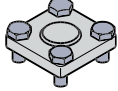
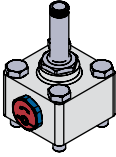
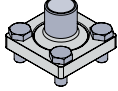
ICLX 50 / ICLX 65

ICSH 50/ICSH 65
2-step solenoid valve module
 This module has the function of a normally closed solenoid valve for controlling the refrigerant flow. It has a built-in manual opening function. ICSH is used in hot gas lines for the opening of hot gas defrost flow to the evaporator in 2 steps.



ICSH 50/ICSH 65

The function modules for ICF SS 20 (Stainless Steel)

<p>ICFS SS 20 Shut-off valve module This module has the function of a stop valve, and has a red cap.</p> <p>ICFR SS 20, A or B Manual regulating valve module This module has the function of a hand regulating valve, and has a yellow cap.</p>	 <p>ICFS SS 20 ICFR SS 20</p>	<p>ICFC SS 20 Check valve module This module has the function of a check valve.</p>	 <p>ICFC SS 20</p>
<p>ICFF SS 20 / ICFF SS 20E Strainer module This module functions as a strainer.</p> <p>ICF SS 20: Pleated 150μ (100 mesh) / 45 cm² (7.0 in²)</p> <p>ICF SS 20E: Pleated 150μ (100 mesh) / 160 cm² (24.8 in²)</p>	 <p>ICFF SS 20 / ICFF SS 20E</p>	<p>ICFN SS 20 Stop & check valve module This module has the function of a combined stop and check valve, and has a green cap.</p>	 <p>ICFN SS 20</p>
<p>ICFE SS 20 Solenoid valve module This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.</p> <p>ICFA SS 20 Electronic expansion valve module This module has the function of an electronic pulse width modulating (PWM) expansion valve.</p>	 <p>ICFE SS 20 / ICFA SS 20</p>	<p>ICM SS 20-A, 20-B, 20-C, 20-A33 or 20-B66 Motor operated valve module This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.</p>	 <p>ICM SS 20-A, 20-B, 20-C, 20-A33 or 20-B66</p>
<p>ICFO SS 20 Manual opening module This module facilitates the manual opening of the solenoid valve (type ICFE SS).</p>	 <p>ICFO SS 20</p>	<p>ICFB SS 20 Blind top cover This provides a blanking cover for unused module ports.</p>	 <p>ICFB SS 20</p>
<p>ICFE SS 20H Solenoid valve module with integrated manual opener This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.</p>	 <p>ICFE SS 20H</p>	<p>ICFW SS 20 Welding module 20 DIN This module is used for drain connection during hot-gas defrosting - in case of high capacity.</p>	 <p>ICFW SS 20</p>

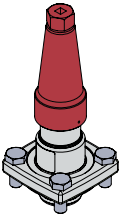
Note:

At about 10% of maximum mass flow of ICFE SS 20H, the pressure differential correspond to about 0.07 Bar / 1 psi. ICFE SS 20H will start to open at these conditions. At a pressure differential of minimum 0.2 Bar / 2.9 psi ICFE SS 20H will be 100% open.

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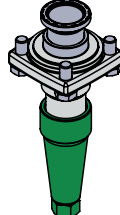
The function modules for ICF SS 25 (Stainless Steel)

ICFS SS 25
Shut-off valve module
 This module has the function of a stop valve, and has a red cap.



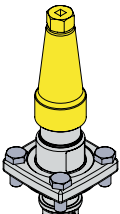
ICFS SS 25

ICFN SS 25
Stop & check valve module
 This module has the function of a combined stop and check valve, and has a green cap.



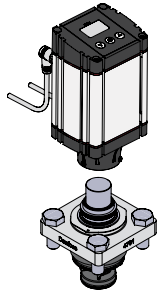
ICFN SS 25

ICFR SS 25, A or B
Manual regulating valve module
 This module has the function of a hand regulating valve, and has a yellow cap.



ICFR SS 25

ICM SS 25-A or B
Motor operated valve module
 This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.

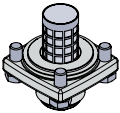


ICM SS 25-A or B

ICFF SS 25
Strainer module
 This module functions as a strainer.

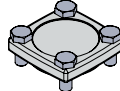
ICFF SS 25:
 Pleated 150 μ (100 mesh) / 160 cm² (24.8 in²)

ICFF SS 25E:
 Pleated 150 μ (100 mesh) / 330 cm² (51.2 in²)



ICFF SS 25 / ICFF SS 25E

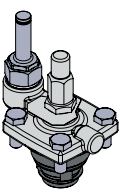
ICFB SS 25
Blind top cover
 This provides a blanking cover for unused module ports.



ICFB SS 25

ICFE SS 25
Solenoid valve module
 This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.

It has a built-in manual opening function.

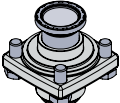


ICFE SS 25

Please note:
 At about 10% of maximum mass flow of ICFE SS 25, the pressure differential correspond to about 0.07 Bar (1 psi). ICFE SS 25 will start to open at these conditions.

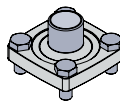
At a pressure differential of minimum 0.2 Bar (2.9 psi) ICFE SS 25 will be 100% open.

ICFC SS 25
Check valve module
 This module has the function of a check valve.



ICFC SS 25

ICFW SS 25
Welding module, 25 DIN
 This module is used for drain connection during hot-gas defrosting - in case of high capacity.



ICFW SS 25

Selection

To determine the correct ICF valve station follow steps 1 through 4.

Step 1

Determine application and function requirements:

- Line: Pumped liquid, Liquid Injection, Hot gas defrost, Liquid DX, Return line etc.
- Control: On/off solenoid valve, motorised valve
- Defrost: Electric or hot gas

From the above determine the application reference number (see below)

Step 2

Selection criteria

(Please use Danfoss calculation software)

Download the software from: <http://refrigerationandairconditioning.danfoss.com/support-center/apps-and-software/coolselector/>

- Refrigerant
- Capacity
- Temperature
- Circulation rate

From the above determine the valve station required, e.g.: ICF 20 complete with ICM 20-C

Step 3

Establish connection sizes and type

- DIN butt-weld, ANSI butt-weld or SOC weld
- 15 (1/2 in.), 20 (3/4 in.), 25 (1 in.), 32 (1 1/4 in.) or , 40 (1 1/2 in.), 50 (2 in.), 65 (2 1/2 in.) or 80 (3 in.)

Step 4

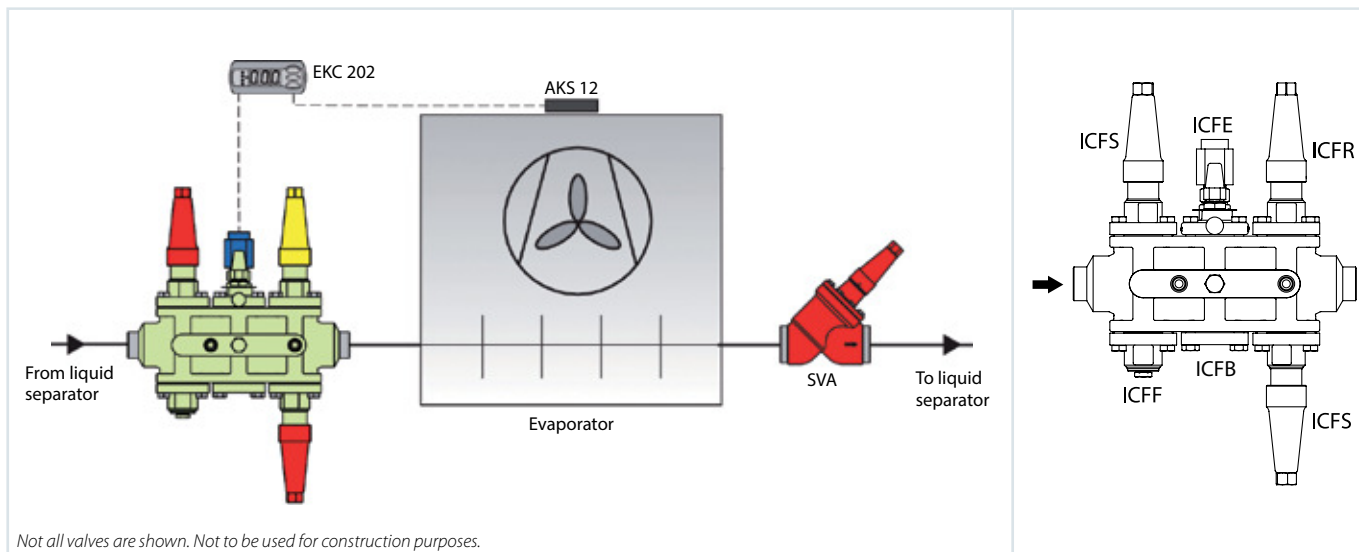
Establish code number

(see the ordering section)

Application example

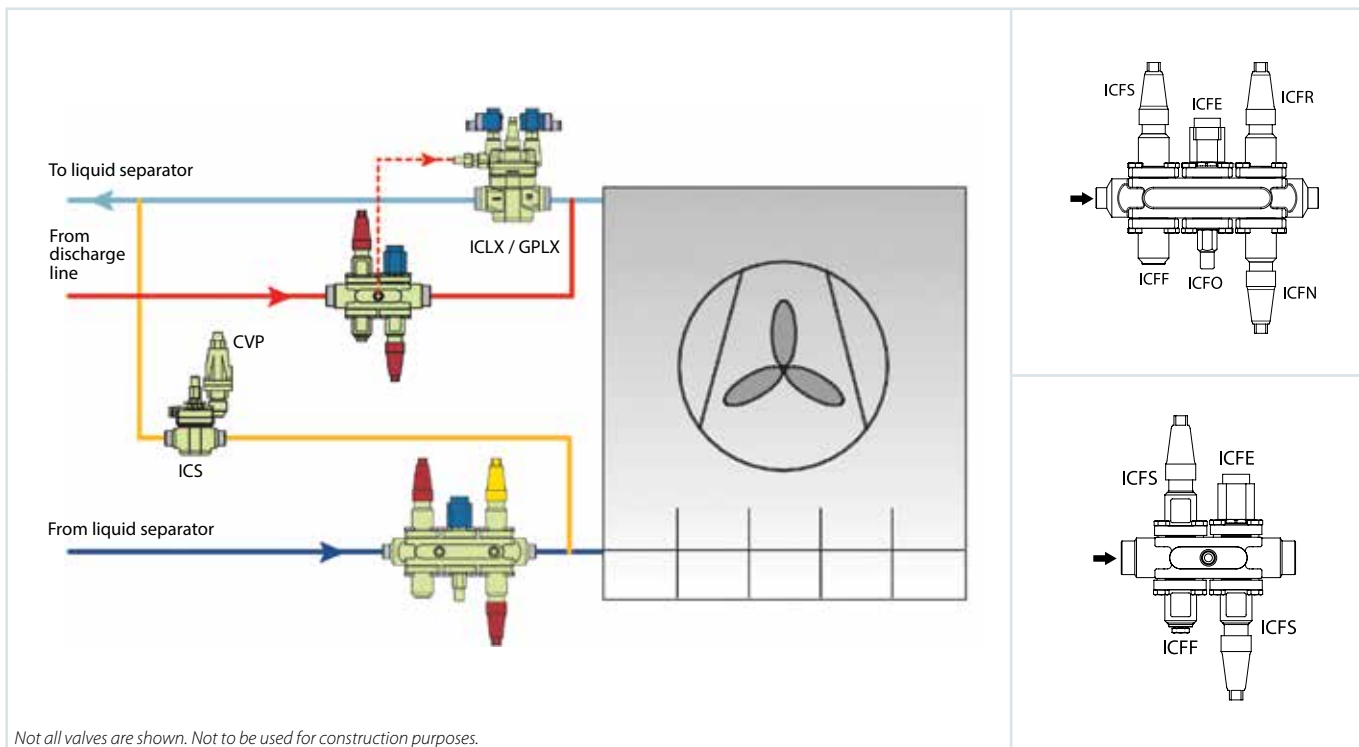
Example of application: Liquid feed line

A valve combination for a flooded evaporator operating on / off from a thermostat and with electric defrost is required. Manual override of the solenoid valve is requested. Common ICF configurations for this kind of application is shown here:



Example of application: Liquid feed line / Hot gas defrost line

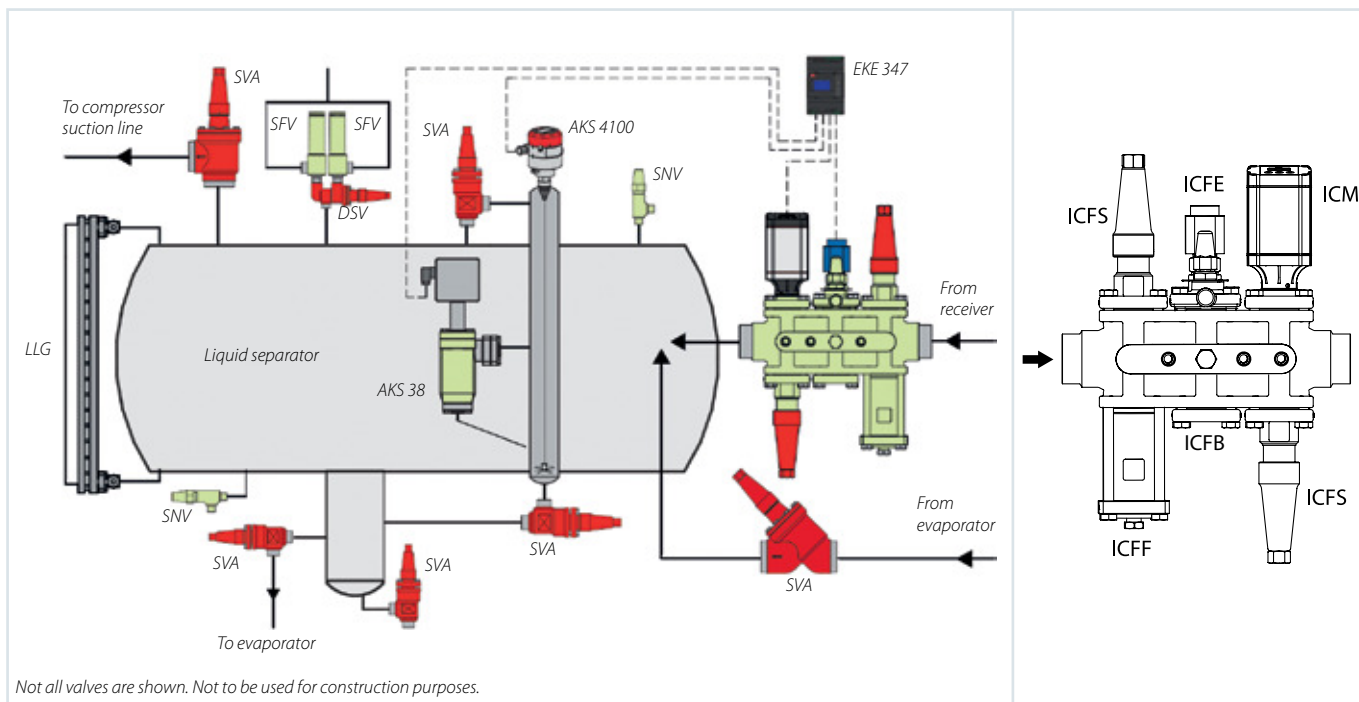
Evaporator with soft opening gas powered valve ICLX in the suction line and hot gas defrost featuring: ICF liquid feed station and ICF Hot gas station with side port to power ICLX. ICS+CVP as a defrost regulator (OFV optional depending on capacity).



Application example

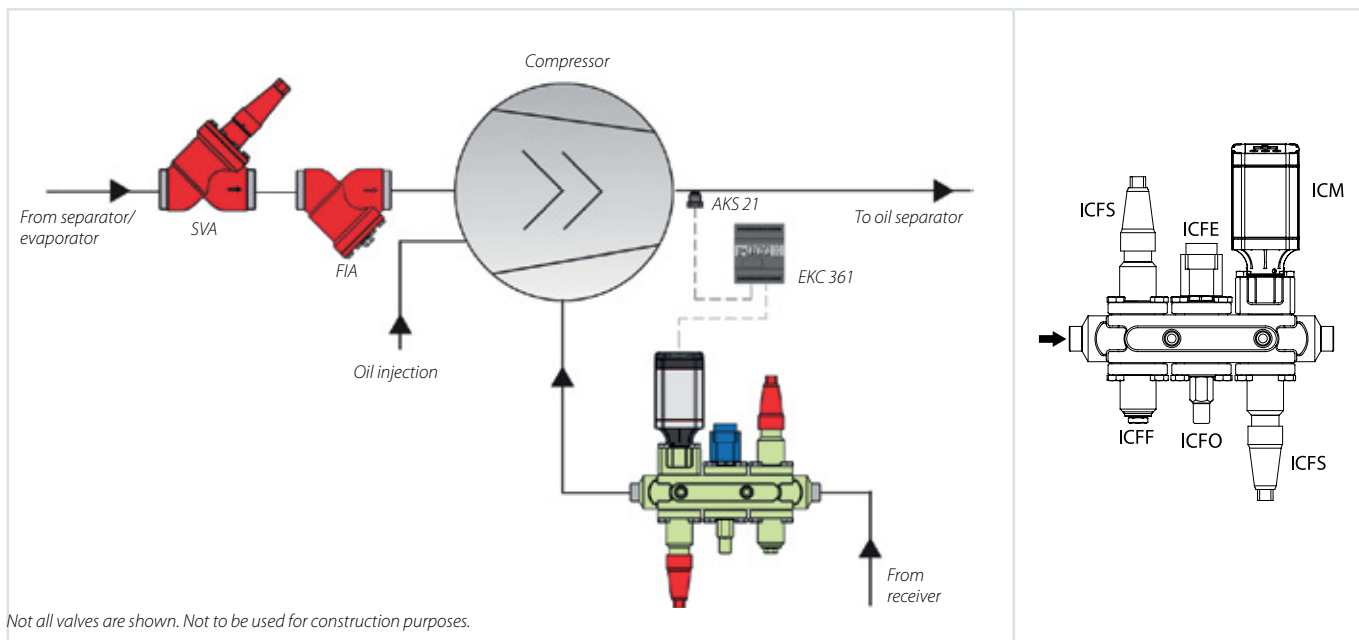
Example of application: Liquid injection line

A valve combination for liquid injection to separator with electronic injection valve is required. It is requested to have a solenoid valve in front of the control valve.



Example of application: Liquid injection line

A valve combination for compressor liquid injection with electronic injection valve is required. It is required to have a solenoid valve in front of the control valve.



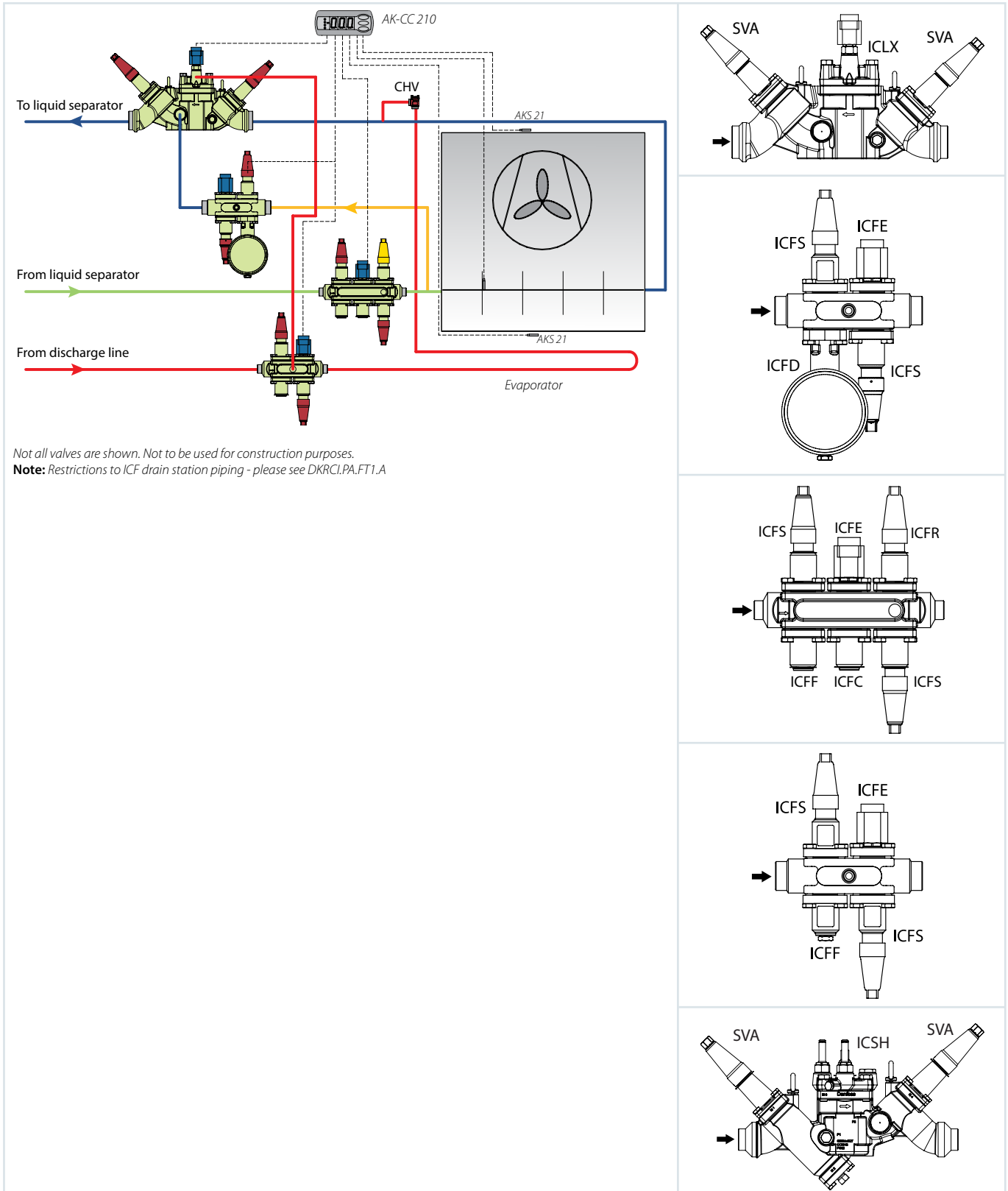
Application example

Example of application: Liquid feed line/Hotgas defrost line/ Return line

Evaporator with 2 stage gas powered ICLX module in suction line ICF and hot gas defrost featuring: ICF liquid feed valve station and ICF Hot gas valve station with side port to power ICLX module.

Defrost drain through liquid feed ICF weld connection to suction line ICF side port.

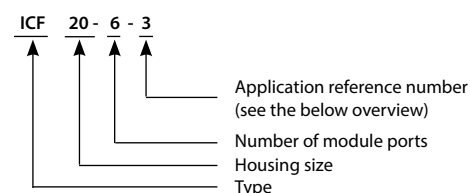
ICS+CVP as a defrost pressure regulator.



Ordering

Below Nomenclature show the generic configuration and application by identification of housing size, type and application group.

This designation is often used for discussion on possible solutions and will be the final identification on the valve label (see label example).



Label example:



For ordering, connection size and type must be chosen to get the final identification. **The final identification is done by code number only** (see next pages).

Application overview (generic configuration - connection type and size excluded)

Application #		Sequence of functions					
Liquid feed							
1	Liquid feed (No hotgas defrost)	Shut-off	Strainer	Solenoid	Man Open	Regul.	Shut-off
2	Liquid feed	Shut-off	Strainer	Solenoid	Man Open	Regul.	Stop & check
3	Liquid feed	Shut-off	Strainer	Solenoid	Check	Regul.	Shut-off
10	Liquid feed (No hotgas defrost)	Shut-off	Strainer	Solenoid	Regul.		
15	Liquid feed w. external Conn.	Shut-off	Strainer	Solenoid	Check	Welding	Regul.
Solenoid common							
4	Solenoid - Liquid & Hot gas lines	Shut-off	Strainer	Solenoid	Man Open	Shut-off	
8	Solenoid - Liquid & Hot gas lines	Shut-off	Strainer	Solenoid	Man Open		
Liquid injection							
5	Liquid injection (expansion)	Shut-off	Strainer	Solenoid	Man Open	Motor	Shut-off
12	Liquid injection (expansion) PWM	Shut-off	Strainer	El. Exp.	Shut-off		
14	Liquid injection (expansion)	Shut-off	Strainer	Motor	Shut-off		
Hot gas defrost							
9	Hot gas defrost	Shut-off	Strainer	Solenoid	Shut-off		
Hot gas defrost (ICF 50 only)							
47	Hot gas defrost - On/Off 2-step solenoid	Shut-off	Strainer option*	Solenoid	Shut-off		
48	Hot gas defrost - On/Off 2-step solenoid + manual Regulating	Shut-off	Strainer option*	Solenoid	Regul.		
* ICF 50 only							
Solenoid multiple evaporators							
11	Solenoid - Multiple evaporators	Shut-off	Strainer	Solenoid	Check		
18	Solenoid - Multiple evaporators	Shut-off	Strainer	Solenoid	Stop & check		
Liquid PWM							
13	Liquid injection & liquid feed PWM	Shut-off	Strainer	El. Exp.	Stop & check		
Return line (ICF 50 and ICF 65 only)							
41	ON/OFF 2-step solenoid	Shut-off	Strainer option*	Solenoid	Shut-off		
42	Pressure (temperature) Mechanical control	Shut-off	Strainer option*	ICS options**	Shut-off		
43	Pressure (temperature) Electronic control	Shut-off	Strainer option*	Motor	Shut-off		
44	ON/OFF 2-step solenoid + Manuel Regulating	Shut-off	Strainer option*	Solenoid	Regul.		
45	Pressure (temperature) Mechanical control + Manuel Regulating	Shut-off	Strainer option*	ICS options**	Regul.		
46	Pressure (temperature) Electronic control + Manuel Regulating	Shut-off	Strainer option*	Motor	Regul.		
Miscellaneous							
90	Multipurpose configurations						
Defrost drain line							
102	Liquid drain M2 with solenoid - 2 shut-off	Shut-off	Liquid drain	Solenoid	Shut-off		
103	Liquid drain M4 with solenoid - 1 shut-off	Shut-off	Solenoid	Liquid drain			
104	Liquid drain M4 with strainer and solenoid - 1 shut-off	Shut-off	Strainer	Solenoid	Liquid drain		
105	Liquid drain M2 with solenoid - 1 shut-off	Shut-off	Liquid drain	Solenoid			

* ICF 50 only

** ICS typical options: On/Off solenoid, Pressure or Temperature control (see ICS data sheet)

Ordering ICF

Liquid feed

Application 1: Liquid feed (no hot gas defrost)

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	6	1RA	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	9.5	20.9	027L3004
ICF 20	6	1RA	1	25	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	10.1	22.2	027L3373
ICF 25	6	1RB	1 ¼	32	Butt-weld ANSI (B 36.10)	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	23.8	52.4	027L4012
ICF 20	6	1RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	9.5	20.9	027L3000
ICF 20	6	1RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	9.7	21.3	027L3002
ICF 20	6	1HRB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	10.3	22.7	027L3406
ICF 25	6	1RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	23.6	51.9	027L4002
ICF 20	6	1RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	9.7	21.3	027L3003
ICF 20	6	1HRB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	10.3	22.7	027L3407
ICF 25	6	1RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	23.6	51.9	027L4006
ICF 25	6	1RB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	23.6	51.9	027L4011
ICF 25	6	1RB	1 ½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	22.7	49.9	027L4016
ICF 20	6	1RA	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	10.4	22.9	027L3005
ICF 20	6	1RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	9.9	21.8	027L3007
ICF 20	6	1HRB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	10.9	24.0	027L3408
ICF 25	6	1RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	24.1	53.0	027L4003
ICF 20	6	1RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	10.1	22.2	027L3008
ICF 20	6	1HRB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	10.9	24.0	027L3409
ICF 25	6	1RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	23.8	52.4	027L4008
ICF 25	6	1RB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	24.2	53.2	027L4013
ICF 25	6	1RB	1 ½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	23.8	52.4	027L4017

Application 2: Liquid feed

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	6	2RA	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	9.8	21.6	027L3013
ICF 20	6	2RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	9.7	21.3	027L3009
ICF 20	6	2RB	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20B	ICFN 20	10.2	22.9	027L3398
ICF 20	6	2RB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20B	ICFN 20	10.2	22.9	027L3422
ICF 20	6	2RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	9.7	21.3	027L3011
ICF 20	6	2HRB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	9.2	20.2	027L3410
ICF 20	6	2RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	9.7	21.3	027L3012
ICF 20	6	2HRB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	9.2	20.2	027L3411
ICF 25	6	2RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25A	ICFN 25	23.3	51.3	027L4135
ICF 20	6	2RA	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	10.1	22.2	027L3014
ICF 20	6	2RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	9.9	21.8	027L3016
ICF 20	6	2HRB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	8.8	19.4	027L3412
ICF 20	6	2RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	9.9	21.8	027L3017
ICF 20	6	2HRB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	10.9	24.0	027L3413

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Liquid feed

Application 3: Liquid feed

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	6	3RA	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	9.9	21.8	027L3022
ICF 20	6	3RA	1	25	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	9.9	21.8	027L3419
ICF 20	6	3RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	9.6	21.1	027L3018
ICF 20	6	3RB	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFS 20	10.4	22.9	027L3433
ICF 20	6	3RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	10.0	22.0	027L3437
ICF 20	6	3HRB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	10.6	23.3	027L3414
ICF 25	6	3RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	23.4	51.5	027L4020
ICF 20	6	3RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	10.4	22.9	027L3021
ICF 20	6	3HRB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	10.6	23.3	027L3415
ICF 25	6	3RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	23.2	51.0	027L4024
ICF 20	6	3RB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFS 20	10.4	22.9	027L3430
ICF 25	6	3RB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	23.8	52.4	027L4029
ICF 25	6	3RB	1 ½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	24.0	52.8	027L4034
ICF 20	6	3RA	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	10.0	22.0	027L3023
ICF 20	6	3HRB	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	10.7	23.5	027L3418
ICF 20	6	3RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	10.0	22.0	027L3025
ICF 20	6	3HRB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	11.2	24.6	027L3416
ICF 25	6	3RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	24.2	53.2	027L4021
ICF 20	6	3RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	10.1	22.2	027L3026
ICF 20	6	3HRB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	11.3	24.9	027L3417
ICF 25	6	3RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	24.1	53.0	027L4026
ICF 25	6	3RB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	24.1	53.0	027L4031
ICF 25	6	3RB	1 ½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	24.2	53.2	027L4035

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Liquid feed

Application 10: Liquid feed (no hot gas defrost)

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	4	10RA	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	6.6	14.5	027L3077
ICF 25	4	10RA	1 ¼	32	Butt-weld ANSI (B 36.10)	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	16.1	35.4	027L4081
ICF 15	4	10RA	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20A	–	–	6.3	13.8	027L4548
ICF 15	4	10RB	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20B	–	–	6.3	13.8	027L4544
ICF 15	4	10HRA	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20A	–	–	7.0	15.4	027L4552
ICF 15	4	10HRB	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20B	–	–	7.0	15.4	027L4549
ICF 15	4	10RA	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20A	–	–	6.3	13.8	027L4545
ICF 15	4	10RB	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20B	–	–	6.3	13.8	027L4540
ICF 15	4	10HRB	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20B	–	–	7.0	15.4	027L4524
ICF 20	4	10RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	6.7	14.7	027L3073
ICF 20	4	10HRB	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFR 20B	–	–	7.9	17.4	027L3383
ICF 20	4	10RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	7.2	15.8	027L3075
ICF 20	4	10RB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20B	–	–	7.2	15.8	027L3431
ICF 20	4	10HRB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFR 20B	–	–	7.9	17.4	027L3400
ICF 25	4	10RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	15.9	35.0	027L4076
ICF 25	4	10RB	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	15.9	35.0	027L4169
ICF 25	4	10RB	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFR 25B	–	–	16.2	35.6	027L4187
ICF 20	4	10RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	6.7	14.7	027L3076
ICF 20	4	10HRB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFR 20B	–	–	7.9	17.4	027L3401
ICF 25	4	10RA	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	15.8	34.8	027L4080
ICF 25	4	10RB	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	15.4	33.9	027L4085
ICF 25	4	10RB	1 ½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	15.8	34.8	027L4090
ICF 15	4	10HRB	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20B	–	–	7.0	15.4	027L4530
ICF 20	4	10RA	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFR 20A	–	–	7.0	15.4	027L3078
ICF 20	4	10HRB	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20B	–	–	8.4	18.5	027L3404
ICF 20	4	10RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFR 20A	–	–	6.9	15.2	027L3080
ICF 20	4	10HRB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20B	–	–	7.8	17.2	027L3402
ICF 25	4	10RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFR 25A	–	–	15.8	34.8	027L4077
ICF 20	4	10RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFR 20A	–	–	7.0	15.4	027L3081
ICF 20	4	10HRB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20B	–	–	8.1	17.8	027L3403
ICF 25	4	10RA	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFR 25A	–	–	12.7	27.9	027L4082
ICF 25	4	10RB	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFR 25B	–	–	16.2	35.6	027L4087
ICF 25	4	10RB	1 ½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFR 25B	–	–	16.2	35.6	027L4091

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Liquid feed

Application 15: Liquid feed with external connection

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	6	15RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFW 20D	ICFR 20A	9.1	20.0	027L3157
ICF 20	6	15RB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFW 20D	ICFR 20B	9.1	20.0	027L3434
ICF 25	6	15RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25A	21.8	48.0	027L4121
ICF 25	6	15RB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	22.7	49.9	027L4126
ICF 25	6	15RB	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	21.9	48.2	027L4130
ICF 25	6	15RA	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFR 25A	23.5	51.7	027L4122
ICF 25	6	15RB	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFR 25B	23.6	51.9	027L4127
ICF 25	6	15RB	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFR 25B	23.7	52.1	027L4131

Solenoid common

Application 4: Solenoid - Liquid & hot gas lines

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	6	4	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFB 20	ICFS 20	9.2	20.2	027L3028
ICF 20	6	4	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFB 20	ICFS 20	9.2	20.2	027L3029
ICF 20	6	4	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFS 20	9.4	20.7	027L3124
ICF 20	6	4	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFS 20	9.3	20.5	027L3032
ICF 20	6	4	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFS 20	9.5	20.9	027L3033

Application 8: Solenoid - Liquid & hot gas lines

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 15	4	8	½	15	Butt-weld ANSI (B 36.10)	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4533
ICF 15	4	8	¾	20	Butt-weld ANSI (B 36.10)	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4535
ICF 20	4	8	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	-	-	6.3	13.9	027L3062
ICF 15	4	8	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4532
ICF 15	4	8	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFN 20	-	-	6.8	15.0	027L4579
ICF 15	4	8	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4520
ICF 15	4	8	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFN 20	-	-	6.8	15.0	027L4574
ICF 20	4	8	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	-	-	7.2	15.8	027L3060
ICF 25	4	8	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	-	-	12.4	27.3	027L4054
ICF 20	4	8	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	-	-	6.3	13.9	027L3061
ICF 25	4	8	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	-	-	14.5	31.9	027L4133
ICF 25	4	8	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	-	-	14.5	31.9	027L4059
ICF 15	4	8	½	15	Pipe thread (ANSI B 1.20.1)	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4534
ICF 15	4	8	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4526
ICF 20	4	8	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	-	-	6.6	14.5	027L3366
ICF 20	4	8	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	-	-	6.7	14.7	027L3064
ICF 20	4	8	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	-	-	6.7	14.7	027L3065
ICF 15	4	8	7/8	22	Solder ANSI B 16.22	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4536
ICF 15	4	8	7/8	22	Solder DIN-EN1254-1	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	-	-	5.7	12.6	027L4537

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Liquid injection

Application 5: Liquid injection (expansion)

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	6	5MA	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	9.6	21.1	027L3037
ICF 20	6	5MB	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	9.9	21.8	027L3043
ICF 25	6	5MA	1¼	32	Butt-weld ANSI (B 36.10)	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	23.0	50.6	027L4043
ICF 20	6	5MA33	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	10.1	22.2	027L3367
ICF 20	6	5MA33	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	9.8	21.6	027L3151
ICF 20	6	5MA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	9.8	21.6	027L3034
ICF 20	6	5MA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	9.8	21.6	027L3147
ICF 20	6	5MB	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	9.8	21.6	027L3145
ICF 20	6	5MB66	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	9.6	21.1	027L3161
ICF 20	6	5MC	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	9.9	21.8	027L3432
ICF 20	6	5MA33	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	10.1	22.2	027L3388
ICF 20	6	5MA33	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	9.6	21.1	027L3153
ICF 20	6	5MA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	9.8	21.6	027L3036
ICF 20	6	5HMA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-A	ICFS 20	10.4	22.9	027L3322
ICF 20	6	5MA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	9.8	21.6	027L3148
ICF 20	6	5MB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	9.6	21.1	027L3042
ICF 20	6	5MB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	9.8	21.6	027L3149
ICF 20	6	5HMB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	11.4	25.1	027L3325
ICF 20	6	5MB66	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	10.5	23.1	027L3389
ICF 20	6	5MC	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	9.9	21.8	027L3047
ICF 20	6	5HMC	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	11.4	25.1	027L3328
ICF 25	6	5MA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	22.8	50.2	027L4038
ICF 25	6	5MA33	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	23.0	50.6	027L4171
ICF 20	6	5MB66	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	9.6	21.1	027L3374
ICF 20	6	5MC	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	9.8	21.6	027L3048
ICF 20	6	5HMB	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20-H	ICFB 20	ICM 20-B	ICFS 20	10.3	22.7	027L3390
ICF 20	6	5HMC	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	10.3	22.7	027L3329
ICF 25	6	5MA	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	23.0	50.6	027L4042
ICF 25	6	5MB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	22.0	48.5	027L4047
ICF 25	6	5MA	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	21.9	48.2	027L4148
ICF 25	6	5MA	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	22.2	48.9	027L4174
ICF 25	6	5MA33	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	22.2	48.9	027L4170
ICF 25	6	5MB	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	22.2	48.9	027L4052
ICF 20	6	5MA33	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	10.1	22.2	027L3154
ICF 20	6	5MA	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	10.0	22.0	027L3038
ICF 20	6	5MB66	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	10.5	23.1	027L3159
ICF 20	6	5MB	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	9.8	21.6	027L3127
ICF 20	6	5MA33	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20-E	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	10.1	22.2	027L3391
ICF 20	6	5MA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	10.1	22.2	027L3040
ICF 20	6	5HMA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-A	ICFS 20	11.4	25.1	027L3323
ICF 20	6	5MB66	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	10.5	23.1	027L3160
ICF 20	6	5MB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	10.0	22.0	027L3045
ICF 20	6	5HMB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	11.0	24.2	027L3326
ICF 20	6	5MC	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	10.0	22.0	027L3051
ICF 20	6	5HMC	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	10.0	22.0	027L3330
ICF 25	6	5MA	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	23.1	50.8	027L4039
ICF 25	6	5MA33	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	22.0	48.5	027L4173
ICF 25	6	5MA	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	23.2	51.0	027L4044
ICF 20	6	5MB66	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20-E	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	10.5	23.1	027L3392
ICF 25	6	5MB	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	23.2	51.1	027L4049
ICF 20	6	5MC	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	10.1	22.2	027L3052
ICF 20	6	5HMB	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20-E	ICFE 20-H	ICFB 20	ICM 20-B	ICFS 20	11.0	24.2	027L3393
ICF 25	6	5MA	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-C	ICFS 25	11.0	24.2	027L3331
ICF 25	6	5MA33	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	22.0	48.5	027L4172
ICF 25	6	5MA	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	23.1	50.8	027L4132
ICF 25	6	5MB	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	23.2	51.1	027L4053

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Liquid injection

Application 12: Liquid injection (expansion) PWM

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 15	4	12	¾	20	Butt-weld ANSI (B 36.10)	ICFS 15*)	ICFF 15*)	ICFA 20	ICFS 20	–	–	6.2	13.7	027L4556
ICF 15	4	12	½	15	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICFA 20	ICFS 20	–	–	6.2	13.7	027L4573
ICF 15	4	12	¾	20	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICFA 20	ICFS 20	–	–	6.2	13.7	027L4522
ICF 20	4	12	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFA 20	ICFS 20	–	–	6.8	15.0	027L3089
ICF 15	4	12	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*)	ICFF 15*)	ICFA 20	ICFS 20	–	–	6.2	13.7	027L4528
ICF 20	4	12	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFA 20	ICFS 20	–	–	6.8	15.0	027L3091

Application 14: Liquid injection (expansion)

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 15	4	14MA	½	15	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICM 20-A	ICFS 20	–	–	6.8	15.0	027L4551
ICF 15	4	14MB	½	15	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICM 20-B	ICFS 20	–	–	6.8	15.0	027L4559
ICF 20	4	14MA33	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-A33	ICFS 20	–	–	7.3	16.1	027L3394
ICF 15	4	14MA	¾	20	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICM 20-A	ICFS 20	–	–	6.8	15.0	027L4525
ICF 20	4	14MA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-A	ICFS 20	–	–	7.3	16.1	027L3095
ICF 15	4	14MB66	¾	20	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICM 20-B66	ICFS 20	–	–	6.8	15.0	027L4553
ICF 20	4	14MB66	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-B66	ICFS 20	–	–	7.2	15.8	027L4155
ICF 15	4	14MB	¾	20	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICM 20-B	ICFS 20	–	–	6.8	15.0	027L4560
ICF 20	4	14MA33	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-A33	ICFS 20	–	–	6.6	14.5	027L3365
ICF 20	4	14MA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-A	ICFS 20	–	–	7.3	16.1	027L3097
ICF 20	4	14MB66	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-B66	ICFS 20	–	–	7.2	15.8	027L3356
ICF 20	4	14MB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-B	ICFS 20	–	–	7.2	15.8	027L3103
ICF 20	4	14MC	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-C	ICFS 20	–	–	7.2	15.8	027L3108
ICF 25	4	14MA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-A	ICFS 25	–	–	15.5	34.1	027L4103
ICF 20	4	14MC	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-C	ICFS 20	–	–	7.3	16.1	027L3109
ICF 25	4	14MB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	14.4	31.7	027L4112
ICF 25	4	14MA	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-A	ICFS 25	–	–	15.4	33.9	027L4107
ICF 25	4	14MA	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-A	ICFS 25	–	–	15.3	33.7	027L4182
ICF 25	4	14MB	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	15.3	33.7	027L4117
ICF 15	4	14MA	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*)	ICFF 15*)	ICM 20-A	ICFS 20	–	–	6.8	15.0	027L4531
ICF 15	4	14MB	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*)	ICFF 15*)	ICM 20-B	ICFS 20	–	–	6.8	15.0	027L4583
ICF 20	4	14MA	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICM 20-A	ICFS 20	–	–	7.5	16.5	027L3099
ICF 20	4	14MA	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICM 20-A	ICFS 20	–	–	6.7	14.7	027L3101
ICF 20	4	14MB	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICM 20-B	ICFS 20	–	–	6.7	14.7	027L3106
ICF 25	4	14MB	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	14.4	31.7	027L4188
ICF 25	4	14MB	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICM 25-B	ICFS 25	–	–	17.3	38.1	027L4114
ICF 25	4	14MB	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICM 25-B	ICFS 25	–	–	16.6	36.6	027L4118
ICF 20	4	14MC	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICM 20-C	ICFS 20	–	–	6.7	14.7	027L3112
ICF 25	4	14MA	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICM 25-A	ICFS 25	–	–	15.8	34.8	027L4104
ICF 20	4	14MC	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICM 20-C	ICFS 20	–	–	7.4	16.3	027L3113
ICF 25	4	14MA	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICM 25-A	ICFS 25	–	–	15.6	34.3	027L4109
ICF 25	4	14MA	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICM 25-A	ICFS 25	–	–	15.8	34.8	027L4140

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Hot gas defrost

Application 9: Hot gas defrost

Type	# of Modules	Appl. #	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	4	9	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	7.2	15.8	027L3069
ICF 15	4	9H	¾	20	Butt-weld ANSI (B 36.10)	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	7.2	15.4	027L4554
ICF 15	4	9	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFS 20	–	–	6.3	13.9	027L4543
ICF 15	4	9H	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	7.2	15.4	027L4541
ICF 15	4	9	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFS 20	–	–	6.3	13.9	027L4571
ICF 20	4	9	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	6.7	14.7	027L3120
ICF 15	4	9H	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	7.2	15.4	027L4521
ICF 20	4	9	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	7.2	15.8	027L3067
ICF 20	4	9H	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	8.2	18.0	027L3333
ICF 25	4	9	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	15.8	34.8	027L4063
ICF 20	4	9	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	6.8	15.0	027L3068
ICF 20	4	9H	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	7.6	16.7	027L3334
ICF 25	4	9	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	15.7	34.5	027L4067
ICF 25	4	9	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	15.7	34.5	027L4072
ICF 15	4	9	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFE 20	ICFS 20	–	–	6.3	13.9	027L4538
ICF 15	4	9H	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	7.2	15.4	027L4527
ICF 20	4	9H	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFS 20	–	–	8.0	17.6	027L3351
ICF 20	4	9	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFS 20	–	–	7.0	15.4	027L3071
ICF 20	4	9H	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFS 20	–	–	8.1	17.8	027L3336
ICF 25	4	9	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFS 25	–	–	16.0	35.2	027L4064
ICF 20	4	9	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFS 20	–	–	7.4	16.3	027L3072
ICF 20	4	9H	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFS 20	–	–	7.9	17.4	027L3337
ICF 25	4	9	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFS 25	–	–	16.0	35.2	027L4069
ICF 25	4	9	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFS 25	–	–	16.1	35.4	027L4073

* Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Hot gas defrost (ICF 50 only)

Application 47: Hot gas defrost - On/Off 2-step solenoid (ICF 50 only)

Type	# of Modules	Appl. #	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	47	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*	FIA 50	ICSH 50-32	SVA-S 50	–	–	25.8	56.8	027L5070
ICF 50	4	47	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*	FIA 50	ICSH 50-40	SVA-S 50	–	–	25.8	56.8	027L5071
ICF 50	4	47	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*	FIA 50	ICSH 50-40	SVA-S 50	–	–	25.8	56.8	027L5072
ICF 50	4	47	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*	FIA 50	ICSH 50	SVA-S 50	–	–	25.8	56.8	027L5073

Application 48: Hot gas defrost - On/Off 2-step solenoid + manual Regulating (ICF 50 only)

Type	# of Modules	Appl. #	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M5	kg	lbs	
ICF 50	4	48	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*	FIA 50	ICSH 50-32	REG-SB 50	–	–	25.8	56.8	027L5074

Ordering ICF

Solenoid multiple evaporators

Application 11: Solenoid - Multiple evaporators

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 20	4	11	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	6.5	14.3	027L3085
ICF 15	4	11	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFC 20	–	–	6.5	14.3	027L4539
ICF 15	4	11	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20	ICFC 20	–	–	6.5	14.3	027L4547
ICF 15	4	11H	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20-H	ICFC 20	–	–	7.2	15.8	027L4546
ICF 20	4	11	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	6.4	14.1	027L4580
ICF 20	4	11	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	6.4	14.1	027L3083
ICF 20	4	11H	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	–	–	8.0	17.6	027L3345
ICF 20	4	11	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	6.5	14.3	027L3084
ICF 20	4	11H	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	–	–	7.4	16.3	027L3346
ICF 25	4	11	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	–	–	14.9	32.8	027L4094
ICF 25	4	11	1 ½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	–	–	13.7	30.1	027L4099
ICF 20	4	11	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	–	–	6.9	15.2	027L3087
ICF 20	4	11H	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	–	–	8.0	17.6	027L3348
ICF 20	4	11	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	–	–	6.7	14.7	027L3088
ICF 20	4	11H	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	–	–	7.4	16.3	027L3349
ICF 25	4	11	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	–	–	13.0	28.6	027L4096
ICF 25	4	11	1 ½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	–	–	14.3	31.5	027L4100

Application 18: Solenoid - Multiple evaporators

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 15	4	18H	¾	20	Butt-weld ANSI (B 36.10)	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	7.2	15.8	027L4572
ICF 15	4	18H	½	15	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	7.2	15.8	027L4542
ICF 15	4	18H	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	7.2	15.8	027L4550
ICF 20	4	18	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20	ICFN 20	–	–	7.3	16.0	027L3438
ICF 25	4	18	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFN 25	–	–	15.8	34.8	027L4175
ICF 25	4	18	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFN 25	–	–	16.6	36.5	027L4164
ICF 25	4	18	1 ¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	16.6	36.5	027L4575
ICF 25	4	18	1 ½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFN 25	–	–	16.6	36.5	027L4165
ICF 25	4	18	1 ½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	16.6	36.6	027L4177
ICF 15	4	18	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFE 20	ICFN 20	–	–	6.5	14.3	027L4558
ICF 15	4	18H	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	7.2	15.8	027L4557
ICF 15	4	18	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFN 20	–	–	8.0	17.6	027L3353
ICF 25	4	18	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	16.9	37.2	027L4136
ICF 20	4	18H	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFN 20	–	–	8.0	17.6	027L3354
ICF 20	4	18H	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFN 20	–	–	8.0	17.6	027L3355
ICF 25	4	18	1 ¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	16.0	35.2	027L4137
ICF 25	4	18	1 ½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	16.2	35.6	027L4138

Liquid PWM

Application 13: Liquid injection & liquid feed PWM

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 15	4	13	¾	20	Butt-weld ANSI (B 36.10)	ICFS 15*	ICFF 15*	ICFA 20	ICFN 20	–	–	6.2	13.7	027L4555
ICF 15	4	13	¾	20	Butt-weld DIN-EN 10220	ICFS 15*	ICFF 15*	ICFA 20	ICFN 20	–	–	6.2	13.7	027L4523
ICF 20	4	13	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFA 20	ICFN 20	–	–	6.8	15.0	027L3092
ICF 15	4	13	½	15	Socket weld, ANSI (B 16.11)	ICFS 15*	ICFF 15*	ICFA 20	ICFN 20	–	–	6.2	13.7	027L4529
ICF 20	4	13	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFA 20	ICFN 20	–	–	6.8	15.0	027L3094
ICF 15	4	13	7/8	22	Solder DIN-EN1254-1	ICFS 15*	ICFF 15*	ICFA20	ICFN20	–	–	6.2	13.7	027L4582

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Return lines

Application 41: Return lines - ON/OFF

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	41	1 ½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	-	-	25.5	56.1	027L5021
ICF 50	4	41	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	-	-	25.5	56.1	027L5023
ICF 50	4	41	1 ½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	-	-	25.5	56.1	027L5022
ICF 50	4	41	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	-	-	25.5	56.1	027L5024
ICF 65	3	41	2 ½	65	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICLX 65	SVA-S 65	-	-	32.7	71.9	027L6522
ICF 65	3	41	3	80	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICLX 65	SVA-S 65	-	-	32.7	71.9	027L6524
ICF 65	3	41	2 ½	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICLX 65	SVA-S 65	-	-	32.7	71.9	027L6521
ICF 65	3	41	3	80	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICLX 65	SVA-S 65	-	-	32.7	71.9	027L6523

Application 42: Return lines - Pressure (temperature) - Mechanical control

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	42S50	1 ½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	-	-	25.8	56.8	027L5001
ICF 50	4	42S32	1 ½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	-	-	25.8	56.8	027L5005
ICF 50	4	42S40	1 ½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	-	-	25.8	56.8	027L5009
ICF 50	4	42S50	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	-	-	25.8	56.8	027L5003
ICF 50	4	42S32	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	-	-	25.8	56.8	027L5007
ICF 50	4	42S40	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	-	-	25.8	56.8	027L5011
ICF 50	4	42S50	1 ½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	-	-	25.8	56.8	027L5002
ICF 50	4	42S32	1 ½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	-	-	25.8	56.8	027L5006
ICF 50	4	42S50	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	-	-	25.8	56.8	027L5004
ICF 50	4	42S32	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	-	-	25.8	56.8	027L5008
ICF 50	4	42S40	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	-	-	25.8	56.8	027L5012
ICF 65	3	42S65	2 ½	65	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICS 65	SVA-S 65	-	-	33.3	73.3	027L6502
ICF 65	3	42S40	2 ½	65	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICS 65-40	SVA-S 65	-	-	33.3	73.3	027L6506
ICF 65	3	42S80	2 ½	65	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICS 80	SVA-S 65	-	-	33.3	73.3	027L6510
ICF 65	3	42S65	3	80	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICS 65	SVA-S 65	-	-	33.3	73.3	027L6504
ICF 65	3	42S40	3	80	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICS 65-40	SVA-S 65	-	-	33.3	73.3	027L6508
ICF 65	3	42S80	3	80	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICS 80	SVA-S 65	-	-	33.3	73.3	027L6512
ICF 65	3	42S65	2 ½	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 65	SVA-S 65	-	-	33.3	73.3	027L6501
ICF 65	3	42S40	2 ½	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 65-40	SVA-S 65	-	-	33.3	73.3	027L6505
ICF 65	3	42S80	2 ½	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 80	SVA-S 65	-	-	33.3	73.3	027L6509
ICF 65	3	42S65	3	80	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 65	SVA-S 65	-	-	33.3	73.3	027L6503
ICF 65	3	42S40	3	80	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 65-40	SVA-S 65	-	-	33.3	73.3	027L6507
ICF 65	3	42S80	3	80	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 80	SVA-S 65	-	-	33.3	73.3	027L6511

All ICS modules are 3-pilot versions. They are supplied with two blanking plugs and one sealing plug.

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Return lines

Application 43: Return lines - Pressure (temperature) - Electronic control

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	43MA	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	-	-	24.8	54.6	027L5013
ICF 50	4	43MB	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	-	-	24.8	54.6	027L5017
ICF 50	4	43MA	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	-	-	24.8	54.6	027L5015
ICF 50	4	43MB	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	-	-	24.8	54.6	027L5019
ICF 50	4	43MA	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	-	-	24.8	54.6	027L5014
ICF 50	4	43MB	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	-	-	24.8	54.6	027L5018
ICF 50	4	43MA	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	-	-	24.8	54.6	027L5016
ICF 50	4	43MB	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	-	-	24.8	54.6	027L5020
ICF 65	3	43MA	2½	65	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICM 65 - A	SVA-S 65	-	-	32.9	72.4	027L6514
ICF 65	3	43MB	2½	65	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICM 65 - B	SVA-S 65	-	-	32.9	72.4	027L6518
ICF 65	3	43MA	3	80	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICM 65 - A	SVA-S 65	-	-	32.9	72.4	027L6516
ICF 65	3	43MB	3	80	Butt-weld ANSI (B 36.10)	SVA-S 65*)	-	ICM 65 - B	SVA-S 65	-	-	32.9	72.4	027L6520
ICF 65	3	43MA	2½	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICM 65 - A	SVA-S 65	-	-	32.9	72.4	027L6513
ICF 65	3	43MB	2½	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICM 65 - B	SVA-S 65	-	-	32.9	72.4	027L6517
ICF 65	3	43MA	3	80	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICM 65 - A	SVA-S 65	-	-	32.9	72.4	027L6515
ICF 65	3	43MB	3	80	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICM 65 - B	SVA-S 65	-	-	32.9	72.4	027L6519

Application 44: ON/OFF 2-step solenoid + Manuel Regulating

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	44	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	-	-	25.5	56.1	027L5045
ICF 50	4	44	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	-	-	25.5	56.1	027L5046
ICF 50	4	44	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	-	-	25.5	56.1	027L5047
ICF 50	4	44	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	-	-	25.5	56.1	027L5048

Application 45: Pressure (temperature) Mechanical control + Manuel Regulating

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	45S50	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	-	-	25.8	56.8	027L5025
ICF 50	4	45S32	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	-	-	25.8	56.8	027L5029
ICF 50	4	45S40	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	-	-	25.8	56.8	027L5033
ICF 50	4	45S50	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	-	-	25.8	56.8	027L5027
ICF 50	4	45S32	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	-	-	25.8	56.8	027L5031
ICF 50	4	45S40	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	-	-	25.8	56.8	027L5035
ICF 50	4	45S50	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	-	-	25.8	56.8	027L5026
ICF 50	4	45S32	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	-	-	25.8	56.8	027L5030
ICF 50	4	45S40	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	-	-	25.8	56.8	027L5034
ICF 50	4	45S50	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	-	-	25.8	56.8	027L5028
ICF 50	4	45S32	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	-	-	25.8	56.8	027L5032
ICF 50	4	45S40	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	-	-	25.8	56.8	027L5036
ICF 65	3	45S65	3	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 65	REG 65-B	-	-	33.3	73.3	027L6525
ICF 65	3	45S65	3	65	Butt-weld DIN-EN 10220	SVA-S 65*)	-	ICS 80	REG 65-B	-	-	33.3	73.3	027L6526

Application 46: Pressure (temperature) Electronic control + Manuel Regulating

Type	No. of modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in.]	[mm]		M1	M2	M3	M4	M5	M6	kg	lbs	
ICF 50	4	46MA	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	-	-	24.8	54.6	027L5037
ICF 50	4	46MB	1½	40	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	-	-	24.8	54.6	027L5041
ICF 50	4	46MA	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	-	-	24.8	54.6	027L5039
ICF 50	4	46MB	2	50	Butt-weld DIN-EN 10220	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	-	-	24.8	54.6	027L5043
ICF 50	4	46MA	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	-	-	24.8	54.6	027L5038
ICF 50	4	46MB	1½	40	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	-	-	24.8	54.6	027L5042
ICF 50	4	46MA	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	-	-	24.8	54.6	027L5040
ICF 50	4	46MB	2	50	Socket weld, ANSI (B 16.11)	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	-	-	24.8	54.6	027L5044

All ICS modules are 3-pilot versions. They are supplied with two blanking plugs and one sealing plug.

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Miscellaneous

Application 90: Miscellaneous

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6	[kg]	[lbs]	
ICF 20	4	90	¾	20	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20E	ICFE 20	ICFN 20	–	–	7.2	15.8	027L3371
ICF 20	6	90	1	25	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFB 20	10.2	22.5	027L3420
ICF 20	6	90	1	25	Butt-weld ANSI (B 36.10)	ICFS 20	ICFF 20	ICFE 20	ICFS 20	ICFB 20	ICFB 20	9.7	21.4	027L3421
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFR 20A	ICFF 20	ICFA 20	ICFN 20	–	–	6.4	14.1	027L3156
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFR 20A	ICFF 20	ICFE 20	ICFN 20	–	–	6.4	14.1	027L3155
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFN 20	–	–	7.2	15.8	027L3379
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFW 20-D	ICFE 20	ICFS 20	–	–	5.9	13.0	027L3385
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFB 20	ICFC 20	–	–	5.9	13.0	027L3141
ICF 20	4	99	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFB 20	–	–	6.2	13.7	027L3122
ICF 20	4	99	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	–	–	6.1	13.4	027L3359
ICF 20	4	99	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	6.7	14.8	027L3700
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFB 20	ICFN 20	–	–	6.7	14.8	027L3405
ICF 15	4	90	½	15	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICFB 20	ICFN 20	–	–	6.7	14.8	027L4581
ICF 15	4	90	¾	20	Butt-weld DIN-EN 10220	ICFS 15*)	ICFF 15*)	ICFR 20A	ICFN 20	–	–	7.2	15.8	027L4576
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFA 20	ICFS 20	9.4	20.7	027L3053
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFA 20	ICFC 20	ICFB 20	ICFS 20	9.9	21.8	027L3056
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFN 20	9.7	21.3	027L3372
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFB 20	ICFR 20-A	ICFN 20	9.7	21.3	027L3133
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFR 20A	9.4	20.7	027L3144
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICM 20-C	ICFS 20	9.7	21.3	027L3152
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFS 20	ICFS 20	9.8	21.6	027L3360
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFB 20	ICFC 20	ICFE 20	ICFO 20	ICFS 20	ICFB 20	6.2	13.6	027L3121
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFB 20	ICFS 20	9.6	21.1	027L3387
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	9.1	20.1	027L3368
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	10.2	22.5	027L3386
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICM 20B	ICFS 20	9.7	21.4	027L3397
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFS 20	9.4	20.7	027L3424
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20B	ICFN 20	9.6	21.1	027L3425
ICF 20	6	99	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFR 20A	9.4	20.7	027L3701
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20	ICFN 20	ICFR 20B	ICFW 20D	9.1	20.1	027L3439
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFW 20D	ICFS 20	9.1	20.1	027L3441
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFB 20	ICFN 20	9.4	20.7	027L3446
ICF 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFW 20D	9.1	20.1	027L3447
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFN 20	–	–	6.7	14.7	027L3134
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFB 20	–	–	5.9	13.0	027L3364
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFN 20	–	–	7.2	15.8	027L3380
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFA 20	ICFS 20	9.8	21.6	027L3361
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFB 20	9.1	20.0	027L3363
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	12.0	26.4	027L3376
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	11.5	25.3	027L3375

*) Fixed module

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF

Miscellaneous (Continued)

Application 90: Miscellaneous

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6	[kg]	[lbs]	
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFS 20	9.4	20.7	027L3123
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	23.6	51.9	027L4168
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFS 25	ICFB 25	22.0	48.4	027L4151
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	9.0	19.8	027L3369
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFA 20	ICFC 20	9.6	21.1	027L3396
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20A	ICFB 20	9.7	21.4	027L3423
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20B	ICFN 20	9.6	21.1	027L3426
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFB 25	23.6	52.0	027L4176
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFF 25	23.8	52.4	027L4577
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	ICFR 25B	ICFW 25D	22.7	49.9	027L4186
ICF 25	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFB 25	21.7	47.7	027L4143
ICF 25	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	22.7	49.9	027L4160
ICF 25	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	21.9	48.2	027L4161
ICF 25	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFB 25	ICFS 25	21.9	48.2	027L4162
ICF 25	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25-E	ICFE 25	ICFC 25	ICFR 25B	ICFB 25	22.7	49.9	027L4178
ICF 25	6	90	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFW 25D	23.6	51.9	027L4157
ICF 25	6	90	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	23.6	51.9	027L4166
ICF 25	6	90	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	21.7	47.7	027L4167
ICF 25	4	90	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25A	ICFB 25	--	--	14.9	32.8	027L4185
ICF 25	4	90	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	--	--	16.1	35.4	027L4192
ICF 20	4	90	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICM 20-A33	ICFB 20	--	--	7.2	15.8	027L3362
ICF 20	4	90	1	25	Socket weld, ANSI (B 16.11)	ICFR 20A	ICFF 20E	ICFE 20	ICFN 20	--	--	7.2	15.8	027L4179
ICF 20	4	90	1	25	Socket weld, ANSI (B 16.11)	ICFR 20B	ICFF 20E	ICFE 20H	ICFN 20	--	--	7.9	17.4	027L4578
ICF 20	4	90	1	25	Socket weld, ANSI (B 16.11)	ICFB 20	ICFF 20	ICFE 20	ICFN 20	--	--	7.0	15.4	027L3357
ICF 25	4	90	1	25	Socket weld, ANSI (B 16.11)	ICFB 25	ICFF 25E	ICFE 25	ICFN 25	--	--	14.1	31.0	027L4149
ICF 25	4	90	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFB 25	ICFR 25A	--	--	16.1	35.5	027L4180
ICF 25	6	90	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFB 25	ICFR 25A	--	--	16.1	35.5	027L4181
ICF 20	6	90	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFA 20	ICFS 20	9.3	20.5	027L3055
ICF 20	6	90	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFA 20	ICFC 20	ICFB 20	ICFS 20	9.9	21.8	027L3058
ICF 20	6	90	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFN 20	9.4	20.7	027L3150
ICF 20	6	90	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFW 20S	ICFS 20	10.4	22.9	027L4153
ICF 20	6	90	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFW 20S	ICFS 20	11.5	25.3	027L3377
ICF 25	6	90	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFB 25	ICFS 25	23.1	50.8	027L4156
ICF 25	6	90	1	25	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFS 25	25.1	55.2	027L4158
ICF 20	6	90	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFB 20	ICFS 20	10.5	23.1	027L3378
ICF 20	6	90	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFW 20S	ICFS 20	10.5	23.1	027L4152
ICF 25	6	90	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFS 25	25.1	55.2	027L4154
ICF 25	6	90	1½	40	Socket weld, ANSI (B 16.11)	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFS 25	25.1	55.2	027L4159
ICF 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFB 20	ICFD 20	ICFE 20	ICFB 20	--	--	12.4	27.3	027L3483
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	ICFB 20	ICFD 20	ICFE 20	ICFB 20	--	--	12.4	27.3	027L3484
ICF 20	4	90	1¼	32	Butt-weld DIN-EN 10220	ICFB 20	ICFD 20	ICFE 20	ICFB 20	--	--	12.4	27.3	027L3485
ICF 20	6	90	¾	20	Socket weld, ANSI (B 16.11)	ICFS 20	ICFB 20	ICFE 20	ICFD 20	ICFB 20	ICFS 20	15.0	33.1	027L3463
ICF 20	6	90	1	25	Socket weld, ANSI (B 16.11)	ICFS 20	ICFB 20	ICFE 20	ICFD 20	ICFB 20	ICFS 20	15.0	33.1	027L3464
ICF 20	6	90	1¼	32	Socket weld, ANSI (B 16.11)	ICFS 20	ICFB 20	ICFE 20	ICFD 20	ICFB 20	ICFS 20	15.0	33.1	027L3465

Note:

For special applications that cannot be covered by our predefined ICF code numbers please consult Coolselector*2 or your local Danfoss Sales company. <http://refrigerationandairconditioning.danfoss.com/support-center/apps-and-software/coolselector/>
Prior to designing „non standard“ configurations there are some basic restrictions to the location of the function modules that must be followed.

When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF SS (Stainless Steel)

Liquid feed

Application 1: Liquid feed (no hot gas defrost)

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	1RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.5	20.9	027L4700
ICF SS 20	6	1RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.7	21.3	027L4701

Application 2: Liquid feed

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	2RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.4	10.0	22.1	027L3428
ICF SS 20	6	2RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.4	10.0	22.1	027L3445
ICF SS 20	6	2RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.7	21.3	027L4758
ICF SS 20	6	2HRB	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	2.6	9.2	20.2	027L4759
ICF SS 25	6	2RB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFN 25	8.5	23.9	52.6	027L4766

Application 3: Liquid feed

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	3RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	9.6	21.1	027L4702
ICF SS 20	6	3RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	9.7	21.3	027L4703
ICF SS 20	6	3HRA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	10.6	23.3	027L4717
ICF SS 25	6	3RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	23.4	51.5	027L4724
ICF SS 25	6	3RA	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	23.2	51.0	027L4760
ICF SS 25	6	3RB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	23.8	52.4	027L4725
ICF SS 25	6	3RB	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	24.0	52.8	027L4761
ICF SS 25	6	3RB	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	8.5	24.7	54.3	027L4191

Application 10: Liquid feed (no hot gas defrost)

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	10RA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20B	–	–	2.6	7.4	16.2	027L3440
ICF SS 20	4	10RA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	2.3	7.2	15.8	027L4709
ICF SS 25	4	10RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	5.5	15.9	35.0	027L4731
ICF SS 25	4	10RB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	7.9	15.4	33.9	027L4732
ICF SS 25	4	10RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25E	ICFE 25	ICFR 25A	–	–	5.5	16.2	35.7	027L4590

Application 15: Liquid feed with external connection

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 25	6	15RA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25A	5.3	21.8	48.0	027L4733
ICF SS 25	6	15RB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	7.3	22.7	49.9	027L4734

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body. ICAD and coils are not included and must be ordered separately.

Ordering ICF SS (Stainless Steel)

Liquid injection

Application 5: Liquid injection (expansion)

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	5MA33	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	9.8	21.6	027L4714
ICF SS 20	6	5MB66	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	10.1	22.3	027L3443
ICF SS 20	6	5MA	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	9.8	21.6	027L4704
ICF SS 20	6	5MB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	9.6	21.1	027L4705
ICF SS 20	6	5HMB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	2.0	11.4	25.1	027L4718
ICF SS 20	6	5MA33	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	9.6	21.1	027L4755
ICF SS 25	6	5MA	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	22.8	50.2	027L4726
ICF SS 20	6	5MB66	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	9.6	21.1	027L4754
ICF SS 20	6	5HMB	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	2.0	10.2	22.4	027L4756
ICF SS 20	6	5MC	1½	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	2.5	9.8	21.6	027L4706
ICF SS 20	6	5HMC	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	3.0	10.3	22.7	027L4719
ICF SS 25	6	5MB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	7.3	22.3	49.0	027L4727
ICF SS 25	6	5MB	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	7.3	22.3	49.0	027L4728
ICF SS 25	6	5MA	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	22.3	49.0	027L4735

Application 14: Liquid injection (expansion)

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	14MA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-A	ICFS 20	–	–	0.6	7.3	16.1	027L4710
ICF SS 20	4	14MA	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICM 20-A	ICFS 20	–	–	0.6	6.9	15.1	027L3444
ICF SS 20	4	14MB	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-B	ICFS 20	–	–	2.1	7.2	15.8	027L4711
ICF SS 20	4	14MB66	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-B66	ICFS 20	–	–	1.5	7.0	15.4	027L4722
ICF SS 20	4	14MC	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICM 20-C	ICFS 20	–	–	3.3	7.3	16.1	027L4712
ICF SS 25	4	14MB	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	8.5	14.8	32.5	027L4765
ICF SS 25	4	14MB	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	8.5	14.8	32.5	027L4764

Hot gas defrost

Application 9: Hot gas defrost

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K _v total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	9	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	7.2	15.8	027L4707
ICF SS 20	4	9H	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	4.1	8.2	18.0	027L4720
ICF SS 20	4	9	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	6.8	15.0	027L4708
ICF SS 20	4	9H	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	4.1	7.6	16.7	027L4721
ICF SS 25	4	9	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	16.2	35.7	027L3429
ICF SS 25	4	9	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.7	34.5	027L4729
ICF SS 25	4	9	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.7	34.5	027L4730
ICF SS 25	4	9	1½	40	Butt-weld DIN-EN 10220	ICFS 25	ICFW 25D	ICM 25-B	ICFS 25	–	–	8.5	16.6	36.6	027L4190

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

Ordering ICF SS (Stainless Steel)

Miscellaneous

Application 90: Miscellaneous

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K. total	Weight		Code number
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	90	¾	20	Butt-weld DIN-EN 10220	ICFR 20A	ICFF 20	ICFA 20	ICFN 20	-	-	0.3	6.4	14.1	027L4716
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFB 20	ICFR 20-A	ICFN 20	2.1	9.7	21.3	027L4713
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICM 20-C	ICFS 20	2.5	9.7	21.3	027L4715
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.5	8.9	17.8	027L4740
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFW 20D	2.5	8.9	17.8	027L4741
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.5	9.8	21.5	027L4748
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.5	9.8	21.5	027L4749
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20D	ICFS 20	2.8	9.3	20.6	027L4768
ICF SS 20	6	90	¾	20	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFB 20	ICFR 20A	ICFS 20	2.1	9.9	21.8	027L3427
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	11.5	25.3	027L4723
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.6	8.9	17.8	027L4742
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFW 20D	2.6	8.9	17.8	027L4743
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.6	9.8	21.5	027L4750
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	9.8	21.5	027L4751
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20D	ICFS 20	2.8	9.3	20.6	027L4767
ICF SS 20	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.6	8.9	17.8	027L4746
ICF SS 20	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFW 20D	2.6	8.9	17.8	027L4747
ICF SS 20	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.6	9.8	21.5	027L4752
ICF SS 20	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	9.8	21.5	027L4753
ICF SS 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICFE 25	ICFN 25	ICFR 25B	ICFW 25D	7.3	24.2	53.2	027L4189
ICF SS 25	6	90	1	25	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-A	ICFC 25	ICFB 25	ICFS 25	5.2	23.6	51.9	027L4763
ICF SS 25	6	90	1¼	32	Butt-weld DIN-EN 10220	ICFS 25	ICFF 25	ICM 25-B	ICFC 25	ICFB 25	ICFS 25	7.7	23.6	51.9	027L4762

ICAD and coils are not included and must be ordered separately.

Please Note: When used in systems with CO₂, the o-rings on the ICM module can swell (grow). At service, it is therefore recommended to install new o-rings, before the ICM function module is re-installed in the ICF valve body.

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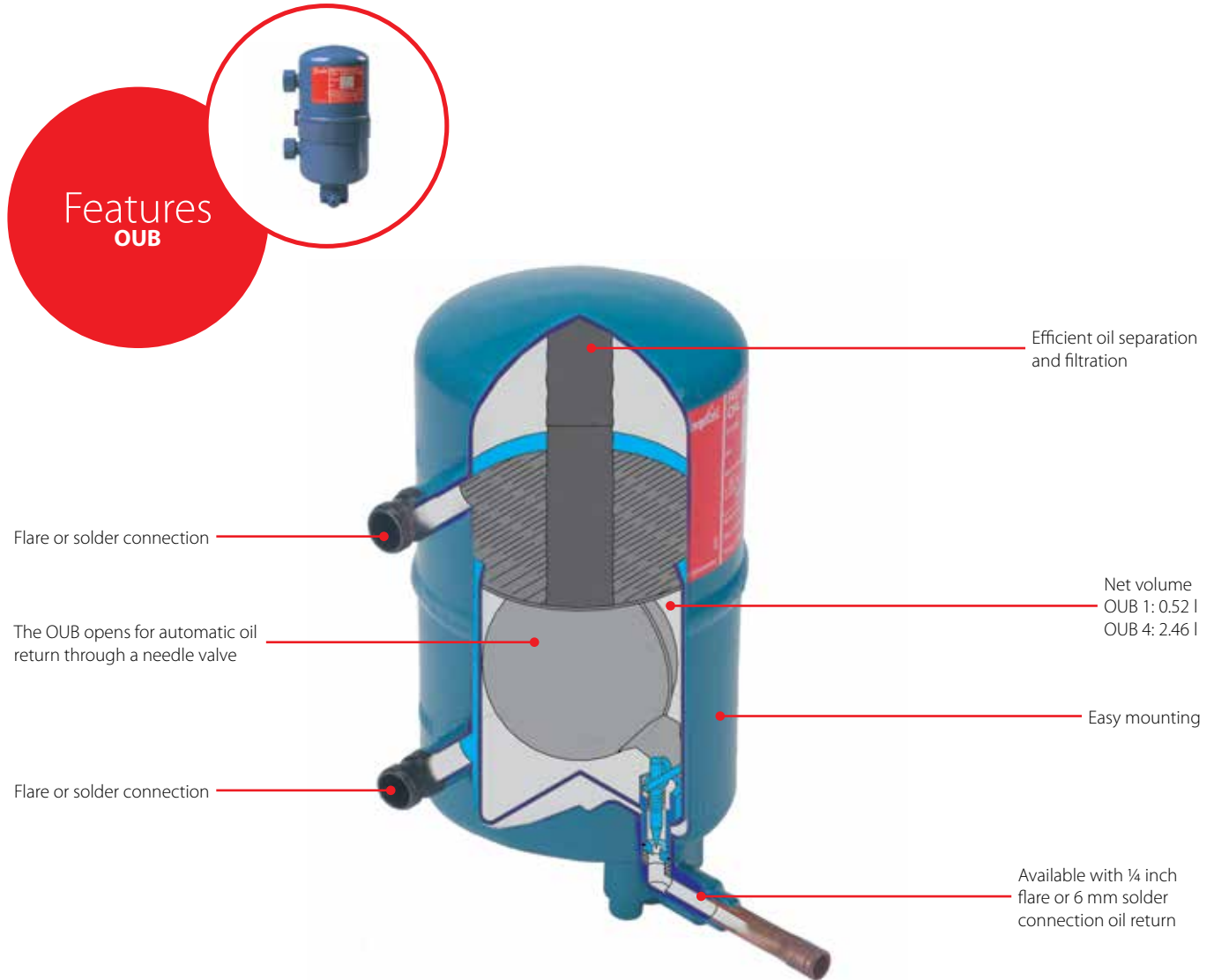
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OUB, Oil separator

OUB oil separators are for use in all refrigeration plants where the compressor lubricating oil must be returned direct to the compressor oil sump under all operation conditions.

In this way lubricating oil from the compressor is prevented from circulating with the refrigerant in the refrigeration system itself.



Facts

Application:

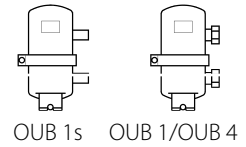
- Traditional refrigeration
- Air conditioning units

- High efficiency due to the interaction of reduced flow and a change of flow direction for oil concentration, and due to the collection of the separated oil at high temperature and the automatic return of the oil to the crankcase

- High efficiency protects against liquid hammer in compressor
- Better utilisation of condenser and evaporator capacity (no oil-gas collection)
- Prevents compressor breakdown caused by lack of lubrication
- Increases compressor operating life
- Ensures oil return to compressor oil sump
- Pulsation and noise damping on high- pressure side of system
- Max. working pressure: PS 28 bar

- OUB 1: applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R438A, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a
- OUB 1 may be used in the following EX range: Category 3 (Zone 2)
- OUB 4: applicable to R134a, R404A, R407A, R407C, R407F, R438A, R448A, R449A, R450A, R452A, R507A, R513A
- Temperature of medium: -40 – 120 °C
- Net volume:
 - OUB 1: 0.52 l
 - OUB 4: 2.46 l

Technical data and ordering



OUB - Oil separator

Ordering

Type	Connection			Rated plant capacity [kW]				Code no. for OUB + unions (straightway)
	[in]	[mm]	Version	R134a	R404A	R507	R407C	
OUB 1	3/8	10	Flare	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0132
	3/8	–	Solder	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0140
	1/2	12	Flare	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0134
	1/2	–	Solder	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0142
	3/8	16	Flare	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0136
	3/8	16	Solder	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0144
	Without connection unions							040B0010
OUB 1s 1)	–	10	Solder	2.5	3.5	3.5	4.4	040B0023
OUB 1s 2)	–	10	Solder	2.5	3.5	3.5	4.4	040B0029
OUB 4	3/8	16	Flare	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0256
	3/8	16	Solder	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0266
	3/4	–	Solder	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0268
	7/8	–	Solder	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0270
	–	22	Solder	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0264
	1 1/8	–	Solder	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0274
	Without connection unions							040B0040

¹⁾ 1/4 inch flare connection to oil return line.

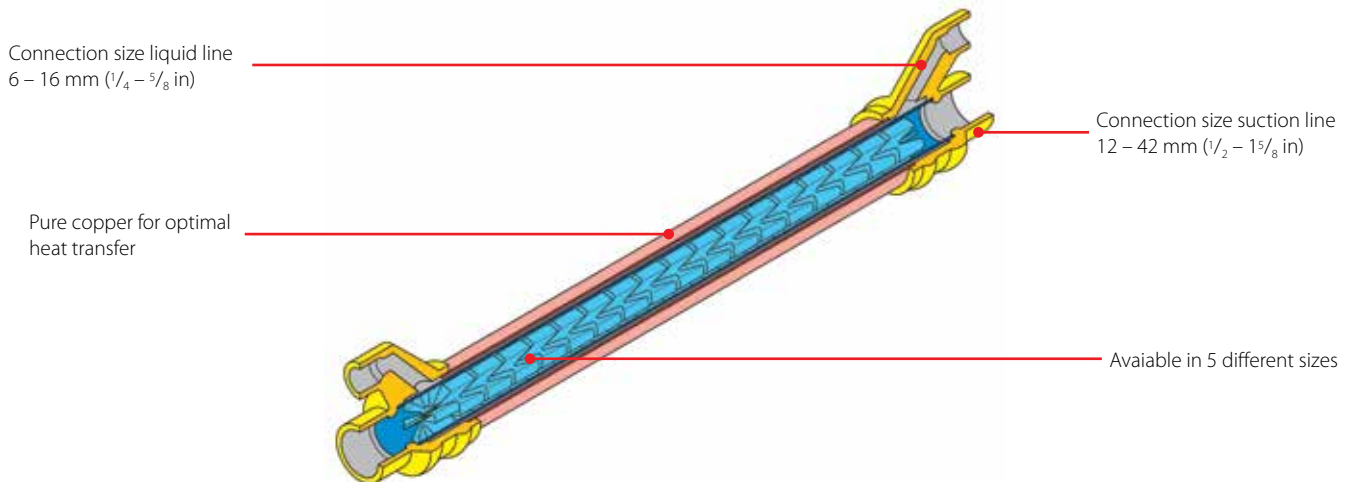
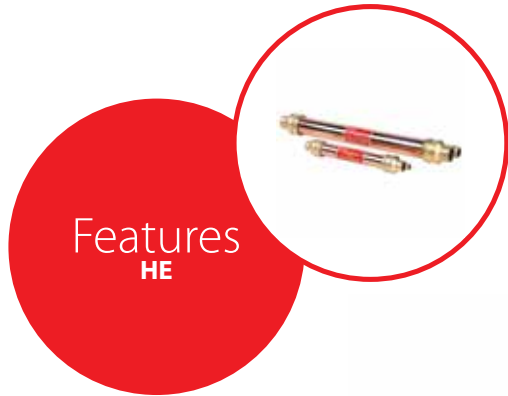
²⁾ 6 mm ODF solder connection to oil return line.

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HE, Tube-in-tube heat exchanger

HE tube-in-tube heat exchangers are used primarily for heat transfer between the liquid and suction lines of the refrigeration plant.

The purpose is to utilize the cooling effect which without a heat exchanger is otherwise lost to the ambient air via uninsulated suction lines. In the heat exchanger, this effect is used to subcool the refrigerant liquid.



Facts

Application:

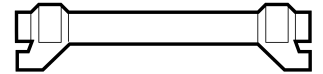
- Traditional refrigeration
- Air conditioning units

- The design is such that normal suction gas velocities are achieved, with a sub-sequent small pressure drop. Thus the heat exchanger capacity will match plant capacity
- At the same time, oil return to the compressor is ensured
- Helps ensure vapour-free liquid ahead of expansion valve
- Helps prevent sweating and iced-up suction lines
- Maximum utilisation of evaporator on setting the thermostatic expansion valve for minimum superheat
- HE 0.5 – 1.5: applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A, R600, R600a
- HE 0.5 – 1.5: May be used in the following EX range: Category 3 (Zone 2)
- HE 4.0 – 8.0: applicable to R1270, R134a, R290, R404A, R407A, R407C, R407F, R448A, R449A, R450A, R452A, R507A, R513A
- Max. working pressure:
HE 0.5, 1.0, 1.5, 4.0: PS 28 bar
HE 8.0: PS 21.5 bar
- Operating temperature:
-60 – 120 °C

Technical data and ordering

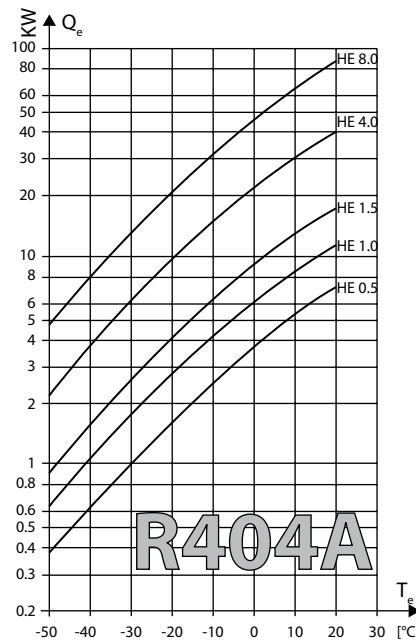
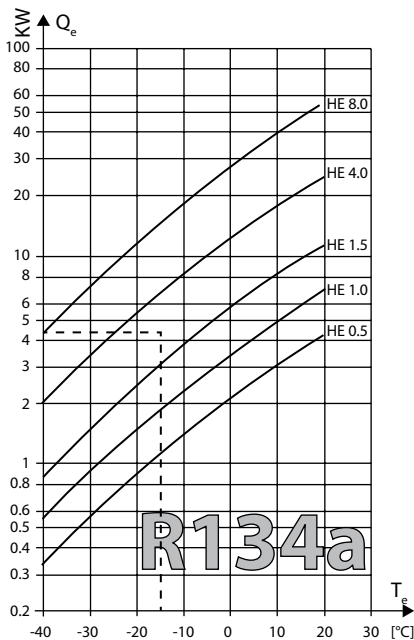
HE, Tube-in-tube heat exchanger

Ordering



Type	Solder connection ODF				Code no.
	Liquid line		Suction line		
	[in]	[mm]	[in]	[mm]	
HE 0.5	–	6	–	12	015D0001
	1/4	–	1/2	–	015D0002
HE 1.0	–	10	–	16	015D0003
	3/8	–	5/8	–	015D0004
HE 1.5	–	12	–	18	015D0005
	1/2	–	3/4	–	015D0006
HE 4.0	–	12	–	28	015D0007
	1/2	–	1 1/8	–	015D0008
HE 8.0	–	16	–	42	015D0009
	5/8	–	1 5/8	–	015D0010

Selection



The curve for R134a shows that an HE 4.0 is suitable.

The curve for HE 4.0 lies immediately above the intersection of the lines through $Q_e = 4.5 \text{ kW}$ and $t_e = -15 \text{ °C}$

The heat flow Q during heat exchange is calculated from the formula:

$$Q = k \times A \times \Delta t_m$$

Q) heat flow in [W]

k) heat transfer coefficient in [W] / [m²] [°C]

A) transfer area of the heat exchanger in [m²]

Δt_m) the average temperature difference in [°C], calculated from the formula

$$\Delta t_m = \frac{\Delta t_{\max} - \Delta t_{\min}}{\ln \frac{\Delta t_{\max}}{\Delta t_{\min}}}$$

$k \times A$ values determined by experiment (see table)

Type	$k \times A$
	¹⁾ Dry suction gas / refrigerant liquid (normal use in refrigeration plant with fluorinated refrigerants) [W] / [°C]
HE 0.5	2.3
HE 1.0	3.1
HE 1.5	4.9
HE 4.0	11.0
HE 8.0	23.0

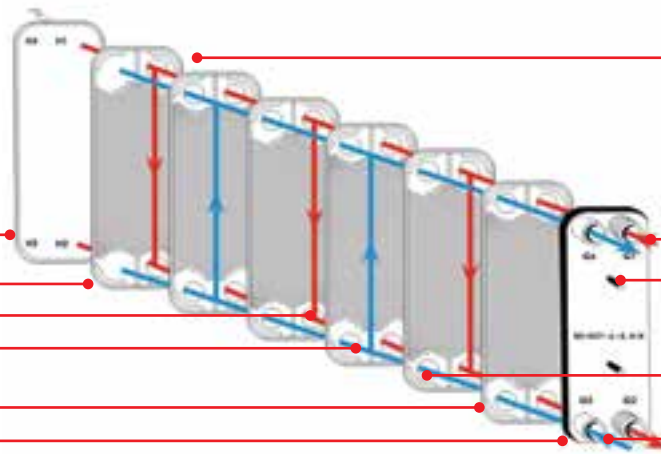
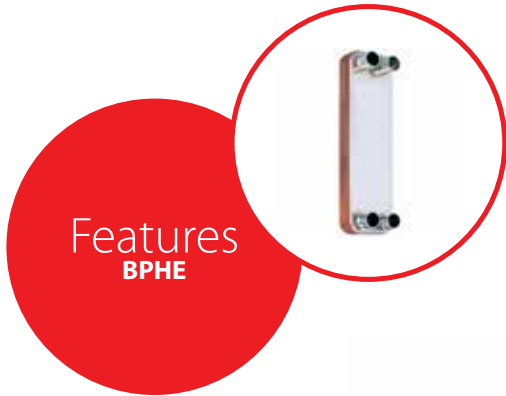
¹⁾ These figures apply to dry gas only. Even if a thermostatic expansion valve is used, the suction gas will carry very small liquid drops into the suction line. The fins of the HE catch these drops which then evaporate. This may result in a smaller superheat than the theoretically calculated value.

Precise heat exchanger sizing can be obtained from the curves which show plant capacity Q_e for R134a and R404A depending on evaporating temperature t_e .

BPHE, Brazed plate heat exchanger

A brazed plate heat exchanger, consists of a series of thin, corrugated metal plates that are brazed together to improve heat transfer efficiency. The plates are compressed together in a rigid frame to create an arrangement of parallel flow channels. BPHE provides the ability to remove and transfer heat from one medium to another,

brazed plate heat exchangers are a cost-saving alternative to conventional condensers and evaporators. BPHE is applicable to the main refrigerants (R410A, R134a, R407C, R407A, R407F, R448A, R452A, R513A, R290, etc.), work with water, brine and oil etc.



Plates: metal plate is corrugated to improve heat transfer efficiency.
Flow channels: to be formed between any two adjacent plates, which can be of the same type or combined.

- Back cover plate
- Tail piece
- Water channels
- Refrigerant channels
- Heat plate
- Front cover plate
- Water
- Mounting bolts
- Port hole
- Refrigerant

Facts

Application:

- The brazed plate heat exchanger is the ideal choice for chillers, heat pumps, economizers, desuperheaters and can be used for numerous other applications

Features

- Compact design
- Low fouling
- High corrosion resistance
- Easy to service
- NPT or BSP connection of water / brine side

- Design temperature: -196 / 200 °C
- Standard design pressure: 30 bar
- High design pressure: 45 bar
- Standard plate material: AISI 316L
- Brazing material: copper
- Approval: PED, UL

Technical data and ordering

BPHE - Brazed plate heat exchanger

Rated capacity

Type	Model	Rated capacity / Water side pressure drop, Evaporator				Rated capacity / Water side pressure drop, Condenser			
		R134a		R407C		R134a		R407C	
		[kW]	[kPa]	[kW]	[kPa]	[kW]	[kPa]	[kW]	[kPa]
PHE B3-030	B3-030-10-3.0-HQ	2.5	25	3.5	47	4.4	65	2.6	25
PHE B-3030	B3-030-20-3.0-HQ	5.5	31	7	47	9	68	5.4	27
PHE B3-030	B3-030-30-3.0-HQ	8.5	33	10.5	47	13.2	66	8	26
PHE B3-030	B3-030-50-3.0-HQ	15	37	17.5	49	18.5	49	13	26
PHE B3-030	B3-030-70-3.0-HQ	21.5	40	25	52	30	66	18.2	27
PHE B3-052	B3-052-54-3.0-HQ	31	36	33.5	42	29	32	18.5	14
PHE B3-052	B3-052-70-3.0-HQ	38	34	42	41	37	32	24	14
PHE B3-052	B3-052-88-3.0-HQ	45.5	32	50	39	47	35	30	15
PHE B3-095	B3-095-44-3.0-HQ	44	22	52.5	31	44	21	29	10
PHE B3-095	B3-095-60-3.0-HQ	60	23	70	30	59	21	39	10
PHE B3-095	B3-095-74-3.0-HQ	73	24	87.5	31	72	21	48	10
PHE B3-095	B3-095-92-3.0-HQ	94	25	105	31	89	22	59	10
PHE B3-095	B3-095-122-3.0-HQ	125	27	140	33	116	23	78	11
PHE B3-210	B3-210-74-3.0-HQ	165	32	168	33	152	27	100	12
PHE B3-210	B3-210-90-3.0-HQ	200	32	205	34	188	28	122	12

BPHE - Brazed plate heat exchanger

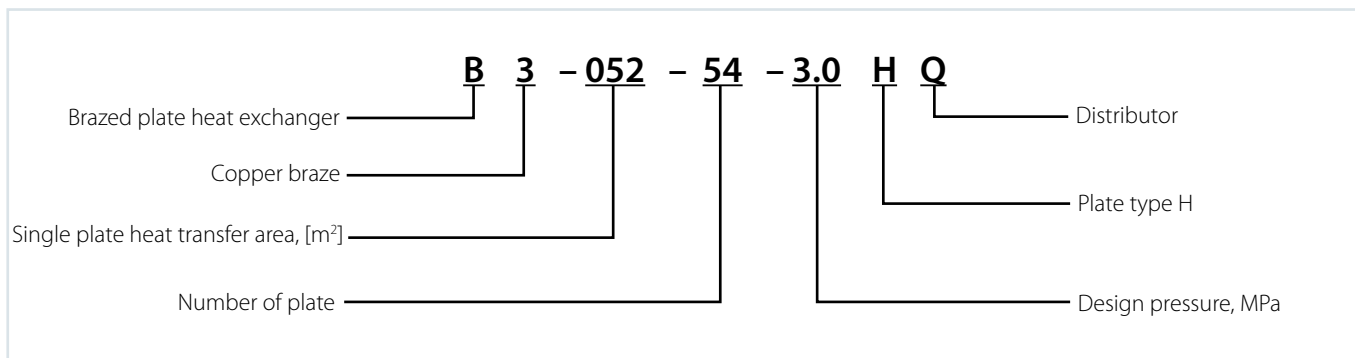
Rated conditions

Refrigerant	Evaporator						Condenser			
	Evaporating temperature [°C]	Super heat [K]	Condensing temperature [°C]	Sub cool [K]	Water-in temperature [°C]	Water-out temperature [°C]	Hot gas temperature [°C]	Condensing temperature [°C]	Water-in temperature [°C]	Water-out temperature [°C]
R134a	2	5	40	5	12	7	85	50	40	45
R407C	4.5	5	40	5	12	7	85	50	40	45

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Nomenclature and Dimensions

Nomenclature



BPHE - Brazed plate heat exchanger

Ordering

Model	Connection type 1			Code no.	Connection type 2			Code no.
	Ref. in [in]	Ref. out [in]	Water / brine [in]		Ref. in [in]	Ref. out [in]	Water / brine [in]	
B3-030-10-3.0-HQ	H 1/2	H 7/8	G 3/4	021B2060	H 1/2	H 7/8	NPT 3/4	021B2055
B3-030-20-3.0-HQ	H 1/2	H 7/8	G 3/4	021B2061	H 1/2	H 7/8	NPT 3/4	021B2056
B3-030-30-3.0-HQ	H 1/2	H 7/8	G 3/4	021B2062	H 1/2	H 7/8	NPT 3/4	021B2057
B3-030-50-3.0-HQ	H 5/8	H1 1/8	G 3/4	021B2063	H 5/8	H1 1/8	NPT 3/4	021B2058
B3-030-70-3.0-HQ	H 5/8	H1 1/8	G 3/4	021B2064	H 5/8	H1 1/8	NPT 3/4	021B2059
B3-052-54-3.0-HQ	H 5/8	H1 1/8	G1 1/4	021B3706	H 5/8	H1 1/8	NPT1	021B3709
B3-052-70-3.0-HQ	H 5/8	H1 1/8	G1 1/4	021B3707	H 5/8	H1 1/8	NPT1	021B3710
B3-052-88-3.0-HQ	H 5/8	H1 1/8	G1 1/4	021B3708	-	-	-	-
B3-095-44-3.0-HQ	-	-	-	-	H 7/8	H1 3/8	NPT2	021B6352
B3-095-60-3.0-HQ	H 7/8	H1 3/8	G2	021B6321	H 7/8	H1 3/8	NPT2	021B6324
B3-095-74-3.0-HQ	H 7/8	H1 3/8	G2	021B6322	H 7/8	H1 3/8	NPT2	021B6325
B3-095-92-3.0-HQ	H 7/8	H1 3/8	G2	021B6323	H 7/8	H1 3/8	NPT2	021B6326
B3-095-122-3.0-HQ	-	-	-	-	H1 1/8	H2 1/8	NPT2	021B6358
B3-210-74-3.0-HQ	-	-	-	-	H1 1/8	H2" 1/8	NPT2	021B7595
B3-210-90-3.0-HQ	-	-	-	-	H1 1/8	H2" 1/8	NPT2	021B7596

Danfoss offers customized products to meet your requirements. Please contact Danfoss for more information.

Media: R407C, R134a, R404A, R407F, R513A, R1234ze, R452A. For applications with flammable refrigerants, please contact your Danfoss sales representative.

Use only for system in compliance with ATEX. Ignition risk is evaluated in accordance to ATEX. BPHE can be applied on systems with R290 and R600a as the working fluid. For countries where safety standards are not an indispensable part of the safety system Danfoss recommend the installer to get a third party approval of the system containing flammable refrigerant.

Note: Please follow specific selection criteria stated in the data sheet for these particular refrigerants.

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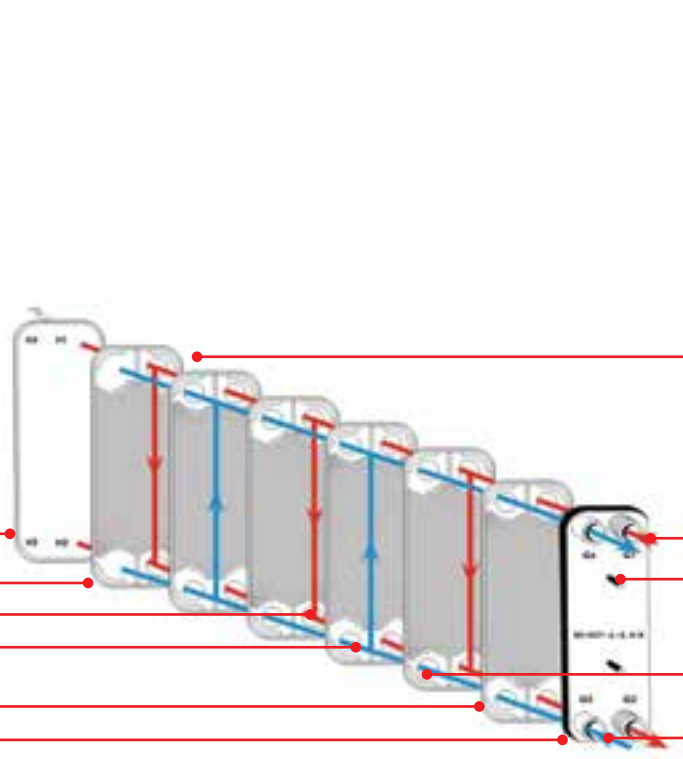
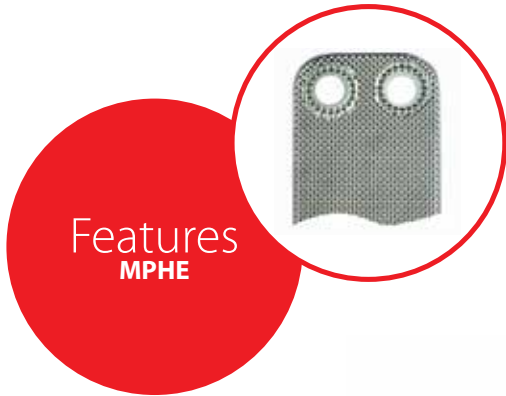
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MPHE, Micro plate heat exchanger

Featuring a patented, state-of-the-art dimple design heat exchangers ensure balanced and reliable liquid distribution. The unique design also offers increased strength through well-defined brazing areas, enabling high working pressures and superior heat transfer efficiency.

MPHE is applicable to the main refrigerants (R410A, R134a, R407C, R407A, R407F, R448A, R452A, R513A, R290, etc.), work with water, brine and oil etc.



Plates:
metal plate is dimple designed to improve heat transfer efficiency.

Flow channels:
to be formed between any two adjacent plates, which can be of the same type or combined.

Facts

Application:

- The Micro plate heat exchanger is the ideal choice for chillers, heat pumps, economizers, desuperheaters and can be used for numerous other applications

Features

- Standard- and high-pressure designs make it the ideal solution for any application or refrigerant
- Two-in-one connection for easy installation
- With innovative micro plate channel plate pattern for higher heat transfer to minimize weight and refrigerant charge

- Design temperature: -196 / 200 °C
- Standard design pressure: 30 bar
- High design pressure: 45 bar
- Standard plate material: AISI 316L
- Brazing material: copper
- Approval: PED, UL

Technical data and ordering

MPHE - Micro plate heat exchanger

With distributor 45 bar

Model	NoP	Height [mm]	Width [mm]	Q3 (ref. in) Combo conn.	Q4 (ref. out) Combo conn.	Q1 Combo conn.	Q2 Combo conn.	Studbolt	Code no.
				SOLDER [in]	SOLDER [in]	THREAD [in] / SOLDER [in]	THREAD [in] / SOLDER [in]	Front	
D62L-E	16	525	119	3/8	5/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0840
D62L-E	20	525	119	3/8	5/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0841
D62L-E	26	525	119	3/8	3/4	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0842
D62L-E	30	525	119	3/8	3/4	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0843
D62L-E	36	525	119	1/2	3/4	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0844
D62L-E	40	525	119	1/2	3/4	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0845
D62L-E	46	525	119	1/2	7/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0846
D62L-E	50	525	119	1/2	7/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0847
D62L-E	60	525	119	5/8	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0848
D62L-E	70	525	119	5/8	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0849
D62L-E	80	525	119	5/8	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0850
D62L-E	90	525	119	3/4	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0851
D62L-E	100	525	119	3/4	1 3/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0852
D62L-E	110	525	119	3/4	1 3/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0853
D62L-E	120	525	119	3/4	1 3/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0854
D118L-E	20	613	186	5/8	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2718
D118L-E	26	613	186	5/8	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2719
D118L-E	30	613	186	5/8	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2720
D118L-E	36	613	186	5/8	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2721
D118L-E	40	613	186	5/8	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2722
D118L-E	46	613	186	3/4	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2723
D118L-E	50	613	186	3/4	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2724
D118L-E	56	613	186	3/4	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2725
D118L-E	60	613	186	3/4	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2726
D118L-E	70	613	186	7/8	1 3/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2727
D118L-E	80	613	186	7/8	1 3/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2728
D118L-E	90	613	186	7/8	1 5/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2729
D118L-E	100	613	186	7/8	1 5/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2730
D118L-E	110	613	186	1 1/8	1 5/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2731
D118L-E	120	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2732
D118L-E	130	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2733
D118L-E	140	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2734
D118L-E	150	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2735
D118L-E	160	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2736

Technical data and ordering

MPHE - Micro plate heat exchanger

With distributor 30 bar

Model	NoP	Height [mm]	Width [mm]	Q3 (ref. in) Combo conn.	Q4 (ref. out) Combo conn.	Q1 Combo conn.	Q2 Combo conn.	Studbolt	Code no.
				SOLDER [in]	SOLDER [in]	THREAD [in] / SOLDER [in]	THREAD [in] / SOLDER [in]	Front	
D62-E	16	525	119	1/2	7/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0870
D62-E	20	525	119	1/2	7/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0871
D62-E	26	525	119	1/2	7/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0872
D62-E	30	525	119	5/8	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0873
D62-E	36	525	119	5/8	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0874
D62-E	40	525	119	5/8	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0875
D62-E	46	525	119	3/4	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0876
D62-E	50	525	119	3/4	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0877
D62-E	60	525	119	3/4	1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0878
D62-E	70	525	119	7/8	1 3/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0879
D62-E	80	525	119	7/8	1 3/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0880
D62-E	90	525	119	7/8	1 3/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0881
D62-E	100	525	119	1 1/8	1 5/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0882
D62-E	110	525	119	1 1/8	1 5/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0883
D62-E	120	525	119	1 1/8	1 5/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0884
D118-E	20	613	186	5/8	1 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2756
D118-E	26	613	186	5/8	1 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2757
D118-E	30	613	186	3/4	1 3/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2758
D118-E	36	613	186	3/4	1 3/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2759
D118-E	40	613	186	3/4	1 3/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2760
D118-E	46	613	186	7/8	1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2761
D118-E	50	613	186	7/8	1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2762
D118-E	56	613	186	7/8	1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2763
D118-E	60	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2764
D118-E	70	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2765
D118-E	80	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2766
D118-E	90	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2767
D118-E	100	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2768
D118-E	110	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2769
D118-E	120	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2770
D118-E	130	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2771
D118-E	140	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2772
D118-E	150	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2773
D118-E	160	613	186	1 1/8	2 1/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2774

Technical data and ordering

MPHE - Micro plate heat exchanger

45 bar

Model	NoP	Height [mm]	Width [mm]	Q3 (ref. in) Combo conn.	Q4 (ref. out) Combo conn.	Q1 Combo conn.	Q2 Combo conn.	Studbolt Front	Code no.
				SOLDER [in]	SOLDER [in]	THREAD [in] / SOLDER [in]	THREAD [in] / SOLDER [in]		
D22L	10	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1287
D22L	16	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1288
D22L	20	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1289
D22L	26	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1290
D22L	30	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1291
D22L	36	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1292
D22L	40	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1293
D22L	50	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1294
D22L	60	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1295
D55L-H	10	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3593
D55L-H	16	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3594
D55L-H	20	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3595
D55L-H	26	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3596
D55L-H	30	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3597
D55L-H	36	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3598
D55L-H	40	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3599
D55L-H	46	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3600
D55L-H	50	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3601
D55L-H	60	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3602
D55L-H	70	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3603
D55L-H	80	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3604
D62L-H	16	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0855
D62L-H	20	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0856
D62L-H	26	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0857
D62L-H	30	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0858
D62L-H	36	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0859
D62L-H	40	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0860
D62L-H	46	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0861
D62L-H	50	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0862
D62L-H	60	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0863
D62L-H	70	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0864
D62L-H	80	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0865
D62L-H	90	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0866
D62L-H	100	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0867
D62L-H	110	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0868
D62L-H	120	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0869
D118L	20	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2737
D118L	26	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2738
D118L	30	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2739
D118L	36	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2740
D118L	40	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2741
D118L	46	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2742
D118L	50	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2743
D118L	56	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2744
D118L	60	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2745
D118L	70	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2746
D118L	80	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2747
D118L	90	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2748
D118L	100	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2749
D118L	110	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2750
D118L	120	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2751
D118L	130	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2752
D118L	140	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2753
D118L	150	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2754
D118L	160	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2755

Technical data and ordering

MPHE - Micro plate Heat Exchanger

30 bar

Model	NoP	Height [mm]	Width [mm]	Q3 (ref. in) Combo conn.	Q4 (ref. out) Combo conn.	Q1 Combo conn.	Q2 Combo conn.	Studbolt Front	Code no.
				SOLDER [in]	SOLDER [in]	THREAD [in] / SOLDER [in]	THREAD [in] / SOLDER [in]		
D22	10	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1296
D22	16	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1297
D22	20	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1298
D22	26	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1299
D22	30	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H1300
D22	36	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H4801
D22	40	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H4802
D22	50	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H4803
D22	60	312	76	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	G 3/4 / 5/8	NO	021H4804
D55-H	10	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3617
D55-H	16	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3618
D55-H	20	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3619
D55-H	26	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3620
D55-H	30	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3621
D55-H	36	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3622
D55-H	40	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3623
D55-H	46	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3624
D55-H	50	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3625
D55-H	60	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3626
D55-H	70	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3627
D55-H	80	525	109	G1 / 7/8	G1 / 7/8	G1 / 7/8	G1 / 7/8	YES	021H3628
D62	16	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0885
D62	20	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0886
D62	26	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0887
D62	30	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0888
D62	36	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0889
D62	40	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0890
D62	46	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0891
D62	50	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0892
D62	60	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0893
D62	70	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0894
D62	80	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0895
D62	90	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0896
D62	100	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0897
D62	110	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0898
D62	120	525	119	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	G1 1/4 / 1 1/8	YES	021H0899
D118	20	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2775
D118	26	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2776
D118	30	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2777
D118	36	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2778
D118	40	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2779
D118	46	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2780
D118	50	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2781
D118	56	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2782
D118	60	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2783
D118	70	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2784
D118	80	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2785
D118	90	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2786
D118	100	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2787
D118	110	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2788
D118	120	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2789
D118	130	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2790
D118	140	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2791
D118	150	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2792
D118	160	613	186	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	G2 / 1 5/8	YES	021H2793

Danfoss offers customized products to meet your requirements. Please contact Danfoss for more information.

Media: R410A, R407C, R134a, R404A, R407F, R513A, R1234ze, R452A. For applications with flammable refrigerants, please contact Danfoss sales representative.
 Use only for system in compliance with ATEX. Ignition risk is evaluated in accordance to ATEX. BPHE can be applied on systems with R290 and R600a as the working fluid. For countries where safety standards are not an indispensable part of the safety system Danfoss recommend the installer to get a third party approval of the system containing flammable refrigerant.

Note: Please follow specific selection criteria stated in the data sheet for these particular refrigerants.

Quick Selection Notes:

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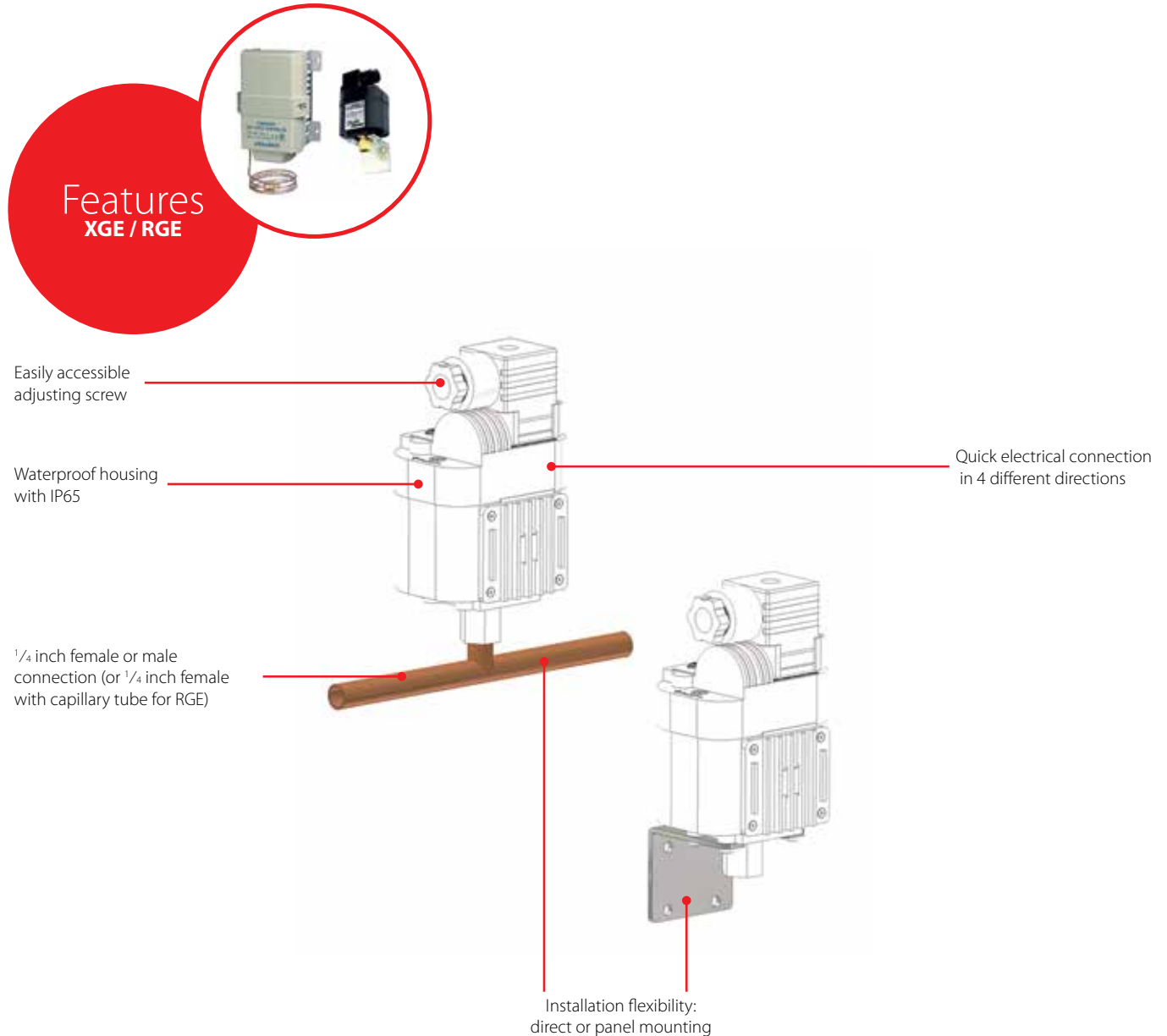
XGE / RGE, Fan speed controllers

RGE and XGE are fan speed controllers made by Danfoss Saginomiya. RGE is available in single and three phase versions. RGE is a simple and efficient all-in-one pressure sensor and fan speed control, featuring a reliable sensing mechanism using bellows. For compact units, the XGE provides the ideal solution for reliable fan control.

It can be mounted directly onto the refrigeration line, adjustment is made by the turn of a setting screw, and electrical connection is very versatile. It can also be panel mounted where space is insufficient on the refrigeration line.

RGE and XGE can be used for all commonly used refrigerants, including R410A.

XGE-EC version for EC fan motors.



Facts

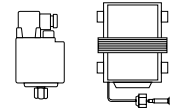
Application:

- Freezing and refrigeration condensing units
- Packaged air conditioners
- Chillers
- Simple to install and easy setting
- "All in one": senses pressure and controls fan speed
- Reliable sensing mechanism

- XGE:
 - Compact and light weight (length: 112 mm, diameter: 66 mm weight: 180 g)
 - Can be directly mounted onto the refrigeration line or fixed onto a simple bracket (accessory) and screwed to a panel
 - Easily accessible adjusting screw on the top surface
 - Easy wiring and electrical connection
 - Specially designed heat dissipation radiator to prevent overheating
- Electrical rating from 3 – 8 A (single phase) and 5 – 7 A (3 phase)

- Applicable to R134a, R404A, R407A, R407C, R407F, R410A*, R448A, R449A, R450A, R452A, R513A
- *) only high pressure models with adjusting range
- 22 – 39 bar for XGE and 16 – 39 bar for RGE
- Enclosure: IP65 (XGE) and IP54 (RGE)
- Full CE / EMC approved
- UL recognized
- Dual frequency: 50/60 Hz
- Max. working pressure: 47 bar
- With low speed operation it is possible to select either minimum speed operation or cut-off operation -60 – 120 °C

Technical data and ordering



XGE / RGE - Fan speed controllers

Ordering

Type	Mode ¹⁾	Pressure connection [in]	Adjusting range [bar]	P-band [bar]	Pre-setting [bar]	Rated motor rating [A]	No. of phase / voltage [V AC]	Box qty	Code no.
XGE-2C	C	1/4 female flare	8 – 18	4.5	8	0.2 – 3	1 / 200 – 240	50	061H3144
XGE-4C	C	1/4 female flare	10 – 25	6	19	0.2 – 3	1 / 200 – 240	50	061H3140
XGE-4CB	C	1/4 male flare	10 – 25	6	19	0.2 – 3	1 / 200 – 240	50	061H3142
XGE-6C	C	1/4 female flare	22 – 39	7	28	0.2 – 3	1 / 200 – 240	50	061H3160
XGE-6CB	C	1/4 male flare	22 – 39	7	28	0.2 – 3	1 / 200 – 240	50	061H3162
XGE-4M	M	1/4 female flare	10 – 25	6	19	0.2 – 3	1 / 200 – 240	50	061H3240
XGE-4MB	M	1/4 male flare	10 – 25	6	19	0.2 – 3	1 / 200 – 240	50	061H3242
XGE-6M	M	1/4 female flare	22 – 39	7	28	0.2 – 3	1 / 200 – 240	50	061H3260
RGE-Z1N4-7DS	C or M	1/4 female flare	8 – 28	4	19	0.2 – 4	1 / 200 – 240	20	061H3005
RGE-Z1N6-7DS	C or M	1/4 female flare	16 – 39	8	32	0.2 – 4	1 / 200 – 240	20	061H3021
RGE-Z1P4-7DS	C or M	1/4 female flare	8 – 28	4	19	0.2 – 6	1 / 200 – 240	16	061H3008
RGE-Z1P6-7DS	C or M	1/4 female flare	16 – 39	8	32	0.2 – 6	1 / 200 – 240	16	061H3022
RGE-Z1Q4-7DS	C or M	1/4 female flare	8 – 28	4	19	0.2 – 8	1 / 200 – 240	16	061H3009
RGE-Z1Q6-7DS	C or M	1/4 female flare	16 – 39	8	32	0.2 – 8	1 / 200 – 240	16	061H3023
RGE-Z3R4-7DS	C or M	1/4 female flare	8 – 28	4	16	0.2 – 5	3 / 200 – 240	6	061H3003
RGE-X3R4-7DS	C or M	1/4 female flare	8 – 28	4	16	0.2 – 5	3 / 380 – 415	6	061H3006
RGE-X3R6-7DS	C or M	1/4 female flare	16 – 39	8	32	0.2 – 5	3 / 380 – 415	6	061H3028
RGE-Z3T4-7DS	C or M	1/4 female flare	8 – 28	4	16	0.2 – 7	3 / 200 – 240	6	061H3050

¹⁾ C = Cut-off
M = Min. speed

XGE-EC - Fan speed controllers for EC fan motors

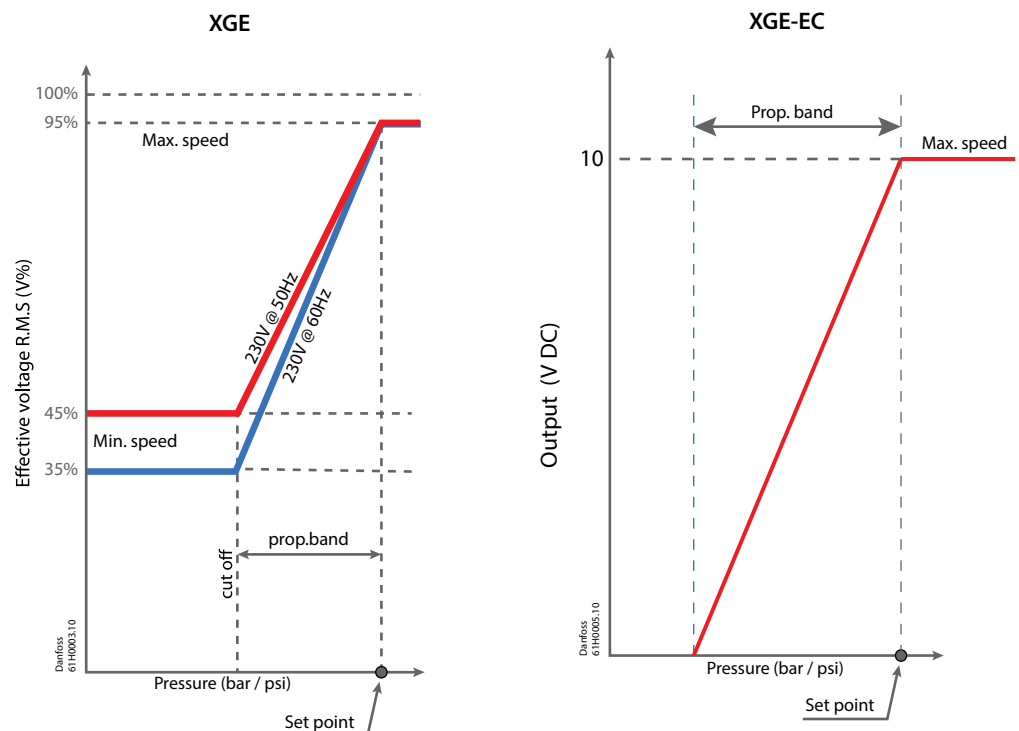
Ordering

Type	Pressure connection [in]	Adjusting range [bar]	P-band [bar]	Pre-setting [bar]	Rated motor rating [A]	No. of phase / voltage [V DC]	Box qty	Code no.
XGE-2S-E	1/4 female flare	8 – 18	4.5	8	.001	0 – 10	50	061H3245
XGE-4S-E	1/4 female flare	10 – 25	6	19	.001	0 – 10	50	061H3246
XGE-6S-E	1/4 female flare	22 – 39	7	28	.001	0 – 10	50	061H3247

Accessory

Type	Description	Dimensions	Box qty	Code no.
XGE-AE01	Fixing bracket accessory for panel mount	H: 38 mm, W: 42 mm, D: 45 mm	50	061H3102

Function



Electronic controls – Overview

Type	Code number	Relay / temperature sensor	Defrost heating	Cooling or heating function	Rail heat	Fan	Alarm / light / misc.	2nd compressor	DI / DO / AI / AO	Batterie for clock (optional)	HACCP via system / HACCP integrated	Application module	Definition and waiting of thermostat sensors	Defrost / defrost on demand / defrost on demand via bus	Voltage 230 V	Voltage 115 V	Voltage 24 V	With screw terminals	With plug connection	Valve control	Room thermostat	UPS connection	Pressure controls	0-10 V / 4-20 mA input	0-10 V / 4-20 mA output	Superheat regulation	Reference displacement	External display	Data communication optional / on board	Note – language
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Case controller

EKC 202A	084B8521	3/2	x				x/-/-		x/x/-/-	x	x/-			x/-/x	x						TEV	x						x	x/-		
EKC 202B	084B8522	4/2	x			x	x/-/-		x/x/-/-	x	x/-			x/-/x	x						TEV	x						x	x/-		
EKC 202C	084B8523	4/2	x			x	x/x/-		x/x/-/-	x	x/-			x/-/x	x						TEV	x						x	x/-		
EKC 202C-MS	084B8543	4/2	x			x	x/x/-		x/x/-/-	x	-/-			x/-/x	x						TEV	x						x	x/-	NTC	
EKC 202D1	084B8554	4/3	x		x	x	x/x/x		x/x/-/-	x	x/-	x	x	x/x/x	x						TEV	x						x	x/-		
EKC 302A	084B4162	2/2					x/-/-		x/x/-/-		x/-			x/-/x	x				x		TEV	x								x/+	
EKC 302B	084B4163	3/2	x			x			x/x/-/-		x/-			x/-/x	x						TEV	x								x/+	
EKC 302D	084B4164	4/3	x		x	x	x/x/x		x/x/-/-		x/-	x		x/-/x	x						TEV	x								x/+	
AK-CC 210	084B8520	4/3	x		x	x	x/x/x	x	x/x/-/-	x	x/x	x	x	x/x/x	x						TEV	x						x	x/-		
AK-CC 250A	084B8528	4/3	x		x	x	x/x/x	x	x/x/-/-	x	x/x	x	x	x/x/x	x						TEV	x						x	-/x		
AK-CC 350	084B4165	4/3	x		x	x	x/x/x	x	x/x/-/-		x/x	x	x	x/x/x	x						TEV	x						x	+/+		
AK-CC 450	084B8022	6/5	x		x	x	x/x/x		x/x/-/-		x/x	x	x	x/x/x	x						TEV	x						x	+/+		
AK-CC 550A	084B8030	6/5	x		x	x	x/x/x		x/x/-/-		x/-	x	x	x/x/x	x						AKV	x						x	+/+		
AK-CC 750A	080Z0140	9/5	x		x	x	x/x/x		x/x/x/x		x/-	x	x	x/x/x	x						4xAKV 4xStrep 4xTEV	x						x	-/x	EN, DE, FR, IT, NL, EN, ES, PT, PL, RU, CZ, CH, DK, FI	

Superheat Controller

EKE 1A	080G5300	1/1					x/x/-		x/-/x/-					-/-/x		x	x			stepper		x	x	x/-	-/-	x	x		-/x	EN, CN, PT, RU, SP, FR, IT, GER
EKE 1B	080G5350	1/2					x/x/-		x/-/x/-					-/-/x		x	x			stepper	x	x	x	x/-	-/-	x	x		-/x	EN, CN, PT, RU, SP, FR, IT, GER
EKE 1C	080G5400	1/3					x/x/-		x/-/x/-					-/-/x		x	x			stepper	x	x	x	x/x	-/-	x	x		-/x	EN, CN, PT, RU, SP, FR, IT, GER
EKC 315A	084B7086	2/2					x/-/-								x	x				AKV/ ICM	x	x	x	-/x	-/x	x	x		x/-	
EKC 312	084B7250	1/2					x/-/-								x	x				ETS			x	-/-	-/-	x			x/-	
EKC 316A	084B7088	2/2					x/-/-								x	x				ETS	x	x	x	-/x	-/x	x	x		x/-	
EKD 316	084B8040	1/2					x/-/-								x	x				ETS		x	x	x/x	-/-	x			x/-	

Temperature Controller

EKC 368	084B7079	4/2	x			x	x/-/-									x				KVS		x		-/x				x	-/x	
ERC 211	080G3290	1/1		x					x/x/x/-					x/-/-	x	x												x	x/-	
ERC 211	080G3293	1/1		x					x/x/x/-					x/-/-	x		x											x	x/-	
ERC 213	080G3291	3/2	x			x	x/-/-		x/x/x/-					x/x/-	x	x												x	x/-	
ERC 213	080G3294	3/2	x			x	x/-/-		x/x/x/-					x/x/-	x		x											x	x/-	
ERC 214	080G3292	4/2	x			x	x/x/-		x/x/x/-					x/x/-	x	x												x	x/-	
ERC 214	080G3295	4/2	x			x	x/x/-		x/x/x/-					x/x/-	x		x											x	x/-	

Liquid level Controller

EKE 347	080G5000																														x	ICM, AKV/A							-/x	EN, CN, PT, RU, SP, FR, IT, GER, ARAB
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Electronic controls – Overview

Type	Code number	Relay / temperature sensor	Defrost heating	Cooling or heating function	Rail heat	Fan	Alarm / light / misc.	2nd compressor	DI / DO / AI / AO	Batterie for clock (optional)	HACCP via system / HACCP integrated	Application module	Definition and waiting of thermostat sensors	Defrost / defrost on demand / defrost on demand via bus	Voltage 230 V	Voltage 115 V	Voltage 24 V	With screw terminals	With plug connection	Valve control	Room thermostat	UPS connection	Pressure controls	0-10 V / 4-20 mA input	0-10 V / 4-20 mA output	Superheat regulation	Reference displacement	External display	Data communication optional / on board	Note – language
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Capacity Controller

AK-PC 351	080G0289	6/4				x	x		x/x/ x/x								x	x												-/x	EN, PT, IT, CH, RU
AK-PC 551	080G0281	8/8				x	x		x/x/ x/x						x				x											-/x	EN, DE, FR, DK, ES, IT, PT, NL, RU, PL, CZ, TR, UY, HR, SR, RO
AK-PC 551	080G0283	8/8				x	x		x/x/ x/x								x	x												-/x	EN, DE, FR, DK, ES, IT, PT, NL, RU, PL, CZ, TR, UY, HR, SR, RO
AK-PC 651	080G0312	15/10				x	x		x/x/ x/x						x				x											-/x	EN, DE, FR, DK, ES, IT, PT, NL, RU, PL, CZ, TR, UY, HR, SR, RO
AK-PC 772A	080Z0201	8/11				4x			x/x/ x/x								x	x												-/x	EN, DE, FR, IT, NL
AK-PC 781A	080Z0191	8/11				8x			x/x/ x/x								x	x												-/x	EN, DE, FR, IT, NL, ES, PT, RU, CZ, DK, FI, PL, CN
AK-PC 782A	080Z0192	8/11				8x			x/x/ x/x								x	x												-/x	EN, DE, FR, IT, NL, ES, PT, RU, CZ, DK, FI, PL, CN
AK-PC 783A	080Z0193	8/11				8x			x/x/ x/x								x	x												-/x	EN, DE, FR, IT, NL, ES, PT

Condensing unit Controller

AK-RC 101	080Z3200	Single-phase																									-/x
AK-RC 103	080Z3201	Three-phase (3 kW), 4.5-6.3 A																									-/x
AK-RC 103	080Z3202	Three-phase (3 kW), 7-10 A																									-/x
AK-RC 103	080Z3206	Three-phase (5 kW), 11-16 A																									-/x
AK-RC 103	080Z3207	Three-phase (5 kW), 14-20 A																									-/x

Front end full store solution

AK-SM 810	080Z4006	System Manager for Small Stores																								
AK-SM 820	080Z4004	System Manager for Small Stores w / Display / Keypad																								
AK-SM 850	080Z4001	System Manager for Refrigeration Only w / Display / Keypad																								
AK-SM 880	080Z4008	System Manager for Total Store Control w / Display / Keypad																								
AK-SM 800AL	080Z4014	Alarm logger w/Display																								

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EKC 202, Refrigeration controller

The series of EKC 202 controllers can be used for a wide range of different refrigeration applications - from control of air temperatures

and defrost to more advanced applications, including control of light and fans.



Thermostat

- ON / OFF heating or cooling thermostat
- Sensors: Danfoss Pt1000, PTC1000 or NTC
- Day / night control
- Thermostat band
- Alarm thermostat with delay

DI input

- Multi purpose DI input for defrost start, door function, night setback, main switch, appliance cleaning, general alarm, defrost coordination and thermostat band



Fan

- Fan delay during defrost
- Fan stop when compressor cuts out
- Fan stop at high S5 temperature

Light control

- Light control of day / night, door, or via network

Defrost

- Electrical, natural or hot gas defrost
- Start via DI input, time interval or schedule (RTC)
- Defrost on demand
- Stop on time or temperature
- Coordinated defrost

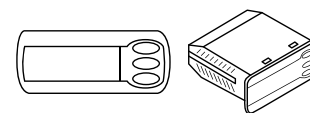
Compressor

- Anti cycle timers for optimum compressor protection
- High-effect 16 A relays for connection of compressors without use of intermediate relay

Facts



- Integrated refrigeration-technical functions
- Defrost on demand in 1:1 systems
- Buttons and seal imbedded in the front
- IP65 density from the front panel
- Digital input for either:
 - door contact function with alarm
 - defrost start
 - start/stop of regulation
 - night operation
 - change-over between two temperature reference
 - case cleaning function
- Instant programming via programming key
- HACCP
Factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)

Technical data and ordering



EKC 202 - Refrigeration controller

Technical data

Features	Description		
Supply voltage	230 V AC 10 – 15%. 1.5 V A		
Sensors for EKC 202A, 202B, 202C	Pt 1000 ohm (0 °C)		
	PTC 1000 ohm (25 °C)		
	NTC 5000 ohm (25 °C) M 2020		
Sensors for EKC 202C-MS	NTC 2000 ohm (25 °C)		
	NTC 2500 ohm (0 °C)		
	NTC 3000 ohm (25 °C)		
	NTC 5000 ohm (25 °C) M 2020		
	NTC 10000 ohm (25 °C)		
	NTC 10000 ohm (25 °C) Beta 3435		
Accuracy	Measuring range: -60 – 99 °C Controller: ± 1 K below -35 °C, ± 0,5 K between -35 – 25 °C, ± 1 K above 25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad		
Display	LED, 3 digits		
Digital inputs	Signal from contact functions Requirements to contacts: gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer		
Electrical connection cable	Max. 1.5 mm ² multi-core cable on supply and relays Power current terminals are mounted on the circuit board Max. 1 mm ² on sensors - and DI inputs		
Relays *)	 CE (250 V AC)	UL *** (240 V AC)	
	DO1. Refrigeration	8 (6) A	10 A Resistive 5 FLA, 30 LRA
	DO2. Defrost	8 (6) A	10 A Resistive 5 FLA, 30 LRA
	DO3. Fan	6 (3) A	6 A Resistive 3 FLA, 18 LRA - 131 V A Pilot duty
	DO4. Alarm or light	4 (1) A Min. 100 mA **)	4 A Resistive 131 V A Pilot duty
Environments	0 – 55 °C, During operations, -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations		
Enclosure	IP65 from front Buttons and packing are imbedded in the front		
Escapement reserve for the clock	4 hours		
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 og EN 60730-2-9, A1, A2 EMC tested acc. EN50082-1 og EN 60730-2-9, A2		

*) DO1 and DO2 are 16 A relays. DO3 and DO4 are 8 A relays. Max. load must be kept

**) Gold plating ensures make function with small contact loads

***) UL-approval based on 30000 couplings

Ordering

Type	Description	Code no.
EKC 202A	Refrigeration controller	084B8521
EKC 202B	Refrigeration controller with fan function	084B8522
EKC 202C	Refrigeration controller for electric defrost	084B8523
EKC 202C-MS	Refrigeration controller multi sensor (only NTC)	084B8543

Accessory

Type	Description	Code no.
EKA 178A	Data communication module MODBUS	084B8564
EKA 179A	RS485 LON	084B8565
EKA 181C	Battery module that will protect the clock in case of lengthy power failure	084B8577
EKA 182A	Copy key EKC - EKC	084B8567
EKA 183A	Programming key EKC	084B8582
AKS 12	Pt 1000 Sensor, 1,5 m	084N0036
EKS 111	PTC 1000 Sensor, 1,5 m	084N1178
EKS 211	NTC 5000 Sensor, 1,5 m	084N1220
EKS 221	NTC 10000 Beta 3435 Sensor, 3,5 m	084N3206

EKC 202D1, Refrigeration controller

The controller is used for evaporator control refrigeration appliances in supermarkets. With many predefined applications one unit will

offer you many options. Flexibility has been planned both for new installations and for service in the refrigeration trade.



Thermostat

- ON / OFF heating or cooling thermostat
- Sensors: Danfoss Pt1000, PTC1000 or NTC5000
- Day / night control
- Thermostat band
- Alarm thermostat with delay

DI input

- Multi purpose DI input for defrost start, door function, night setback, main switch, appliance cleaning, general alarm, defrost coordination and thermostat band

Fan

- Fan delay during defrost
- Fan stop when compressor cuts out
- Fan stop at high "SS" temperature

Light control

- Light control of day / night, door, or via network
- Other functions:
- Door function with alarm monitoring
- Manual control of outputs
- Case cleaning function



Supplementary options

- RS 485 network card for connection to network
- Battery back-up card for real time clock
- "Copy key" programming key

Defrost

- Electrical, natural or hot gas defrost
- Start via DI input, time interval or schedule (RTC)
- Defrost on demand
- Stop on time or temperature
- Coordinated defrost

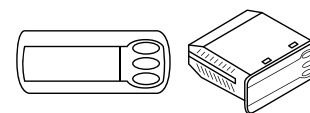
Compressor

- Anti cycle timers for optimum protection
- High-effect 16 A relays for connection of compressors without use of intermediate relays

Facts

- 3 applications in the same unit
- The controller has integrated refrigeration-technical functions, so that it can replace a whole collection of thermostats and timers
- Buttons and seal imbedded in the front
- Easy to remount data communication
- Quick setup
- Two temperature references
- Digital inputs for various functions
- Clock function with backup

Technical data and ordering



EKC 202D1, Refrigeration controller

Technical data

Features	Description
Supply voltage	230 V AC 10 – 15%. 2.5 V A
Sensors 3 pcs off either	Pt 1000 ohm (0 °C) PTC (1000 ohm / 25 °C) NTC-M2020 (5000 ohm / 25 °C)
Accuracy	Measuring range: -60 – 99 °C Controller: ± 1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above +25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad
Display	LED, 3 digits
Digital inputs	Signal from contact functions Requirements to contacts: gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer
Electrical connection cable	Max. 1.5 mm ² multi-core cable
Relays *)	DO1. Refrigeration CE (250 V AC) 8 (6) A
	DO2. Defrost 8 (6) A
	DO3. Fan 6 (3) A
	DO4. Alarm 4 (1) A Min. 100 mA **)
Environments	0 – 55 °C, During operations
	-40 – 70 °C, During transport
	20 – 80% Rh, not condensed
Enclosure	No shock influence / vibrations
	IP65 from front Buttons and packing are embedded in the front
Escapement reserve for the clock	4 hours
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 og EN 60730-2-9, A1, A2 EMC tested acc. EN50082-1 og EN 60730-2-9, A2



**) DO1 and DO2 are 16 A relays. DO3 and DO4 are 8 A relays. Max. load must be kept
**) Gold plating ensures make function with small contact loads

Ordering

Type	Description	Code no.
EKC 202D1	Refrigeration controller without data communication but prepared for a module	084B8554

Accessory

Type	Description	Code no.
EKA 163A	External display for EKC 202D1	084B8562
EKA 178A	Data communication module MODBUS	084B8564
EKA 179A	Data communication module Lon RS 485	084B8565
EKA 181C	Battery module that will protect the clock in case of lengthy power failure	084B8577
EKA 182A	Copy key EKC - EKC	084B8567
AKS 12	Pt 1000 Sensor 1.5 m	084N0036
EKS 111	PTC 1000 Sensor 1.5 m	084N1178
EKS 211	NTC 5000 Sensor 1.5 m	084N1220

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EKC 302, Refrigeration controller

The series of EKC 302 controllers can be used for a wide range of different refrigeration applications - from control of air temperatures

and defrost to more advanced applications, including control of light and fans. For DIN rail mounting.



DI input

- Multi purpose DI input for defrost start, door function, night setback, main switch, appliance cleaning, general alarm, defrost coordination and thermostat band

Thermostat

- ON / OFF heating or cooling thermostat
- Sensors: Danfoss Pt1000, PTC1000 or NTC
- Day / night control
- Thermostat band
- Alarm thermostat with delay

Defrost

- Electrical, natural or hot gas defrost
- Start via DI input, time interval or schedule (RTC)
- Defrost on demand
- Stop on time or temperature
- Coordinated defrost

Light control

- Light control of day / night, door, or via network



Fan

- Fan delay during defrost
- Fan stop when compressor cuts out
- Fan stop at high "S5" temperature

Compressor

- Anti cycle timers for optimum compressor protection
- High-effect 16 A relays for connection of compressors without use of intermediate relay

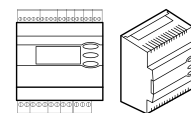
Facts


- Integrated refrigeration-technical functions
- Defrost on demand in 1:1 systems
- Buttons and seal imbedded in the front
- Digital input for either:
 - door contact function with alarm
 - defrost start
 - start / stop of regulation
 - night operation
 - change-over between two temperature reference
 - case cleaning function
- Fixed MODBUS data communication
- Instant programming via programming key
- HACCP
 - Factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)
- EKC 302D: Several applications in the same unit

Technical data and ordering

EKC 302 - Refrigeration controller

Technical data



Features	Description	
Supply voltage	230 V AC 10 – 15%, 1.5 V A	
Sensors for EKC 302	Pt 1000 ohm (0 °C) PTC 1000 ohm (25 °C) NTC 5000 ohm (25 °C) M 2020	
Accuracy	Measuring range: -60 – 99 °C Controller: ± 1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above 25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad	
Display	LED, 3 digits	
Digital inputs	Signal from contact functions Requirements to contacts: gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer	
Electrical connection cable	Max. 1.5 mm ² multi-core cable on supply and relays Power current terminals are mounted on the circuit board Max. 1 mm ² on sensors - and DI inputs	
Relays *)		IEC 60 730
	DO1. Refrigeration	10 (6) A and (5 FLA, 30 LRA) 1) 16 (8) A and (10 FLA, 60 LRA) 2)
	DO2. Defrost	6 (3) A and (3 FLA, 18 LRA) 1) 10 (6) A and (3 FLA, 30 LRA) 2)
	DO3. Fan	6 (3) A and (3 FLA, 18 LRA) 1) 10 (6) A and (5 FLA, 30 LRA) 2)
	DO4. Alarm	4 (1) A Min. 100 mA **)
Environments	0 – 55 °C, During operations, -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations	
Enclosure	IP20	
Escapement reserve for the clock	4 hours	
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 og EN 60730-2-9, A1, A2 EMC tested acc. EN50082-1 og EN 60730-2-9, A2	

*) DO1 and DO2 are 16 A relays. DO3 and DO4 are 8 A relays. Max. load must be kept

***) Gold plating ensures make function with small contact loads

Ordering

Type	Description	Code no.
EKC 302A	Refrigeration controller	084B4162
EKC 302B	Refrigeration controller with fan and defrost function	084B4163
EKC 302D	Refrigeration controller with fan and defrost function	084B4164

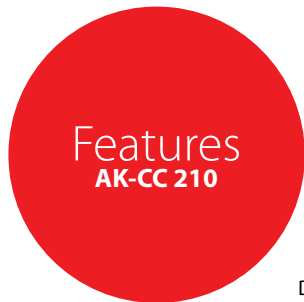
Accessory

Type	Description	Code no.
EKA 178B	Data communication module MODBUS	084B8571
EKA 175	RS485 LON	084B8579
EKA 183A	Programming key EKC	084B8582
AKS 12	Pt 1000 Sensor 1.5 m	084N0036
EKS 111	PTC 1000 Sensor 1.5 m	084N1178
EKS 211	NTC 5000 Sensor 1.5 m	084N1220

AK-CC 210, Universal refrigeration controller

The controller is used for evaporator control refrigeration appliances in supermarkets. With many predefined applications one unit will

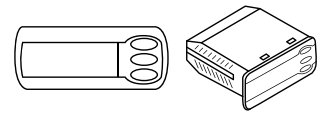
offer you many options. Flexibility has been planned both for new installations and for service in the refrigeration trade.



Facts

- Many applications in the same unit
- The controller has integrated refrigeration-technical functions, so that it can replace a whole collection of thermostats and timers
- Buttons and seal imbedded in the front
- Can control two compressors
- Easy to remount data communication
- Quick setup
- Two temperature references
- IBExU approved relays
- HACCP (Hazard Analysis and Critical Control Points):
 - temperature monitoring and registration of period with too high temperature
 - factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)
- Digital inputs for various functions
- Clock function with backup

Technical data and ordering



AK-CC 210, Universal refrigeration controller

Technical data

Features	Description		
Supply voltage	230 V AC 10 – 15%. 2.5 V A		
Sensors 3 pcs off either	Pt 1000 ohm (0 °C) PTC (1000 ohm / 25 °C) NTC-M2020 (5000 ohm / 25 °C)		
Accuracy	Measuring range: -60 – 99 °C Controller: ± 1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above +25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad		
Display	LED, 3 digits		
Digital inputs	Signal from contact functions Requirements to contacts: gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer		
Electrical connection cable	Max. 1.5 mm ² multi-core cable		
Relays *)		CE (250 V AC)	UL (***) (240 V AC)
	DO1. Refrigeration	8 (6) A	10 A Resistive 5 FLA, 30 LRA
	DO2. Defrost	8 (6) A	10 A Resistive 5 FLA, 30 LRA
	DO3. Fan	6 (3) A	6 A Resistive 3 FLA, 18 LRA - 131 VA Pilot duty
	DO4. Alarm	4 (1) A Min. 100 mA **)	4 A Resistive 131 VA Pilot duty
Environments	0 – 55 °C, During operations -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations		
Enclosure	IP65 from front Buttons and packing are embedded in the front		
Escapement reserve for the clock	4 hours		
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 og EN 60730-2-9, A1, A2 EMC tested acc. EN50082-1 og EN 60730-2-9, A2 Relays are tested acc. to IEC 60079-15		



**) DO1 and DO2 are 16 A relays. DO3 and DO4 are 8 A relays. Max. load must be kept

**) Gold plating ensures make function with small contact loads

**) UL-approval based on 30000 couplings

Ordering

Type	Description	Code no.
AK-CC 210	Refrigeration controller without data communication but prepared for a module	084B8520

Accessory

Type	Description	Code no.
EKA 163A	External display for AK-CC 210	084B8562
EKA 178A	Data communication module MODBUS	084B8564
EKA 179A	Data communication module Lon RS 485	084B8565
EKA 181C	Battery module that will protect the clock in case of lengthy power failure	084B8577
EKA 182A	Copy key EKC - EKC	084B8567
AKS 12	Pt 1000 Sensor 1.5 m	084N0036
EKS 111	PTC 1000 Sensor 1.5 m	084N1178
EKS 211	NTC 5000 Sensor 1.5 m	084N1220

AK-CC 250A, Universal refrigeration controller

The controller is used for evaporator control refrigeration appliances in supermarkets. With many predefined applications one unit will

offer you many options. Flexibility has been planned both for new installations and for service in the refrigeration trade.

Features AK-CC 250A

Thermostat

- ON / OFF heating or cooling thermostat
- Sensors: Danfoss Pt1000, PTC1000 or NTC5000
- Day / night control
- Thermostat band
- Alarm thermostat with delay

DI input

- Multi purpose DI input for defrost start, door function, night setback, main switch, appliance cleaning, general alarm, defrost coordination and thermostat band

Fan

- Fan delay during defrost
- Fan stop when compressor cuts out
- Fan stop at high "S5" temperature

Light control

- Light control of day / night, door, or via network
- Other functions:
- "S5" sensor can be used for monitoring of condenser temperature or as product sensor
- Door function with alarm monitoring
- Manual control of outputs
- Case cleaning function



Supplementary options

- Battery back-up card for real time clock
- "Copy key" programming key

Defrost

- Electrical, natural or hot gas defrost
- Start via DI input, time interval or schedule (RTC)
- Defrost on demand
- Stop on time or temperature
- Coordinated defrost

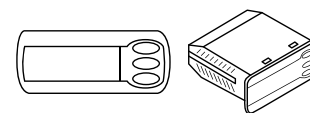
Compressor

- Anti cycle timers for optimum protection
- High-effect 16 A relays for connection of compressors without use of intermediate relays

Facts


- Many applications in the same unit
- The controller has integrated refrigeration-technical functions, so that it can replace a whole collection of thermostats and timers
- Buttons and seal imbedded in the front
- Can control two compressors
- Fixed MODBUS data communication
- Easy to remount data communication
- Quick setup
- Two temperature references
- HACCP (Hazard Analysis and Critical Control Points):
 - temperature monitoring and registration of period with too high temperature
 - factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)
- Digital inputs for various functions
- Clock function with backup

Technical data and ordering



AK-CC 250A, Universal refrigeration controller

Technical data

Features	Description		
Supply voltage	230 V AC 10 – 15%. 2.5 V A		
Sensors for AK-CC 250A, 3 pcs off either	Pt 1000 ohm (0 °C) PTC (1000 ohm / 25 °C) NTC-M2020 (5000 ohm / 25 °C)		
Accuracy	Measuring range: -60 – 99 °C Controller: ± 1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above +25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad		
External display	EKA 163 A (only in stand alone)		
Digital inputs	Signal from contact functions Requirements to contacts: Gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer		
Electrical connection cable	Max. 1.5 mm ² multi-core cable		
Relays *)		CE (250 V AC)	UL *** (240 V AC)
	DO1. Refrigeration	8 (6) A	10 A Resistive 5 FLA, 30 LRA
	DO2. Defrost	8 (6) A	10 A Resistive 5 FLA, 30 LRA
	DO3. Fan	6 (3) A	6 A Resistive 3 FLA, 18 LRA - 131 VA Pilot duty
	DO4. Alarm	4 (1) A Min. 100 mA **)	4 A Resistive 131 VA Pilot duty
Environments	0 – 55 °C, During operations -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations		
Enclosure	IP65 from front Buttons and packing are embedded in the front		
Escapement reserve for the clock	4 hours		
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 og EN 60730-2-9, A1, A2 EMC tested acc. EN50082-1 og EN 60730-2-9, A2		

*) DO1 and DO2 are 16 A relays. DO3 and DO4 are 8 A relays. Max. load must be kept

***) Gold plating ensures make function with small contact loads

****) UL-approval based on 30000 couplings

Ordering

Type	Description	Code no.
AK-CC 250A	Refrigeration controller with MODBUS data communication for Pt or PTC sensors	084B8528

Accessory

Type	Description	Code no.
EKA 163A	External display for AK-CC 250	084B8562
EKA 181C	Battery module that will protect the clock in case of lengthy power failure	084B8577
EKA 182A	Copy key EKC - EKC	084B8567
AKS 12	Pt 1000 Sensor 1.5 m	084N0036
EKS 111	PTC 1000 Sensor 1.5 m	084N1178

AK-CC 350, Universal refrigeration controller

The controller is used for evaporator control refrigeration appliances in supermarkets. With many predefined applications one unit will offer you many options.

Flexibility has been planned both for new installations and for service in the refrigeration trade. For DIN rail mounting.



Thermostat

- ON / OFF heating or cooling thermostat
- Sensors: Danfoss Pt1000, PTC1000 or NTC5000
- Day / night control
- Thermostat band
- Alarm thermostat with delay

DI input

- Multi purpose DI input for defrost start, door function, night setback, main switch, appliance cleaning, general alarm, defrost coordination and thermostat band

Light control

- Light control of day / night, door, or via network
- Other functions:
- "S5" sensor can be used for monitoring of condenser temperature or as product sensor
- Door function with alarm monitoring
- Manual control of outputs
- Case cleaning function

Compressor

- Anti cycle timers for optimum protection
- High-effect 20 A relay for connection of compressor without use of intermediate relays



Fan

- Fan delay during defrost
- Fan stop when compressor cuts out
- Fan stop at high "S5" temperature

Supplementary options

- Programming key

Defrost

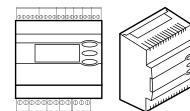
- Electrical, natural or hot gas defrost
- Start via DI input, time interval or schedule (RTC)
- Defrost on demand
- Stop on time or temperature
- Coordinated defrost

Facts

- Many applications in the same unit
- The controller has integrated refrigeration-technical functions, so that it can replace a whole collection of thermostats and timers
- Buttons and seal imbedded in the front
- Can control two compressors
- Fixed MODBUS data communication
- Quick setup
- Two temperature references
- HACCP(Hazard Analysis and Critical Control Points):
 - temperature monitoring and registration of period with too high temperature
 - factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)
- Digital inputs for various functions
- Clock function with backup

Technical data and ordering

AK-CC 350, Universal refrigeration controller



Technical data

Features	Description	
Supply voltage	230 V AC 10 – 15%. 2.5 V A	
Sensors for AK-CC 350A, 3 pcs off either	Pt 1000 PTC (1000 ohm / 25 °C)	
Accuracy	Measuring range: -60 – 99 °C Controller: ±1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above 25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad	
Display	LED, 3-digits	
External display	EKA 163 A (only in stand alone)	
Digital inputs	Signal from contact functions Requirements to contacts: Gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer	
Electrical connection cable	Max. 1.5 mm ² multi-core cable	
Relays *)	IEC 60 730	
	DO1. Refrigeration	10 (6) A and (5 FLA, 30 LRA) 1) 16 (8) A and (10 FLA, 60 LRA) 2)
	DO2. Defrost	6 (3) A and (3 FLA, 18 LRA) 1) 10 (6) A and (3 FLA, 30 LRA) 2)
	DO3. Fan	6 (3) A and (3 FLA, 18 LRA) 1) 10 (6) A and (5 FLA, 30 LRA) 2)
	O4. Alarm	4 (1) A Min. 100 mA **)
Environments	0 – 55 °C, During operations -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations	
Enclosure	IP20	
Escapement reserve for the clock	4 hours	
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 og EN 60730-2-9, A1, A2 EMC tested acc. EN50082-1 og EN 60730-2-9, A2	

*) DO1 is a 20 A relay. DO2 and DO3 are 16 A relays. DO4 is a 10 A relay. The max. load listed above must be observed when connecting without zero-crossing control.

When connecting with zero-crossing, the load must be increased to the value indicated by 2)

**) Gold plating ensures make function with small contact loads

Ordering

Type	Description	Code no.
AK-CC 350	Refrigeration controller with MODBUS data communication	084B4165

Accessory

Type	Description	Code no.
EKA 163A	External display for AK-CC 350	084B8562
EKA 183A	Programming key	084B8582
AKS 12	Pt 1000 Sensor 1.5 m	084N0036
EKS 111	PTC 1000 Sensor 1.5 m	084N1178

AK-CC 450, Controller for appliance control

Complete refrigeration appliance control with great flexibility to adapt to all types of refrigeration appliances and cold storage rooms.

- For cooling with brine
- For use with a thermostatic expansion valve



Thermostat

- ON / OFF or modulating control
- Product sensor "S6" with separate alarm limits
- Day / night control
- Switch between thermostat settings via digital input
- Pulsing of fans when thermostat is satisfied
- Heat thermostat

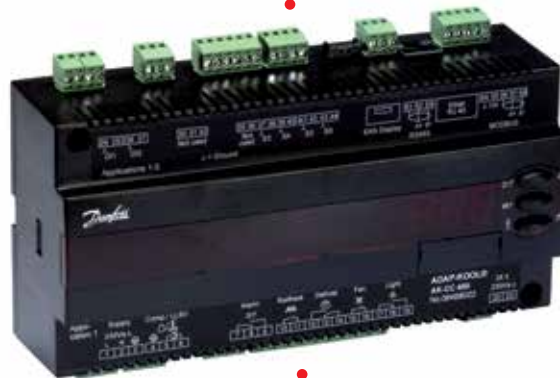
Calibration

- Factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)

Light control

Supplementary options

- Rail heat control via day / night load or dew point
- Door function
- Control of night blinds
- Integrated MODBUS communication with the option of mounting a LonWorks communication card



Compressor

- Control of two compressors

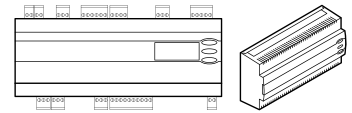
Defrost

- Electrical, natural or hot gas defrost
- Start of defrost via schedule, digital input or network
- Coordination of defrost across several controls
- Case cleaning function for documentation of HACCP procedure
- Stop of defrost on time and / or temperature

Facts

- Energy optimisation of the whole refrigeration appliance
- One controller for several different refrigeration appliances
- Integrated display at the front of the controller
- Quick set-up with predefined settings
- Built-in data communication
- Built-in clock function with power reserve
- IBExU approved relays

Technical data and ordering



AK-CC 450, Controller for appliance control

Technical data

Features	Description
Supply voltage	230 V AC 10 – 15%. 5 V A, 50 / 60 Hz
Sensors	Pt 1000 PTC 1000 ohm / 25 °C (All 4 must be of the same type)
Accuracy	Measuring range: -60 – 120 °C Controller: ± 1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above + 25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad
Display	LED, 3-digits
External display	EKA 163B or 164B. (any EKA 163A or 164A)
Digital inputs DI1, DI2	Signal from contact functions Requirements to contacts: gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer
Digital input DI3	230 V AC
Electrical connection cable	Max.1.5 mm ² multi-core cable
Solid state output	DO1 (for solenoid coil) Max. 240 V AC, Min. 28 V AC Max. 0.5 A Leak < 1 mA Max. 1 pcs. coil
Relays *)	DO3, DO4 DO2, DO5, DO6 CE (250 V AC) 4 (3) A 4 (3) A
Environments	0 – 55 °C, During operations -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations
Enclosure	IP20
Mounting	DIN-rail or wall
Weight	0.4 Kg
Data communication	Fixed / Build-in: MODBUS Extension options: LON RS485 / DANBUSS / TCP / IP(OEM) / MODBUS The controller cannot be hooked up with a monitoring unit type m2
Power reserve for the clock	4 hours
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 and EN 60730-2-9, A1, A2 - EMC tested acc. EN50082-1 and EN 60730-2-9, A2 Relays are tested acc. to IEC 60079-15

*) DO3 and DO4 are 16 A relays. DO2, DO5 and DO6 are 8 A relays. Max. load must be observed

Ordering

Type	Description	Code no.
AK-CC 450	Case controller with MODBUS data communication	084B8022

Accessory

Type	Description	Code no.
EKA 175	Data communication module LON RS 485	084B8579
EKA 176	Data communication module DANBUSS	084B8583
EKA 178B	Data communication module MODBUS	084B8571
EKA 163B	External display with plug for direct connection	084B8574
EKA 164B	External display with operation buttons and plug for direct connections	084B8575
EKA 163A	External display with screw terminals	084B8562
EKA 164A	External display with operation buttons and screw terminals	084B8563

AK-CC 550A, Controller for appliance control

AK-CC 550A is a complete refrigeration appliance control with great flexibility to adapt to all types of refrigeration appliances and cold storage rooms.



Thermostat

- ON / OFF or modulating control
- Product sensor "S6" with separate alarm limits
- Day / night control
- Switch between thermostat settings via digital input
- Pulsing of fans when thermostat is satisfied
- Heat thermostat

Calibration

- Factory calibration that will guarantee a better measuring accuracy than stated in the standard EN 441-13 without subsequent calibration (Pt 1000 ohm sensor)

Light control

Supplementary options

- Rail heat control via day / night load or dew point
- Door function
- Control of night blinds
- Integrated MODBUS communication with the option of mounting a LonWorks communication card
- Adaptive control of superheat



Compressor

- Control of two compressors

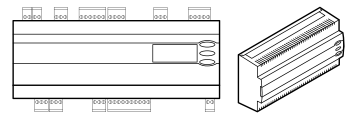
Defrost

- Electrical, natural or hot gas defrost
- Start of defrost via schedule, digital input or network
- Coordination of defrost across several controls
- Case cleaning function for documentation of HACCP procedure
- Stop of defrost on time and / or temperature
- Adaptive defrosting based on evaporator performance

Facts

- Energy optimisation of the whole refrigeration appliance
- One controller for several different refrigeration appliances
- Integrated display at the front of the controller
- Quick set-up with predefined settings
- Built-in data communication
- Built-in clock function with power reserve
- Can be used on CO₂ systems

Technical data and ordering



AK-CC 550A, Controller for appliance control

Technical data

Features	Description
Supply voltage	230 V AC 10 – 15%. 5 V A, 50 / 60 Hz
Sensor S2	Pt 1000
Sensor S3, S4, S5, S6	Pt 1000 PTC 1000 ohm / 25 °C (All 4 must be of the same type)
Accuracy	Measuring range: -60 – 120 °C Controller: ± 1 K below -35 °C, ± 0.5 K between -35 – 25 °C, ± 1 K above 25 °C Pt 1000 sensor: ± 0.3 K at 0 °C, ± 0.005 K per grad
Measuring of Pe	Pressure transmitter: AKS 32R
Display	LED, 3-digits
External display	EKA 163B or 164B. (any EKA 163A or 164A)
Digital inputs DI1, D2	Signal from contact functions Requirements to contacts: Gold plating Cable length must be max. 15 m Use auxiliary relays when the cable is longer
Digital input DI3	230 V AC
Electrical connection cable	Max. 1.5 mm ² multi-core cable
Solid state output	DO1 (for AKV coil) Max. 240 V AC, Min. 28 V AC Max. 0.5 A Leak < 1 mA Max. 1 pcs. AKV CE (250 V AC)
Relays *)	DO3, DO4 4 (3) A DO2, DO5, DO6 4 (3) A
Environments	0 – 55 °C, During operations -40 – 70 °C, During transport 20 – 80% Rh, not condensed No shock influence / vibrations
Enclosure	IP20
Mounting	DIN-rail or wall
Weight	0.4 Kg
Data communication	Fixed: MODBUS Extension options: LON RS485 / DANBUSS / TCP / IP(OEM) / MODBUS The controller cannot be hooked up with a monitoring unit type m2
Power reserve for the clock	4 hours
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 and EN 60730-2-9, A1, A2 - EMC tested acc. EN50082-1 and EN 60730-2-9, A2

*) DO3 and DO4 are 16 A relays. DO2, DO5 and DO6 are 8 A relays. Max. load must be observed

Ordering

Type	Description	Code no.
AK-CC 550A	Case controller with MODBUS data communication	084B8030

Accessory

Type	Description	Code no.
EKA 175	Data communication module LON RS 485	084B8579
EKA 176	Data communication module DANBUSS	084B8583
EKA 178B	Data communication module MODBUS	084B8571
EKA 163B	External display with plug for direct connection	084B8574
EKA 164B	External display with operation buttons and plug for direct connections	084B8575
EKA 163A	External display with screw terminals 084B8562 EKA	084B8562
EKA 164A	External display with operation buttons and screw terminals	084B8563

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AK-CC 750A, Controller for evaporator control

AK-CC 750A controllers are complete regulating units which together with valves and sensors constitute complete evaporator controls for refrigeration appliances and freezing rooms within commercial refrigeration.

Generally speaking they replace all other automatic controls containing, inter alia, day and night thermostats, defrost, fan control, rail heat control, alarm functions, light control, thermo valve control, solenoid valve, etc.



Energy optimisation

- Adaptive superheat via the AKV electronic expansion valve
Optimum utilisation of evaporator at all load conditions, precondition for major energy savings via optimised suction pressure and floating condensing pressure control
- Adaptive defrost
Intelligent defrost skip based on performance monitoring of evaporator
- Dew point pulsing of rail heat
Pulsing of rail heat according to the actual load condition
- Pulsing of fans
Pulsing of fans at thermostat cut out

Food quality / HACCP compliance

- Modulating temperature control
Accurate temperature control
- **Measuring accuracy**
Factory calibration guarantees a better measuring accuracy than required in the EN 12830 and EN 13485 standards without subsequent calibration on site (Pt 1000 ohms sensor)
- **Product temperature**
Separate product temperature for compliance with EN 12830 and EN 13485
- **Case cleaning**
Case cleaning function for documentation of case cleanings carried out according to HACCP procedures

Service and commissioning

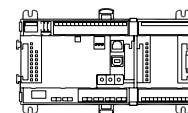
- Easy performance check
Provides vital info for performance check
- Versatile controller
- A single controller covering several applications
- Flexible IO configuration
- Built-in LON communication
- Fast and easy commissioning
- Preset setup for fast start-up
- Only 5 settings required



Facts

- Control of 1 to 4 evaporator sections
- Adaptive superheat control ensures optimum evaporator usage in all operational circumstances
- Electronic injection with AKV valve
- Traditional temperature regulation using ON / OFF or modulating control of solenoid valve for both DX and indirect brine system
- Weighted thermostat and alarm thermostat
- Defrost on demand based on evaporator capacity
- Appliance cleaning function
- Light control using door switch or network signal depending on day / night operation
- Rail heat pulsing depending on day / night operation or dew point
- Monitoring of door alarm and control of light / refrigeration depending on location of door switch
- Log function for registration of historical parameter values and alarm modes
- Full energy optimisation functions (dew point, fans, defrost, blinds etc.)
- Remote display connections (up to 4 displays)
- Built in RS 485 LON communication
- Flexible I/O configuration

Technical data and ordering



AK-CC 750A, Controller for evaporator control

Technical data

Features	Description	
Supply voltage	24 V DC / AC ± 20%	
Power consumption	8 V A	
Analogue inputs	Pt 1000 ohm / 0 °C	Dissolution: 0.1 °C, Accuracy: ± 0.5 °C
	Pressure transmitter type AKS 32R/AKS 32 (1 – 5 V)	Dissolution 1 mV Accuracy ± 10 mV
	Voltage signal 0 – 10 V	Max. connection of 5 pressure transmitters on one module
	Contact function (ON / OFF)	ON at R < 20 ohm, OFF at R > 2 K ohm (Gold plated contacts not necessary)
ON/OFF supply voltage inputs	Low voltage 0 / 80 V DC / AC	OFF : U < 2 V ON: U > 10 V
	High voltage 0 / 260 V AC	OFF : U < 24 V ON: U > 80 V
Relay outputs SPDT	AC-1 (ohmic)	5 A
	AC-15 (inductive)	3 A
	U	Min. 24 V - Max. 230 V Low and high voltage must not be connected to the same output group
	Fuse	5 A (F)
Solid state outputs	Can be used for loads that are frequently cut in and out e.g. decompression, rail heating, fans and AKV valve	Max. 240 V AC, Min. 48 V AC - Max. 0.5 A,
		Leak < 1 mA
		Max. 1 AKV
Ambient temperature	During transport	-40 – 70 °C
	During operation	-20 – 55 °C, 0 – 95% RH (non condensing) - No shock influences / vibrations
Enclosure	Material	PC / ABS
	Enclosure	IP10, VBG 4
	Mounting	For mounting on wall or DIN rail
Weight with screw terminals	Modules in 100- / 200- / controller series	Approx. 200 g / 500 g / 600 g
Approvals	Complies with EU low voltage directive and EMC requirements	LVD tested according to EN 60730 EMC tested - Immunity according to EN 61000-6-2, Emission according to EN 50081-1
	UL file number	E166834

Ordering

Type	Language	Code no.
AK-CC 750A	English, Danish, Swedish, Finnish, Russian, Czech, Polish, Chinese, German, French, Italian, Dutch, Spanish, Portuguese	080Z0140

Ordering Accessory - Extension modules and survey for inputs and outputs

Type	Analog inputs	ON / OFF outputs		ON / OFF supply voltage (DI signal)		Analog outputs	Stepper outputs	Module with switches	Code no.
	For sensors, pressure transmitters	Relay (SPDT)	Solid state	Low voltage (max. 80 V)	High voltage (max. 260 V)	0 - 10 V d. c.	For valves with step control	For override of relay outputs	
Controller	11	4	4	–	–	–	–	–	–
AK-XM 101A	8	–	–	–	–	–	–	–	080Z0007
AK-XM 102A	–	–	–	8	–	–	–	–	080Z0008
AK-XM 102B	–	–	–	–	8	–	–	–	080Z0013
AK-XM 103A	4	–	–	–	–	4	–	–	080Z0032
AK-XM 204A	–	8	–	–	–	–	–	–	080Z0011
AK-XM 204B	–	8	–	–	–	–	–	x	080Z0018
AK-XM 205A	8	8	–	–	–	–	–	–	080Z0010
AK-XM 205B	8	8	–	–	–	–	–	x	080Z0017
AK-XM 208C	8	–	–	–	–	–	4	–	080Z0023

Software

AK-ST 500	Software for operation of AK controllers	080Z0161
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Remote displays

EKA 163B	Display unit	084B8574
EKA 164B	Display unit with operation buttons	084B8575
MMIGRS2	Graphic display with operation	080G0294

Miscellaneous

AK-CM 102	Communication modules for controllers where modules cannot be connected continuously	080Z0064
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EKC 315A, Refrigeration control

The controller and valve can be used where there are requirements to accurate control of superheat and temperature in connection with refrigeration:

- Cold store (air coolers)
- Processing plant (water chillers)
- A/C plant



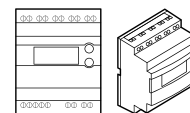
Facts

- The evaporator is charged optimally - even when there are great variations of load and suction pressure
- Energy savings - the adaptive regulation of the refrigerant injection ensures optimum utilisation of the evaporator and hence a high suction pressure
- Exact temperature control - the combination of adaptive evaporator and temperature control ensures great temperature accuracy for the media
- The superheating is regulated to the lowest possible value at the same time as the media temperature is controlled by the thermostat function

Technical data and ordering

EKC 315A - Refrigeration control

Technical data



Features	Description
Supply voltage	24 V AC ± 15%, 50 / 60 Hz, 80 V A (the supply voltage is galvanically separated from the input and output signals)
Power consumption	Controller: 5 V A AKV coil: 55 V A
Input signal	Current signal: 4 – 20 mA or 0 – 20 mA Pressure transmitter: 4-20 mA from AKS 33 Digital input from external contact function
Sensor input	2 pcs. Pt 1000 ohm
Output signal	Current signal: 4 – 20 mA or 0 – 20 mA Load: Max. 200 ohm
Relay output	1 pcs. SPST: AC-1: 4 A (ohmic)
Alarm relay	1 pcs. SPST: AC-15: 3 A (inductive)
ICAD	ICAD mounted on ICM Current signal: 4 – 20 mA or 0 – 20 mA
Data communication	Possible to connect a data communication module
Environments	-10 – 55 °C, during operations
	-40 – 70 °C, during transport
	20 – 80% Rh, not condensed
	No shock influence / vibrations
Enclosure	IP20
Weight	300 g
Mounting	DIN rail
Display	LED, 3 digits
Terminals	max. 2.5 mm ² multicore
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD-tested acc. to EN 60730-1 and EN 60730-2-9 EMC-tested acc. to EN50081-1 and EN 50082-2

The installation of data communications must comply with the requirements described in literature sheet no. RC8AC

Ordering

Type	Description	Code no.
EKC 315A	Superheat controller	084B7086
EKC 315A	Superheat controller, pressure transmitter signal from AKS 32R	084B7085
EKC 315A	I-pack of 084B7085	084B7128

Accessory

Type	Description	Code no.
EKA 174	Data communication module (accessories), (RS 485 module) with galvanic separation	084B7124
EKA 175	RS485 LON	084B8579
AKS 11	Pt 1000 Sensor	084N0003
AKS 32R	Pressure transmitter -1/12 bar	060G1036
AKS 33	Pressure transmitter -1/12 bar, 0.3%	060G2049
AKS 3000	Pressure transmitter -1/12 bar, 1%	060G1323

EKE 1A / EKE 1B / EKE 1C, Superheat controllers

The flexible pre-programmed EKE 1 series of superheat controllers from Danfoss provides ultimate software control, allowing you to tailor the performance of your system to your exact requirements. EKE is ideal for controlling a wide range of commercial air conditioning and refrigeration applications, such control helps you to achieve the highest efficiency in the system reducing the operational cost by up to 20% with minimal effort. EKE is generally

used where there is a requirement for accurate control of superheat or temperature control in connection with air conditioning and refrigeration.

The superheat is regulated to the lowest possible value in the shortest period. It regulates the superheat of the evaporator by charging optimally even when there are great variations of load resulting in a reduction of energy consumption and operational cost.



Efficiency

- **Adaptive Superheat Control**
Several control algorithms available to match your application that guarantee low and stable superheat.
- **Compressor Feed Forward**
Provides proper superheat by synchronizing valve reactivity to compressor speed.
- **Heating & Cooling Selection Mode**
- **Optimizes evaporator performance** by allowing 2 different sets of superheat settings
- **Fast Start-Up**
Ensures optimal superheat in the shortest period of time by quickly opening the valve and avoiding low pressure cut-out during start-up.



System Protection

- **Fail Safe Operation**
In case of sensor error, system can continue cooling in emergency.
- **Low Operating Pressure (LOP)**
Allows applications to start-up at lower ambient conditions to prevent compressor from stopping. High Condensing Temperature Protection (HCTP) Ensures that the load on the condenser is reduced, in cases where the condensing temperature gets too high
- **Superheat Close**
When the superheat is below a set minimum value, the valve will close faster in order to protect the compressor
- **Max Operating Pressure (MOP)**
Keeps evaporating pressure below the MOP set point.

Ease of Use/Installation/Applied Costs

- **Share Power Supply**
Galvanic isolation eliminates the need of one transformer for every EKE.
- **Share Pressure Signal**
1 sensor can be used with multiple controllers.
- **Valves & Sensors**
Compatible with a wide range of valves and sensors.
- **Commutation Filter**
The filter is inside the EKE and eliminates the need of external filter for greater cable lengths.
- **KoolProg**
The Koolprog wizard tool will guide the user to set up the controller in a fast and easy way.

Facts

Applications:

- Chillers
- Processing plant / Cabinet cooling
- Cold store (air coolers)
- A/C plant / Air conditioning
- Heat pumps. Residential Heat Pump
- Transport cooling

- **Power Supply**
 - 24 V AC or 24 V power supply, Easy wiring layout
- **Drives bipolar and unipolar valves** with selectable driving method
- **Plug and Play installation.** Easy and fast configuration via Wizard
- **Analog and Digital Inputs**
 - Various programmable Analog and digital inputs available
- **External and flexible large graphical display**
- **Connectivity available with**
 - CAN / CAN RJ / MODbus RS485 RTU

- **Key Software**
 - Energy saving Superheat Control logic: Minimum stable superheat, LoadAp, Fixed SH, Delta Temperature
 - Safety protection: MOP, LOP, min. S4, HCTP, SH close
 - Improved and fast starts up with rapid temperature pull down time
 - Feature focus on specific application e.g Heat pump, chiller
 - Ensure longevity of the stepper valve

Technical data and ordering

EKE 1A / EKE 1B / EKE 1C

Hardware comparison

		EKE 1A	EKE 1B	EKE 1C
Power supply				
Power supply type	24 V AC / DC ± 20%	•	•	•
Share power supply		•	•	•
Battery backup input	18 – 24 V DC	•	•	•
Data Communication				
MODbus	RS 485 RTU	–	•	•
Wired CANbus	To link Danfoss products	–	–	•
CANbus RJ	Danfoss MMI service port	•	•	•
Inputs				
Temperature Sensor Type	PT1000	–	–	•
	NTC 10 K, type EKS	•	•	•
	NTC 10 K, type ACCPBT	•	•	•
	NTC 10 K, type Sensata	•	•	•
No of temperature sensors		1	2	3
Pressure Transmitter types	Ratiometric 0.5 – 4.5 V DC	•	•	•
	0 – 20 mA signal	–	–	•
	1 – 5 V / 0 – 10 V	•	•	•
No of pressure sensors		1	1	2 or (1 P and 1 ext. ref.)
Share Pressure Signal	Up to 5 devices	•	•	–
	Via wired CANbus	–	–	•
Read external sensor value	Via MODbus	–	•	•
External reference	4 – 20 mA	–	–	•
	0 – 20 mA	–	–	•
	User defined current	–	–	•
	0 – 10 V	•	•	•
	1 – 5 V	•	•	•
User defined voltage	•	•	•	
No. of external reference		1	1	1
Digital Input Dry contact	(4 possible functions)	3	2	2
Outputs				
Digital output		1	1	1
Class of insulation	Class II	•	•	•
Relay	SPDT	1	1	1
Relay functions	Alarm or NC function	•	•	•

Ordering

Type	Description	Code no. single pack
EKE 1A	Superheat controller 1 temperature sensor	080G5300
EKE 1B	Superheat controller 2 temperature sensor	080G5350
EKE 1C	Superheat controller 3 temperature sensor	080G5400

Accessories

Type	Description	Code no. single pack
MMIGRS2 Remote Display	Graphic display with operation	080G0294
MMIMYK gateway	Interface to KoolProg PC software	080G0073

EKE 347, Liquid level controller

The EKE347 controller is used for regulation of the liquid level in pump reservoirs, separators, intermediate coolers, economisers, condensers and receivers. The controller is communicating with a transmitter that continuously measures the liquid level in the actual reservoir.

By comparing the measured value with the level setpoint entered by the customer, the controller dictates the valve to increase or decrease the liquid flow to or from the reservoir.

Features EKE 347



Alarm
if the set alarm limits are exceeded

Relay outputs
for upper and lower level limits and for alarm level

ON / OFF operation with hysteresis

Low or high side control

When AKV / A is selected, a MASTER / SLAVE system can run up to 3 AKV / A with distributed opening degree

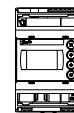
Manual control of output

Limitation of opening degree possible

Facts

- User friendly and easy setup Wizard for first time configuration
- Programming menu with 3 access levels and separate passwords
- With the AKS 4100 / 4100U liquid level transmitter it is possible to set the refrigerant level within a wide range
- EKE 347 can be used with ICM or AKV / A expansion valves
- ICM are direct operated motor valves driven by digital stepper motor type ICAD
- AKVA or AKV are pulse-width modulating expansion valves
- EKE 347 include as standard RS 485 based MODBUS-RTU bus communication interface to third party equipment like PLC
- Connection to other EKE347 controllers possible
- Wired remote display possible

Technical data and ordering



EKE 347 - Liquid level controller

Technical data

Features	Description
Supply voltage	24 V AC \pm 20%, 50 / 60 Hz or 24 V DC \pm 20% (the supply voltage is galvanically separated from the input and output signals. Input / output are not individual galvanic isolated)
Power consumption	Controller 15 VA / 10 W 20 W coil for AKV 55 VA
Input signal	Level signal *) 4 – 20 mA or 0 – 10 V
*) Ri =0(4)-20 mA: 33 ohm	ICM valve feedback signal *) From ICAD 0 / 4 – 20 mA
0(2)-10 V: 100 kohm	Contact function start / stop of regulation
Relay output	3 pcs. SPDT 3 A (ohmic) (Lower level alarm, Upper level alarm, Common alarm / NC Solenoid) 1 A (inductive) Max 240 V AC or 24 V AC / DC. can be used, but same voltage type must be used on DO3 and DO2
Current output	0 – 20 mA or 4 – 20 mA Max. load: 500 ohm
Valve connection	ICM - via current output AKV / A- via 24 V AC. Pulse-Width Modulating output
Data communication	MODBUS RTU: Communication to system controller, MODBUS on RS485: galvanic isolation (500 V DC) CAN: Communication to other EKE controllers
Environments	-20 – 55 °C, during operation -30 – 80 °C, during storage 90% Rh, not condensed No shock influence / vibrations
Enclosure	IP20 / IP40 for the front mounted into a panel
Weight	193 g
Mounting	DIN rail
Display	Graphical LCD display
Terminals	plugs 1.5 or 2.5 mm ² multicore
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD-tested acc. to EN 60730-1 and EN 60730-2-9 EMC-tested acc. to EN61000-6-3 and EN 61000-6-2

Ordering

Type	Description	Code no.
EKE 347	Liquid level controller	080G5000
MMIGRS2	Remote display, Panel, S	080G0294

EKC 368, Controller for temperature control of unpacked food products

Controller and valve are used where there are high requirements to refrigeration of unpacked food products:

- Delicatessen appliances
- Cold rooms for meat products
- Cold rooms for fruits and vegetables
- Containers
- Air conditioning plants.



Input signal
that can displace the
temperature reference

**Modulating temperature
control**



Alarm
if the set alarm limits
are exceeded

Defrost function
electric, hotgas or natural

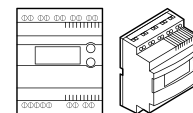
Relay outputs
for defrost function, solenoid
valve, fan and alarm

Facts

- Wastage is reduced because the air humidity around the products is kept as high as possible
- The temperature is kept within an accuracy of ± 0.25 °C or better after a transient phenomenon
- A transient phenomenon can be controlled with the adaptive function so that temperature variations is kept on a minimum
- Defrost sensor, so that the defrost time will be as short as possible
- PID regulation

Technical data and ordering

EKC 368 - Controller for temperature control of unpacked food products



Technical data

Features	Description
Supply voltage	24 V AC ± 15%, 50 / 60 Hz, 10 V A (the supply voltage is galvanically separated from the input and output signals)
Power consumption	Controller: 5 V A KVS 15 - KVS 42 step motor: 1.3 V A
Input signal	Voltage signal: 0 – 10 V or 2 – 10 V Digital input from external contact function Short-circuit (pulse signal) of 18 – 20 will start a defrost
Sensor input	2 pcs. Pt 1000 ohm
Relay output	3 pcs. SPST: AC-1: 4 A (ohmic)
Alarm relay	1 pcs. SPST: AC-15: 3 A (inductive)
Step motor output	Pulsating 100 mA
Data communication	Possible to connect a data communication module
Ambient temperature	During operation: -10 – 55 °C / 14 – 131 °F During transport: -40 – 70 °C / -40 – 158 °F
Enclosure	IP20
Weight	320 g / 28 oz
Mounting	DIN rail
Display	LED, 3 digits
Terminals	max. 2.5 mm ² / 12 AWG multicore
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD-tested acc. to EN 60730-1 and EN 60730-2-9 EMC-tested acc. to EN50081-1 and EN 50082-2

If battery backup is used: battery requirements: 18 V DC min. 100 mAh

Ordering

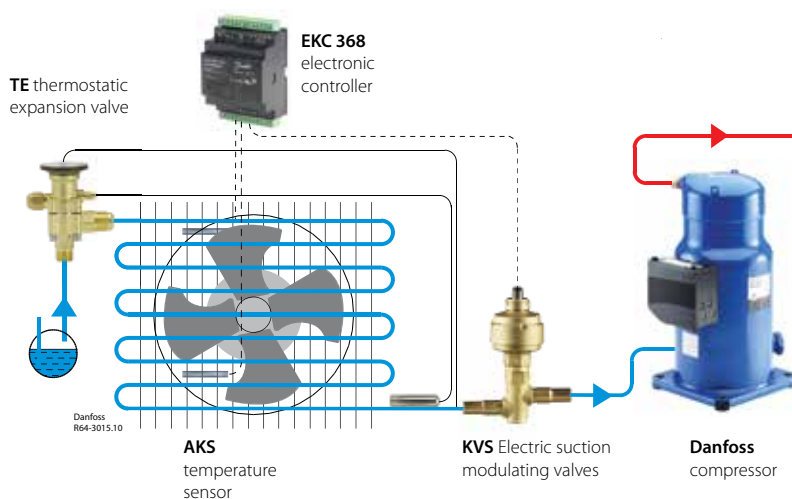
Type	Description	Code no.
EKC 368	Media temperature controller	084B7079

Accessory

Type	Description	Code no.
EKA 172	Realtime clock	084B7069
EKA 175	Data communication module (accessories), (RS485 module)	084B8579
EKA 174	Data communicationsmodule (accessories), (RS485 module) with galvanic separation	084B7124

Related products

Electric suction modulating valves
Type KVS 15 - KVS 42
 Temperature sensors and pressure transmitters
Type AKS



ERC 211 / ERC 213 / ERC 214, Temperature controllers

ERC 21X is a smart multipurpose refrigeration controller with temperature and defrost management.

The controller has been designed to fulfill today's requirements of advanced commercial Refrigeration applications.



Ease of Use

four push buttons, easy menu structure, pre-installed application solutions ensure superior usability

Simple Installation

high effect 16 A relay enable direct connection of heavy loads, without use of intermediate relays. A wide range of compatible types of sensors, screw connection terminals ensure high flexibility in installation



Unit Protection

special software features like compressor protection from fluctuation in power supply or from high condensing temperature ensure the safety & reliability operation of the unit

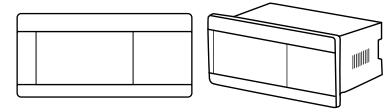
Energy efficiency

defrost on demand Day / Night mode, and smart evaporator fan management ensure energy efficiency

Facts

- Thermostat
 - ON / OFF thermostat
 - day / night, continuous cycle, emergency mode
 - pre-installed applications
 - compatible with wide range of sensors (NTC 5 K and 10 K, Pt1000, PTC)
- Defrost
 - natural, electrical and hot gas defrost
 - defrost on demand
 - start via push button, DI input or time interval
 - stop on time, temperature or push button
- Compressor
 - voltage protection
 - anti-cycle timers for optimum compressor protection
 - high-effect 16 A relays for connection of compressors
- Evaporator Fan
 - fan delay function
 - smart evaporator fan management for energy saving
 - fan stop at high evaporator temperature
- Alarms
 - high and low temperature alarm
 - sensor failure alarm
 - high and low voltage alarm
 - condenser cleaning alarm
 - door open alarm
 - external alarm input
- Multi-purpose DI input
 - two multipurpose DI input for defrost start, Day / night control, main switch, reference displacement and continuous cycle control
- Display & programming
 - bigger and High efficient LED Display
 - display temperatures in °C / °F
 - parameter settings/readouts and alarm conditions can be read on the display
- Other functions
 - zero cross switching in all relays
 - three levels password protection
 - door function with alarm monitoring
 - delay of outputs at power up
 - keypad lock and unlock feature
 - galvanic Isolation

Technical data and ordering



ERC 211 / ERC 213 / ERC 214 - Temperature controllers

Technical data

Features	Description
Power supply	115 V AC / 230 V AC 50 – 60 Hz, galvanic isolated low voltage regulated power supply
Rated power	Less than 0.7 W
Input	4 inputs: 2 analogue, 1 analogue / digital and 1 digital
Sensors	NTC 5000 Ohm at 25 °C NTC 10000 Ohm at 25 °C PTC 1000 Ohm at 25 °C PT1000
Accuracy	Measuring range: -40 – 105 °C / -40 – 221 °F Controller: ± 1 K below -35 °C, ± 0,5 K between -35 – 25 °C, ± 1 K above 25 °C
Output	1 Compressor relay: 16 (16 A) EN60730 16 (16 A) CQC; 16 A (60 FLA / 10 LRA) UL60730 Aux relay 1: 8 A, 2 FLA / 12 LRA, UL60730 8 A, 2 (2 A), EN60730 Aux relay 2: 3 A, 2 FLA / 12 LRA, UL60730 3 A, 2 (2 A), EN60730 Aux relay 3: 2 A
Display	LED display, 3 digits, decimal point and multi functionality icons, °C + °F scale
Operating conditions	-10 – 55 °C / 14 – 131 °F, 90% Rh
Storage conditions	-40 – 70 °C / -40 – 158 °F, 90% Rh
Protection	Front: IP65 Rear: water and dust protection corresponds to IP31, accessibility of connectors limit rear part rating to IP00
Environmental	Pollution degree III (can be mounted inside a refrigerated cabinet), non-condensing
Resistance to heat and fire	Category D (UL94-V0)
EMC category	Category I
Approvals	UL (recognition) CB certification (ENEC, CE, CQC)

Ordering

Type	Description	Code no.
ERC 211	Red LED, 120 V, 1 relay	080G3290
	Red LED, 240 V, 1 relay	080G3293
ERC 213	Red LED, 120 V, 3 relay	080G3291
	Red LED, 240 V, 3 relay	080G3294
ERC 214	Red LED, 120 V, 4 relay	080G3292
	Red LED, 240 V, 4 relay	080G3295

AK-PC 351, Capacity controller

AK-PC 351 is used for capacity regulation of compressors and condensers in small refrigeration applications. A maximum of 4 compressors and one condenser can be regulated:

- One suction group + one condenser group, max. 6 steps
- One compressor group, max. 4 steps
- One condenser group, max. 4 steps

Features AK-PC 351

Solid state output
1 pcs control of bypass on a digital scroll or for controlling unloader on a stream compressor. If the output is not used for the function, it can be used as ordinary relay output

Analogue inputs
max. 4 pcs signal from pressure transmitters, temperature sensors

Analogue outputs
max. 2 pcs speed control of compressors and condenser fans



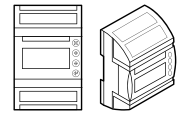
Digital inputs
max. 8 pcs signal from automatic safety control, day / night signal

Relay outputs
max. 5 pcs connection of compressors, condenser fans

Facts

- Energy savings via:
 - optimisation of suction pressure
 - night time increase
 - floating condensing pressure

Technical data and ordering



AK-PC 351, Capacity controller

Technical data

Features	Description
Supply voltage	24 V AC \pm 15%, 50 / 60 Hz, 17 V A 24 V DC (20 – 60 V), 17 V A
4 analog Input	Pressure measuring: Ratiometric pressure transmitter type AKS 32R 1 – 5 volt pressure transmitter type AKS 32 0 – 20 (4 – 20) mA pressure transmitter type AKS 33 Temperature measurement Pt 1000 ohm / 0 °C NTC - 86 K from digital scroll / stream
8 digital input	From contact function E.g. to: Start / stop of regulation Monitoring of safety circuits General alarm function
Relay output to capacity control	5 pcs. SPST (5 A): AC-1: 5 A (ohmic)
	5 pcs. SPST (5 A): AC-15: 2 (inductive)
	1 pc. Solid State PWM for scroll -unload
	I _{max.} = 0.5 A
	I _{min.} = 50 mA
	Leak < 1.5 mA
2 Voltage output	0-10 V DC R _i = 1 kohm
Display output	For type MMIGRS2
Data communication	Modbus for AK-SM 850
Environments	-20 – 60 °C, During operations
	-40 – 70 °C, During transport
	20 – 80% Rh, not condensed
	No shock influence / vibrations
Enclosure	IP40
Weight	0.2 kg
Mounting	DIN-rail
Connection terminals	max. 2.5 mm ² multi core
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 and EN 60730-2-9 EMC-tested acc. EN61000-6-2 and 3

Ordering

Type	Description	Code no.
AK-PC 351	24 V AC / 20 – 60 V DC, LCD, RS485, 1SSR S	080G0289

AK-PC 551, Capacity controller

AK-PC 551 is used for capacity regulation of compressors and condensers in small refrigeration applications. A maximum of 8 compressors and one condenser can be regulated:

- One suction group + one condenser group
- Two suction groups + one shared condenser, max. 4 + 4 steps
- One compressor group, max. 8 steps
- One condenser group, max. 8 steps



Solid state outputs

max. 2 pcs.

- Control of capacity valve on a Copeland digital scroll
- Control of unloaders on a Copeland stream compressor.
- Control of unloaders on a Bitzer CR11 Ecoline compressor.

If the outputs are not used for these functions, they can be used as ordinary relay outputs

Analogue inputs

max. 8 pcs signal from pressure transmitters, temperature sensors, voltage signal

Analogue outputs

max. 2 pcs speed control of compressors and condenser fans



Digital inputs

max. 8 pcs signal from automatic safety control, day / night signal

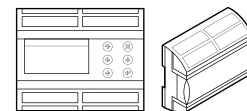
Relay outputs

max. 6 pcs connection of compressors, condenser fans

Facts

- Energy savings via:
 - optimisation of suction pressure
 - night time increase
 - floating condensing pressure
 - load limitation

Technical data and ordering



AK-PC 551, Capacity controller

Technical data

Features	Description
Supply voltage	24 V AC \pm 15%, 50 / 60 Hz, 17 V A
	24 V DC (20 – 60 V), 17 V A
	230 V AC (85 – 265 V) 50 / 60 Hz, 20 V A
8 analog Input	Pressure measuring: Ratiometric pressure transmitter type AKS 32R 1 – 5 volt pressure transmitter type AKS 32 0 – 20 (4 – 20) mA pressure transmitter type AKS 33
	Temperature measurement Pt 1000 ohm / 0 °C NTC - 86 K from digital scroll / stream
8 digital input	From contact function E.g. to: Start / stop of regulation Monitoring of safety circuits General alarm function
Relay output to capacity control	4 pcs. SPDT (8 A): AC-1: 6 A (ohmic)
	4 pcs. SPDT (8 A): AC-15: 4 A (inductive)
	2 pcs. SPST (16 A): AC-1: 10 A (ohmic)
	2 pcs. SPST (16 A): AC-15: 3.5 A (inductive)
2 Voltage output	2 pcs. Solid State. PWM for scroll -unload
	I _{max.} = 0.5 A
	I _{min.} = 50 mA Leak < 1.5 mA
2 Voltage output	0-10 V DC R _i = 1 kohm, Separate 24 V supply required
Display output	For type MMIGRS2
Data communication	Modbus for AK-SM 850
Environments	-20 – 60 °C, During operations
	-40 – 70 °C, During transport
	20 – 80% Rh, not condensed
	No shock influence / vibrations
Enclosure	IP20
Weight	0.4 kg
Mounting	DIN-rail
Connection terminals	max. 2.5 mm ² multi core
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 and EN 60730-2-9 EMC-tested acc. EN61000-6-2 and 3

Ordering - AK-PC 551

Type	Description	Code no.
AK-PC 551	230 V, LCD, 2SSR, RS485, S	080G0281
AK-PC 551	24 V, LCD, 2SSR, RS485, S	080G0283

Ordering - AK-PC 551 kit

Type	Description	Code no.
AK-PC 551 kit	230 V, for remote display, 2SSR, RS485, S + MMIGRS2 + 1.5m CABLE	080G0282
AK-PC 551 kit	24 V, for remote display, 2SSR, RS485, S + MMIGRS2 + 1.5m CABLE	080G0288

Accessories

Type	Description	Code no.
MMIGRS2	MMIGRS2, REMOTE DISPLAY, PANEL, S	080G0294
ACCCBI	TELEPHONE CABLE USER INTERFACE CONNECTOR, 1.5 M CABLE	080G0075
ACCCBI	TELEPHONE CABLE USER INTERFACE CONNECTOR, 3 M CABLE	080G0076

AK-PC 651, Capacity controller

AK-PC 651 is used for capacity regulation of compressors and condensers in small refrigeration applications.

A maximum of 10 compressors and one condenser can be regulated:

- One suction group + one condenser group
- One compressor group, max. 10 steps
- One condenser group, max. 8 steps



Solid state outputs

max. 2 pcs.

- Control of capacity valve on a Copeland digital scroll
- Control of unloaders on a Copeland stream compressor.
- Control of unloaders on a Bitzer CR11 Ecoline compressor.

If the outputs are not used for these functions, they can be used as ordinary relay outputs

Analogue inputs

max. 10 pcs signal from pressure transmitters, temperature sensors, voltage signal

Analogue outputs

max. 4 pcs speed control of compressors and condenser fans



Digital inputs

max. 18 pcs signal from automatic safety control, day / night signal

Relay outputs

max. 13 pcs connection of compressors, condenser fans

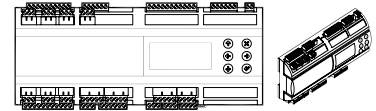
Facts

- Energy savings via:
 - optimisation of suction pressure
 - night time increase
 - floating condensing pressure
 - load limitation

Technical data and ordering

AK-PC 651, Capacity controller

Technical data



Features	Description
Supply voltage	230 V AC (85 – 265 V) 50 / 60 Hz, 26 V A
10 analog Input	Pressure measuring: Ratiometric pressure transmitter type AKS 32R 1 – 5 volt pressure transmitter type AKS 32 0 – 20 (4 – 20) mA pressure transmitter type AKS 33 Temperature measurement Pt 1000 ohm / 0 °C NTC - 86 K from digital scroll / stream
18 digital input (14 for low voltage + 4 for high voltage or low voltage)	From contact function E.g. to: Start / stop of regulation Monitoring of safety circuits General alarm function
Relay output to capacity control	7 pcs. SPST (8 A): AC-1: 6 A (ohmic), AC-15: 4 A (inductive)
	4 pcs. SPDT (8 A): AC-1: 6 A (ohmic), AC-15: 4 A (inductive)
	2 pcs. SPDT (16 A): AC-1: 7 A (ohmic), AC-15: 3.5 A (inductive)
	2 pcs. Solid State. PWM for scroll -unload
	Imax. = 0.5 A Imin. = 50 mA Leak < 1.5 mA
4 Voltage output	0-10 V DC Ri = 1 kohm, Separate 24 V supply required
Display output	For type MMIGRS2
Data communication	Modbus for AK-SM 850
Environments	-20 – 60 °C, During operations
	-40 – 70 °C, During transport
	20 – 80% Rh, not condensed
	No shock influence/vibrations
Enclosure	IP20
Weight	0.8 kg
Mounting	DIN-rail
Connection terminals	max. 2.5 mm ² multi core
Approvals	EU Low Voltage Directive and EMC demands re CE-marking complied with LVD tested acc. EN 60730-1 and EN 60730-2-9 EMC-tested acc. EN61000-6-2 and 3

Ordering - AK-PC 651

Type	Description	Code no.
AK-PC 651	230 V, LCD, 2SSR, RS485, S	080G0312

Accessories

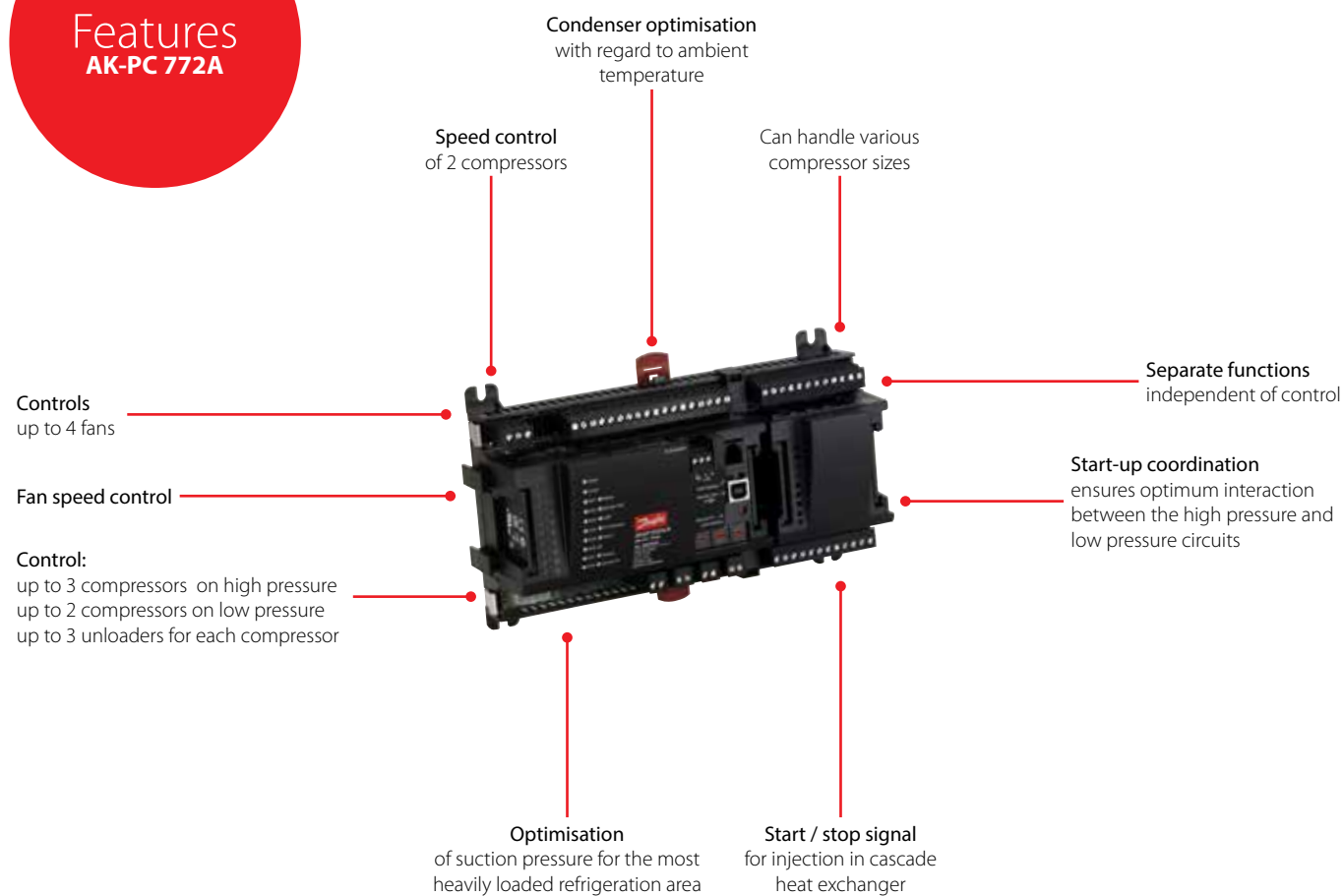
Type	Description	Code no.
MMIGRS2	MMIGRS2, REMOTE DISPLAY, PANEL, S	080G0294
ACCCBI	TELEPHONE CABLE USER INTERFACE CONNECTOR, 1.5M CABLE	080G0075
ACCCBI	TELEPHONE CABLE USER INTERFACE CONNECTOR, 3M CABLE	080G0076

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AK-PC 772A, Capacity controller for small CO₂ booster

The controller is a complete regulating unit for capacity control of compressors and gas cooler in a small CO₂ booster system.

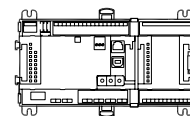
The controller is with oil management, heat recovery function and CO₂ gas pressure control.



Facts

- Integrated oil equalization
- Up to 8 compressor step
- 1 or 2 speed controlled compressors
- Heat recovery functions
- CO₂ gas cooler control and receiver control
- Built in RS485 Lon communication

Technical data and ordering



AK-PC 772A, Capacity controller for small CO₂ booster

Technical data

Features	Description	
Supply voltage	24 V DC / AC ± 20%	
Power consumption	8 V A	
Analogue inputs	Pt 1000 ohm / 0 °C	Dissolution: 0.1 °C, Accuracy: ± 0.5 °C
	Pressure transmitter type AKS 32R / AKS 2050 / AKS 32 (1-5 V)	Dissolution 1 mV, Accuracy ± 10 mV Max. connection of 5 pressure transmitters on one module
	Contact function (ON / OFF)	On at R < 20 ohm, Off at R > 2K ohm (Gold plated contacts not necessary)
ON / OFF supply voltage inputs	Low voltage 0 / 80V DC / AC	OFF : U < 2 V ON: U > 10 V
	High voltage 0 / 260 V AC	OFF : U < 24 V ON: U > 80 V
Relay outputs SPDT	AC-1 (ohmic)	5 A
	AC-15 (inductive)	3 A
	U	Min. 24 V - Max. 230 V Low and high voltage must not be connected to the same output group
Solid state outputs	Can be used for loads that are frequently cut in and out e.g. unloaders, solenoid valve	Max. 240 V AC, Min. 48 V AC - Max. 0.5 A
		Leak < 1 mA
		Max. 1 AKV
Ambient temperature	During transport	-40 – 70 °C
	During operation	-20 – 55 °C, 0 – 95% RH (non condensing) - No shock influences / vibrations
Enclosure	Material	PC / ABS
	Enclosure	IP10, VBG 4
	Mounting	For mounting on wall or DIN rail
Weight with screw terminals	Modules in 100- / 200- / controller series	Approx. 200 g / 500 g / 600 g
Approvals	Complies with EU low voltage directive and EMC requirements	LVD tested according to EN 60730 EMC tested - Immunity according to EN 61000-6-2, Emission according to EN 50081-1
	UL file number	E166834

Ordering

Type	Language	Code no.
AK-PC 772A	English, German, French, Italian, Dutch	080Z0201

Ordering Accessory - Extension modules and survey for inputs and outputs

Type	Analog inputs	ON / OFF outputs		ON / OFF supply voltage (DI signal)		Analog outputs	Stepper outputs	Module with switches	Code no.
	For sensors, pressure transmitters	Relay (SPDT)	Solid state	Low voltage (max. 80 V)	High voltage (max. 260 V)	0 - 10 V d. c.	For valves with step control	For override of relay outputs	
Controller	11	4	4	–	–	–	–	–	–
AK-XM 101A	8	–	–	–	–	–	–	–	080Z0007
AK-XM 102A	–	–	–	8	–	–	–	–	080Z0008
AK-XM 102B	–	–	–	–	8	–	–	–	080Z0013
AK-XM 103A	4	–	–	–	–	4	–	–	080Z0032
AK-XM 204A	–	8	–	–	–	–	–	–	080Z0011
AK-XM 204B	–	8	–	–	–	–	–	x	080Z0018
AK-XM 205A	8	8	–	–	–	–	–	–	080Z0010
AK-XM 205B	8	8	–	–	–	–	–	x	080Z0017
AK-XM 208C	8	–	–	–	–	–	4	–	080Z0023

Software

AK-ST 500	Software for operation of AK controllers	080Z0161
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Remote displays

EKA 163B	Display unit	084B8574
EKA 164B	Display unit with operation buttons	084B8575
MMIGRS2	Graphic display with operation	080G0294

Miscellaneous

AK-CM 102	Communication modules for controllers where modules cannot be connected continuously	080Z0064
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AK-PC 781A, Capacity controller

The controller is a complete regulating unit for capacity control of compressors and condensers in commercial refrigeration systems. These controllers are particularly well suited to capacity control of cascade or booster systems.

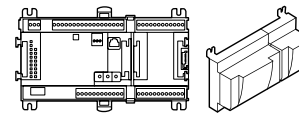
Full capacity control of both circuits can be obtained by using two controllers.



Facts

- Integrated oil management
- Heat recovery functions
- Parallel compression for a transcritical CO₂ systems
- Also suitable for use in CO₂ systems
- CO₂ gas pressure control
- Built in RS485 Lon communication

Technical data and ordering



AK-PC 781A, Capacity controller

Technical data

Features	Description	
Supply voltage	24 V DC / AC ± 20%	
Power consumption	8 V A	
Analogue inputs	Pt 1000 ohm / 0 °C	Dissolution: 0.1 °C, Accuracy: ± 0.5 °C
	Pressure transmitter type AKS 32R / AKS 2050 / AKS 32 (1 – 5 V)	Dissolution 1 mV, Accuracy ± 10 mV Max. connection of 5 pressure transmitters on one module
	Contact function (ON / OFF)	On at R < 20 ohm Off at R > 2K ohm (Gold plated contacts not necessary)
ON / OFF supply voltage inputs	Low voltage 0 / 80 V AC / DC	OFF : U < 2 V ON: U > 10 V
	High voltage 0 / 260 V AC	OFF : U < 24 V ON: U > 80 V
Relay outputs SPDT	AC-1 (ohmic)	5 A
	AC-15 (inductive)	3 A
	U	Min. 24 V - Max. 230 V Low and high voltage must not be connected to the same output group
Solid state outputs	Can be used for loads that are frequently cut in and out e.g. unloaders, solenoid valve	Max. 240 V AC, Min. 48 V AC - Max. 0.5 A
		Leak < 1 mA
		Max. 1 AKV
Ambient temperature	During transport	-40 – 70 °C
	During operation	-20 – 55 °C, 0 – 95% RH (non condensing) - No shock influences / vibrations
Enclosure	Material	PC / ABS
	Enclosure	IP10, VBG 4
	Mounting	For mounting on wall or DIN rail
Weight with screw terminals	Modules in 100- / 200- / controller series	Approx. 200 g / 500 g / 600 g
Approvals	Complies with EU low voltage directive and EMC requirements	LVD tested according to EN 60730 EMC tested - Immunity according to EN 61000-6-2, Emission according to EN 50081-1
	UL file number	E166834

Ordering

Type	Language	Code no.
AK-PC 781A	English, German, French, Italian, Dutch, Spanish, Portuguese, Danish, Finnish, Russian, Czech, Polish, Chinese	080Z0191

Ordering Accessory - Extension modules and survey for inputs and outputs

Type	Analog inputs	ON / OFF outputs		ON / OFF supply voltage (DI signal)		Analog outputs	Stepper outputs	Module with switches	Code no.
	For sensors, pressure transmitters	Relay (SPDT)	Solid state	Low voltage (max. 80 V)	High voltage (max. 260 V)	0 -10 V d. c.	For valves with step control	For override of relay outputs	
Controller	11	4	4	–	–	–	–	–	–
AK-XM 101A	8	–	–	–	–	–	–	–	080Z0007
AK-XM 102A	–	–	–	8	–	–	–	–	080Z0008
AK-XM 102B	–	–	–	–	8	–	–	–	080Z0013
AK-XM 103A	4	–	–	–	–	4	–	–	080Z0032
AK-XM 204A	–	8	–	–	–	–	–	–	080Z0011
AK-XM 204B	–	8	–	–	–	–	–	x	080Z0018
AK-XM 205A	8	8	–	–	–	–	–	–	080Z0010
AK-XM 205B	8	8	–	–	–	–	–	x	080Z0017
AK-XM 208C	8	–	–	–	–	–	4	–	080Z0023

Software

AK-ST 500	Software for operation of AK controllers	080Z0161
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Remote displays

EKA 163B	Display unit	084B8574
EKA 164B	Display unit with operation buttons	084B8575
MMIGRS2	Graphic display with operation	080G0294

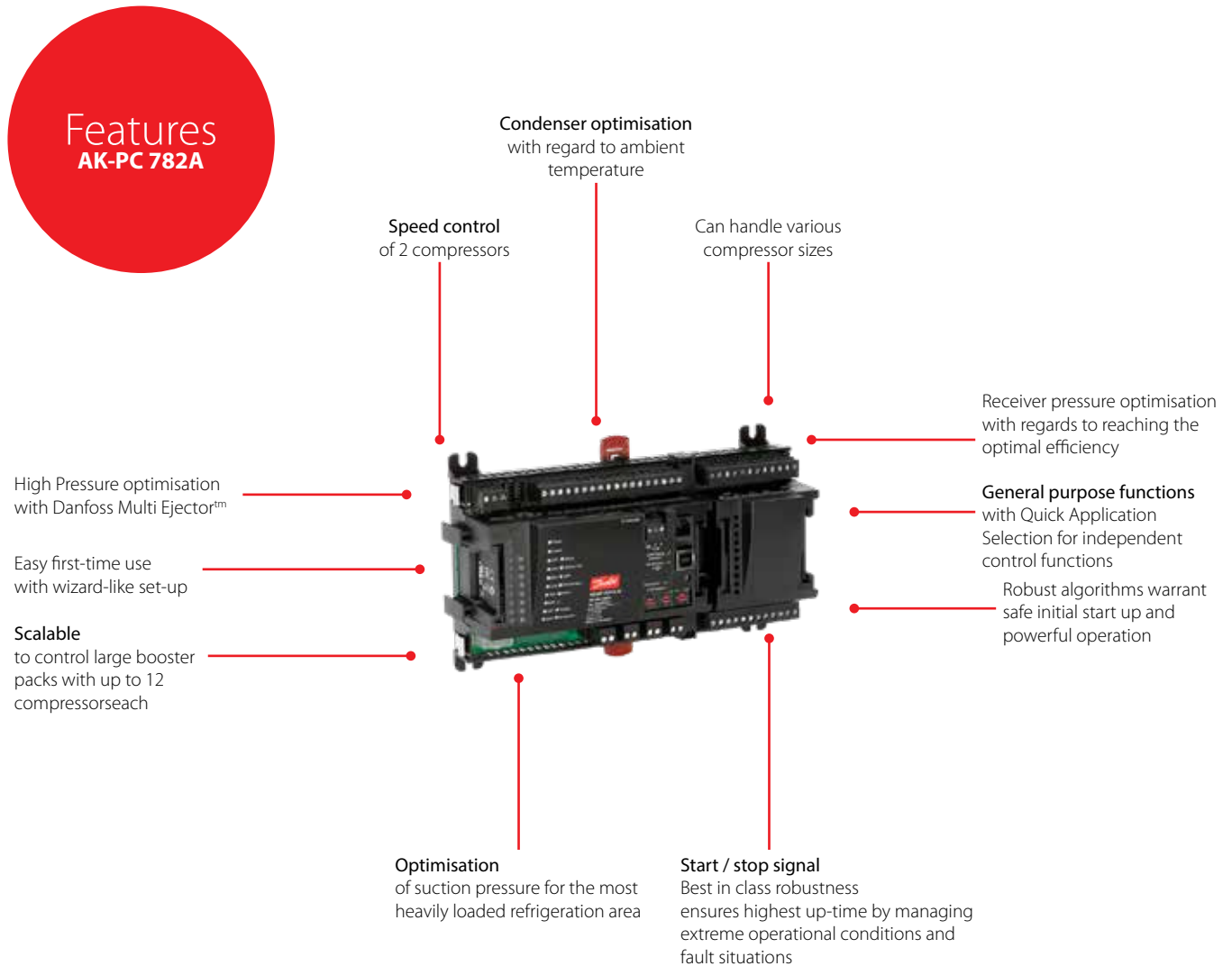
Miscellaneous

AK-CM 102	Communication modules for controllers where modules cannot be connected continuously	080Z0064
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AK-PC 782A, Capacity controller

AK-PC 782A is a powerful and flexible controller that provides precise regulation, improved efficiency, and enhanced user friendliness for pack control in transcritical CO₂ booster packs.

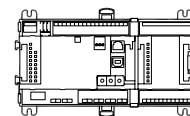
The controller flexibility and efficiency makes it the obvious choice for all sizes of packs in all climates.



Facts

- One controller for the entire CO₂ booster pack
- High pressure control
- Danfoss Multi Ejector™ control
- Parallel compressor control
- Heat recovery functions
- Floating receiver pressure control
- Built in RS485 Lon communication
- Oil system pressurisation and flow management

Technical data and ordering



AK-PC 782A, Capacity controller

Technical data

Features	Description	
Supply voltage	24 V DC / AC ± 20%	
Power consumption	8 V A	
Analogue inputs	Pt 1000 ohm / 0 °C	Dissolution: 0.1 °C Accuracy: ± 0.5 °C
	Pressure transmitter type AKS 32R / AKS 2050 / AKS 32 (1 – 5 V)	Dissolution 1 mV Accuracy ± 10 mV Max. connection of 5 pressure transmitters on one module
	Contact function (ON / OFF)	On at R < 20 ohm
		Off at R > 2K ohm (Gold plated contacts not necessary)
ON / OFF supply voltage inputs	Low voltage 0 / 80 V AC / DC	OFF : U < 2 V ON: U > 10 V
	High voltage 0 / 260 V AC	OFF : U < 24 V ON: U > 80 V
Relay outputs SPDT	AC-1 (ohmic)	5 A
	AC-15 (inductive)	3 A
Solid state outputs	U	Min. 24 V - Max. 230 V Low and high voltage must not be connected to the same output group
		Can be used for loads that are frequently cut in and out e.g. unloaders, solenoid valve
Ambient temperature	Max. 240 V AC, Min. 48 V AC - Max. 0.5 A Leak < 1 mA Max. 1 AKV	
	During transport	-40 – 70 °C
Enclosure	During operation	-20 – 55 °C, 0 – 95% RH (non condensing) - No shock influences / vibrations
	Material	PC / ABS
Weight with screw terminals	Enclosure	IP10, VBG 4
	Mounting	For mounting on wall or DIN rail
Approvals	Modules in 100- / 200- / controller series	Approx. 200 g / 500 g / 600 g
	Complies with EU low voltage directive and EMC requirements	LVD tested according to EN 60730 EMC tested - Immunity according to EN 61000-6-2, Emission according to EN 50081-1
	UL file number	E166834

Ordering

Type	Language	Code no.
AK-PC 782A	English, German, French, Italian, Dutch, Spanish, Portuguese, Danish, Finnish, Russian, Czech, Polish, Chinese	080Z0192

Ordering Accessory - Extension modules and survey for inputs and outputs

Type	Analog inputs	ON / OFF outputs		ON / OFF supply voltage (DI signal)		Analog outputs	Stepper outputs	Module with switches	Code no.
	For sensors, pressure transmitters	Relay (SPDT)	Solid state	Low voltage (max. 80 V)	High voltage (max. 260 V)	0 - 10 V d. c.	For valves with step control	For override of relay outputs	
Controller	11	4	4	–	–	–	–	–	–
AK-XM 101A	8	–	–	–	–	–	–	–	080Z0007
AK-XM 102A	–	–	–	8	–	–	–	–	080Z0008
AK-XM 102B	–	–	–	–	8	–	–	–	080Z0013
AK-XM 103A	4	–	–	–	–	4	–	–	080Z0032
AK-XM 204A	–	8	–	–	–	–	–	–	080Z0011
AK-XM 204B	–	8	–	–	–	–	–	x	080Z0018
AK-XM 205A	8	8	–	–	–	–	–	–	080Z0010
AK-XM 205B	8	8	–	–	–	–	–	x	080Z0017
AK-XM 208C	8	–	–	–	–	–	4	–	080Z0023

Software

AK-ST 500	Software for operation of AK controllers	080Z0161
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Remote displays

EKA 163B	Display unit	084B8574
EKA 164B	Display unit with operation buttons	084B8575
MMIGRS2	Graphic display with operation	080G0294

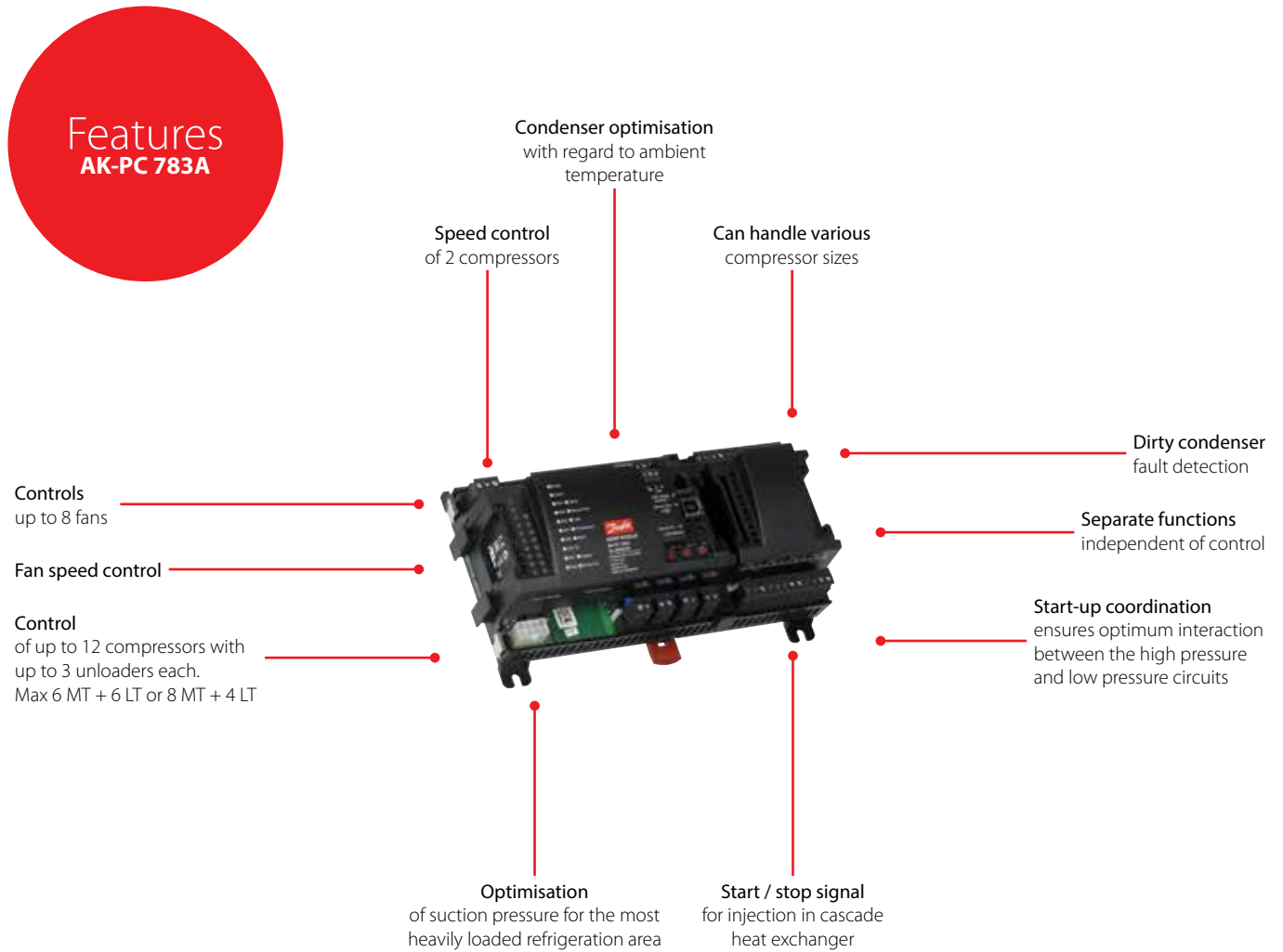
Miscellaneous

AK-CM 102	Communication modules for controllers where modules cannot be connected continuously	080Z0064
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AK-PC 783A, Capacity controller with cascade control

The controller is a complete regulating unit for capacity control of compressors and condensers in refrigeration plants with cascade function.

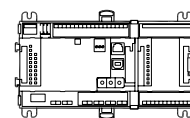
The controller controls the high-pressure circuit, low-pressure circuit and cascade circuit.



Facts

- Integrated oil equalization on MT
- Heat recovery functions
- Up to 3 screw compressors
- Built in RS485 Lon communication
- Digital scroll compressors

Technical data and ordering



AK-PC 783A, Capacity controller with cascade control

Technical data

Features	Description	
Supply voltage	24 V DC / AC ± 20%	
Power consumption	8 V A	
Analogue inputs	Pt 1000 ohm / 0 °C	Dissolution: 0.1 °C, Accuracy: ± 0.5 °C
	Pressure transmitter type AKS 32R / AKS 2050 / AKS 32 (1 – 5 V)	Dissolution 1 mV, Accuracy ± 10 mV Max. connection of 5 pressure transmitters on one module
	Contact function (ON / OFF)	On at R < 20 ohm, Off at R > 2K ohm (Gold plated contacts not necessary)
ON / OFF supply voltage inputs	Low voltage 0 / 80V AC / DC	OFF : U < 2 V ON: U > 10 V
	High voltage 0 / 260 V AC	OFF : U < 24 V ON: U > 80 V
Relay outputs SPDT	AC-1 (ohmic)	5 A
	AC-15 (inductive)	3 A
	U	Min. 24 V - Max. 230 V Low and high voltage must not be connected to the same output group
Solid state outputs	Can be used for loads that are frequently cut in and out e.g. unloaders, solenoid valve	Max. 240 V AC, Min. 48 V AC - Max. 0.5 A
		Leak < 1 mA
		Max. 1 AKV
Ambient temperature	During transport	-40 – 70 °C
	During operation	-20 – 55 °C, 0 – 95% RH (non condensing) - No shock influences / vibrations
Enclosure	Material	PC / ABS
	Enclosure	IP10, VBG 4
	Mounting	For mounting on wall or DIN rail
Weight with screw terminals	Modules in 100- / 200- / controller series	Approx. 200 g / 500 g / 600 g
Approvals	Complies with EU low voltage directive and EMC requirements	LVD tested according to EN 60730 EMC tested - Immunity according to EN 61000-6-2, Emission according to EN 50081-1
	UL file number	E166834

Ordering

Type	Language	Code no.
AK-PC 783A	English, German, French, Italian, Dutch, Spanish, Portuguese	080Z0193

Ordering Accessory - Extension modules and survey for inputs and outputs

Type	Analog inputs	ON / OFF outputs		ON / OFF supply voltage (DI signal)		Analog outputs	Stepper outputs	Module with switches	Code no.
	For sensors, pressure transmitters	Relay (SPDT)	Solid state	Low voltage (max. 80 V)	High voltage (max. 260 V)	0 -10 V d. c.	For valves with step control	For override of relay outputs	
Controller	11	4	4	–	–	–	–	–	–
AK-XM 101A	8	–	–	–	–	–	–	–	080Z0007
AK-XM 102A	–	–	–	8	–	–	–	–	080Z0008
AK-XM 102B	–	–	–	–	8	–	–	–	080Z0013
AK-XM 103A	4	–	–	–	–	4	–	–	080Z0032
AK-XM 204A	–	8	–	–	–	–	–	–	080Z0011
AK-XM 204B	–	8	–	–	–	–	–	x	080Z0018
AK-XM 205A	8	8	–	–	–	–	–	–	080Z0010
AK-XM 205B	8	8	–	–	–	–	–	x	080Z0017
AK-XM 208C	8	–	–	–	–	–	4	–	080Z0023

Software

AK-ST 500	Software for operation of AK controllers	080Z0161
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Remote displays

EKA 163B	Display unit	084B8574
EKA 164B	Display unit with operation buttons	084B8575
MMIGRS2	Graphic display with operation	080G0294

Miscellaneous

AK-CM 102	Communication modules for controllers where modules cannot be connected continuously	080Z0064
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Optyma™ Control, Single-phase

The Optyma™ Control is particularly suitable for the Optyma™ and Optyma™ Plus condensing units from Danfoss but is also compatible with other condensing units on the market. The control features an attractive new design and simple flexible programming.

It offers both control and protection in a single unit, thanks to the unique built-in differential magnetothermic circuit breaker, which guarantees safety by cutting the general power supply.



Stylish new design

Simple wiring and live outputs

Transparent cover for access to magnetothermic breaker, all with IP65 protection rating

Simple, flexible programming for optimum versatility

Compressor can be run in pump-down stop mode

RS485 Modbus for data communication and integration into a complete ADAP-KOOL® system

New hinged cover ease of installation and opening

Integration of control and protection in a single room dedicated unit reduces installation time and costs

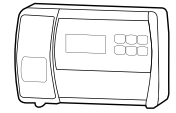


Guaranteed certified safety and protection thanks to incorporated differential magnetothermic circuit breaker, which cuts the general power supply

Facts

- Direct control of defrosting elements, evaporator fans, room light with outputs directly connectable to the various units
- Automatic fuse protect the refrigeration unit
- Stylish ABS housing with transparent cover for access to the automatic fuse, all with an IP65 protection rating so that panel can be used outside the room
- LED indicators and large display show system status
- User-friendly keypad
- Display resolution to 0.1 °C
- Standard and ADAP-KOOL® compatible Modbus data communication

Technical data and ordering

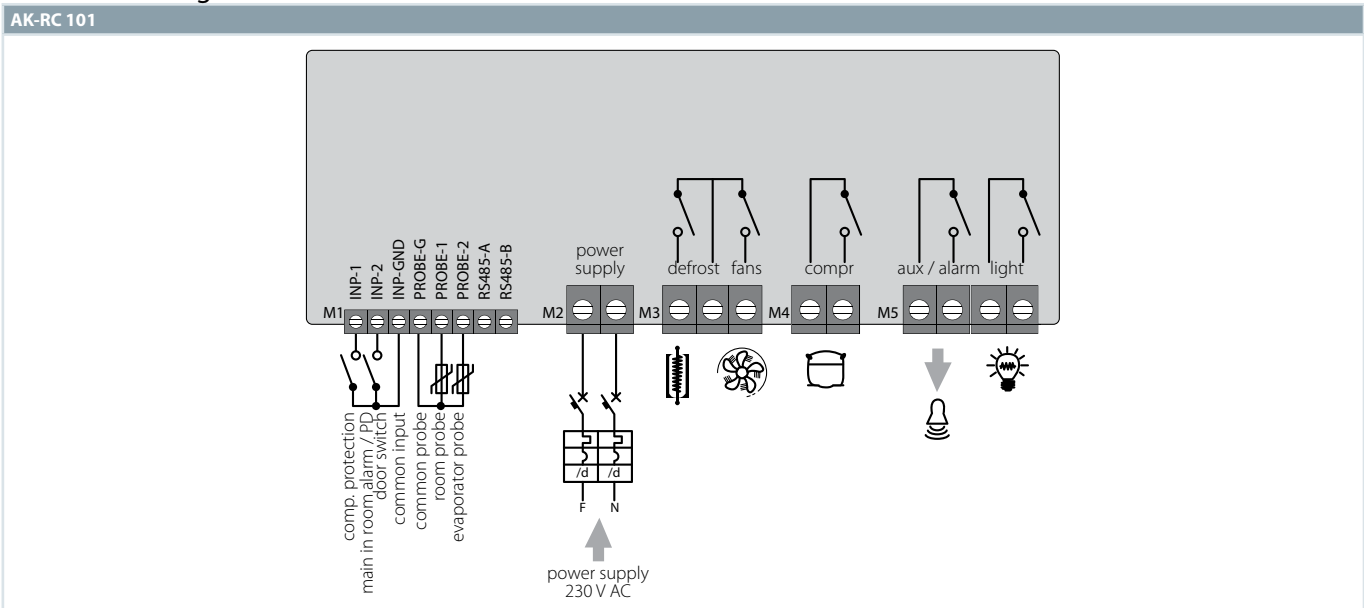


Optyma™ Control, Single phase

Technical data

Features	Description	
Power supply	Voltage	230 V AC ± 10%, 50 / 60 Hz
	Max absorbed power (electronic control)	~ 7 V A
Ambient conditions	Operating temperature	-5 – 50 °C
	Storage temperature	-30 – 70 °C
	Relative humidity	< 90% RH
General characteristics	Connectable sensor types	NTC 10 K 1%
	Resolution	0.1 °K
	Probe read precision	± 0.5 °K
	Read range	-45 – 45 °C
Output characteristics max. applicable load (230 V AC)	Compressor	1500 W (AC3)
	Defrost	3000 W (AC1)
	Fans	500 W (AC3)
	Room light	800 W (AC1)
	Configurable alarm contact / aux (voltage-free contact)	100 W
General electric protection	Bipolar differential magnetothermic circuit breaker	16 A Id = 300 mA switching power 4.5 kA Id = 30 mA (on request)
Insulation and mechanical characteristics	Cover protection rating	IP65
	Cover material	self-extinguishing ABS
	Type of insulation	Class II
	Box dimensions	262 x 168 x 97

Connection diagram



Ordering

Type	Description	Code no.
AK-RC 101	Optyma™ Control, single-phase	080Z3200

Optyma™ Control, Three-phase

The Optyma™ Control is particularly suitable for the Optyma™ and Optyma™ Plus condensing units from Danfoss but is also compatible with other condensing units on the market. The control features an attractive new design and simple flexible programming.

It offers both control and protection in a single unit, thanks to the unique built-in differential magnetothermic circuit breaker, which guarantees safety by cutting the general power supply.



Facts

- LED icons to signal plant status
- Electronic control with wide LED display and easy to use buttons
- Display and adjustment of cold room temperature accurate to 0.1 °C
- Display of evaporator temperature from parameter
- System control activation / deactivation
- Alarm signalling: sensor errors, minimum and maximum temperature alarm, compressor protection (man-in-cold-room alarm in preset models)
- Evaporator fan control
- Automatic and manual defrost control (static, heating element)
- Direct or pump-down control of motor compressor unit (selectable by terminal block connection in preset models)
- Room light activation, via panel key or door switch
- Auxiliary relay with activation configurable by parameter
- Parameter access with password (4 different selectable restriction levels)
- General automatic fuse accessible from the front panel, which cuts the general power supply
- Adjustable motor protector for compressor protection accessible from the front panel (in preset models)
- Standard and ADAP-KOOL® compatible Modbus data communication

Technical data and ordering

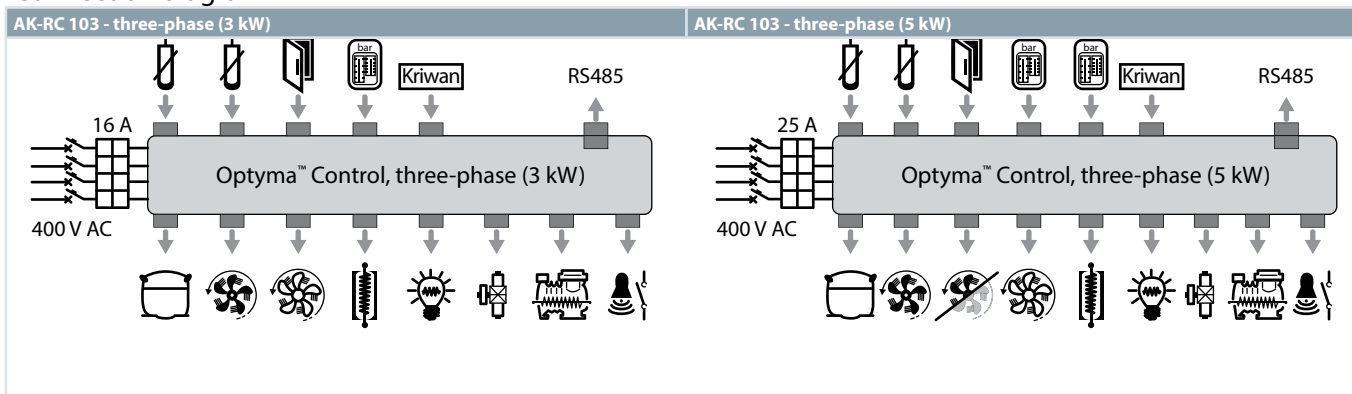


Optyma™ Control, three phase

Technical data

Features	Optyma™ Control AK-RC 103, three-phase (3 kW)	Optyma™ Control AK-RC 103, three-phase (5 kW)
Case dimensions	400 × 300 × 135 mm	400 × 300 × 135 mm
Protection rating	IP65	IP65
Power supply (3F + N + T)	400 V AC ± 10% 50 / 60 Hz	400 V AC ± 10% 50 / 60 Hz
Load type	three-phase	three-phase
Operating temperature	-5 – 40 °C	-5 – 40 °C
Storage temperature	-25 – 55 °C	-25 – 55 °C
Relative ambient humidity	< 90% RH	< 90% RH
Main switch / general protection	4 poles magnetothermic 16 A	4 poles magnetothermic 25 A
Compressor protection	motor circuit breaker	motor circuit breaker
Defrosting	electrical	electrical
Status indicators	LED + display	LED + display
Alarm signals	LED + buzzer	LED + buzzer
Ambient probe	NTC 10 K 1%	NTC 10 K 1%
Evaporator probe	NTC 10 K 1%	NTC 10 K 1%
Door switch	present	present
High/low pressure switch	present	present
Kriwan® connection	present	present
Compressor functioning mode selection	pump-down / thermostat	pump-down / thermostat
Compressor	370 W – 3000 W	3000 W – 5500 W
Condenser fans output 1	800 W (1 ph)	800 W (1 ph)
Condenser fans output 2 (separated)		total (1 ph)
Evaporator fans	500 W (1 ph)	2000 W (1 ph/3 ph)
Defrosting heaters	6000 W	9000 W
Room light	800 W (AC1) resistive load	800 W (AC1) resistive load
Solenoid valve	present	present
Compressor oil heater	present	present
Alarm relay	100 W	100 W

Connection diagram



Ordering

Type	Description	Code no.
AK-RC 103	Optyma™ Control, three-phase (3 kW) 4.5-6.3 A	080Z3201
AK-RC 103	Optyma™ Control, three-phase (3 kW) 7-10 A	080Z3202
AK-RC 103	Optyma™ Control, three-phase (5 kW) 11-16 A	080Z3206
AK-RC 103	Optyma™ Control, three-phase (5 kW) 14-20 A	080Z3207

AK-SM 800 series, System manager

The System Manager controller from Danfoss is the global control and supervisory solution for the food retail industry. The System Manager uses the latest technology to provide the maximum benefit to the end user, both in terms of energy saving optimization, control options and full web user access.

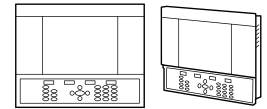
Designed specifically for the food retail and food processing / handling market, the System Manager provides comprehensive functionality and support tools to cover small to large stores.



Facts

- **Product highlights:**
 - direct support to EM-800 (AKM not supported / needed)
 - supports centralized and decentralized control strategy; compatible with Danfoss case and pack controllers and Danfoss I/O
 - open XML data transfer allowing remote access to key system parameters
- **Design features:**
 - active TFT SVGA color screen 800x600
 - front alarm status LED
 - removable keyboard panel (revealing connections)
 - easy access to USB flash drive
 - wall and panel mounting options
 - built in alarm relay output
- **Hardware capability features:**
 - built in web server
 - no back up battery required
 - RS485 LonWorks®
 - ethernet
 - EKC Modbus
 - USB

Technical data and ordering



AK-SM 800 series, System manager

Technical data

SM800 version comparison	AK-SM 810, SM820 - C-Store Version	SM850 - Refrig version	SM880 - Full version
Refrigeration Control			
All SM800 variants come with Centralized I/O and Pack / Case control options. EKC AK2 SLV FC102	Max 32 generic device support	Max 120 generic support	Max 120 generic support
Lighting Control			
All SM800 variants come with built in lighting control via I/O modules. The number of zones differ	10	30	30
HVAC			
Only the SM820 and SM880 support built in HVAC control via I/O	10	n/a	45
Alarms			
Capacity	250	250	250
Miscellaneous points (via IO modules)			
Relay (R), Sensor (S), ON / OFF (O / F), Variable (V)	R=20, S=20, O / F=20, V=20	R=70, S=80, O / F=70, V=70	R=70, S=80, O / F=70, V=70
Master control			
Po Optimization, Master Schedules, AKC ON <i>Note: Adaptive Defrost not currently supported</i>	X	X	X
Misc Calculations			
Boolean Logic statements	96	96	96
History			
The SM800 has the ability to record datapoints for history and view	600 points	600 points	600 points
Leak Detectors			
Refrigerant gas detectors (connected via AK I/O)	10	50	50
Energy Meters			
Pulse Input (via I/O module), Carlo Garvazi, Wattnode, Wattnode Plus Modbus, Veris Modbus	32	80	80
Service Tool Support			
Tunneling via front end (IP connection only)	X	X	X

Ordering

Type	Description	Options	Code no.
AK-SM 810	C-Store Refrigeration/HVAC/Lighting, No display, No buttons	Convenience Store with 32 device capacity	080Z4006
AK-SM 820	C-Store (Refrigeration / HVAC / Lighting)	Convenience Store version with 32 device capacity	080Z4004
AK-SM 850	Refrigeration (including lighting)	Refrigeration version with 120 device capacity	080Z4001
AK-SM 880	Full (Refrigeration / HVAC / Lighting)	Full store version with 120 device capacity	080Z4008
AK-SM 800AL	Alarm logger	AK-SM 8xx accessory	080Z4014

GD, Gas detector for Industrial Refrigeration

The Danfoss gas detectors are based on a digital platform that delivers multiple communication and integration options for improved operational reliability, easy calibration and maintenance efficiency, cost effectiveness, and regulatory compliance.

To meet the relevant safety requirements for refrigeration systems and to protect people, produce and property from the adverse effects of a potential leak of toxic and/or flammable refrigerants, having a gas detection system that you trust, is essential. With the new Gas Detection solution Danfoss offers a series of fixed gas detector units that are not only reliable and accurate – but also much easier and intuitive to work with – from initial specification to long term operation.



Basic
Example:
Basic+



Heavy Duty



Premium
Example:
Premium Duplex

For further information; please visit
GDIR.danfoss.com

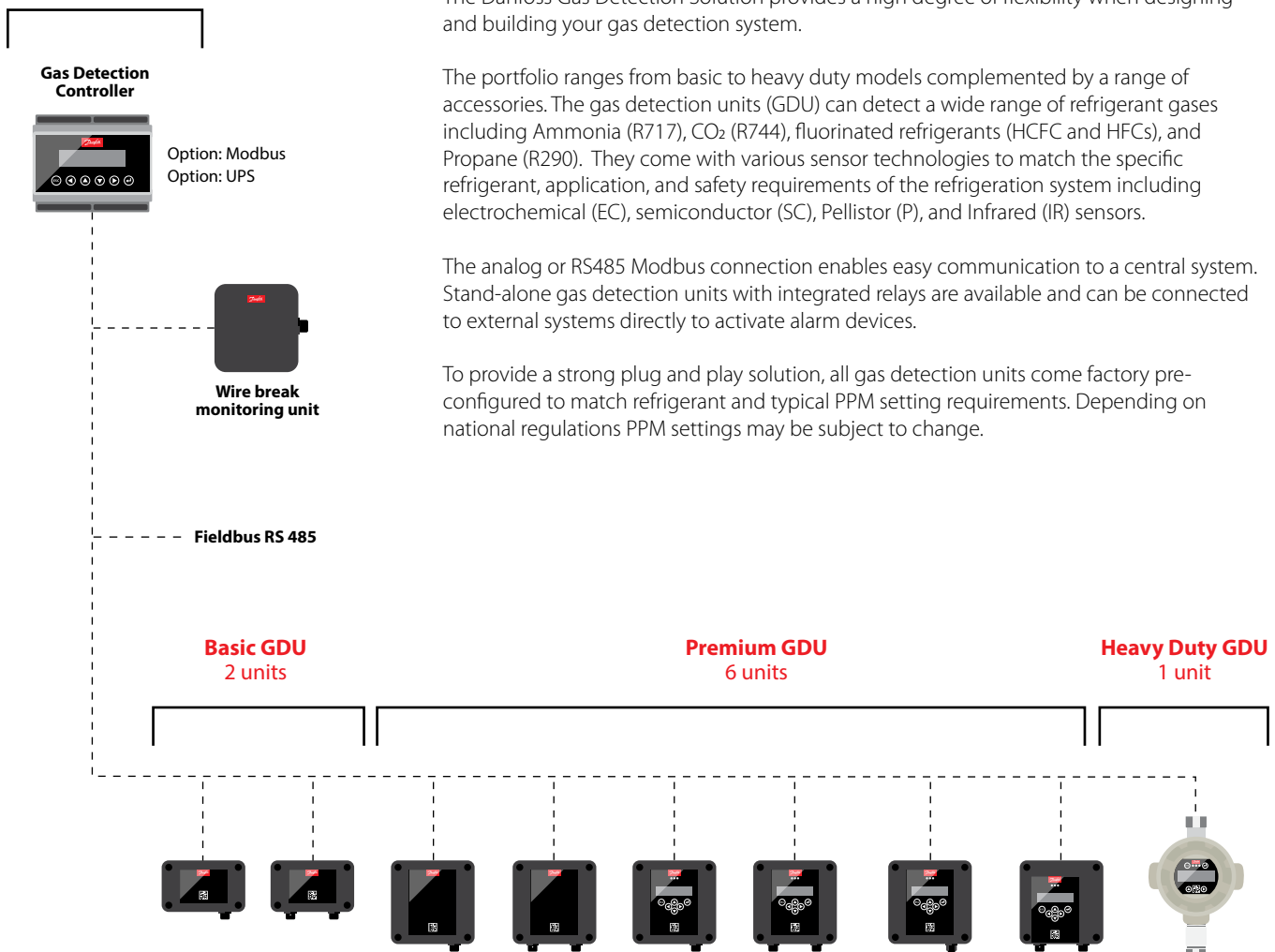
Facts

- All gas detection units come factory pre-configured to match refrigerant and typical PPM settings required.
- Integrated calibration routine:
 - calibration with gas no longer involves the use of potentiometers and multimeters.
- Easy replaceable and pre-calibrated sensors for plug & play replacement.
- Service due information and service alerts support optimized maintenance planning.
- Digital interface provides improved accuracy and simplified operator handling, which help minimize risk of settings, calibration and service errors.
- Automatic self-diagnostics ensure correct communication and operation between units and system.
- To guarantee the proper functioning of the units and to prevent human error, the sensor head can only be replaced by the same type and ppm range.
- Password protected setting allows authorized access only.
- Reduced risk of false alarms due to temperature compensated sensors (EC, P, IR).
- For improved operational safety, degenerated sensors with too little life-time expectancy (<30% sensitivity) are rejected during calibration process.

Technical data

The Gas Detection System

Controller solution



The Danfoss Gas Detection Solution provides a high degree of flexibility when designing and building your gas detection system.

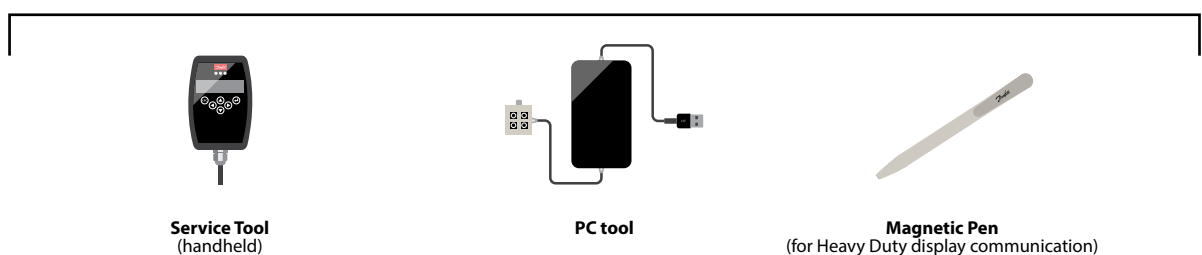
The portfolio ranges from basic to heavy duty models complemented by a range of accessories. The gas detection units (GDU) can detect a wide range of refrigerant gases including Ammonia (R717), CO₂ (R744), fluorinated refrigerants (HCFC and HFCs), and Propane (R290). They come with various sensor technologies to match the specific refrigerant, application, and safety requirements of the refrigeration system including electrochemical (EC), semiconductor (SC), Pellistor (P), and Infrared (IR) sensors.

The analog or RS485 Modbus connection enables easy communication to a central system. Stand-alone gas detection units with integrated relays are available and can be connected to external systems directly to activate alarm devices.

To provide a strong plug and play solution, all gas detection units come factory pre-configured to match refrigerant and typical PPM setting requirements. Depending on national regulations PPM settings may be subject to change.

Name	Basic	Basic+	Premium	Premium+	Premium Flex	Premium Duplex	Premium Remote	Premium Uptime	Heavy Duty
Features	Buzzer & light		Buzzer & light			3 relays		Buzzer & light	
Protection	IP 65								
Communication	Analog (4-20 mA) and RS 485 Modbus communication								
Power supply	24 V AC/DC		24 V DC				90-240 V AC		24 V DC
Ammonia	✓	✓	✓	✓	✓	✓	✓	✓	✓
CO ₂					✓				
Fluorinated	✓	✓	✓	✓	✓				
Hydrocarbons			✓	✓	✓				

Service tools



Technical data

Basic and Basic+

The Basic and Basic+ gas detection units are used for monitoring and warning of hazardous gas concentrations.

They are intended to be connected to a central system like the Danfoss gas detection controller, or a PLC, by either Analog or RS485 open Modbus communications. The central system converts the alarm signal from the gas detection unit to activation of alarm devices.

The basic units have a factory default set-up with two (2) alarm set-points ready for use. The integrated software enables the user to configure two individual alarm ranges. Alarm 1, a pre-alarm indicating the gas level has passed a predefined threshold 1, and – if the gas level passes predefined threshold 2 – the final alarm 2. Adjustment, calibration, and maintenance are done via the dedicated Service tool or the PC tool

The basic units come with sensors for Ammonia and selected HFC's. Depending on the application, they are available with an electrochemical or a semiconductor sensor.

Basic: Gas detection unit with one sensor

Basic+: In addition to the Basic model, this unit Includes a buzzer & light function for local alarm (visual and audio)



Gas types and thresholds - Basic and Basic+

Sensor	Sensor Type	ppm range	Alarm 1	Alarm 2	Hysteresis
Ammonia EC 100	Electrochemical	0-100	25 ppm	35 ppm	2 ppm
Ammonia EC 300	Electrochemical	0-300	25 ppm	150 ppm	2 ppm
Ammonia EC 1000	Electrochemical	0-1000	500 ppm	900 ppm	25 ppm
Ammonia SC 1000	Semiconductor	0-1000	500 ppm	900 ppm	25 ppm
HFC R404A, R507 SC2000	Semiconductor	0-2000	500 ppm	900 ppm	25 ppm

Hysteresis = 5% of Alarm1 (rounded up to the next higher integer)

Technical data

Basic and Basic+

Electrical	
Power supply	19 – 29 V AC / DC, DC reverse-polarity protected
Power consumption (24 V DC)	Max. 250 mA (6 VA)
Outgoing line local bus	
Power supply	5 V DC, 250 mA max., overload, short-circuit and reverse-polarity protected
Serial interface	
Local bus	1-wire / 19200 baud
Fieldbus	RS 485 / 19200 baud
Tool bus	2-wire / 19200 baud
General	
Temperature range	-30 – 50 °C / -22 – 122 °F
Humidity range	15 – 90% RH not-condensing
Storage temperature	5 – 30 °C / 41 – 86 °F
Storage time	12 months
Physical	
Housing	Type A
Material	Polycarbonate
Burning behaviour	UL 94 V2
Housing colour	Black
Dimensions (W x H x D in mm)	94 x 130 x 57
Weight (kg)	Approx. 0.3kg / 0.8 lbs.
Protection class	IP 65
Installation	Wall mounting
Cable entry	2 x M12 / 3 x M20
Wire connection: Power supply, fieldbus	Screw-type terminals 0.25 – 2.5 mm ² (25 AWG to 14 AWG)
Analog output	Screw-type terminals 0.25 – 1.3 mm ² (25 AWG to 17 AWG)
Local bus for sensor	3-pin plug connector
Cable lengths local bus for remote sensor board	Max. 5 m / 16.4 ft.
Directives	
EMC directives 2014/30/EU	
CE	
Conformity to EN 50271, EN 61010-1	
ETL listed to UL 61010-1 and CSA C22.2 No.61010-1	
Enables regulatory compliance with EN 378:2016, ISO 5149:2014, IIR 2-2017, and ASHRAE 15:2016	
Analog output signal	
Proportional, overload and short-circuit proof, load ≤ 500 Ohm	
4 - 20 mA = measuring range	
3.0 < 4 mA = underrange	
> 20 - 21.2 mA = overrange	
2.0 mA = fault	
Status LED / Buzzer & light (only Basic+)	
Colour	3 color light: Green, yellow, red
Acoustic pressure	> 85 dB (A) (0.1 m distance)
Frequency	2300 Hz
Protection class	IP 65

Technical data and ordering

Ordering Basic and Basic+

Basic = Standard
 Basic+ = Standard + Buzzer & light warning device

Type	Model	Refrigerant	Sensor	ppm range	Alarm ppm	Temp. Range		Code number
						[°C]	[°F]	
GDA	Basic	Ammonia	Electrochemical	0 – 100	25 / 35	-30 – 50	-22 – 122	148H6000
GDA	Basic+*	Ammonia	Electrochemical	0 – 100	25 / 35	-30 – 50	-22 – 122	148H6001
GDA	Basic	Ammonia	Electrochemical	0 – 300	25 / 150	-30 – 50	-22 – 122	148H6008
GDA	Basic+*	Ammonia	Electrochemical	0 – 300	25 / 150	-30 – 50	-22 – 122	148H6009
GDA	Basic	Ammonia	Electrochemical	0 – 1000	500 / 900	-30 – 50	-22 – 122	148H6014
GDA	Basic+*	Ammonia	Electrochemical	0 – 1000	500 / 900	-30 – 50	-22 – 122	148H6015
GDA	Basic	Ammonia	Semiconductor	0 – 1000	500 / 900	-10 – 50	14 – 122	148H6023
GDA	Basic+*	Ammonia	Semiconductor	0 – 1000	500 / 900	-10 – 50	14 – 122	148H6024
GDHF	Basic	R404a, R507a, R32, R125, R407c, R434a, R488a, R125	Semiconductor	0 – 2000	500 / 900	-10 – 50	14 – 122	148H6045
GDHF	Basic+*	R404a, R507a, R32, R125, R407c, R434a, R488a, R125	Semiconductor	0 – 2000	500 / 900	-10 – 50	14 – 122	148H6046

*incl buzzer & Light

Ordering spare parts and accessories for Basic and Basic+

Description	Code number
Replacement sensor - Ammonia EC 100	148H6200
Replacement sensor - Ammonia EC 300	148H6201
Replacement sensor - Ammonia EC 1000	148H6202
Replacement sensor - Ammonia SC 1000	148H6203
Replacement sensor - HFC R404A, R507 SC 2000	148H6210
Controller unit	148H6231
Controller solution (controller + enclosure)	148H6221
Warning module (wire break monitoring module)	148H6223
Controller expansion module	148H6222
Service tool	148H6224
PC tool	148H6235
Calibration adapter	148H6232
Buzzer & light - acoustic buzzer and optic led	148H6225
Air duct set	148H6236
Gateway for controller	148H6228
Seal cap	148H6227
Splash guard	148H6226

Controller unit:

Used for a centralized monitoring and warning.

The input signals for the controller are collected via RS485 Modbus or analog communication. The controller can handle up to 96 digital sensors via Fieldbus and four (4) analog input. An additional 28 analog input is possible using seven (7) expansion modules (4-20 mA signal interface). The total number of connected sensors should not exceed 128 sensors. The controller unit can be employed as pure analog controller, as analog/digital, or as digital controller. Configuration is menu-driven via the keypad. For fast and easy configuration, the PC Tool is recommended.

Controller solution:

Controller unit placed in an enclosure ready to be connected to a power source. A separate UPS for the controller is available.

Warning module (wire break monitoring module):

The warning module is used for monitoring the circuiting to the warning/alarm devices on a centrally controlled gas detection system. Wire breaks or wire interruptions in the alarm device loop will be reported to the central control.

Controller expansion module:

The gas detection Controller Expansion module is used for expansion of the cable coverage in terms of number of loops and the total wire length. Each Controller Unit can handle up to 7 Expansion modules allowing additional 7 segments with a total of 7200 meters (23622 ft.) wiring and a total of 32 relays for alarm device circuits.

Service tool:

For interface with units with no display (Basic, Basic+, Premium, Premium+). Acts as a portable display and can be connected to all Danfoss gas detection units. (Heavy Duty w. adapter).

PC tool:

The PC tool is a menu-driven and standalone software used for easy addressing, parameter setting, calibration, and data logging of the Basic, Premium and Heavy Duty gas detection units, and the controller unit.

Calibration adapter

The calibration adapter is required for connecting the calibration gas container, via the flow regulator, to the sensor head on the gas detection units. (Two variants, One for Basic and Premium plastic head sensors; one for heavy duty and Premium remote metal head sensors.).

Buzzer & light - acoustic buzzer and optic led:

Can be installed in Basic or Premium units providing a local alarm.

Air duct set:

The air duct set is specially designed to capture the airflow in air ducts. It can be connected to the standard sensor heads, except from Heavy Duty gas detection units.

Gateway for controller

The gateway is an addition to the controller and used for communicating via Modbus TCP/IP.

Seal cap:

Airtight seal cap to protect the sensor head against premature exposure during installation. The seal cap is mounted on new sensors (complete units and replacement sensors) but is also available as an accessory.

Splash guard:

To protect the sensor head against water exposure during wash-down cleaning and rinsing operations.

Technical data

Premium range

The Premium range of gas detection units are used for monitoring and warning of hazardous gas concentrations. They can be used for detecting most commonly used refrigerants.

They are intended as stand-alone or connected to a central system like the Danfoss gas detection controller or a PLC. As stand-alone, the on-board relays can be used for activation of alarm devices, while the analog or RS485 Modbus connection to a central system allows centralized monitoring and alarm activation. Four out of the six Premium variants have integrated display/keypad for direct access to the user-interface. This means that alarm level adjustments, calibration and parameter adjustments can be made directly on the menu in the display. For models without display (Premium & Premium+) the interface is via the dedicated Service or PC tool.

The Premium gas detection units have a factory default setup with two (2) alarm set-points ready for use. The user-interface enables the user to configure two individual alarm settings. Alarm 1, a pre-alarm indicating the gas level has passed a predefined threshold 1 and – if the gas level passes predefined threshold 2 – the final alarm 2. A total of four (4) alarm set-points on each gas detection unit is possible.

The Premium variants come with sensors for Ammonia, CO₂ and selected HC's and HFC's. Depending on the application and model, each unit is available with one or two different sensors (Premium Duplex). Sensor technologies include semiconductor, electrochemical, Pellistor or infrared.

Premium Duplex can have two different sensors. A Pellistor in combination with either an electrochemical or a semiconductor sensor can be mounted on the unit to detect Ammonia concentrations at very low and very high levels. This may be relevant in compressor rooms with requirements for low alarm set points (e.g. 25 PPM) and very high alarm set-points (e.g. 30000 PPM).

Premium Remote is applicable for vent line applications for the continuous monitoring of refrigeration system relief valves.

Premium Uptime has an integrated UPS to stay operational during power failure. Operating time > 60 minutes; wide range input (90 – 240 V AC – 50/60 Hz), and rechargeable battery.



Gas types and thresholds - Premium range

Sensor	Sensor Type	ppm range	Alarm1	Alarm2	Hysteresis
Ammonia EC 100	Electrochemical	0 – 100	25 ppm	35 ppm	2 ppm
Ammonia EC 300	Electrochemical	0 – 300	25 ppm	150 ppm	2 ppm
Ammonia EC 1000	Electrochemical	0 – 1000	500 ppm	900 ppm	25 ppm
Ammonia EC 5000	Electrochemical	0 – 5000	1000 ppm	4500 ppm	50 ppm
Ammonia SC 1000	Semiconductor	0 – 1000	500 ppm	900 ppm	25 ppm
Ammonia SC 10000	Semiconductor	0 – 10000	5000 ppm	9000 ppm	250 ppm
Ammonia P LEL	Pellistor	0 – 140000	21% LEL (30000 ppm)	21% LEL (30000 ppm)	1%
CO ₂ IR 20000 (2% Vol)	Infrared	0 – 20000	5000 ppm	9000 ppm	250 ppm
CO ₂ IR 50000 (5% Vol)	Infrared	0 – 50000	10000 ppm	18000 ppm	500 ppm
HCFc R123 SC 2000	Semiconductor	0 – 2000	500 ppm	900 ppm	25 ppm
HFC R404A, R507 SC 2000	Semiconductor	0 – 2000	500 ppm	900 ppm	25 ppm
HFC R134A SC 2000	Semiconductor	0 – 2000	500 ppm	900 ppm	25 ppm
HC R290/Propane P 5000	Pellistor	0 – 5000	800 ppm	2500 ppm	40 ppm

Hysteresis = 5% of Alarm1 (rounded up to the next higher integer)

Alarm thresholds can have the same value, therefore the relays and/or the buzzer and LED can be triggered together.

Technical data

Premium range

Electrical	
Power supply	24 V DC \pm 20 %, reverse-polarity protected
Power consumption (24 V DC)	Max. 210 mA (5.1 VA)
Alarm relays (3)	250 V AC, 5 A, potential-free, contacts (SPDT)
Transistor output (2) (connector X13)	24 V DC / 0.1 A (switching to plus) (only at 24 V DC power supply)
Analog output signal (1)	Proportional, overload and short-circuit proof, load \leq 500 Ohm 4 – 20 mA = measuring range 3.0 < 4 mA = underrange > 20 – 21.2 mA = overrange 2.0 mA = fault
Output for local bus	5 V DC, 250 mA max. Overload, short-circuit and reverse-polarity protected
Ambient conditions	
Temperature range	Sensor dependant. See ordering section.
Humidity range	15 – 95 % RH not-condensing
Storage temperature	5 – 30 °C (41 – 86 °F)
Storage time	12 months
Serial interface	
Local bus	1-wire / 19200 Baud
Fieldbus	RS 485 / 19200 Baud
Tool bus	2-wire / 19200 Baud
Physical	
Housing	Type C Type E (Premium Uptime)
Material	Polycarbonate
Combustion	UL 94 V2
Housing colour	Black
Dimensions (W x H x D in mm)	130 x 130 x 75 130 x 130 x 99
Weight (kg)	Approx. 0.6 kg Approx. 0.7 kg
Protection class	IP 65
Installation	Wall mounting
Cable entry	Standard 6 x M20/25
Wire connection:	
Local bus (SC2)	3-pin connector
Digital input, analog output	Screw-type terminal min. 0.25 mm ² , max. 1.3 mm ² (min. 25 AWG, max. 17 AWG)
Power supply, relays	Screw-type terminal min. 0.25 mm ² , max. 2.5 mm ² (min. 25 AWG, max. 14 AWG)
Cable lengths local bus for Remote Sensor Board	Max. 5 m / 16.4 ft.
Directives	
EMC directives 2014/30/EU	
Low voltage directive 2014/35/EU	
CE	
Conformity to EN 50271, EN 61010-1	
ETL listed to UL 61010-1 and CSA C22.2 No.61010-1	
Enables regulatory compliance with EN 378:2016, ISO 5149:2014, IAR 2-2017, and ASHRAE 15:2016	
Display (not Premium and Premium+)	
Temperature range	-20 – 50 °C / -4 – 122 °F
LCD	Two lines, 16 characters each, background highlighted in two colours
Operation	Menu driven via six push-buttons
Power consumption	5 V, 60 mA, 0.3 VA
Status LED	
Colour / Mode	Red / yellow / green (alarm – fault – operation - service)
Protection class	IP 65
Warning buzzer	
Acoustic pressure	> 85 dB (A) (0.1 m distance)
Frequency	2300 Hz
Protection class	IP 65
UPS (only Premium Uptime)	
Power unit with wide range input	90 – 240 V AC - 50/60 Hz
Output rating	15 VA
Rechargeable battery	12 V, 0.8 Ah
Operating time	> 60 min

Technical data and ordering

Ordering Premium range

- Premium = Standard
- Premium+ = Standard + Buzzer & light warning device
- Premium Duplex = Standard + 2nd sensor + Display and keyboard
- Premium Remote = Remote sensor (stainless steel) with 5m cable (2nd cable gland needed)
not mounted but enclosed + Display and keyboard
- Premium Flex = Standard + Display and keyboard
- Premium Uptime = Standard + Buzzer & light warning device + Display and keyboard + UPS

Type	Model	Refrigerant	Sensor	ppm range	Alarm ppm	2 nd Sensor ppm (Alarm ppm)	Remote sensor ppm (Alarm ppm)	Buzzer & Light	Display	UPS	Temp. Range		Code number	
											[°C]	[°F]		
GDA	Premium	Ammonia	Electrochemical	0 – 100	25 / 35							-30 – 50	-22 – 122	148H6002
GDA	Premium+	Ammonia	Electrochemical	0 – 100	25 / 35			x				-30 – 50	-22 – 122	148H6003
GDA	Premium Duplex	Ammonia	Electrochemical Pellistor	0 – 100	25 / 35	0 – 140000 (30000)			x			-20 – 50	-4 – 122	148H6004
GDA	Premium Remote	Ammonia	Electrochemical				0 – 100 (25 / 35)		x			-20 – 50	-4 – 122	148H6005
GDA	Premium Flex	Ammonia	Electrochemical	0 – 100	25 / 35				x			-20 – 50	-4 – 122	148H6006
GDA	Premium Uptime	Ammonia	Electrochemical	0 – 100	25 / 35			x	x	x		0 – 40	32 – 104	148H6007
GDA	Premium	Ammonia	Electrochemical	0 – 300	25 / 150							-30 – 50	-22 – 122	148H6010
GDA	Premium+	Ammonia	Electrochemical	0 – 300	25 / 150			x				-30 – 50	-22 – 122	148H6011
GDA	Premium Duplex	Ammonia	Electrochemical Pellistor	0 – 300	25 / 150	0 – 140000 (30000)			x			-20 – 50	-4 – 122	148H6012
GDA	Premium Flex	Ammonia	Electrochemical	0 – 300	25 / 150				x			-20 – 50	-4 – 122	148H6013
GDA	Premium	Ammonia	Electrochemical	0 – 1000	500 / 900							-30 – 50	-22 – 122	148H6016
GDA	Premium+	Ammonia	Electrochemical	0 – 1000	500 / 900			x				-30 – 50	-22 – 122	148H6017
GDA	Premium Duplex	Ammonia	Electrochemical Pellistor	0 – 1000	500 / 900	0 – 140000 (30000)			x			-20 – 50	-4 – 122	148H6018
GDA	Premium Remote	Ammonia	Electrochemical				0 – 1000 (500 / 900)		x			-20 – 50	-4 – 122	148H6019
GDA	Premium Flex	Ammonia	Electrochemical	0 – 1000	500 / 900				x			-20 – 50	-4 – 122	148H6020
GDA	Premium Uptime	Ammonia	Electrochemical	0 – 1000	500 / 900			x	x	x		0 – 40	32 – 104	148H6021
GDA	Premium	Ammonia	Semiconductor	0 – 1000	500 / 900							-10 – 50	14 – 122	148H6025
GDA	Premium+	Ammonia	Semiconductor	0 – 1000	500 / 900			x				-10 – 50	14 – 122	148H6026
GDA	Premium Flex	Ammonia	Semiconductor	0 – 1000	500 / 900				x			-10 – 50	14 – 122	148H6027
GDA	Premium+	Ammonia	Electrochemical	0 – 5000	1000 / 4500			x				-30 – 50	-22 – 122	148H6028
GDA	Premium Remote	Ammonia	Electrochemical				0 – 5000 (1000 / 4500)		x			-20 – 50	-4 – 122	148H6029
GDA	Premium Uptime	Ammonia	Electrochemical	0 – 5000	1000 / 4500			x	x	x		0 – 40	32 – 104	148H6030
GDA	Premium	Ammonia	Semiconductor	0 – 10000	5000 / 9000							-10 – 50	14 – 122	148H6032
GDA	Premium+	Ammonia	Semiconductor	0 – 10000	5000 / 9000			x				-10 – 50	14 – 122	148H6033
GDA	Premium Remote	Ammonia	Semiconductor				0 – 10000 (5000 / 9000)		x			-10 – 50	14 – 122	148H6034
GDA	Premium+	Ammonia	Pellistor	0 – 140000	30000			x				-25 – 50	-13 – 122	148H6036
GDA	Premium Duplex	Ammonia	Semiconductor Pellistor	0 – 1000	500 / 900	0 – 140000 (30000)			x			-10 – 50	14 – 122	148H6037
GDA	Premium Flex	Ammonia	Pellistor	0 – 140000	30000				x			-20 – 50	-4 – 122	148H6038
GDC	Premium Flex	CO ₂	Infrared	0 – 20000	5000 / 9000				x			-20 – 50	-4 – 122	148H6040
GDC	Premium Flex	CO ₂	Infrared	0 – 50000	10000 / 18000				x			-20 – 50	-4 – 122	148H6041
GDHC	Premium	R123	Semiconductor	0 – 2000	500 / 900							-10 – 50	14 – 122	148H6042
GDHC	Premium+	R123	Semiconductor	0 – 2000	500 / 900			x	x			-10 – 50	14 – 122	148H6043
GDHC	Premium Flex	R123	Semiconductor	0 – 2000	500 / 900				x			-10 – 50	14 – 122	148H6044
GDHF	Premium	R404a, R507a, R32, R125, R407c, R434a, R488a, R125	Semiconductor	0 – 2000	500 / 900							-10 – 50	14 – 122	148H6047
GDHF	Premium+	R404a, R507a, R32, R125, R407c, R434a, R488a, R125	Semiconductor	0 – 2000	500 / 900				x			-10 – 50	14 – 122	148H6048
GDHF	Premium Flex	R404a, R507a, R32, R125, R407c, R434a, R488a, R125	Semiconductor	0 – 2000	500 / 900				x			-10 – 50	14 – 122	148H6049
GDHF	Premium	R134a, R407a, R416a, R417a, R422a, R422d, R427a, R437a, R438a, R449a, R407f, R450a	Semiconductor	0 – 2000	500 / 900							-10 – 50	14 – 122	148H6050
GDHF	Premium+	R134a, R407a, R416a, R417a, R422a, R422d, R427a, R437a, R438a, R449a, R407f, R450a	Semiconductor	0 – 2000	500 / 900				x			-10 – 50	14 – 122	148H6051
GDHF	Premium Flex	R134a, R407a, R416a, R417a, R422a, R422d, R427a, R437a, R438a, R449a, R407f, R450a	Semiconductor	0 – 2000	500 / 900				x			-10 – 50	14 – 122	148H6052
GDH	Premium	R290 / Propane	Pellistor	0 – 5000	800 / 2500							-30 – 50	-22 – 122	148H6053
GDH	Premium+	R290 / Propane	Pellistor	0 – 5000	800 / 2500				x			-30 – 50	-22 – 122	148H6054
GDH	Premium Flex	R290 / Propane	Pellistor	0 – 5000	800 / 2500				x			-20 – 50	-4 – 122	148H6055

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Technical data and ordering

Ordering spare parts and accessories for Premium range

Description	Code number	Description	Code number
Replacement sensor - Ammonia EC 100	148H6200	Controller unit	148H6231
Replacement sensor - Ammonia EC 300	148H6201	Controller solution (controller + enclosure)	148H6221
Replacement sensor - Ammonia EC 1000	148H6202	Controller solution Uptime	148H6237
Replacement sensor - Ammonia SC 1000	148H6203	Warning module (wire break monitoring module)	148H6223
Replacement sensor - Ammonia EC 5000	148H6204	Controller expansion module	148H6222
Replacement sensor - Ammonia SC 10000	148H6205	Service tool	148H6224
Replacement sensor - Ammonia P LEL	148H6206	PC Tool	148H6235
Replacement sensor - CO ₂ IR 20000	148H6207	Calibration adapter	148H6232
Replacement sensor - CO ₂ IR 50000	148H6208	Calibration adapter for Remote sensors	148H6233
Replacement sensor - HCFC R123 SC 2000	148H6209	Buzzer & light - acoustic buzzer and optic led	148H6225
Replacement sensor - HFC R404A, R507 SC 2000	148H6210	Air duct set	148H6236
Replacement sensor - HFC R134a SC 2000	148H6211	Gateway for controller	148H6228
Replacement sensor - HC R290/Propane P 5000	148H6212	Seal cap	148H6227
Remote sensor - Ammonia EC 100	148H6213	Remote kit	148H6238
Remote sensor - Ammonia EC 1000	148H6214	Splash guard	148H6226
Remote sensor - Ammonia EC 5000	148H6215	NPT adapter	148H6234
Remote sensor - Ammonia SC 10000	148H6216		

Controller unit:

Used for a centralized monitoring and warning.

The input signals for the controller are collected via RS485 Modbus or analog communication. The controller can handle up to 96 digital sensors via Fieldbus and four (4) analog input. An additional 28 analog input is possible using seven (7) expansion modules (4 – 20 mA signal interface). The total number of connected sensors should not exceed 128 sensors. The controller unit can be employed as pure analog controller, as analog/digital, or as digital controller. Configuration is menu-driven via the keypad. For fast and easy configuration, the PC Tool is recommended.

Controller solution:

Controller unit placed in an enclosure ready to be connected to a power source. A separate UPS for the controller is available.

Warning module (wire break monitoring module):

The warning module is used for monitoring the circuiting to the warning/alarm devices on a centrally controlled gas detection system. Wire breaks or wire interruptions in the alarm device loop will be reported to the central control.

Controller expansion module:

The gas detection Controller Expansion module is used for expansion of the cable coverage in terms of number of loops and the total wire length. Each Controller Unit can handle up to 7 Expansion modules allowing additional 7 segments with a total of 7200 meters (23622 ft.) wiring and a total of 32 relays for alarm device circuits.

Service tool:

For interface with units with no display (Basic, Basic+, Premium, Premium+). Acts as a portable display and can be connected to all Danfoss gas detection units. (Heavy Duty w. adapter).

PC tool:

The PC tool is a menu-driven and standalone software used for easy addressing, parameter setting, calibration, and data logging of the Basic, Premium and Heavy Duty gas detection units, and the controller unit.

Calibration adapter:

The calibration adapter is required for connecting the calibration gas container, via the flow regulator, to the sensor head on the gas detection units. (Two variants, One for Basic and Premium plastic head sensors; one for heavy duty and Premium remote metal head sensors).

Buzzer & light - acoustic buzzer and optic led:

Can be installed in Basic or Premium units providing a local alarm.

Air duct set:

The air duct set is specially designed to capture the airflow in air ducts. It can be connected to the standard sensor heads, except from Heavy Duty gas detection units.

Gateway for controller

The gateway is an addition to the controller and used for communicating via Modbus TCP/IP.

Seal cap:

Airtight seal cap to protect the sensor head against premature exposure during installation. The seal cap is mounted on new sensors (complete units and replacement sensors) but is also available as an accessory.

Remote kit:

Enabling installation of a sensor head in plastic housing 5m / 16.4 ft. from the unit. This means that the gas detection unit can be placed outside the room where the sensor is placed to detect hazardous gases, allowing reading of and interfacing with the unit without entering the dedicated space. Basic and Premium gas detection units.

Splash guard:

To protect the sensor head against water exposure during wash-down cleaning and rinsing operations.

NPT adapter:

The NPT adapter is a steel fitting for installation of remote sensors into NPT threads; it converts the standards M30 X 1.5 thread of the Stainless Steel remote sensor head into an External NPT ¾" thread for more convenient installation.

Technical data

Heavy Duty

The Heavy Duty gas detection model is used for monitoring and warning of hazardous Ammonia gas concentrations. It is intended for ATEX/ IECEx applications and consists of a robust flameproof metal enclosure that can be kept closed after wiring, as configuration is performed by magnetic field to the display via a magnetic pen.

The Heavy Duty is intended as stand-alone or connected to a central system like the Danfoss gas detection controller or a PLC. As stand-alone, the on-board relays can be used for activation of alarm devices, while the Analog or RS485 Modbus connection to a central system allows centralized monitoring and alarm activation.

The gas detection unit come with a factory default setup including two (2) alarm set-points ready for use. The integrated software enables the user to configure two individual alarm ranges. Alarm 1, a pre-alarm indicating the gas level has passed a predefined threshold 1, and – if the gas level passes predefined threshold 2 – the final alarm 2.

The unit comes with sensors for Ammonia. Depending on the application, it's available with an electrochemical, a semiconductor or a Pellistor sensor.

Heavy Duty




Gas types and thresholds - Heavy Duty

Sensor	Sensor Type	ppm range	Alarm 1	Alarm 2	Hysteresis
Ammonia EC 1000	Electrochemical	0-1000	500 ppm	900 ppm	25 ppm
Ammonia EC 5000	Electrochemical	0-5000	1000 ppm	4500 ppm	50 ppm
Ammonia SC 10000	Semiconductor	0-10000	5000 ppm	9000 ppm	250 ppm
Ammonia P LEL	Pellistor	0-140000 (0-100% LEL)	21% LEL (30000 ppm)	21% LEL (30000 ppm)	1% LEL

Hysteresis = 5% of Alarm1 (rounded up to the next higher integer)
Alarm thresholds can have the same value, therefore the relays and LED can be triggered together.

Technical data

Heavy Duty

Electrical			
Power supply	16 – 28 V DC		
Power consumption (24 V DC)	90 mA, max. 130 mA		
Control unit	Microprocessor with 12 bit converter resolution		
Digital filter	Averaging in order to increase the EMC immunity		
Visual indications	2 LEDs for operation, alarm and communication		
Analog output signal (active)	Proportional, overload and short-circuit proof, load $\leq 500 \Omega$ 4 – 20 mA = measuring range 3.0 < 4 mA = underrange > 20 – 21.2 mA = overrange 2 mA = fault > 21.8 mA = fault High		
Serial interface	Serial data bus		
Fault relay	Max. 30 V AC/DC, 1 A		
Alarm relay	Max. 30 V AC/DC, 1 A		
LCD	2 x 16 characters, 3 status LEDs, 4 menu operating elements		
Sensor data			
Gas type	Flammable gases	Toxic gases	HCFC, HFC, HFO
Sensor element	Pellistor	Electro Chemical	Semiconductor
Measuring range	0 – 100 % LEL	0 – 1000 ppm / 0 – 5000 ppm	0 – 10000 ppm
Response time	$t_{90} < 20$ sec. NH_3	$t_{90} < 40$ sec. for NH_3	$t_{90} > 120$ sec. for NH_3
Sensor head housing			
Material	CrNi Stahl: 1.4404		
Dimensions (d x H)	30 x 56 mm (1.18 x 2.20 in.)		
Protection class	Gas inlet IP64, with option splash-proof IP65		
Thread	External thread NPT $\frac{3}{4}$ " ANSI/ B1.20.1		
Environmental conditions			
Humidity	15 to 90% r.H.		
Operating temperature	P: -25 °C to +60 °C / EC: -25 °C to +50 °C / SC: -10 °C to +50 °C		
Physical characteristics			
Case / colour	Aluminium pressure die-casting / light grey RAL 7032, epoxy coating		
Dimensions (d x H)	95 x 82 mm		
Weight	Ca. 1.3 kg		
Protection class	Housing protection IP66 to IP68 (depending on the cable glands used)		
Mounting	Wall mounting (sensor head downwards)		
Cable entry	1 x $\frac{3}{4}$ in. (Ansi B1.20.1)		
Wire connection	Spring-type terminal, 0.08 to 2.5 mm ² AWG 28 - 12		
Wire length	Max. load 500 Ω (= wire resistance + controller input resistance)		
ATEX marking			
 II 2G Ex d IIC T4 Gb, CE 0158			
Options: LCD display			
LCD	Two lines, 16 characters each, background highlighted in two colours		
Operation	Menu driven via four magnetic buttons		
Power consumption	5 V, 60 mA, 0.3 VA		
Status LED			
Colour / Mode	Red / yellow / green (alarm – fault – operation - service)		
Protection class	IP 65		

Technical data and ordering

Heavy Duty

Type	Model	Refrigerant	Sensor	ppm range	Alarm ppm	Temp. Range		Code number
						[°C]	[°F]	
GDA	Heavy Duty	Ammonia	Electrochemical	0 – 1000	500 / 900	-25 – 50	-13 – 122	148H6022
GDA	Heavy Duty	Ammonia	Electrochemical	0 – 5000	1000 / 4500	-25 – 50	-13 – 122	148H6031
GDA	Heavy Duty	Ammonia	Semiconductor	0 – 10000	5000 / 9000	-10 – 50	14 – 122	148H6035
GDA	Heavy Duty	Ammonia	Pellistor	0 – 140000	30000	-25 – 60	-13 – 140	148H6039

Ordering spare parts and accessories for Heavy Duty

Description	Code number
Replacement sensor - Heavy Duty Ammonia EC 1000	148H6217
Replacement sensor - Heavy Duty Ammonia EC 5000	148H6218
Replacement sensor - Heavy Duty Ammonia SC 10000	148H6219
Replacement sensor - Heavy Duty Ammonia P LEL	148H6220
Controller unit	148H6231
Controller solution (controller + enclosure)	148H6221
Warning module (wire break monitoring module)	148H6223
Controller expansion module	148H6222
Service tool	148H6224
PC Tool	148H6235
Calibration adapter Heavy duty	148H6233
Magnetic pen	148H6229
Gateway for controller	148H6228

Controller unit:

Used for a centralized monitoring and warning.

The input signals for the controller are collected via RS485 Modbus or analog communication. The controller can handle up to 96 digital sensors via Fieldbus and four (4) analog input. An additional 28 analog input is possible using seven (7) expansion modules (4-20 mA signal interface). The total number of connected sensors should not exceed 128 sensors. The controller unit can be employed as pure analog controller, as analog/digital, or as digital controller. Configuration is menu-driven via the keypad. For fast and easy configuration, the PC Tool is recommended.

Controller solution:

Controller unit placed in an enclosure ready to be connected to a power source. A separate UPS for the controller is available.

Warning module (wire break monitoring module):

The warning module is used for monitoring the circuiting to the warning/alarm devices on a centrally controlled gas detection system. Wire breaks or wire interruptions in the alarm device loop will be reported to the central control.

Controller expansion module:

The gas detection Controller Expansion module is used for expansion of the cable coverage in terms of number of loops and the total wire length. Each Controller Unit can handle up to 7 Expansion modules allowing additional 7 segments with a total of 7200 meters (23622 ft.) wiring and a total of 32 relays for alarm device circuits.

Service tool:

For interface with units with no display (Basic, Basic+, Premium, Premium+). Acts as a portable display and can be connected to all Danfoss gas detection units. (Heavy Duty w. adapter).

PC tool:

The PC tool is a menu-driven and standalone software used for easy addressing, parameter setting, calibration, and data logging of the Basic, Premium and Heavy Duty gas detection units, and the controller unit.

Calibration adapter:

The calibration adapter is required for connecting the calibration gas container, via the flow regulator, to the sensor head on the gas detection units. (Two variants, One for Basic and Premium plastic head sensors; one for heavy duty and Premium remote metal head sensors).

Magnetic pen:

The pen is used to operate the Heavy Duty unit display. The Heavy Duty enclosure does not permit direct touch.

Gateway for controller

The gateway is an addition to the controller and used for communicating via Modbus TCP/IP.

DGS, Gas sensor

DGS helps to comply to environmental F-Gas Regulations and / or Health and Safety requirements, on new or existing systems in:

- Supermarkets
- Process refrigeration plants
- Refrigerated storage and warehousing
- Special applications areas / zones

Features DGS

Utilizing either Semi-Conductor (SC) or Infrared (IR) technologies

Can be used in stand-alone or integrated systems, where continuous real-time, automatic monitoring with Danfoss ADAP-KOOL® Refrigeration Control and Monitoring System and / or Building Management Systems is applied

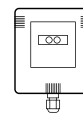
RS485 Modbus for data communication and integration into a complete ADAP-KOOL® system

Gives quick and immediate response in detecting a wide range of different gases typically applied in Refrigeration and Air Conditioning systems

Facts

- Typical Refrigerant gas applications include:
 - Halocarbons: HFC's, HCFC's, CFCs
 - Carbon Dioxide (CO₂ / R744)
 - R404A, R507, R134a, R407A, R407F, R410A
 - Other special application gases to customer request

Technical data and ordering



DGS - Gas Sensors

Technical data

Features	Description
Power Supply	12 / 24 V AC / DC ± 20%
Power Consumption	SC:153 mA / IR: 136 mA
Power Monitoring	Green LED indication
Visual Alarm	RED LED indication
Audible Alarm	Sounder, enabled / disabled
Fault Monitoring	Red LED ON ~ Green LED OFF
Fault State	0 – 0.5 V (1 – 5 V), 0 – 1 V (2 – 10 V), 0 – 2 mA (4 – 20 mA)
Analogue Outputs	0 – 5 V, 1 – 5 V, 0 – 10 V, 2 – 10 V, 4 – 20 mA
Digital Outputs	1-Relay 1 A / 24 V DC / 120 V AC Selectable Delay: 0.1 min., 5 min., 10 min.
IP Enclosure rating	IP41 or IP66
Standard Compliance	WEEE RoHS EuP

Sensor Information	Value	Semi-Conductor with filter (multigas) SC Halocarbons	Semi-Conductor (multigas) SC Hydrocarbons	Infrared IR CO ₂
Typical Measurement Range	–	0 – 1.000 ppm	0 – 1.000 ppm	0 – 10.000 ppm 0 – 20.000 ppm 0 – 50.000 ppm
Temperature Range	IP41	-20 – 50 °C / -4 – 122 °F	20 – 50 °C / -4 – 122 °F	20 – 50 °C / -4 – 122 °F
	IP66	-40 – 50 °C / -40 – 122 °F	-40 – 50 °C / -40 – 122 °F	-40 – 50 °C / -40 – 122 °F
Relay Factory Default Setting	–	50% of Range	50% of Range	50% of Range
Humidity Range non-condensing	–	0 – 95%	0 – 95%	0 – 95%
Typical sensor life	–	5-years	5-years	5-years
Alarm threshold	T50	76 sec (filtered)	50 sec (filtered)	50 sec
Recovery time	T90	215 sec (filtered) 600 sec	90 sec (filtered) 200 sec	120 sec 235 sec
Linearity	–	Linear over calibrated range		
Calibration requirements	–	Standards generally require annual test and calibration See Danfoss Manual for Instructions <i>Note: Semi-Conductor sensors are non-selective, but calibrated to a specific gas</i>		

Danfoss DGS - IP41 Enclosure Versions

Ordering

Type	Refrigerant	Description	Code no.
DGS-SC	R404A, R507	Gas Detector (IP41) Std. default R404A / R507 (min. -20 °C)	080Z2998
DGS-SC	R134a	Gas Detector (IP41) std. default R134a (min. -20 °C)	080Z2942
DGS-SC	R407A	Gas Detector (IP41) std. default R407A (min. -20 °C)	080Z2943
DGS-SC	R407F	Gas Detector (IP41) std. default R407F (min. -20 °C)	080Z2956
DGS-SC	R410A	Detector (IP41) std. default R410 (min. -20 °C)	080Z2988
DGS-IR-CO ₂	CO ₂ (R744)	Gas Detector (IP41) for CO ₂ std. (min.-20 °C)	080Z2995
DGS-IR-CO ₂ -FS		Fail safe. Gas Detector (IP41) for CO ₂ std. (min. -20 °C)	080Z2994

Note: For R448A / R449A, Please Contact Danfoss

Danfoss DGS - IP66 Enclosure Versions

Ordering

Type	Refrigerant	Description	Code no.
DGS-SC	R404A, R507	Gas Detector (IP66) Std. default R404A / R507 (min. -40 °C)	080Z2999
DGS-SC	R134a	Gas Detector (IP66) std. default R134a (min. -40 °C)	080Z2989
DGS-SC	R407A	Gas Detector (IP66) std. default R407A (min. -40 °C)	080Z2944
DGS-SC	R407F	Gas Detector (IP66) std. default R407F (min. -40 °C)	080Z2957
DGS-SC	R410A	Detector (IP66) std. default R410 (min. -40 °C)	080Z2987
DGS-IR-CO ₂	CO ₂ (R744)	Gas Detector (IP66) for CO ₂ std. (min.-40 °C)	080Z2996
DGS-IR-CO ₂		Remote, 3 m. Gas Detector (IP66) for CO ₂ std. (min. -40 °C)	080Z2997
DGS-IR-CO ₂ -FS		Fail safe. Gas Detector (IP66) for CO ₂ std. (min. -40 °C)	080Z2993
DGS-IR-CO ₂ -FS		Remote, 3 m. Fail safe. Gas Detector (IP66) for CO ₂ std. (min. -40 °C)	080Z2992
DGS-IR-CO ₂ -FS		Duct mounted sensor	080Z2958

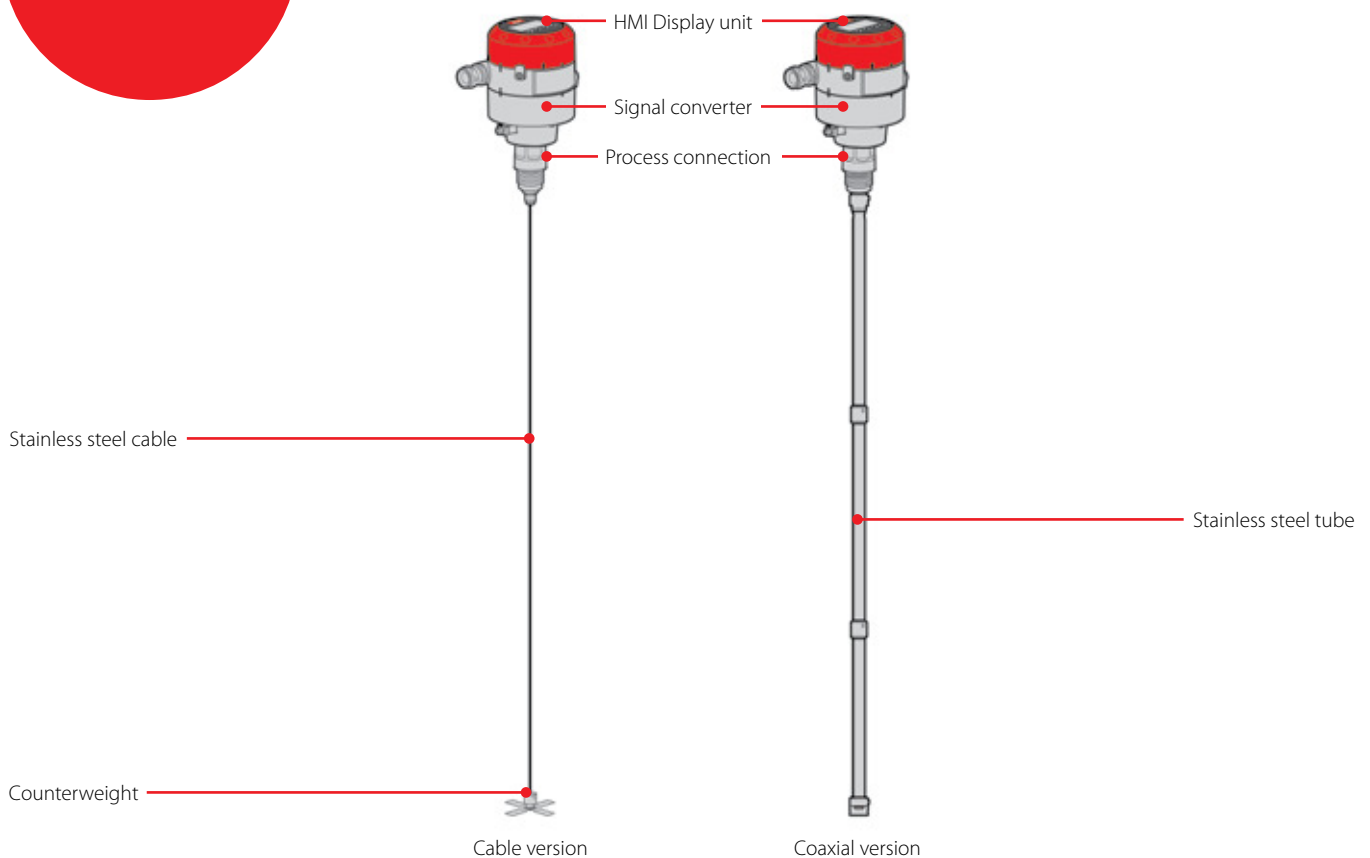
Note: For R448A / R449A, Please Contact Danfoss

AKS 4100 / AKS 4100U - Liquid level sensors

The AKS 4100 / AKS 4100U liquid level sensor is designed specifically to measure liquid levels in a wide range of refrigeration applications. The liquid level sensor is based on a proven technology called Time Domain Reflectometry (TDR) or Guided Micro Wave.

AKS 4100 / AKS 4100U liquid level sensor can be used to measure the liquid level of many different refrigerants in vessels, accumulators, receivers, standpipes, etc.

Features AKS 4100 / 4100U



Facts

- Applicable to R717, R744, R134a, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502 and R507
For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specifications.
- Approved and qualified by Danfoss for refrigeration applications
- One product covering several probe lengths (cable version)
- A single product for all commonly used refrigerants (cable version)
- Cable version requires less top-end clearance for installation and service
- Proven operation with all refrigerants in combination with oil
- No need to clean cable version when fully covered by oil
- The cable version is very compact and easy to handle, ship, install and use with different lengths and refrigerants
- Changes of the liquid dielectric constant (ϵ_r) does not affect operation
- Up to 5000 mm / 197 inch probe length with cable version
- 2-wire loop powered; no separate transformer needed
Please Note: if used together with Danfoss EKC 347 Level Controller, a 14 – 30 V DC supply is required
- Multi language HMI
- Level and setting readout in [mm], [cm], [m] / [ft], [in]

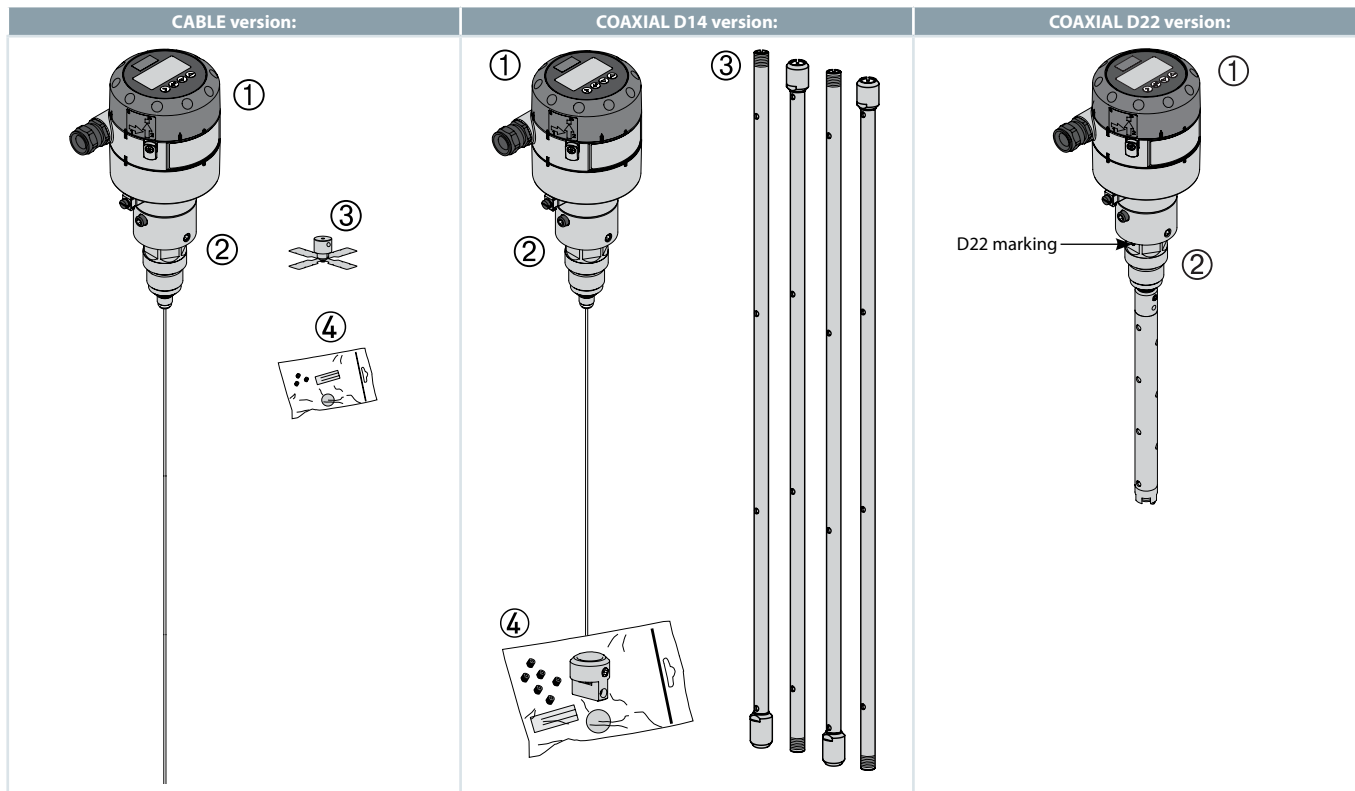
The AKS 4100 / AKS 4100U concept

AKS 4100 / AKS 4100U is available in two different versions:

- Cable version
- Coaxial version

Both cable and coaxial versions are available with two different mechanical process connections:

- AKS 4100: G1 inch pipe thread. Aluminium gasket included
- AKS 4100U: 3/4 inch NPT



Cable version

The cable version consists of:

1. Signal converter, which can be supplied with or without HMI
2. Process connection with 5 m / 197 in., ø2 mm / 0.08 in. stainless cable
3. Counterweight
4. Accessory bag comprising:
 - 3 mm set screws
 - Red cover to protect process connection (2) prior to mounting signal converter
 - Setting label

With the cable version it is possible to adapt the AKS 4100 / AKS 4100U to any length:
800 mm / 31.5 in. – 5000 mm / 196.9 in.

Coaxial D14 version

The Coaxial D14 version consists of:

1. Signal Converter (with or without HMI)
2. Process connection with 5 m / 197 in., ø2 mm / 0.08 in. stainless wire
3. Tube(s) depending on required length
4. Accessory bag comprising:
 - End Connector (incl. 3 mm / 0.12 in. set screws)
 - 3 mm / 0.12 in. set screws (1 set screw pr. tube)
 - Red cover to protect mechanical process connection (2), before Signal Converter is mounted
 - Setting label

The coaxial D14 version is available in the following probe lengths:
500 mm, 800 mm, 1000 mm, 1200 mm, 1500 mm, 1700 mm, 2200 mm

Coaxial D22 version

The Coaxial D22 version consists of:

1. Signal Converter (with or without HMI)
2. Process connection 280 mm / 11 in., 8 mm / 0.3 in. inner rod

Technical data

Measuring system

Measuring principle	2-wire loop-powered level transmitter; Time Domain Reflectometry (TDR)
Application range	Level measurement of liquid refrigerants Approved refrigerants: R717, R744, R134a, R401A, R402A, R404A, R407A, R407B, R407C, R407F, R409A, R410A, R421A, R502 and R507
Primary measured value	Time between the emitted and received signal
Secondary measured value	Distance or level

Display and User interface

Display	Integrated LCD display 128 x 64 pixels in 8-step greyscale with 4-button keypad
Interface languages	English (default), German, French, Spanish, Japanese, Chinese, Russian

Operating conditions

Ambient temperature	-40 – 80 °C / -40 – 175 °F For HMI: -20 – 60 °C / -4 – 140 °F
Storage temperature	-40...85 °C / -40...185 °F
Process connection temperature	Standard -60 – 100 °C / -76 – 212 °F

Operating pressure	Standard: -1 – 100 barg / -14.5 – 1450 psig
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Liquid dielectric constant (ε_r)	Cable version to be used in R717 / NH ₃ , HCFC and HFC ε _r , liquid > 5.6 Coaxial version is mandatory in R744 / CO ₂ ε _r , liquid > 1.3
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Vibration resistance	EN 60721-3-4 (1...9 Hz: 3 mm / 10...200 Hz: 1g; 10g shock half-wave sinusoidal: 11 ms)
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Enclosure rating	IP66 / IP67 equivalent to NEMA type 4X (housing) and type 6P (probe)
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Process connections

Thread	
Cable Ø2 mm / 0.08 in	AKS 4100: G1 inch pipe thread. Aluminium gasket included AKS 4100U: 3/4 inch NPT
Coaxial	AKS 4100: G1 inch pipe thread. Aluminium gasket included AKS 4100U: 3/4 inch NPT

Electrical connections

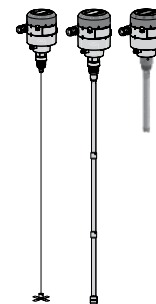
Power supply	Terminals output: 14 – 30 V DC. Min. / Max. Value for an output of 22 mA at the terminal Ambient temperature limitations: -40 – 80 °C / -40 – 176 °F: 16 – 30 V DC -20 – 80 °C / -4 – 176 °F: 14 – 30 V DC
Current output load	RL [Ω] ≤ ((U _{ext} - 14 V) / 20 mA) – Default (Error output set to 3.6 mA) RL [Ω] ≤ ((U _{ext} - 14 V) / 22 mA) – (Error output set to 22 mA)
Cable gland	AKS 4100: PG 13, M20x1.5; (cable diameter: 6 – 8 mm / 0.24 – 0.31 in) AKS 4100U: 1/2 inch NPT
Cable entry capacity (terminal)	0.5 – 1.5 mm ² (~20 – 15 AWG)

Input and output

Current output	
Output signal	4...20 mA or 3.8...20.5 mA acc. to NAMUR NE 43
Resolution	±3 µA
Temperature drift	Typically 75 ppm / K
Error signal	High: 22 mA; Low: 3.6 mA acc. to NAMUR NE 43; Hold (frozen value - not available with NAMUR NE 43 compliant output)

Technical data Ordering

When ordering without HMI please note:
Each AKS 4100 / AKS 4100U must always be programmed via the HMI display unit.



The HMI display unit can be ordered separately:

- **084H4540 / 084H4590**
AKS 4100 / AKS 4100U HMI display unit with rear cover and mounting bracket for easy programming.
The same AKS 4100 / AKS 4100U HMI display unit can be used to programme more AKS 4100 / AKS 4100U.
- **084H4548 / 084H4598**
AKS 4100 / AKS 4100U HMI display unit (usually spare part).

AKS 4100 / AKS 4100U - Cable version

Technical data

Type	Description	Languages	HMI	Code no.
			with / without	
AKS 4100	with 5 m (197 in) ø2 mm (ø0.08 in) stainless cable and counterweight	English (default), German, French, Spanish	with	084H4501
AKS 4100	with 5 m (197 in) ø2 mm (ø0.08 in) stainless cable and counterweight	English (default), Japanese, Chinese, Russian	with	084H4550
AKS 4100	with 5 m (197 in) ø2 mm (ø0.08 in) stainless cable and counterweight	-	without	084H4500
AKS 4100U	with 5 m (197 in) ø2 mm (ø0.08 in) stainless cable and counterweight	English (default), German, French, Spanish	with	084H4521
AKS 4100U	with 5 m (197 in) ø2 mm (ø0.08 in) stainless cable and counterweight	English (default), Japanese, Chinese, Russian	with	084H4571
AKS 4100U	with 5 m (197 in) ø2 mm (ø0.08 in) stainless cable and counterweight	-	without	084H4520

AKS 4100 / AKS 4100U - Coaxial version

Technical data

Type	Description	Languages	Probe length		HMI	Code no.
			[mm]	[in]	with / without	
AKS 4100	Coaxial D22 ¹⁾	English (default), German, French, Spanish	280	-	with	084H4517
AKS 4100	Coaxial D22 ¹⁾	English (default), Japanese, Chinese, Russian	280	-	with	084H4567
AKS 4100	Coaxial D22 ¹⁾	-	280	-	without	084H4518
AKS 4100	Coaxial D14	English (default), German, French, Spanish	500	-	with	084H4510
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	500	-	with	084H4560
AKS 4100	Coaxial D14	-	500	-	without	084H4503
AKS 4100	Coaxial D14	English (default), German, French, Spanish	800	-	with	084H4511
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	800	-	with	084H4561
AKS 4100	Coaxial D14	-	800	-	without	084H4504
AKS 4100	Coaxial D14	English (default), German, French, Spanish	1000	-	with	084H4512
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	1000	-	with	084H4562
AKS 4100	Coaxial D14	-	1000	-	without	084H4505
AKS 4100	Coaxial D14	English (default), German, French, Spanish	1200	-	with	084H4513
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	1200	-	with	084H4563
AKS 4100	Coaxial D14	-	1200	-	without	084H4506
AKS 4100	Coaxial D14	English (default), German, French, Spanish	1500	-	with	084H4514
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	1500	-	with	084H4564
AKS 4100	Coaxial D14	-	1500	-	without	084H4507
AKS 4100	Coaxial D14	English (default), German, French, Spanish	1700	-	with	084H4515
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	1700	-	with	084H4565
AKS 4100	Coaxial D14	-	1700	-	without	084H4508
AKS 4100	Coaxial D14	English (default), German, French, Spanish	2200	-	with	084H4516
AKS 4100	Coaxial D14	English (default), Japanese, Chinese, Russian	2200	-	with	084H4566
AKS 4100	Coaxial D14	-	2200	-	without	084H4509
AKS 4100U	Coaxial D22 ¹⁾	English (default), German, French, Spanish	-	11	with	084H4536
AKS 4100U	Coaxial D22 ¹⁾	English (default), Japanese, Chinese, Russian	-	11	with	084H4586
AKS 4100U	Coaxial D22 ¹⁾	-	-	11	without	084H4537
AKS 4100U	Coaxial D14	English (default), German, French, Spanish	-	19.2	with	084H4530
AKS 4100U	Coaxial D14	English (default), Japanese, Chinese, Russian	-	19.2	with	084H4580
AKS 4100U	Coaxial D14	-	-	19.2	without	084H4524
AKS 4100U	Coaxial D14	English (default), German, French, Spanish	-	30	with	084H4531
AKS 4100U	Coaxial D14	English (default), Japanese, Chinese, Russian	-	30	with	084H4581
AKS 4100U	Coaxial D14	-	-	30	without	084H4525
AKS 4100U	Coaxial D14	English (default), German, French, Spanish	-	45	with	084H4532
AKS 4100U	Coaxial D14	English (default), Japanese, Chinese, Russian	-	45	with	084H4582
AKS 4100U	Coaxial D14	-	-	45	without	084H4526
AKS 4100U	Coaxial D14	English (default), German, French, Spanish	-	55	with	084H4533
AKS 4100U	Coaxial D14	English (default), Japanese, Chinese, Russian	-	55	with	084H4583
AKS 4100U	Coaxial D14	-	-	55	without	084H4527
AKS 4100U	Coaxial D14	English (default), German, French, Spanish	-	65	with	084H4534
AKS 4100U	Coaxial D14	English (default), Japanese, Chinese, Russian	-	65	with	084H4584
AKS 4100U	Coaxial D14	-	-	65	without	084H4528
AKS 4100U	Coaxial D14	English (default), German, French, Spanish	-	85	with	084H4535
AKS 4100U	Coaxial D14	English (default), Japanese, Chinese, Russian	-	85	with	084H4585
AKS 4100U	Coaxial D14	-	-	85	without	084H4529

¹⁾ AKS 4100 Coaxial 280mm and AKS 4100U Coaxial 11 in. are only released for R717/NH3

Technical data Ordering

AKS 4100 / AKS 4100U - HMI

Accessories

Type	Description	Languages	Code no.
AKS 4100 / AKS 4100U HMI	Service / Display unit with rear cover and mounting bracket	English (default), German, French, Spanish	084H4540
AKS 4100 / AKS 4100U HMI	Service / Display unit with rear cover and mounting bracket	English (default), Japanese, Chinese, Russian	084H4590
AKS 4100 / AKS 4100U HMI	Display	English (default), German, French, Spanish	084H4548
AKS 4100 / AKS 4100U HMI	Display	English (default), Japanese, Chinese, Russian	084H4598
AKS 4100 / AKS 4100U	Signal Converter without HMI, excluding cable gland	-	084H4541

For spare parts (service kits and gaskets) please see the spare parts documentation.

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AKS and DST P100, Pressure transmitters

AKS and DST P100 pressure transmitters are used for commercial air-conditioning and for commercial and industrial refrigeration applications. They are made in stainless steel to be compatible with fluorinated and natural refrigerants and laser welding with no soft seals ensure hermetic tightness for decades.

AKS and DST P100 pressure transmitters utilize temperature calibrations methods and sensing technologies optimized for the refrigeration and air-conditioning segments.

Features AKS and DST P100

Dedicated temperature calibration to increase accuracy when used for suction or discharge pressure regulation

Compact AKS 32R; AKS 3000 and DST P100 with solder or female flare pressure ports



Parts in touch with refrigerants are all laserwelded, free of soft gaskets

Facts

- Designed for precise and energy optimized control
- Robust design optimized for
 - air-conditioning
 - refrigeration plant
 - supermarket installation
 - natural refrigerants like CO₂ and R717
- Pressure ranges up to 159 bar
- High test pressure, ≥ 33 bar
- Available with 4 – 20 mA, 1 – 5 V DC or 10 – 90% Vs ratiometric signals
- Available with a variety of pressure connection, incl. 1/4 inch female flare with valve depressor and 3/8 inch solder connection, ensuring a 100% hermetic installation

Technical data and ordering

AKS 32R and AKS 2050 - With 10 – 90% ratiometric output signal

Ordering

4.75 – 8 V DC supply voltage, accuracy 0.3% FS (typical), pressure reference gauge (relative)

Type	Pressure rang [bar]	Max. overload pressure [bar]	Electrical connection	Pressure connection	Code no.
AKS 32R	-1 – 12	33	EN 175301-803-A without plug	7/16 – 20 UNF flare 1/4 in	060G1036
	-1 – 12	33	EN 175301-803-A with Pg 9 plug	7/16 – 20 UNF flare 1/4 in	060G6339
	-1 – 34	55	EN 175301-803-A without plug	7/16 – 20 UNF flare 1/4 in	060G0090
	-1 – 34	55	EN 175301-803-A with Pg 9 plug	7/16 – 20 UNF flare 1/4 in	060G6340
	-1 – 12	33	EN 175301-803-A without plug	7/16 – 20 UNF 1/4 in female flare	060G6323 ³⁾
	-1 – 12	33	EN 175301-803-A with Pg 9 plug	7/16 – 20 UNF 1/4 in female flare	060G5961 ³⁾
	0 – 32	55	EN 175301-803-A with Pg 9 plug	7/16 – 20 UNF 1/4 in female flare	060G5962 ³⁾
	-1 – 34	55	EN 175301-803-A without plug	7/16 – 20 UNF 1/4 in female flare	060G6341 ³⁾
	-1 – 12	33	EN 175301-803-A without plug	Solder, ODF, 3/8 in	060G3551
	-1 – 34	55	EN 175301-803-A without plug	Solder, ODF, 3/8 in	060G3552
	0 – 16	33	EN 175301-803-A with Pg 9 plug	Solder, ODF, 3/8 in	060G6156 ¹⁾
0 – 50	55	EN 175301-803-A with Pg 9 plug	Solder, ODF, 3/8 in	060G6157 ¹⁾	
AKS 2050	-1 – 12	33	EN 175301-803-A without plug	Thread ISO 228/1 – G 3/8 A (BSP)	060G1038
	-1 – 59	100	EN 175301-803-A without plug	Thread ISO 228/1 – G 3/8 A (BSP)	060G5750 ²⁾
	-1 – 99	150	EN 175301-803-A without plug	Thread ISO 228/1 – G 3/8 A (BSP)	060G5751 ²⁾
	-1 – 159	250	EN 175301-803-A without plug	Thread ISO 228/1 – G 3/8 A (BSP)	060G5752 ²⁾

¹⁾ Pressure reference Absolute

²⁾ With pulse-snubber

³⁾ With deflator

AKS 32 and AKS 2050

Accessory

Type	Electrical connection	Comments	Code no.
Cable with plug	Plug 3 + E (female)	5 m cable	060G1034
Plug	EN 175301-803-A	Pg 9	060G0008

AKS 32 with 1 – 5 V output signal

Ordering

9 – 30 V DC supply voltage, accuracy 0.3% FS (typical), pressure reference gauge (relative)

Type	Pressure range [bar]	Max. overload pressure [bar]	Electrical connection	Pressure connection	Code no.
AKS 32	-1 – 12	33	EN175301-803-A Pg9 plug	7/16 – 20 UNF flare 1/4 in	060G2069
	-1 – 34	40	EN175301-803-A Pg9 plug	7/16 – 20 UNF flare 1/4 in	060G2071

AKS 33 with 4 – 20 mA output signal

Ordering

10 – 30 V DC supply voltage, accuracy 0.3% FS (typical), pressure reference gauge (relative)

Type	Pressure range [bar]	Max. overload pressure [bar]	Electrical connection	Pressure connection	Code no.
AKS 33	-1 – 6	33	EN175301-803-A Pg9 plug	7/16 – 20 UNF flare 1/4 in	060G2048
	-1 – 12	33	EN175301-803-A Pg9 plug	7/16 – 20 UNF flare 1/4 in	060G2049
	0 – 25	33	EN175301-803-A Pg 9 plug	7/16 – 20 UNF flare 1/4 in	060G2045
	-1 – 34	55	EN175301-803-A Pg 9 plug	7/16 – 20 UNF flare 1/4 in	060G2051
	-1 – 6	33	EN175301-803-A Pg 9 plug	G 3/8 EN 837	060G2104
	-1 – 12	33	EN175301-803-A Pg 9 plug	G 3/8 EN 837	060G2105
	-1 – 34	55	EN175301-803-A Pg 9 plug	G 3/8 EN 837	060G2107

AKS 3000 with 4 – 20 mA output signal

Ordering

10 – 30 V DC supply voltage, accuracy 1% FS (typical), pressure reference gauge (relative)

Type	Pressure range [bar]	Max. overload pressure [bar]	Electrical connection	Pressure connection	Code no.
AKS 3000	-1 – 12	33	EN175301-803-A Pg9 plug	7/16 – 20 UNF flare 1/4 in	060G1323
	0 – 30	55	EN175301-803-A Pg9 plug	7/16 – 20 UNF flare 1/4 in	060G1327
	-1 – 12	33	EN175301-803-A Pg 9 plug	G 1/2 EN 837	060G1896
	0 – 25	40	EN175301-803-A Pg 9 plug	G 3/8 EN 837	060G1041
	0 – 40	100	EN175301-803-A Pg 9 plug	G 3/8 EN 837	060G1066
	-1 – 12	33	EN175301-803-A Pg 9 plug	7/16 – 20 UNF 1/4 in female flare	060G5846
	-1 – 6	33	EN175301-803-A Pg 9 plug	7/16 – 20 UNF 1/4 in female flare	060G3899
	0 – 30	55	EN175301-803-A Pg 9 plug	7/16 – 20 UNF 1/4 in female flare	060G3958

Technical data Ordering

DST P100 Pressure Transmitter for cooling applications

Ordering

5V±10% supply voltage, accuracy ± 1% FS (within specified temperature range))

Type	Operating range	Units	Colour code electrical connector	Focus temperature range (1% TEB)	Pressure port [flare]	Code no.
	[bar sg]			[°C]		
DST P100	0 – 150	psia	Green	-20 – 40	7/16 UNF, female ¹⁾	075G7014
	0 – 200	psia	Green	-20 – 40		075G7016
	0 – 400	psi sg	Black	0 – 80		075G7019
	0 – 500	psi sg	Black	0 – 80		075G7021
	-1 – 12	bar sg	Green	-20 – 40		075G7013
	-1 – 34	bar sg	Black	0 – 80		075G7018
	0 – 10	bar sg	Green	0 – 80		075G7012
	0 – 20	bar sg	Green	-20 – 40		075G7015
	0 – 30	bar sg	Black	0 – 80		075G7017
	0 – 50	bar sg	Black	0 – 80		075G7020

¹⁾ 1/4 in. flare with a deflator pin

Electrical connector colour coding:

Black: High pressure profile

Green: Low pressure profile

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EKS / AKS, Temperature sensors

AKS temperature sensors are used for exacting applications within air-conditioning as well as commercial and industrial refrigeration applications.

The Pt 1000 sensor element meets the DIN/EN 60751 class B requirements and ensures an accurate and reliable temperature signal applicable for regulation, safety and data logging.

EKS temperature sensors are a family of cost efficient temperature sensors based on thermistors with NTC or PTC characteristics which are used with Danfoss EKC controllers.

Features EKS / AKS

EN441 certified
AK-HS 1000
HACCP sensors

AKS 11 temperature sensor for reliable super heat control to optimize accuracy and process efficiency

AKS21 sensor system for controlling extreme high and low temperatures

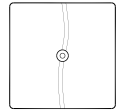


Facts

- AKS 11 is designed for easy installation and optimized for demanding control functions like liquid injection control in evaporators where a reliable sensor is a must
- AKS 12 is the all-round cable temperature sensor to be used for plain temperature monitoring and control purposes
- AKS 21 is the ultimate sensor for $-70 - 180\text{ }^{\circ}\text{C}$ anywhere in the refrigeration plant and is available in various designs (cable and B-head) and with various accessories like sensor pockets
- AK-HS 1000 is the first choice for a temperature sensor for monitoring and HACCP data logging. The sensor design makes it simulate a refrigerated product what enable a realistic temperature signal is transmitted to a HACCP data logger
- EKS comes with PTC $1000\ \Omega$ (EKS 111), NTC $5000\ \Omega$ (EKS 211), or NTC $1000\ \Omega$ (EKS 221) with various cable lengths

Technical data and ordering

AK-HS - Temperature sensors for monitoring and data logging in HACCP systems



Ordering

Type	Signal	Temperature range [°C]	Measuring accuracy	Enclosure	Cable length [m]	Code no.
AK-HS 1000	Pt 1000	-30 – 50	EN 60751 Class B	IP 54	5.5	084N1007

EKS - Temperature sensors for measuring air temperatures

PTC characteristics matches controllers types EKC 101, EKC 201, EKC 301, CC and AK.

NTC characteristics matches controllers, types EKC and CC.



Type	Signal	Temperature range [°C]	Sensor tube	Electrical connection	Cable length [m]	Code no.
EKS 111	PTC 1000	-55 – 100	Round	Cable with pins	1.5	084N1178
	PTC 1000	-55 – 100	Round	Cable with pins	3.5	084N1179
	PTC 1000	-55 – 100	Round	Cable with AMP-plug	1.5	084N1181
	PTC 1000	-55 – 100	Round	Cable with AMP-plug	3.5	084N1182
EKS 211	NTC 5000	-40 – 80	Round	Cable	1.5	084N1220
	NTC 5000	-40 – 80	Round	Cable	3.5	084N1221

May not be used for food safety logs and regulation of superheat

EKS - Temperature sensors for measuring temperatures

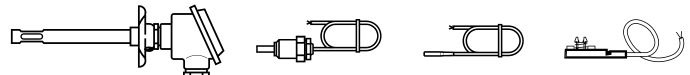
The sensor characteristics matches to OPTYMA room controllers and MCX unit controllers.

Type	Signal	Temperature range [°C]	Sensor tube	Electrical connection	Cable length [m]	Code no.
EKS 221	NTC 10000	-50 – 120	Round	Cable	3.5	084N3210
	NTC 10000	-50 – 120	Round	Cable	8.5	084N3209

Sensor house in thermo plastic rubber

AKS - Temperature sensors for measuring temperature

Recommended for accurate temperature measurement in superheating, food safety logs and other important applications



Type	Signal	Measure range [°C]	Sensor tube	Electrical connection	Cable length [m]	Code no.
AKS 12	Pt 1000	-40 – 80	Round	Cable	1.5	084N0036
	Pt 1000	-40 – 80	Round	AMP plug	5.5	084N0045
AKS 11	Pt 1000	-50 – 100	Concave	Cable	3.5	084N0003
	Pt 1000	-50 – 100	Concave	Cable	5.5	084N0005
	Pt 1000	-50 – 100	Concave	Cable	8.5	084N0008
AKS 21A	Pt 1000	-70 – 180	Round	Cable	3.5	084N2007
	Pt 1000	-70 – 180	Round	Cable with AMP-plug	3.5	084N2008
	Pt 1000	-70 – 180	Round	Cable	2.0	084N2024
AKS 21M	Pt 1000	-70 – 180	Round	Cable	2.5	084N2003
AKS 21W	Pt 1000	-70 – 180	Sensor pipe	Cable	2.5	084N2017
AKS 21D	Pt 1000	-40 – 80	Channel bulb	Terminal socket Type B	–	084N2035

Danfoss Light commercial compressors - Direct current - BD series

BD range is the leading and widest AC / DC compressor range tailored for cooling on the move. The excellent performance of the BD series safeguards food, medical and telecommunication.

Some models are available with variable speed technology for higher energy efficiency and accurate cooling and a longer lifetime of the batteries.



Facts

Applications:

- 12 / 24 V DC mobile refrigerators and freezers
- 12 V DC LBP / MBP van cooling boxes
- 12 / 24 V DC HBP mobile spot cooling systems
- 48 V DC HBP telecommunication applications
- Operation under extreme conditions
- Minimal energy consumption
- Portable beyond traditional limits
- Safety against destructive battery discharge, electronic thermostat and fan speed control
- Low sound emission
- Application possible at extreme voltage rate

Technical data and ordering

Compressors R134a R404A / R507 * R600a ** R290 ***	Electronic units (voltages and code numbers)													Code numbers
	Standard 12 – 24 V DC 101N0212	High Speed 12 – 24 V DC 101N0390	AEO 12 – 24 V DC 101N0340	AEO High Start 12 – 24 V DC 101N0330	Solar 10 – 45 V DC 101N0420	Solar 20 – 45 V DC 101N0410	AC/DC converter 12 – 24 V DC & 100 – 240 V AC 101N0510	Automotive 12 – 24 V DC 101N0650	101N8xxx 12 V DC 101N0820+0800 (alt.: 101N0830)	101N8xxx 24 V DC 101N0820+0810	101N07xx 24 V DC 101N0715	Telecom 48 V DC 101N0720	Telecom 48 V DC 101N0732	
BD35F	x	-	x	-	x	x	x	x	-	-	-	-	-	101Z0200
BD35F (inch con.)	x	-	x	-	x	x	x	x	-	-	-	-	-	101Z0204
BD35F-B	x	-	x	-	-	-	x	x	-	-	-	-	-	101Z0205
BD35F-HD.2	x	-	x	-	-	-	-	x	-	-	-	-	-	101Z0216
BD50F	x	-	x	x	-	-	x	x	-	-	-	-	-	101Z1220
BD50F (inch con.)	x	-	x	x	-	-	x	-	-	-	-	-	-	101Z0203
BD80F	-	x	-	-	-	-	-	-	-	-	-	-	-	101Z0280
BD250GH.2	-	x	-	-	-	-	-	-	-	-	-	-	-	101Z0406
BD250GH.2 (48V)	-	-	-	-	-	-	-	-	-	-	-	-	x	101Z0405
BD350GH (12V)	-	-	-	-	-	-	-	-	x+x	-	-	-	-	102Z3015
BD350GH (24V)	-	-	-	-	-	-	-	-	-	x+x	x	-	-	102Z3016
BD350GH (48V)	-	-	-	-	-	-	-	-	-	-	-	x	-	102Z3031
BD350GH Twin (12V)	-	-	-	-	-	-	-	-	x+x x	-	-	-	-	102Z3018
BD350GH Twin (24V)	-	-	-	-	-	-	-	-	-	x+x	x x	-	-	102Z3017
BD220CL *	-	-	-	-	-	-	-	-	x+x	-	-	-	-	102Z3020
BD35K **	x	-	-	-	x	x	-	-	-	-	-	-	-	101Z0211
BD80CN ***	-	-	-	x	-	-	-	-	-	-	-	-	-	101Z0403
BD100CN ***	-	x	-	-	-	-	-	-	-	-	-	-	-	101Z0401
TOOL4COOL® applicable	-	-	-	-	-	-	-	-	x	-	x	x	x	-

Compressors R134a	Electronic units (voltages and code numbers)					Code numbers
	Variable Speed (VSD) 12 – 24 V DC 101N2100	Fixed Speed (FSD) 12 – 24 V DC 101N2600	VSD w. AC/DC converter 12 – 24 V DC & 100 – 240 V AC 101N5100	FSD w. AC/DC converter 12 – 24 V DC & 100 – 240 V AC 101N5200	Automotive 12 V DC 101N1010	
BD1.4F-AUTO.3	-	-	-	-	x	109Z0104
BD1.4F-VSD.2	x	-	x	-	-	109Z0204
BD1.4F-VSD-HD	x	-	-	-	-	109Z0250
BD1.4F-VSD.2 (inch connectors)	x	-	x	-	-	109Z0206
BD1.4F-VSD-HD (inch connectors)	x	-	-	-	-	109Z0251
TOOL4COOL® applicable	x	x	x	x	x	-

Applications	Compressors														
	BD1.4F-AUTO.3	BD1.4F-VSD.2	BD1.4F-VSD-HD	BD35F	BD35F-B	BD35F-HD.2	BD35K	BD50F	BD80F	BD80CN	BD100CN	BD150F	BD250GH.2	BD350GH	BD220CL
Truck refrigerators	-	x	x	x	-	x	-	x	-	-	-	-	-	-	-
Boat refrigerators	-	x	-	x	-	-	-	x	x	-	-	-	-	-	-
Bus refrigerators	-	x	-	x	x	-	-	-	-	-	-	-	-	-	-
Portable boxes	-	x	-	x	-	-	-	x	x	-	-	-	-	-	-
Car minibars (high end)	x	x	-	x	-	-	-	-	-	-	-	-	-	-	-
Car minibars (SUV, MPV)	-	x	-	x	-	-	-	-	-	-	-	-	-	-	-
Spot cooling (e.g. trucks)	-	-	-	-	-	-	-	-	-	-	-	-	x	x	-
Van boxes	-	-	-	-	-	-	-	x	x	-	-	x	x	x	x
Battery cooling	-	-	-	-	-	-	-	-	-	-	-	-	x	x	-
Solar cabinets	-	-	-	x	-	-	x	x	-	x	x	-	-	-	-

Technical data and ordering

Compressors R134a R404A / R507 * R600a **, R290 ***	Capacity [W] at max. speed **** EN12900 Household/CECOMAF ASHRAE Evaporating temperature [°C]													
	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
	BD35F /-B /-HD.2	-	-	27 34	36 45	40 51	50 63	70 87	94 117	122 153	-	-	-	-
BD50F	-	-	37 45	52 64	58 72	71 88	95 117	123 152	157 194	-	-	-	-	-
BD80F	-	-	55 68	78 96	87 107	105 130	138 170	176 218	221 274	-	-	-	-	-
BD250GH.2	-	-	-	61 76	69 86	87 108	119 148	156 194	200 248	251 311	308 383	336 418	373 464	446 556
BD250GH.2 (48V)	-	-	-	64 80	73 91	91 113	124 153	162 201	208 257	261 323	322 400	352 437	392 488	472 589
BD350GH (12V)	-	-	-	126 156	139 173	169 209	220 273	282 349	355 440	440 546	540 670	588 731	654 814	786 979
BD350GH (24V)	-	-	-	126 156	139 173	169 209	220 273	282 349	355 440	440 546	540 670	588 731	654 814	786 979
BD350GH (48V)	-	-	-	121 150	135 167	164 203	216 267	277 343	350 434	436 540	535 664	584 725	650 808	781 973
BD220CL *	83 96	121 140	166 193	220 255	240 279	283 328	355 413	439 511	535 624	-	-	-	-	-
BD35K **	-	-	25 30	36 44	41 49	49 60	65 79	84 102	106 129	-	-	-	-	-
BD80CN ***	31 35	45 51	62 69	82 91	90 100	105 118	133 148	164 184	-	-	-	-	-	-
BD100CN ***	45 50	62 70	83 93	108 121	117 131	137 153	170 190	209 233	-	-	-	-	-	-
BD1.4F-VSD.2/-HD	-	-	12 15	23 29	27 34	36 45	52 65	71 88	92 114	116 144	144 179	158 197	178 222	218 272
BD1.4F-AUTO.3	-	-	-	14 18	18 22	24 31	36 45	50 62	66 83	86 106	108 134	-	-	-

Compressors R134a R404A / R507 * R600a **, R290 ***	Power consumption [W] at max. speed **** Evaporating temperature [°C]														Code numbers
	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	
	BD35F /-B /-HD.2	-	-	35	41	44	49	57	66	75	-	-	-	-	
BD50F	-	-	47	59	63	71	83	95	108	-	-	-	-	-	101Z1220 /0203
BD80F	-	-	69	87	93.0	105	123	144	168	-	-	-	-	-	101Z0280
BD250GH.2	-	-	-	68	72	82	95	108	122	138	156	165	177	202	101Z0406
BD250GH.2 (48V)	-	-	-	72	77	85	99	113	128	143	160	167	177	196	101Z0405
BD350GH (12V)	-	-	-	140	149	168	197	228	259	292	325	340	358	391	102Z3015
BD350GH (24V)	-	-	-	122	129	144	169	194	221	248	276	288	303	330	102Z3016
BD350GH (48V)	-	-	-	131	139	155	181	208	236	265	294	307	323	352	102Z3031
BD220CL *	121	147	173	200	209	227	255	284	314	-	-	-	-	-	102Z3020
BD35K **	-	-	35	43	45	50	56	63	70	-	-	-	-	-	101Z0211
BD80CN ***	47	55	63	72	75	81	89	97	-	-	-	-	-	-	101Z0403
BD100CN ***	57	69	81	93	96	104	115	125	-	-	-	-	-	-	101Z0401
BD1.4F-VSD.2/-HD	-	-	27	34	36	41	48	55	61	68	76	79	83	90	109Z0200 /0202 /0250 /0251
BD1.4F-AUTO.3	-	-	-	26	28	30	35	40	45	50	56	-	-	-	109Z0102

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Danfoss Light commercial compressors

- PL / TL / DL / NL / FR / SC and GS series

Specially optimised for use in household and light commercial applications, hermetic reciprocating compressors provide high cooling capacity in an energy saving design.

Compressor models are available for R134a, R290, R404A / R507A and R600a as well as R452A and R513A, for cooling needs from 20 W to 6 kW.

Features Reciprocating compressors



Compact construction

Durable housing

Optimised motor technology

Wide voltage range



Low GWP refrigerant possible

Variable speed models available

Facts

Applications:

- Laboratory and medical equipment
- Compressed air dryers
- Glass door merchandisers
- Display cabinets
- Fridges and freezers
- Ice cream cabinets
- Vending machines
- Drink dispensers
- Ice making machines
- Bottle coolers
- Heat pumps
- Milk cooling tanks
- Wine cellars

- Easy installation
- Low noise and high energy efficiency
- Robust in tough operating conditions
- Immune to unstable power supply
- Environmentally friendly solutions

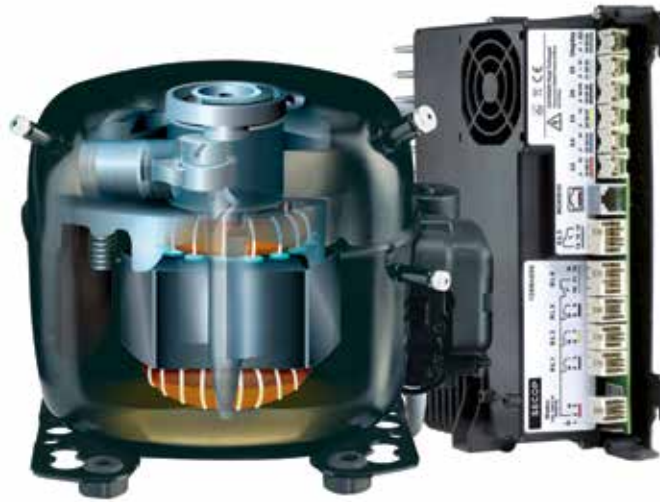
Danfoss Light commercial compressors - Variable speed DLV / NLV and SLV series

Cut a slice out of your energy bill with variable speed technology in supermarket and convenience store cabinets with DLV, NLV and SLV compressors.
DLV, NLV and SLV inverter compressors with intelligent controller are the natural choice when you need a versatile package for a wide

range of light commercial LBP and MBP applications like freezers and cabinets.
Variable speed compressors are available for R404A / R507 and the environmentally friendly refrigerant, R290.



- Tight temperature control
- Built-in data logging and failure detection
- High temperature stability



- Compressor, speed control, cabinet control functions, display and monitoring, all in one integrated solution
- Low average motor speed and wide voltage range

Facts

Applications:

- Freezers
- Display cabinets

- Advanced efficiency reduces energy consumption dramatically
- Reduces food loss and increases food quality
- Environmentally friendly
- Enables shop owners to comply with the HACCP standard on food quality

- Simpler installation, less room for errors, easier field service
- Lower noise level



For technical data, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R134a - 220 - 240 V | 50 Hz

S.No.	Compressor	Application	ASHRAE						ASHRAE						Displacement	Voltage and frequencies	Compressor cooling	Dimensions	
			Tcond = 54.4 °C, Tliq = 32.2 °C, Tsuc = 32.2 °C Capacity [W]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height	
			Evaporating temp. [°C]						Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP				[mm]	
			-35	-15	-5	0	10	15										[W]	[W/W]
1	PL20F	MBP		45	81	103			24	0.55	66	1.08			1.41	198 - 254 V, 50 Hz	S	129	127
2	PL35F	MBP		75	125	156			45	0.86	103	1.34			2.00	198 - 254 V, 50 Hz	S	134	132
3	PL35G	L/M/HBP		66	111	140	214	261	39	0.79	91	1.27	170	1.83	2.00	198 - 254 V, 50 Hz *)	F1	137	135
4	PL50F	LBP	18	92					56	0.89					2.50	198 - 254 V, 50 Hz	S	137	135
5	PL50F	MBP		92	149	184			56	0.92	123	1.37			2.50	198 - 254 V, 50 Hz	F1	137	135
6	PLE50F	L/MBP		95	152	187			59	1.08	126	1.58			2.50	198 - 254 V, 50 Hz	S	140	138
7	TFS4.5FT	LBP	56	193	309				123	1.12	256	1.65			4.63	176 - 242 V, 50 Hz	S	173	169
8	TL2.5F	L/MBP		81	136	170			46	0.80	112	1.31			2.61	198 - 254 V, 50 Hz	S	163	159
9	TL2.5G	L/M/HBP	14	86	144	181	273	331	51	0.82	119	1.32	218	1.86	2.61	187 - 254 V, 50 Hz *)	S	163	159
10	TL3F	L/MBP		101	171	214			59	0.85	141	1.32			3.13	198 - 254 V, 50 Hz	S	163	159
11	TL3G	L/M/HBP		100	169	212	322	390	58	0.85	139	1.34	257	1.86	3.13	187 - 254 V, 50 Hz *)	S	163	159
12	TLES3F	L/MBP		115	192	240			70	1.07	158	1.57			3.13	198 - 254 V, 50 Hz	S	173	169
13	TLS3FT	LBP	26	115					69	1.07					3.13	187 - 254 V, 50 Hz	S	173	169
14	TL4F	LBP	38	133					84	0.98					3.86	198 - 254 V, 50 Hz	S	163	159
15	TL4G	L/M/HBP		133	223	280	425	515	81	0.94	184	1.46	340	2.15	3.86	187 - 254 V, 50 Hz *)	S	173	169
16	TL4GH	HBP		130	226	286	440	535			185	1.44	350	2.14	3.86	198 - 254 V, 50 Hz *)	F2	173	169
17	TLES4F	LBP	41	154					97	1.16					3.86	198 - 254 V, 50 Hz	S	173	169
18	TLS4FT	LBP	34	145					88	0.97					3.86	187 - 254 V, 50 Hz	S	173	169
19	TL5F	LBP	53	178					113	1.06					5.08	198 - 254 V, 50 Hz	S	173	169
20	TL5G	L/M/HBP		173	278	345	515	619	109	1.03	230	1.43	412	1.94	5.08	187 - 254 V, 50 Hz *)	S	173	169
21	TLES5F	LBP	62	210					134	1.22					5.08	198 - 254 V, 50 Hz	S	173	169
22	TLS5F	LBP	59	210					134	1.15					5.08	198 - 254 V, 50 Hz	S	173	169
23	TLS5FT	LBP	59	210					134	1.12					5.08	187 - 254 V, 50 Hz	S	173	169
24	TLES5.7FT.3	LBP	82	248					163	1.36					5.70	187 - 254 V, 50 Hz	S	173	169
25	TLES6F	LBP	72	227					143	1.20					5.70	198 - 254 V, 50 Hz	S	173	169
26	TLS6F	LBP	72	227					143	1.14					5.70	198 - 254 V, 50 Hz	S	173	169
27	TLES6.5FT.3	LBP	89	283					183	1.33					6.49	187 - 254 V, 50 Hz *)	S	173	169
28	TLES7FT.4	LBP	89	283					183	1.33					6.49	187 - 254 V, 50 Hz *)	S	173	169
29	TLS7F	LBP	82	257					164	1.15					6.49	198 - 254 V, 50 Hz	S	173	169
30	FR6G	L/M/HBP		212	360	453	687		120	1.04	296	1.59	548	2.20	6.23	187 - 254 V, 50 Hz *)	F1	196	191
31	FR7.5G	L/M/HBP		240	403	506	769		140	1.06	331	1.57	613	2.18	6.93	187 - 254 V, 50 Hz *)	F1	196	191
32	FR7GH	HBP		247	407	519	817	1007			334	1.60	645	2.44	6.93	198 - 254 V, 50 Hz *)	F2	196	191
33	FR8.5G	L/M/HBP		283	473	594	898		172	1.08	389	1.56	718	2.15	7.95	187 - 254 V, 50 Hz *)	F1	196	191
34	FR10G	L/M/HBP		309	511	640	969		189	1.01	421	1.48	773	2.07	9.05	187 - 254 V, 50 Hz *)	F1	196	191
35	FR11G	L/M/HBP		380	621	780			236	1.10	513	1.50			11.15	187 - 254 V, 50 Hz	F1	196	191
36	NF7FX	L/MBP	97	324	522	646			205	1.12	432	1.66	766	2.35	7.27	198 - 242 V, 50 Hz	S	203	197
37	NF9FX	L/MBP	113	356	575	715			229	1.09	475	1.59	856	2.28	8.34	198 - 242 V, 50 Hz	F1	203	197
38	NF10FX	L/MBP	127	418	671	832			267	0.94	556	1.42	991	2.06	10.09	198 - 242 V, 50 Hz *)	F1	203	197
39	NF11FX	L/MBP	141	454	725	898			294	0.97	600	1.41	1070	2.02	11.15	198 - 242 V, 50 Hz	F2	203	197
40	NL6.1FT	LBP	74	245					157	1.21					6.13	187 - 254 V, 50 Hz	S	188	182
41	NL6.1FT	LBP	74	245					157	1.21					6.13	187 - 254 V, 50 Hz	S	190	184
42	NL6.1MF	MBP		234	388	485	732	885			320	1.61	585	2.33	6.13	187 - 254 V, 50 Hz *)	S	190	184
43	NL6F	LBP	64	247					152	1.22					6.13	198 - 254 V, 50 Hz	S	188	181
44	NL6FT	LBP	74	245					157	1.21					6.13	187 - 254 V, 50 Hz *)	S	197	191
45	NL7.3FT	LBP	88	290					186	1.22					7.27	187 - 254 V, 50 Hz	S	188	182
46	NL7.3MF	MBP		293	477	596	895	1081			394	1.64	716	2.32	7.27	187 - 254 V, 50 Hz *)	F1	197	191
47	NL7F	LBP	87	294					187	1.21					7.27	198 - 254 V, 50 Hz	S	190	183

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling
F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O / F₁ possible at 220 V nominal (187 - 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.				
				LST (RSIR & RSCR)				Run capacitor (RC)		HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories	
	Connectors location			PTC starting device without RC connector		PTC starting device with RC connector		ePTC	optional or compulsory		Starting relay	Starting capacitor	Starting device	Cord relief				Cover
	Suction C	Process D	Dis-charge E	6.3	4.8	6.3	4.8	4.8	6.3	4.8	6.3	4.8	6.3					
1	6.2	6.2	5	103N0011	103N0018									103N1010	103N0491	101G0100	195B0098	
2	6.2	6.2	5	103N0011	103N0018									103N1010	103N0491	101G0202	195B0277	
3	6.2	6.2	5	103N0011	103N0018						117U6021	117U5014		103N1010	103N0491	101G0250	195B0248	195B0245
4	6.2	6.2	5	103N0011	103N0018									103N1010	103N0491	101G0220	195B0117	
5	6.2	6.2	5								117U6021	117U5014		103N1010	103N0491	101G0222		195B0001
6	6.2	6.2	5			103N0016	103N0021		117-7117 ³⁾	117-7119 ³⁾				103N1010	103N0491	101G0221	-	
7	6.5	6.5	5											117U0349	117U1023	102G4433		195B0498
8	6.2	6.2	5	103N0011	103N0018									103N1010	103N2010	102G4200	195B0004	
9	6.2	6.2	5	103N0011	103N0018						117U6007	117U5014		103N1010	103N2011	102G4251		195B0268
10	6.2	6.2	5	103N0011	103N0018						117U6007	117U5014		103N1010	103N2010	102G4300	195B0005	195B0254
11	6.2	6.2	5	103N0011	103N0018						117U6009	117U5014		103N1010	103N2010	102G4350	195B0214	195B0006
12	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119				103N1010	103N2010	102G4310	195B0219	
13	6.2	6.2	5	103N0011	103N0018						117U6007	117U5014		103N1010	103N2010	102G4325	-	
14	6.2	6.2	5	103N0011	103N0018						117U6009	117U5014		103N1010	103N2010	102G4400		
15	6.2	6.2	5	103N0011	103N0018						117U6004	117U5014		103N1010	103N2010	102G4452		195B0008
16	6.2	6.2	5								117U6000	117U5014		103N1010	103N2011	102G4455		195B0122
17	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119				103N1010	103N2010	102G4410	195B0216	
18	6.2	6.2	5	103N0011	103N0018						117U6004	117U5014		103N1010	103N2010	102G4424	-	
19	6.2	6.2	5	103N0011	103N0018						117U6004	117U5014		103N1010	103N2010	102G4501	195B0009	195B0241
20	6.2	6.2	5	103N0011	103N0018						117U6000	117U5014		103N1010	103N2010	102G4550	195B0222	195B0011
21	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119				103N1010	103N2010	102G4510	195B0218	
22	6.2	6.2	5	103N0011	103N0018						117U6004	117U5014		103N1010	103N2010	102G4520	195B0516	195B0010
23	6.2	6.2	5	103N0011	103N0018						117U6000	117U5014		103N1010	103N2010	102G4524		
24	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119	117U6004	117U5014		103N1010	103N2010	102G4573		
25	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119				103N1010	103N2010	102G4610		
26	6.2	6.2	5	103N0011	103N0018						117U6004	117U5014		103N1010	103N2010	102G4620	-	
27	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U6016	117U5014		103N1010	103N2010	102G4724	-	
28	6.5	6.5	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U6016	117U5014		103N1010	103N2010	102G4708	-	
29	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U6000	117U5014		103N1010	103N2010	102G4720	195B0224	195B0255
30	8.2	6.2	6.2	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	103G6660	195B0191	195B0023
31	8.2	6.2	6.2	103N0011	103N0018						117U6001	117U5015		103N1010	103N2010	103G6680	195B0192	195B0024
32	8.2	6.2	8.2								117U6016	117U5015		103N1010	103N2011	103G6683		195B0167
33	8.2	6.2	6.2	103N0011	103N0018						117U6015	117U5015		103N1010	103N2010	103G6780	195B0193	195B0026
34	8.2	6.2	6.2	103N0011	103N0018						117U6010	117U5015		103N1010	103N2010	103G6880	195B0194	195B0027
35	8.2	6.2	6.2	103N0011	103N0018						117U6010	117U5015		103N1010	103N2010	103G6980	195B0195	195B0028
36	8.2	6.5	6.5								117U4140	117U5018		117U0349	117U1023	105G6743		195B0496
37	8.2	6.5	6.5								117U4140	117U5018		117U0349	117U1021	105G6841		-
38	8.2	6.5	6.5								117U4139	117U5018		117U0349	117U1021	105G6846		195B0396
39	8.2	6.5	6.5								117U4139	117U5018		117U0349	117U1023	105G6944		195B0492
40	6.2	6.2	5	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	105G6620	-	
41	6.2	6.2	5	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	105G6621	-	
42	8.2	6.2	6.2	103N0011	103N0018						117U6015	117U5015		103N1010	103N2011	105G6660	195B0415	195B0411
43	6.2	6.2	5	103N0011	103N0018						117U6004	117U5015		103N1010	103N2010	105G6606	195B0090	195B0165
44	6.2	6.2	5	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	105G6628	-	-
45	6.2	6.2	5	103N0011	103N0018						117U6001	117U5015		103N1010	103N2010	105G6726	-	-
46	8.2	6.2	6.2	103N0011	103N0018						117U6016	117U5015		103N1010	103N2011	105G6772		195B0370
47	6.2	6.2	5	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	105G6706	195B0091	195B0176



For more information and performance with other refrigerants, please refer to Coolselector *2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial (Count.)

R134a - 220 - 240 V | 50 Hz

S.No.	Compressor	Application	ASHRAE Tcond = 54.4 °C, Tliq = 32.2 °C, Tsuc = 32.2 °C Capacity [W]						ASHRAE						Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions		
			Evaporating temp. [°C]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height	A	B
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]				[mm]		
48	NL7FT	LBP	88	290					186	1.22						7.27	187 - 254 V, 50 Hz	S	197	191
49	NL8F	LBP	100	307					201	1.24						7.95	198 - 254 V, 50 Hz	S	197	191
50	NL8.4FT	LBP	107	340					220	1.23						8.35	187 - 254 V, 50 Hz	F1	190	184
51	NL8.4MF	MBP		343	551	686	1028	1240			456	1.64	822	2.27		8.35	187 - 254 V, 50 Hz *)	F1	197	191
52	NL9F	LBP	92	332					213	1.21						8.35	198 - 254 V, 50 Hz	S	197	191
53	NL9FT	LBP	107	340					220	1.23						8.35	187 - 254 V, 50 Hz *)	S	197	191
54	NL9FT	LBP	107	340					220	1.23						8.35	187 - 254 V, 50 Hz	S	197	191
55	NLE9F	LBP	101	335					211	1.33						8.35	198 - 254 V, 50 Hz	S	197	191
56	NL10FT	LBP	141	434					284	1.25						10.09	187 - 254 V, 50 Hz	S	203	197
57	NL10MF	MBP		428	687	853	1273	1534			569	1.64	1019	2.27		10.09	187 - 254 V, 50 Hz *)	F1	203	197
58	NLE10MF	MBP	110	425	687	854			268	1.28	568	1.71	1023	2.32	10.09	198 - 254 V, 50 Hz	F1	203	197	
59	NLE10MF.2	L/MBP	116	457	734	913	1371		289	1.53	608	2.05	1096	2.75	10.09	198 - 254 V, 50 Hz	F2	203	197	
60	NL11F	LBP	126	435					274	1.22						11.15	198 - 254 V, 50 Hz	F2	203	197
61	NL11MF	M/HBP		471	756	938	1400	1687			626	1.61	1121	2.19	11.15	187 - 254 V, 50 Hz	F2	203	197	
62	NLE11MF.2	MBP		513	821	1018	1509		331	1.41	680	1.88	1211	2.50	11.15	198 - 242 V, 50 Hz	F2	203	197	
63	NLE12.6MF.2	L/MBP	245	554	909	1137	1697		361	1.55	750	2.07	1362	2.78	12.55	198 - 254 V, 50 Hz *)	F2	203	197	
64	NLE12.6MFT	L/MBP	245	554	909	1137	1697		361	1.55	750	2.07	1362	2.78	12.55	187 - 254 V, 50 Hz *)	F2	203	197	
65	SC10G	L/M/HBP	30	333	603	766	1149	1368	168	0.87	493	1.59	923	2.35	10.29	187 - 254 V, 50 Hz *)	F2	199	193	
66	SC10GH	HBP		289	592	761	1156	1392			481	1.56	925	2.28	10.29	187 - 254 V, 50 Hz *)	F2	209	203	
67	SC12FT	LBP	129	506	802				321	1.15	666	1.64			12.87	187 - 254 V, 50 Hz *)	F1	209	203	
68	SC12G	L/M/HBP	81	433	749	954	1471	1791	248	1.03	614	1.60	1170	2.29	12.87	187 - 254 V, 50 Hz *)	F2	209	203	
69	SC12GH	HBP		377	718	936	1489	1835			583	1.51	1175	2.34	12.87	198 - 254 V, 50 Hz *)	F2	209	203	
70	SC15F	LBP	126	545	901				324	1.11	745	1.59			15.28	198 - 254 V, 50 Hz	F1	209	203	
71	SC15FT	LBP	157	606	958				386	1.18	796	1.65			15.28	187 - 254 V, 50 Hz *)	F2	209	203	
72	SC15G	L/M/HBP		527	904	1127	1669	1998	260	1.01	745	1.56	1341	2.20	15.28	187 - 254 V, 50 Hz *)	F2	209	203	
73	SC15GH	HBP		518	898	1137	1741	2117			737	1.60	1386	2.41	15.28	198 - 254 V, 50 Hz *)	F2	209	203	
74	SC15MFX	MBP		569	951	1185	1749		326	1.10	785	1.66	1408	2.31	15.28	198 - 254 V, 50 Hz *)	F2	209	203	
75	SC18F	LBP	159	640	1041				389	1.17	863	1.62			17.69	198 - 254 V, 50 Hz	F1	209	203	
76	SC18FTX	LBP	181	703	1113				448	1.17	924	1.68			17.69	187 - 254 V, 50 Hz *)	F2	219	213	
77	SC18G	L/M/HBP		658	1081	1348	2011	2417	397	1.13	893	1.58	1612	2.21	17.69	187 - 254 V, 50 Hz *)	F2	219	213	
78	SC18GH	HBP		666	1061	1338	2048	2482			875	1.62	1632	2.27	17.69	198 - 254 V, 50 Hz	F2	219	213	
79	SC18GH	HBP		602	1025	1302	2015	2465			841	1.74	1599	2.57	17.69	198 - 254 V, 50 Hz *)	F2	219	213	
80	SC18MFX	MBP		697	1131	1410	2122		440	1.21	934	1.73	1696	2.51	17.69	187 - 254 V, 50 Hz *)	F2	219	213	
81	SC21F	LBP	228	742	1218				458	1.14	1007	1.54			20.95	198 - 254 V, 50 Hz	F1	219	213	
82	SC21FTX	LBP	241	884	1391				569	1.27	1156	1.76			20.95	187 - 254 V, 50 Hz	F2	219	213	
83	SC21G	L/M/HBP		755	1261	1579	2352	2810	461	1.23	1039	1.68	1889	2.40	20.95	187 - 254 V, 50 Hz *)	F2	219	213	
84	SC21MFX	MBP		845	1344	1665	2481		549	1.29	1114	1.76	1988	2.46	20.95	187 - 254 V, 50 Hz	F2	219	213	
85	SC12/12G	L/M/HBP	162	865	1498	1907	2942	3582	497	1.03	1228	1.60	2340	2.29	25.74	187 - 254 V, 50 Hz	F2	249	244	
86	SC15/15G	L/M/HBP		1054	1808	2255	3338	3996	521	1.01	1491	1.56	2682	2.20	30.56	187 - 254 V, 50 Hz	F2	249	244	
87	SC18/18G	L/M/HBP		1298	2150	2688	4026	4843	782	1.12	1774	1.63	3225	2.24	35.38	187 - 254 V, 50 Hz	F2	259	254	
88	SC21/21G	L/M/HBP		1508	2520	3156	4704	5621	921	1.13	2076	1.67	3777	2.29	41.90	187 - 254 V, 50 Hz	F2	259	254	
89	GS26GHX	HBP		1087	1746	2172	3268	3960			1445	1.79	2611	2.50	26.30	198 - 254 V, 50 Hz	F2	259	247	
90	GS26MFX	MBP		1078	1747	2170					1446	1.82			26.30	198 - 254 V, 50 Hz	F2	259	247	
91	GS34MFX	MBP		1400	2284	2848					1888	1.80	3424	2.44	33.80	198 - 254 V, 50 Hz	F2	259	247	

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling
F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O / F₁ possible at 220 V nominal (187 - 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.					
				LST (RSIR & RSCR)					Run capacitor (RC)		HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories	
	Connectors location			PTC starting device without RC connector	PTC starting device with RC connector	ePTC	optional or compulsory	Starting relay	Starting capacitor	Starting device	Cord relief	Cover							
	Suction C	Process D	Dis-charge E	6.3	4.8	6.3	4.8	4.8	6.3	4.8			6.3	4.8	6.3				
				Spades [mm]															
48	6.2	6.2	5	103N0011	103N0018							117U6001	117U5015		103N1010	103N2010	105G6718	195B0299	195B0487
49	6.2	6.2	5	103N0011	103N0018							117U6001	117U5015		103N1010	103N2010	105G6822	-	-
50	6.2	6.2	5	103N0011	103N0018							117U6001	117U5015		103N1010	103N2010	105G6055	-	-
51	8.2	6.2	6.2	103N0011	103N0018							117U6016	117U5015		103N1010	103N2011	105G6879		195B0371
52	8.2	6.2	6.2	103N0011	103N0018							117U6001	117U5015		103N1010	103N2010	105G6802	195B0092	195B0178
53	6.2	6.2	5	103N0011	103N0018							117U6015	117U5015		103N1010	103N2010	105G6059	-	-
54	6.2	6.2	5	103N0011	103N0018							117U6015	117U5015		103N1010	103N2010	105G6828		195B0313
55	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021			117-7117	117-7119				103N1010	103N2010	105G6805	-	-
56	8.2	6.2	6.2	103N0011	103N0018			103N0050		117-7119		117U6002	117U5015		103N1010	103N2010	105G6188	195B0327	
57	8.2	6.2	6.2	103N0011	103N0018							117U6022	117U5018		103N1010	103N2011	105G6885	195B0274	195B0275
58	8.2	6.2	6.2	103N0011	103N0018							117U6003	117U5015		103N1010	103N2010	105G6888		-
59	8.2	6.2	6.2					103N0050		117-7119		117U6002	117U5015		103N1010	103N2010	105G6187		-
60	8.2	6.2	6.2	103N0011	103N0018							117U6002	117U5015		103N1010	103N2010	105G6900	195B0093	195B0182
61	8.2	6.2	6.2	103N0011	103N0018							117U6022	117U5018		103N1010	103N2011	105G6156		195B0432
62	8.2	6.2	6.2					103N0050		117-7119		117U6003	117U5015		103N1010	103N2010	105G6197	-	-
63	8.2	6.2	6.2					103N0050		117-7119		117U6005	117U5015		103N1010	103N2010	105G6387	-	-
64	8.2	6.2	6.2					103N0050		117-7119		117U6005	117U5015		103N1010	103N2010	105G6388	-	-
65	8.2	6.2	6.2	103N0011								117U6002	117U5017		103N1004	103N2009	104G8000	-	195B0043
66	10.2	6.2	8.2									117U6005	117U5017		103N1004	103N2008	104G8041		195B0142
67	8.2	6.2	6.2	103N0011								117U6003	117U5017		103N1004	103N2009	104G8205		-
68	8.2	6.2	6.2	103N0011								117U6003	117U5017		103N1004	103N2009	104G8240	195B0201	195B0050
69	10.2	6.2	8.2									117U6011	117U5017		103N1004	103N2008	104G8261		195B0249
70	8.2	6.2	6.2	103N0011								117U6003	117U5017		103N1004	103N2009	104G8500	195B0202	195B0052
71	10.2	6.2	6.2	103N0011								117U6005	117U5017		103N1004	103N2009	104G8505		195B0407
72	10.2	6.2	6.2									117U6005	117U5017		103N1004	103N2009	104G8520		195B0053
73	10.2	6.2	8.2									117U6011	117U5017		103N1004	103N2008	104G8561		-
74	10.2	6.2	6.2									117U6005	117U5017		103N1004	103N2008	104G8501		-
75	10.2	6.2	6.2									117U6005	117U5017		103N1004	103N2009	104G8800		195B0057
76	10.2	6.2	6.2									117U6019	117U5017		103N1004	103N2009	104G8805		195B0408
77	10.2	6.2	6.2									117U6019	117U5017		103N1004	103N2009	104G8820		195B0059
78	10.2	6.2	8.2									117U6019	117U5017		103N1004	103N2009	104G8860		195B0246
79	10.2	6.2	8.2						?)	?)		117U5373	117-7039	103N1004	103N2008	104G8861			195B0648
80	10.2	6.2	6.2									117U6019	117U5017	117-7027	103N1004	103N2008	104G8804		-
81	10.2	6.2	6.2									117U6019	117U5017		103N1004	103N2009	104G8100		195B0047
82	10.2	6.2	6.2									117U6019	117U5017		103N1004	103N2009	104G8105		195B0514
83	10.2	6.2	6.2						?)	?)		117U5373	117-7029	103N1004	103N2009	104G8140			195B0752
84	10.2	6.2	6.2									117U6019	117U5017	117-7039	103N1004	103N2009	104G8120		195B0682
85	12	6.2	6.2									117U6003	117U5017		103N1004	103N2009	104G8280		195B0051
86	12	6.2	6.2									117U6005	117U5017		103N1004	103N2009	104G8580		195B0056
87	16	6.2	6.2									117U6019	117U5017		103N1004	103N2009	104G8880		195B0060
88	16	6.2	6.2						?)	?)		117U5373	117-7029	103N1004	103N2009	104G8180			195B0637
89	12.9	6.5	8.2						?)	?)				117-7070	107B9101	107B0702			195B0434
90	12.9	6.5	8.2						?)	?)				117-7055	107B9101	107B0700			195B0433
91	12.9	6.5	8.2						?)	?)				117-7056	107B9101	107B0701			195B0435



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Technical data and ordering

Reciprocating compressors - Light Commercial

R134a - 220 V | 60 Hz

S.No.	Compressor	Application	ASHRAE T _{cond} = 130 °F, T _{liq} = 90 °F, T _{suc} = 90 °F Capacity [BTU/h]						ASHRAE						Displacement [cu.in]	Voltage and frequencies	Compressor cooling	Dimensions		
									LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height		
			Evaporating temp. [°F]						Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				[in]	A	B
			-31	5	23	32	50	59	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]						
1	PL35G	L/M/HBP												0.12	- V, Hz *)	0	5.4	5.3		
2	TL2.5G	L/M/HBP	60	342	570	715		202	2.88	471	4.55	864	6.35	0.16	198 - 254 V, 60 Hz *)	S	6.4	6.3		
3	TL3G	L/M/HBP		402	682			231	3.15	562	4.59			0.19	198 - 254 V, 60 Hz *)	S	6.4	6.3		
4	TL4G	L/M/HBP		539	891			329	3.60	737	5.05			0.24	198 - 254 V, 60 Hz *)	S	6.8	6.7		
5	TL4GH	HBP		507	886	1123				728	4.86	1368	6.80	0.24	198 - 254 V, 60 Hz *)	F2	6.8	6.7		
6	TL5G	L/M/HBP		683	1099			429	3.84	911	4.93			0.31	198 - 254 V, 60 Hz *)	S	6.8	6.7		
7	TLES6.5FT.3	LBP	303	964				622	4.21					0.40	187 - 254 V, 50 Hz *)	S	6.8	6.7		
8	TLES7FT.4	LBP	303	964				622	4.21					0.40	187 - 254 V, 50 Hz *)	S	6.8	6.7		
9	FR6G	L/M/HBP		842	1458			459	3.60	1199	5.58			0.38	198 - 254 V, 60 Hz *)	F1	7.7	7.5		
10	FR7.5G	L/M/HBP		962	1625			547	3.71	1340	5.38			0.42	198 - 254 V, 60 Hz *)	F1	7.7	7.5		
11	FR7GH	HBP		952	1606	2047				1320	5.53	2537	7.71	0.42	198 - 254 V, 60 Hz *)	F2	7.7	7.5		
12	FR8.5G	L/M/HBP		1113	1866			661	3.79	1539	5.13			0.49	198 - 254 V, 60 Hz *)	F1	7.7	7.5		
13	FR10G	L/M/HBP		1235	2053			731	3.57	1696	4.93			0.55	198 - 254 V, 60 Hz *)	F1	7.7	7.5		
14	NF7FX	L/MBP	331	1107	1782	2206		700	3.81	1478	5.66			0.44	198 - 242 V, 50 Hz	S	8.0	7.8		
15	NF10FX	L/MBP	512	1529	2405	2988		1021	3.90	1996	5.23			0.62	198 - 242 V, 60 Hz *)	F2	8.0	7.8		
16	NL6.1MF	MBP	185	947	1586	1994		562	3.97	1308	5.54			0.37	187 - 254 V, 60 Hz *)	S	7.5	7.2		
17	NL6FT	LBP	248	841				551	4.16					0.37	198 - 254 V, 60 Hz *)	S	7.8	7.5		
18	NL7.3MF	MBP	313	1199	1943	2418		751	4.06	1609	5.42			0.44	187 - 254 V, 60 Hz *)	F1	7.8	7.5		
19	NL8.4MF	MBP	329	1377	2257	2819		847	4.20	1867	5.53			0.51	187 - 254 V, 60 Hz *)	F1	7.8	7.5		
20	NL9FT	LBP	384	1441				921	4.72					0.51	198 - 254 V, 60 Hz *)	F1	7.8	7.5		
21	NL10MF	MBP	465	1716	2753	3417		1090	4.40	2283	5.66			0.62	187 - 254 V, 60 Hz *)	F1	8.0	7.8		
22	NLE12.6MF.2	L/MBP	1009	2276	3737	4677		1481	5.34	3088	7.14			0.77	198 - 254 V, 60 Hz *)	F2	8.0	7.8		
23	NLE12.6MFT	L/MBP	1009	2276	3737	4677		1481	5.34	3088	7.14			0.77	198 - 254 V, 60 Hz *)	F2	8.0	7.8		
24	SC10G	L/M/HBP	119	1331	2408			670	2.95	1972	5.43			0.63	198 - 254 V, 60 Hz *)	F2	7.8	7.6		
25	SC10GH	HBP		1361	2305	2909				1899	5.08	3544	6.89	0.63	198 - 254 V, 60 Hz *)	F2	8.2	8.0		
26	SC12FT	LBP	531	2020	3229			1276	4.04	2680	5.44			0.79	198 - 254 V, 60 Hz *)	F1	8.2	8.0		
27	SC12G	L/M/HBP	318	1722	2987			983	3.50	2451	5.47			0.79	198 - 254 V, 60 Hz *)	F2	8.2	8.0		
28	SC12G	MBP		1573	2953	3852				2401	5.65	4860	8.38	0.79	187 - 254 V, 60 Hz	F2	8.2	8.0		
29	SC12GH	HBP		1573	2882	3734				2350	5.52	4680	8.13	0.79	198 - 254 V, 60 Hz *)	F2	8.2	8.0		
30	SC15FT	LBP	655	2417	3832			1542	4.09	3185	5.54			0.93	198 - 254 V, 60 Hz *)	F2	8.2	8.0		
31	SC15G	L/M/HBP		2182	3652			1263	3.64	3020	5.58			0.93	198 - 254 V, 60 Hz *)	F2	8.2	8.0		
32	SC15G	MBP		1988	3534	4449				2907	5.69	5348	8.11	0.93	187 - 254 V, 60 Hz	F2	8.2	8.0		
33	SC15GH	HBP		1792	3286	4292				2673	5.70	5449	8.17	0.93	198 - 254 V, 60 Hz *)	F2	8.2	8.0		
34	SC18FTX	LBP	796	2857	4544			1823	4.11	3774	5.69			1.08	198 - 254 V, 60 Hz *)	F2	8.6	8.4		
35	SC18G	L/M/HBP		2632	4316			1596	3.86	3572	5.41			1.08	198 - 254 V, 60 Hz *)	F2	8.6	8.4		
36	SC18G	MBP		2426	4049	5122				3336	6.03	6282	8.57	1.08	187 - 254 V, 60 Hz	F2	8.6	8.4		
37	SC18GH	HBP		2426	4049	5122				3336	6.03	6282	8.57	1.08	198 - 254 V, 60 Hz *)	F2	8.6	8.4		
38	SC18MFX	MBP		2822	4513	5598				3744	5.96	6697	8.09	1.08	187 - 254 V, 60 Hz *)	F2	8.6	8.4		
39	SC21FTX	LBP	1017	3379	5337			2184	4.39	4437	5.77			1.28	187 - 254 V, 60 Hz	F2	8.6	8.4		
40	SC21G	L/M/HBP		2780	4845			1516	3.67	3980	5.69			1.28	198 - 254 V, 60 Hz *)	F2	8.6	8.4		
41	SC21G	L/M/HBP		2780	4845			1516	3.67	3980	5.69			1.28	198 - 254 V, 60 Hz	F2	8.6	8.4		

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(compressor compartment temp. equal to ambient temperature)

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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.				
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)		HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory	Starting relay	Starting capacitor	Starting device 2)	Cord relief	Cover						
	[in]												Spades [in]					
	Suction C	Process D	Dis-charge E	¼	¾	¼	¾	¼	¼	¾	¼	¼	¼					
1	0.24	0.24	0.20	103N0011	103N0018						117U6021	117U5014		103N1010	103N0491	101G0250	195B0248	195B0245
2	0.24	0.24	0.20	103N0011	103N0018						117U6007	117U5014		103N1010	103N2011	102G4251	-	195B0347
3	0.24	0.24	0.20	103N0011	103N0018						117U6009	117U5014		103N1010	103N2010	102G4350	195B0214	195B0006
4	0.24	0.24	0.20	103N0011	103N0018						117U6004	117U5014		103N1010	103N2010	102G4452	-	195B0008
5	0.24	0.24	0.20	103N0011	103N0018						117U6000	117U5014		103N1010	103N2011	102G4455		195B0122
6	0.24	0.24	0.20	103N0011	103N0018						117U6000	117U5014		103N1010	103N2010	102G4550	195B0222	195B0011
7	0.24	0.24	0.20	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U6016	117U5014		103N1010	103N2010	102G4724	-	
8	0.26	0.26	0.20	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U6016	117U5014		103N1010	103N2010	102G4708	-	
9	0.32	0.24	0.24	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	103G6660	195B0191	195B0023
10	0.32	0.24	0.24	103N0011	103N0018						117U6001	117U5015		103N1010	103N2010	103G6680	195B0192	195B0024
11	0.32	0.24	0.32								117U6016	117U5015		103N1010	103N2011	103G6683		195B0167
12	0.32	0.24	0.24	103N0011	103N0018						117U6015	117U5015		103N1010	103N2010	103G6780	195B0193	195B0026
13	0.32	0.24	0.24	103N0011	103N0018						117U6010	117U5015		103N1010	103N2010	103G6880	195B0194	195B0027
14	0.32	0.26	0.26								117U4140	117U5018		117U0349	117U1023	105G6743		195B0496
15	0.32	0.26	0.26								117U4139	117U5018		117U0349	117U1021	105G6846		195B0396
16	0.32	0.24	0.24	103N0011	103N0018						117U6015	117U5015		103N1010	103N2011	105G6660	195B0415	195B0411
17	0.24	0.24	0.20	103N0011	103N0018						117U6000	117U5015		103N1010	103N2010	105G6628	-	-
18	0.32	0.24	0.24	103N0011	103N0018						117U6016	117U5015		103N1010	103N2011	105G6772	-	195B0370
19	0.32	0.24	0.24	103N0011	103N0018						117U6016	117U5015		103N1010	103N2011	105G6879		195B0371
20	0.24	0.24	0.20	103N0011	103N0018						117U6015	117U5015		103N1010	103N2010	105G6059		-
21	0.32	0.24	0.24	103N0011	103N0018						117U6022	117U5018		103N1010	103N2011	105G6885	195B0274	195B0275
22	0.32	0.24	0.24						117L0585	117-7119	117U6005	117U5015		103N1010	103N2010	105G6387		-
23	0.32	0.24	0.24						117L0585	117-7119	117U6005	117U5015		103N1010	103N2010	105G6388		-
24	0.32	0.24	0.24	103N0011							117U6002	117U5017		103N1004	103N2009	104G8000	-	195B0043
25	0.40	0.24	0.32								117U6005	117U5017		103N1004	103N2008	104G8041		195B0142
26	0.32	0.24	0.24	103N0011							117U6003	117U5017		103N1004	103N2009	104G8205		-
27	0.32	0.24	0.24	103N0011							117U6003	117U5017		103N1004	103N2009	104G8240	195B0201	195B0050
28	0.40	0.26	0.26								117U6011	117U5017		103N1004	103N2008	104G8245		195B0457
29	0.40	0.24	0.32								117U6011	117U5017		103N1004	103N2008	104G8261		195B0249
30	0.40	0.24	0.24	103N0011							117U6005	117U5017		103N1004	103N2009	104G8505		195B0407
31	0.40	0.24	0.24								117U6005	117U5017		103N1004	103N2009	104G8520		195B0053
32	0.40	0.26	0.26								117U6011	117U5017		103N1004	103N2008	104G8526		195B0453
33	0.40	0.24	0.32								117U6011	117U5017		103N1004	103N2008	104G8561		195B0144
34	0.40	0.24	0.24								117U6019	117U5017		103N1004	103N2009	104G8805		195B0408
35	0.40	0.24	0.24								117U6019	117U5017		103N1004	103N2009	104G8820		195B0059
36	0.40	0.26	0.26									117U5373	117-7039	103N1004	103N2008	104G8823		195B0651
37	0.40	0.24	0.32									117U5373	117-7039	103N1004	103N2008	104G8861		195B0648
38	0.40	0.24	0.24								117U6019	117U5017	117-7027	103N1004	103N2008	104G8804		-
39	0.40	0.24	0.24									117U5373	117-7039	103N1004	103N2008	104G8106		195B0659
40	0.40	0.24	0.24									117U5373	117-7029	103N1004	103N2009	104G8140		195B0752
41	0.40	0.24	0.24						117-7121			117U5373	117-7039	103N1004	103N2008	104G8143		-



For more information and performance with other refrigerants, please refer to Coolselector *2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R134a - 115 V | 60 Hz

S.No.	Compressor	Application	ASHRAE T _{cond} = 130 °F, T _{liq} = 90 °F, T _{suc} = 90 °F Capacity [BTU/h]						ASHRAE						Displacement [cu.in]	Voltage and frequencies	Compressor cooling	Dimensions	
			Evaporating temp. [°F]						LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height	
			-31	5	23	32	50	59	Cooling capacity [BTU/h]	EER	Cooling capacity [BTU/h]	EER	Cooling capacity [BTU/h]	EER				[in]	
			A		B														
1	PL30F	L/M/HBP	187	329	422			103	2.03	270	4.07	522	6.41	0.09	90 – 127 V, 60 Hz *)	S	5.3	5.2	
2	PL50F	L/MBP		290	472	585			175	2.70	391	4.42		0.12	103 – 127 V, 60 Hz	S	5.3	5.2	
3	TF3.5F	LBP	128	502					305	3.26				0.22	95 – 135 V, 60 Hz	S	6.8	6.7	
4	TFS4F	LBP	149	600					356	3.66				0.24	95 – 135 V, 60 Hz	S	6.8	6.7	
5	TFS4.5FT	L/MBP	238	760	1227	1514			477	3.75	1018	5.17		0.28	95 – 135 V, 60 Hz	S	6.8	6.7	
6	TL2.5F	LBP		339	569				202	3.12	470	4.53		0.16	103 – 127 V, 60 Hz	S	6.4	6.3	
7	TL2.5G	L/M/HBP		336	610	788			190	2.65	498	4.91	976	7.46	0.16	103 – 127 V, 60 Hz	S	6.4	6.3
8	TL3F	LBP		411	693				253	3.29	571	4.58		0.19	103 – 127 V, 60 Hz	S	6.4	6.3	
9	TL4G	L/M/HBP		522	895	1135			306	3.19	736	5.00	1383	7.02	0.24	90 – 135 V, 60 Hz *)	S	6.8	6.7
10	TLS4.5F	LBP	238	760	1227				477	3.70	1018	5.11		0.28	103 – 127 V, 60 Hz	S	6.4	6.3	
11	FF6GK	L/M/HBP		796	1464	1886			415	3.15	1195	5.40	2320	7.86	0.38	103 – 127 V, 60 Hz	F1	7.7	7.5
12	FF7.5GK	L/M/HBP		934	1654	2105			516	3.48	1356	5.41	2556	7.51	0.42	103 – 127 V, 60 Hz	F1	7.7	7.5
13	FF8.5GX	L/M/HBP		1133	1921	2407			662	3.17	1584	4.94	2871	6.87	0.49	103 – 127 V, 60 Hz	F2	7.7	7.5
14	FF10GX	L/M/HBP		1235	2109	2652			715	3.08	1737	4.84	3179	6.79	0.55	103 – 127 V, 60 Hz	F2	7.7	7.5
15	NF5.5FX	L/MBP	281	1098	1751	2165			696	4.12	1454	5.71		0.37	95 – 135 V, 60 Hz	F2	7.8	7.5	
16	NF6.1FX.2	L/MBP	293	1161	1873	2315			721	4.06	1554	6.09		0.37	95 – 135 V, 60 Hz	F1	7.8	7.5	
17	NF6FK	L/MBP	270	1054	1681	2079			668	3.88	1396	5.38		0.37	95 – 135 V, 60 Hz	F2	8.0	7.8	
18	NF7.3FX.2	L/MBP	387	1413	2254	2776			893	3.95	1872	5.81		0.44	95 – 135 V, 60 Hz	F1	7.8	7.5	
19	NF7FK	L/MBP	383	1275	2002	2468			834	4.09	1665	5.48		0.44	95 – 135 V, 60 Hz	F2	8.0	7.8	
20	NF7FX	L/MBP	395	1314	2064	2545			860	4.00	1717	5.54		0.44	95 – 135 V, 60 Hz	F2	7.8	7.5	
21	NF8.4FX.2	L/MBP		1613	2553	3138			1031	4.16	2123	5.88		0.51	95 – 135 V, 60 Hz	F1	7.8	7.5	
22	NF9FX	L/MBP		1454	2316	2864			937	3.83	1923	5.54		0.51	95 – 135 V, 60 Hz	F2	7.8	7.5	
23	NF10FX	L/MBP		1625	2577	3184			1048	4.01	2140	5.48		0.62	95 – 135 V, 60 Hz	F2	7.8	7.5	
24	NF11FX	MBP	477	1726	2759	3419			1100	3.72	2290	5.19		0.68	95 – 135 V, 60 Hz	F2	8.0	7.8	
25	NF11FX.2	MBP		2054	3269	4025					2717	5.62		0.69	95 – 135 V, 60 Hz	F2	8.0	7.8	
26	NTY7FK	LBP	479	1365					886	5.25				0.44	103 – 127 V, 60 Hz	S	8.0	7.8	
27	SC12G	L/M/HBP	203	1799	3099	3927			1007	3.38	2548	5.33	4795	7.64	0.79	103 – 127 V, 60 Hz	F1	8.2	8.0
28	SC15FTX	LBP	677	2412	3797				1552	3.83	3160	5.00		0.93	90 – 135 V, 60 Hz	F2	8.2	8.0	
29	SC15G	L/M/HBP		2183	3724	4663			1237	3.76	3071	5.43	5551	7.24	0.93	103 – 127 V, 60 Hz	F1	8.2	8.0
30	SC18G	L/M/HBP		2522	4226	5255			1356	3.36	3496	5.06	6255	6.86	1.08	95 – 135 V, 60 Hz	F2	8.6	8.4

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling
F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O / F1 possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.				
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)		HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory	Starting relay	Starting capacitor	Starting device 2)	Cord relief	Cover						
	Suction C	Process D	Dis-charge E	¼	¾	¼	¾	¼	¼	¾			¼	¼	¼			
1	0.26	0.26	0.20	103N0026	103N0023						117U6000	117U5015		103N1010	103N0492	101G9100	195B0530	
2	0.26	0.26	0.20	103N0026	103N0023						117U6000	117U5015		103N1010	103N0492	101G9202		195B0320
3	0.26	0.26	0.20											117U0349	117U1021	102G3304	-	
4	0.26	0.26	0.20											117U0349	117U1021	102G3431	-	
5	0.26	0.26	0.19								117U4126	117U5022		117U0349	117U1021	102G3432		195B0673
6	0.26	0.26	0.20	103N0026	103N0023									103N1010	103N2011	102G3206		195B0300
7	0.26	0.26	0.20	103N0026	103N0023									103N1010	103N2011	102G3255	195B0592	
8	0.26	0.26	0.20	103N0026	103N0023									103N1010	103N2011	102G3300	195B0002	
9	0.26	0.26	0.20	103N0026	103N0023						117U6003	117U5023		103N1010	103N2011	102G3460	-	195B0003
10	0.26	0.26	0.20	103N0026	103N0023						117U6003	117U5023		103N1010	103N2011	102G3425	-	-
11	0.32	0.26	0.26											117U0349	117U1021	103G5680		195B0121
12	0.32	0.26	0.26											117U0349	117U1021	103G5780		195B0022
13	0.32	0.26	0.26								117U4060	117U5041		117U0349	117U1021	103G5880		195B0125
14	0.32	0.26	0.26								117U4061	117U5040		117U0349	117U1021	103G5980		195B0186
15	0.32	0.26	0.26								117U4127	117U5025		117U0349	117U1021	105G5623		195B0259
16	0.32	0.26	0.26								117U4127	117U5025		117U0349	117U1021	105G5631		195B0560
17	0.32	0.26	0.26								117U4132	117U5022		117U0349	117U1021	105G5628		-
18	0.32	0.26	0.26								117U4061	117U5025		117U0349	117U1021	105G5722		195B0586
19	0.32	0.26	0.26								117U4132	117U5022		117U0349	117U1021	105G5728		-
20	0.32	0.26	0.26								117U4061	117U5025		117U0349	117U1021	105G5723		195B0467
21	0.32	0.26	0.26								117U4129	117U5025		117U0349	117U1021	105G5918		-
22	0.32	0.26	0.26								117U4129	117U5025		117U0349	117U1021	105G5920		195B0552
23	0.32	0.26	0.26								117U4129	117U5022		117U0349	117U1021	105G5941		195B0330
24	0.32	0.26	0.26								117U4123	117U5028		117U0349	117U1021	105G5945		195B0388
25	0.32	0.26	0.26								117U4151	117U5028		117U0349	117U1021	105G5916		-
26	0.32	0.26	0.26			117U6102		117U3306	117-7118						117U1026	105G5720		-
27	0.32	0.26	0.26								117U6020	117U5023		103N1004	103N2008	104G7250		195B0042
28	0.32	0.26	0.26								117U6020	117U5023		103N1004	103N2008	104G7505		195B0500
29	0.32	0.26	0.26								117U6020	117U5023		103N1004	103N2008	104G7550		195B0099
30	0.38	0.26	0.26								117-7441	117U5042	117-7053		117U1021	104G7800		195B0694



For more information and performance with other refrigerants, please refer to Coolselector * 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R404A - 220 - 240 V | 50 Hz

S.No.	Compressor	Application	ASHRAE														Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions	
			ASHRAE Tcond = 54.4 °C, Tliq = 32.2 °C, Tsuc = 32.2 °C Capacity [W]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C		Height	A				B	
			Evaporating temp. [°C]						Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]							
			-35	-15	-5	0	10	15													
1	TL4CL	LBP	75	240	390				152	1.03	310	1.39			3.86	198 - 254 V, 50 Hz	F2	173	169		
2	TL4DL	M/HBP		227	362	454	670				287	1.26	519	1.81	3.86	198 - 254 V, 50 Hz	F2	173	169		
3	TL4.5CLX	LBP	102	301					198	1.05					4.63	198 - 254 V, 50 Hz	F2	173	169		
4	FR6CL	LBP	149	393	605				268	1.04	484	1.19			6.23	198 - 254 V, 50 Hz	F2	196	191		
5	FR6DL	M/HBP		403	599	730	1058				481	1.20	819	1.57	6.23	198 - 254 V, 50 Hz	F2	196	191		
6	FR7.5CL	LBP	158	433	657				294	1.03	528	1.15			6.93	198 - 254 V, 50 Hz	F2	196	191		
7	FR8.5CL	LBP	171	492					332	0.98					7.95	198 - 254 V, 50 Hz	F2	196	191		
8	NF7MLX	MBP		547	851	1039	1503				682	1.49	1164	2.12	7.27	187 - 254 V, 50 Hz *)	F2	203	197		
9	NL6.1MLX	MBP		455	711	869			291	1.14	569	1.61	975	2.31	6.13	187 - 254 V, 50 Hz *)	F2	203	197		
10	NL7CLX	LBP	200	576	876				388	1.31	704	1.60			7.27	198 - 254 V, 50 Hz	F2	203	197		
11	NL8.4CLX	LBP	218	627	953				422	1.28	765	1.54			8.35	198 - 254 V, 50 Hz	F2	203	197		
12	NL9CLX	LBP	236	674					457	1.34					8.35	198 - 254 V, 50 Hz	F2	203	197		
13	SC10CL	LBP	132	664	1079				402	1.13	859	1.45			10.29	198 - 254 V, 50 Hz *)	F2	209	203		
14	SC10CLX	L/MBP	130	655	1064	1316			396	1.11	847	1.51			10.29	198 - 254 V, 50 Hz *)	F2	209	203		
15	SC10MLX	MBP		722	1127	1380					902	1.54	1553	2.18	10.29	187 - 254 V, 50 Hz *)	F2	209	203		
16	SC10DL	M/HBP		644	1051	1300	1916	2295			837	1.51	1478	2.15	10.29	198 - 254 V, 50 Hz	F2	209	203		
17	SC12CL	LBP	165	857	1397				516	1.10	1112	1.50			12.87	198 - 254 V, 50 Hz	F2	209	203		
18	SC12CLX.2	LBP	278	899					593	1.15					12.87	198 - 254 V, 50 Hz *)	F2	219	213		
19	SC12MLX	MBP		886	1369	1670			584	1.15	1096	1.56	1873	2.18	12.87	187 - 254 V, 50 Hz *)	F2	219	213		
20	SC12DL	M/HBP		865	1407	1728	2508	2984			1122	1.57	1942	2.26	12.87	198 - 254 V, 50 Hz	F2	219	213		
21	SC15CLX.2	LBP	339	1097					724	1.18					15.28	198 - 254 V, 50 Hz	F2	219	213		
22	SC15CLX.2	LBP	339	1097					724	1.18					15.28	198 - 254 V, 50 Hz	F2	219	213		
23	SC15MLX	MBP		1117	1718	2102			762	1.20	1375	1.56	2371	2.16	15.28	198 - 254 V, 50 Hz	F2	219	213		
24	SC15DL	M/HBP		1034	1641	2012	2928	3492			1311	1.56	2265	2.25	15.28	198 - 254 V, 50 Hz	F2	219	213		
25	SC18CL	LBP	374	1220	1882				803	1.22	1508	1.50			17.69	198 - 254 V, 50 Hz	F2	219	213		
26	SC18MLX	MBP		1306	2001	2446			894	1.27	1603	1.64	2757	2.27	17.69	198 - 254 V, 50 Hz	F2	219	213		
27	SC18CLX.2	LBP	415	1343					886	1.20					17.69	198 - 254 V, 50 Hz	F2	219	213		
28	SC18MLX.3	MBP		1384	2097	2552			959	1.34	1683	1.67	2862	2.28	17.68	198 - 254 V, 50 Hz	F2	219	213		
29	SC21CL	LBP	442	1386					905	1.18					20.95	198 - 254 V, 50 Hz	F2	219	213		
30	SC10/10CL	LBP	264	1327	2157				803	1.13	1717	1.45			20.58	198 - 254 V, 50 Hz	F2	249	244		
31	SC10/10DL	M/HBP		1288	2103	2601	3832	4590			1674	1.51	2955	2.15	20.58	198 - 254 V, 50 Hz	F2	249	244		
32	SC12/12CL	LBP	330	1715	2794				1032	1.10	2224	1.50			25.74	198 - 254 V, 50 Hz	F2	249	244		
33	SC12/12DL	M/HBP		1730	2814	3456	5016	5967			2244	1.57	3885	2.26	25.74	198 - 254 V, 50 Hz	F2	259	254		
34	SC15/15CL	LBP	360	2202	3356				1395	1.20	2699	1.50			30.56	198 - 254 V, 50 Hz	F2	259	254		
35	SC15/15DL	M/HBP		2068	3282	4024	5856	6983			2622	1.56	4529	2.25	30.56	198 - 254 V, 50 Hz	F2	259	254		
36	SC18/18CLX.2	LBP	823	2670					1761	1.20					35.36	198 - 254 V, 50 Hz	F2	259	254		
37	SC18/18CL	LBP	748	2440	3762				1606	1.22	3016	1.50			35.38	198 - 254 V, 50 Hz	F2	259	254		
38	SC21/21CL	LBP	884	2773					1810	1.18					41.90	198 - 254 V, 50 Hz	F2	259	254		
39	GS21MLX	MBP		1578	2486	3070					1984	1.79	3514	2.53	21.20	198 - 254 V, 50 Hz	F2	259	247		
40	GS26CLX	LBP	614	2017					1323	1.35					26.30	198 - 254 V, 50 Hz	F2	259	247		
41	GS26MLX	MBP		2069	3229	3954					2584	1.86	4467	2.56	26.30	198 - 254 V, 50 Hz	F2	279	267		
42	GS34CLX	LBP	943	2874	4412				1917	1.45	3537	1.74			33.80	198 - 254 V, 50 Hz	F2	279	267		
43	GS34MLX	MBP		2766	4178	5053					3359	1.71	5626	2.25	33.80	198 - 254 V, 50 Hz	F2	279	267		

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient

O = Oil cooling

F₁ = Fan cooling 1.5 m/s

(compressor compartment temp. equal to ambient temperature)

F₂ = Fan cooling 3.0 m/s necessary

* = O / F₁ possible at 220 V nominal (187 - 242 V)

Starting devices

LST = Low Starting Torque

LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.

HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



For more information and performance with other refrigerants, please refer to Coolselector * 2 at coolselector.danfoss.com or contact Danfoss.

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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.					
				LST (RSIR & RSCR)					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST						
	Connectors location			PTC starting device without RC connector		PTC starting device with RC connector		ePTC		Starting relay	Starting capacitor	Starting device	Cord relief	Cover	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories			
	[mm]			Spades [mm]															
	Suction C	Process D	Dis-charge E	6.3	4.8	6.3	4.8	4.8	6.3	4.8	6.3	4.8	6.3						
1	6.2	6.2	5										117U6000	117U5014		103N1010	103N2010		195B0021
2	6.2	6.2	5										117U6001	117U5014		103N1010	103N2010		195B0166
3	6.2	6.2	5										117U6001	117U5014		103N1010	103N2010		195B0465
4	8.2	6.2	6.2										117U6015	117U5015		103N1010	103N2010		195B0031
5	8.2	6.2	6.2										117U6010	117U5015		103N1010	103N2010		195B0032
6	8.2	6.2	6.2										117U6016	117U5015		103N1010	103N2010		195B0398
7	8.2	6.2	6.2										117U6010	117U5015		103N1010	103N2010		195B0038
8	9.7	6.5	6.5										117U4139	117U5018	117U0349	117U1021			195B0443
9	8.2	6.5	6.5										117U6022	117U5015		103N1010	103N2011		195B0599
10	8.2	6.2	6.2										117U6002	117U5015		103N1010	103N2010		195B0350
11	8.2	6.2	6.2	103N0011	103N0018								117U6003	117U5015		103N1010	103N2010		195B0481
12	8.2	6.2	6.2										117U6003	117U5015		103N1010	103N2010		-
13	8.2	6.2	6.2										117U6003	117U5017		103N1004	103N2009		195B0074
14	8.2	6.2	6.2										117U6005	117U5017		103N1004	103N2008		195B0151
15	8.2	6.5	6.5										117U6011	117U5017		103N1004	103N2008		195B0345
16	8.2	6.2	6.2										117U6005	117U5017		103N1004	103N2009		195B0075
17	8.2	6.2	6.2										117U6005	117U5017		103N1004	103N2009		195B0076
18	8.2	6.2	6.2										117U6019	117U5017		103N1004	103N2008		195B0379
19	8.2	6.5	6.5										117U6011	117U5017		103N1004	103N2008		195B0323
20	10.2	6.2	6.2										117U6019	117U5017		103N1004	103N2009		195B0077
21	9.63	6.5	6.5										117U6019	117U5017		103N1004	103N2009		-
22	10.2	6.2	6.2										117U6019	117U5017		103N1004	103N2009		195B0399
23	10.2	6.2	6.2										117U6013	117U5012		103N1004	103N2009		195B0391
24	10.2	6.2	6.2							?)	?)			117U5373	117-7029	103N1004	103N2009		195B0641
25	10.2	6.2	6.2							?)	?)			117U5373	117-7027	103N1004	103N2009		195B0066
26	10.2	6.2	6.2							?)	?)			117U5373	117-7027	103N1004	103N2009		195B0652
27	10.2	6.2	6.2										117U6013	117U5012		103N1004	103N2009		195B0332
28	10.2	6.2	6.2							?)	?)				117-7027	103N1004	103N2009		195B0653
29	10.2	6.2	6.2							?)	?)			117U5373	117-7027	103N1004	103N2009		195B0640
30	12	6.2	6.2										117U6003	117U5017		103N1004	103N2009		195B0108
31	12	6.2	6.2										117U6005	117U5017		103N1004	103N2009		195B0111
32	12	6.2	6.2										117U6005	117U5017		103N1004	103N2009		195B0119
33	12	6.2	6.2										117U6019	117U5017		103N1004	103N2009		195B0112
34	12	6.2	6.2										117U6019	117U5017		103N1004	103N2009		195B0109
35	16	6.2	6.2							?)	?)			117U5373	117-7029	103N1004	103N2009		195B0643
36	12	6.2	6.2										117U6013	117U5012		103N1004	103N2009		195B0527
37	16	6.2	6.2							?)	?)				117-7027	103N1004	103N2009		195B0642
38	16	6.2	6.2							?)	?)			117U5373	117-7027	103N1004	103N2009		195B0644
39	16.1	6.5	9.7							?)	?)				117-7070		107B9101		195B0436
40	12.9	6.5	8.2							?)	?)				117-7056		107B9101		195B0427
41	16.1	6.5	9.7							?)	?)				117-7072		107B9101		195B0437
42	12.9	6.5	8.2							?)	?)				117-7074		107B9101		195B0439
43	16.1	6.5	9.7							?)	?)				117-7056		107B9101		195B0438



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R404A - 220 V | 60 Hz

S.No.	Compressor	Application	ASHRAE T _{cond} = 130 °F, T _{liq} = 90 °F, T _{suc} = 90 °F Capacity [BTU/h]						ASHRAE						Displacement [cu.in.]	Voltage and frequencies	Compressor cooling	Dimensions	
									LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height	
			Evaporating temp. [°F]						Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				[in]	
			-31	5	23	32	50	59	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]				A	B
1	NF7MLX	MBP		2260	3516	4291				2819	5.33			0.44	187 – 254 V, 60 Hz *)	F2	8.0	7.8	
2	NL6.1MLX	MBP		1853	2883	3518				2311	5.52			0.37	187 – 254 V, 60 Hz *)	F2	8.0	7.8	
3	SC10CLX	L/MBP	529	2786			1763	3.95						0.63	198 – 254 V, 60 Hz *)	F2	8.2	8.0	
4	SC10MLX	MBP		2874	4545	5578			1805	3.91	3636	5.22		0.63	187 – 254 V, 60 Hz *)	F2	8.2	8.0	
5	SC12CLX	LBP	771	3744					2378	4.20				0.79	198 – 254 V, 60 Hz	F2	8.6	8.4	
6	SC12CLX.2	LBP	1081	3704					2408	4.07				0.79	198 – 254 V, 60 Hz *)	F2	8.6	8.4	
7	SC12CLX.2	LBP	1081	3704					2408	4.33				0.79	187 – 254 V, 60 Hz	F2	8.6	8.4	
8	SC12MLX	MBP		3445	5372	6563			2212	4.02	4305	5.18		0.79	187 – 254 V, 60 Hz *)	F2	8.6	8.4	
9	SC15CLX.2	LBP	1409	4564					3005	4.53				0.93	187 – 254 V, 60 Hz	F2	8.6	8.4	
10	SC15CLX	LBP	800	4141					2636	4.20				0.93	198 – 254 V, 60 Hz	F2	8.6	8.4	
11	SC15MLX.2	MBP		4210	6472	7918				0.00	5188	5.32		0.93	187 – 254 V, 60 Hz	F2	8.6	8.4	
12	SC18CLX.2	LBP	1774	5306					3797	4.76				1.08	187 – 254 V, 60 Hz	F2	8.6	8.4	
13	SC18MLX	MBP		5191	7947	9691				0.00	6378	5.03		1.08	187 – 254 V, 60 Hz	F2	8.6	8.4	
14	SC12/12CLX	LBP	1533	7450					4733	4.18				1.57	198 – 254 V, 60 Hz	F2	10.2	10.0	
15	GS21CLX	LBP	1993	6548					4286	4.60				1.29	187 – 254 V, 60 Hz	F2	10.2	9.7	
16	GS21MLX	MBP		6973	10697	13036					8587	6.34		1.29	187 – 254 V, 60 Hz	F2	11.0	10.5	
17	GS26CLX	LBP	2453	7216					4854	4.14				1.60	187 – 254 V, 60 Hz	F2	11.0	10.5	

Reciprocating compressors - Light Commercial

R404A - 220 – 240 V | 50 – 60 Hz

S.No.	Compressor	Application	ASHRAE T _{cond} = 54.4 °C, T _{liq} = 32.2 °C, T _{suc} = 32.2 °C Capacity [W]						ASHRAE						Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions	
									LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height	
			Evaporating temp. [°C]						Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP				[mm]	
			-35	-15	-5	0	10	15	[W]	[W/W]	[W]	[W/W]	[W]	[W/W]				A	B
1	NL6.1MLX	MBP		543	844	1031			350	1.24	676	1.62	1155	2.20	6.13	187 – 254 V, 60 Hz *)	F2	203	197
2	NF7MLX	MBP		662	1030	1257			426	1.16	825	1.56	1409	2.04	7.27	187 – 254 V, 60 Hz *)	F2	203	197
3	SC10CLX	L/MBP	155	816					518	1.16				10.29	198 – 254 V, 60 Hz *)	F2	209	203	
4	SC10MLX	MBP		842	1332	1634			530	1.15	1064	1.53	1842	2.01	10.29	187 – 254 V, 60 Hz *)	F2	209	203
5	SC12CLX.2	LBP	317	1085					707	1.19				12.87	198 – 254 V, 60 Hz *)	F2	219	213	
6	SC12MLX	MBP		1009	1574	1923			650	1.18	1260	1.52	2157	1.98	12.87	187 – 254 V, 60 Hz *)	F2	219	213

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling
F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O / F₁ possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.					
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories		
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory	Starting relay	Starting capacitor	Starting device 2)	Cord relief	Cover							
	Suction C	Process D +Di -Do	Dis-charge E	¼	¾	¼	¾	¼	¼	¾			¼	¼	¼				
1	0.38	0.26	0.26									117U4139	117U5018		117U0349	117U1021	105F3720		195B0443
2	0.32	0.26	0.26									117U6022	117U5015		103N1010	103N2011	105F3611		195B0599
3	0.32	0.24	0.24									117U6005	117U5017		103N1004	103N2008	104L2533		195B0151
4	0.32	0.26	0.26									117U6011	117U5017		103N1004	103N2008	104L2506		195B0345
5	0.32	0.24	0.24									117U6019	117U5017		103N1004	103N2008	104L2695		195B0247
6	0.32	0.24	0.24									117U6019	117U5017		103N1004	103N2008	104L2697		195B0379
7	0.38	0.26	0.26											117-7027	103N1004	103N2008	104L2699		195B0721
8	0.32	0.26	0.26									117U6011	117U5017		103N1004	103N2008	104L2606		195B0323
9	0.38	0.26	0.26										117U5373	117-7039	103N1004	103N2008	104L2897		195B0650
10	0.40	0.24	0.24										117U5373	117-7039	103N1004	103N2008	104L2854		195B0646
11	0.38	0.26	0.26											117-7058	103N1004	103N2008	104L2803		195B0358
12	0.38	0.26	0.26										117U5373	117-7066	103N1004	103N2008	104L2195		195B0428
13	0.38	0.26	0.26											117-7066	103N1004	103N2008	104L2138		195B0656
14	0.47	0.24	0.24									117U6019	117U5017		103N1004	103N2009	104L4034		-
15	0.51	0.26	0.32											117-7073		107B9101	107B0506		195B0502
16	0.51	0.26	0.38											117-7073		107B9106	107B0509		195B0503
17	0.51	0.26	0.32											117-7073		107B9101	107B0505		195B0501

S.No.	Dimensions				Electrical equipment - codes										Compressor - code no.					
					LST (RSIR & RSCR)			Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Single pack Compressor with LST accessories	Single pack Compressor with HST accessories					
	Connectors location				PTC starting device without RC connector	PTC starting device with RC connector	ePTC		Starting relay	Starting capacitor	Starting device	Cord relief	Cover							
	Suction C	Process D	Dis-charge E	Oil cooler F	6.3	4.8	6.3	4.8	4.8	6.3	4.8			6.3	4.8	6.3				
1	8.2	6.5	6.5											117U6022	117U5015		103N1010	103N2011	105F3611	195B0599
2	9.7	6.5	6.5											117U4139	117U5018		117U0349	117U1021	105F3720	195B0443
3	8.2	6.2	6.2											117U6005	117U5017		103N1004	103N2008	104L2533	195B0151
4	8.2	6.5	6.5											117U6011	117U5017		103N1004	103N2008	104L2506	195B0345
5	8.2	6.2	6.2											117U6019	117U5017		103N1004	103N2008	104L2697	195B0379
6	8.2	6.5	6.5											117U6011	117U5017		103N1004	103N2008	104L2606	195B0323



For more information and performance with other refrigerants, please refer to Coolselector *2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R404A - 115 V | 60 Hz

S.No.	Compressor	Application	ASHRAE						ASHRAE						Displacement [cu. in.]	Voltage and frequencies	Compressor cooling	Dimensions	
			Tcond = 130 °F, Tliq = 90 °F, Tsuc = 90 °F Capacity [BTU/h]						LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height	
			Evaporating temp. [°F]						Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				[in]	
			-31	5	23	32	50	59	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]				A	B
1	TF4CLX	L/MBP	340	1059	1620	1965		703	3.83	1302	4.77			0.24	103-135 V, 60 Hz	F2	6.8		
2	TFS4.5CLX	LBP	477	1369				927	4.07					0.28	103-135 V, 60 Hz	F2	6.8		
3	NF5.5CLX	L/MBP	653	1837	2775	3354		1247	4.20	2233	5.22			0.37	95-135 V, 60 Hz	F2	8.0	7.8	
4	NF7CLX	L/MBP	776	2300	3507	4254		1541	4.19	2819	5.33			0.44	95-135 V, 60 Hz	F2	7.8	7.5	
5	SC10CL	L/MBP	443	2388	3942	4914		1422	3.37	3135	4.86			0.63	103-127 V, 60 Hz	F2	8.2	8.0	
6	SC12CLX.2	LBP	1036	3771				2470	3.89					0.79	103-127 V, 60 Hz	F2	8.2	8.0	
7	SC12CL	LBP	771	3744				2378	3.78					0.79	103-127 V, 60 Hz	F2	8.2	8.0	
8	SC12MLX	MBP		3551	5559	6829				4448	5.14			0.79	95-135 V, 60 Hz	F2	8.6	8.4	
9	SC15CLX.2	LBP	1409	4564				3005	4.12					0.93	103-127 V, 60 Hz	F2	8.6	8.4	
10	SC15MLX	MBP		4101	6419	7886				5136	4.80			0.93	95-135 V, 60 Hz	F2	8.6	8.4	
11	SC15MLX.2	MBP		4212	6466	7892				5187	5.14			0.93	103-127 V, 60 Hz	F2	8.6	8.4	
12	SC18CLX.2	LBP	1712	5121				3664	4.48					1.08	103-127 V, 60 Hz	F2	8.6	8.4	
13	SC18MLX	MBP		5191	7947	9691				6378	5.03			1.08	103-127 V, 60 Hz	F2	8.6	8.4	

Reciprocating compressors - Light Commercial

R407C - 220 – 240 V | 50/60 Hz

S.No.	Compressor	Application	ASHRAE						ASHRAE						Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions	
			Tcond = 54.4 °C, Tliq = 32.2 °C, Tsuc = 32.2 °C Capacity [W]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height	
			Evaporating temp. [°C]						Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP				[mm]	
			-35	-15	-5	0	10	15	[W]	[W/W]	[W]	[W/W]	[W]	[W/W]				A	B
1	SC10DL	M/HBP	469	842	1074	1653	2013			685	1.57	1308	2.32	1029	198 – 254 V, 50 Hz	F2	209	203	
2	SC12DL	M/HBP	621	1087	1385	2144	2620			886	1.58	1692	2.38	12.87	198 – 254 V, 50 Hz	F2	219	213	
3	SC15DL	M/HBP	782	1351	1709	2612	3174			1104	1.70	2069	2.59	15.28	198 – 254 V, 50 Hz	F2	219	213	
4	SC10/10DL	M/HBP	937	1685	2148	3307	4026			1371	1.57	2615	2.32	20.58	198 – 254 V, 50 Hz	F2	249	244	
5	SC12/12DL	M/HBP	1241	2174	2769	4287	5239			1772	1.58	3384	2.38	25.74	198 – 254 V, 50 Hz	F2	259	254	
6	SC15/15DL	M/HBP	1563	2703	3419	5224	6348			2208	1.70	4137	2.59	30.56	198 – 254 V, 50 Hz	F2	259	254	

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling
F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O / F₁ possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.						
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories			
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory	Starting relay	Starting capacitor	Starting device ²⁾	Cord relief	Cover								
	[in]			Spades [in]																
Suction C	Process D	Dis-charge E	¼	¾	¼	¾	¼	¼	¾	¼	¼	¼								
1	0.26	0.26	0.26														102U2114	195B0666		
2	0.26	0.26	0.26														102U2115	195B0667		
3	0.32	0.26	0.26											117U4061	117U5025		117U0349	117U1021	105F1621	195B0348
4	0.32	0.26	0.26											117U4129	117U5022		117U0349	117U1021	105F1721	195B0304
5	0.32	0.26	0.26											117U6020	117U5023		103N1004	103N2008	104L1503	195B0147
6	0.32	0.26	0.26											117U6020	117U5023		103N1004	103N2008	104L1696	195B0491
7	0.32	0.26	0.26											117U6020	117U5023		103N1004	103N2008	104L1603	195B0061
8	0.32	0.26	0.26											117-7441	117U5042	117-7053		117U1021	104L1606	195B0323
9	0.38	0.26	0.26							117-7114				117-7441	117U5043	117-7045		117U1021	104L1853	195B0701
10	0.38	0.26	0.26							117-7114				117-7441	117U5043	117-7045		117U1021	104L1805	195B0375
11	0.38	0.26	0.26							117-7114				117-7441	117U5043	117-7045		117U1021	104L1807	195B0447
12	0.38	0.26	0.26							117-7114				117-7441	117U5043	117-7045		117U1021	104L2198	195B0464
13	0.38	0.26	0.26							117-7114				117-7441	117U5043	117-7045		117U1021	104L2105	195B0702

S.No.	Dimensions				Electrical equipment - codes										Compressor - code no.						
					LST (RSIR & RSCR)			Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Single pack Compressor with LST accessories	Single pack Compressor with HST accessories						
	Connectors location				PTC starting device without RC connector	PTC starting device with RC connector	ePTC		Starting relay	Starting capacitor	Starting device	Cord relief	Cover								
	[mm]				Spades [mm]																
Suction C	Process D	Dis-charge E	Oil cooler F	6.3	4.8	6.3	4.8	4.8	6.3	4.8	6.3	4.8	6.3								
1	8.2	6.2	6.2											117U6005	117U5017		103N1004	103N2009	104L2525	195B0075	
2	10.2	6.2	6.2											117U6019	117U5017		103N1004	103N2009	104L2625	195B0077	
3	10.2	6.2	6.2													117U5373	117-7029	103N1004	103N2009	104L2856	195B0641
4	12	6.2	6.2											117U6005	117U5017		103N1004	103N2009	104L4091	195B0111	
5	12	6.2	6.2											117U6019	117U5017		103N1004	103N2009	104L4092	195B0112	
6	16	6.2	6.2													117U5373	117-7029	103N1004	103N2009	104L4093	195B0643



For more information and performance with other refrigerants, please refer to Coolselector *2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R290 - 220 – 240 V | 50 Hz

S.No.	Compressor	Application	ASHRAE T _{cond} = 54.4 °C, T _{liq} = 32.2 °C, T _{suc} = 32.2 °C Capacity [W]						ASHRAE						Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions	
			Evaporating temp. [°C]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height	
			-35	-15	-5	0	10	15	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]				A	B
1	TL3CN	L/MBP	49	161	249	303			105	0.91	208	1.38			3.13	198 – 254 V, 50 Hz	F1	163	159
2	TL4CN	L/MBP	76	212	316	379			146	1.07	265	1.46			3.86	198 – 254 V, 50 Hz	F1	173	169
3	TL5CN	L/MBP	109	296	436	521			205	1.18	367	1.53			5.08	198 – 254 V, 50 Hz	F1	173	169
4	DLE4CN	L/MBP	104	279	404	473			193	1.58	341	2.15	516	2.92	4.00	198 – 254 V, 50 Hz	F2	175	169
5	DLE4.8CN	L/MBP	129	341	500	601			242	1.65	420	2.15	696	3.04	4.80	198 – 254 V, 50 Hz	F2	175	169
6	DLE5.7CN	L/MBP	169	419	609	730			301	1.59	512	2.05	840	2.82	5.70	198 – 254 V, 50 Hz	F2	175	169
7	DLE6.5CN	L/MBP	170	450	659	790			318	1.66	554	2.12	911	2.86	6.50	198 – 254 V, 50 Hz	F2	175	169
8	DLE7.5CN	L/MBP	209	519	765	918			366	1.47	643	1.91	1055	2.56	7.48	198 – 254 V, 50 Hz	F2	175	169
9	NL7CN	L/MBP	174	474	712	859			325	1.35	597	1.81			7.27	198 – 254 V, 50 Hz	F1	203	197
10	NL9CN	L/MBP	205	548	815	979			380	1.39	684	1.80			8.35	198 – 254 V, 50 Hz	F1	203	197
11	NLE8.8CN	L/MBP	238	617	902	1078	1512		435	1.65	759	2.08	1232	2.83	8.76	198 – 254 V, 50 Hz	F2	203	197
12	NLE10CN	L/MBP	270	709	1048	1252	1739		491	1.54	881	1.99	1423	2.68	10.09	198 – 254 V, 50 Hz	F2	203	197
13	NLE11CNL	LBP	300	778	1143				540	1.52	962	1.92			11.15	198 – 254 V, 50 Hz	F2	203	197
14	NLE11MN	MBP		798	1171	1399	1947		564	1.66	985	2.11	1592	2.85	11.15	198 – 254 V, 50 Hz	F2	203	197
15	NLE12.6CNL	LBP	353	867	1280				614	1.69	1074	2.10			12.55	198 – 254 V, 50 Hz	F2	203	197
16	NLE12.6MN	MBP		862	1272	1525	2135		605	1.64	1069	2.08	1742	2.72	12.55	198 – 254 V, 50 Hz	F2	203	197
17	SC10CNX	L/MBP	175	547	853	1042			358	1.27	711	1.79			10.29	198 – 254 V, 50 Hz	F2	209	203
18	SC10MNX	MBP		575	921	1132			351	1.19	766	1.70	1329	2.57	10.29	198 – 254 V, 50 Hz	F2	209	203
19	SC12CNX	L/MBP	227	711	1110	1372			475	1.31	923	1.79			12.87	198 – 254 V, 50 Hz	F2	209	203
20	SC12CNX.2	LBP	230	742					491	1.20					12.87	198 – 254 V, 50 Hz	F2	209	203
21	SC12MNX	MBP		757	1195	1461			474	1.13	995	1.77	1707	2.61	12.87	198 – 254 V, 50 Hz	F2	219	213
22	SC15CNX	L/MBP	251	918	1415	1717			597	1.35	1183	1.83			15.28	198 – 254 V, 50 Hz	F2	209	203
23	SC15CNX.2	LBP	345	928					624	1.32					15.28	198 – 254 V, 50 Hz	F2	209	203
24	SC15MNX	MBP		967	1409	1679			680	1.51	1187	1.75	1907	2.40	15.28	198 – 254 V, 50 Hz	F2	219	213
25	SC18CNX	L/MBP	315	1106	1684	2032			727	1.36	1410	1.74			17.69	198 – 254 V, 50 Hz	F2	209	203
26	SC18CNX.2	LBP	342	1194					797	1.31					17.69	198 – 254 V, 50 Hz	F2	219	213
27	SC18MNX	MBP		1109	1622	1943			777	1.31	1364	1.71	2237	2.33	17.69	198 – 254 V, 50 Hz	F2	219	213
28	SC21CNX.2	LBP	462	1399					962	1.45					20.95	198 – 254 V, 50 Hz	F2	219	213
29	SCE21CNLX	LBP	548	1387	2074				953	1.61	1741	2.04			20.95	198 – 254 V, 50 Hz	F2	219	213
30	SCE21MNX	MBP		1443	2091	2492			1002	1.64	1762	2.11	2852	2.91	20.95	198 – 254 V, 50 Hz	F2	219	213
31	DLE4CNT	L/MBP	104	279	404	473			193	1.58	341	2.15	516	2.92	4.00	187 – 254 V, 50 Hz	F2	175	169
32	DLE4.8CNT	L/MBP	130	334	498	601			232	1.41	417	2.01	695	2.91	4.80	187 – 254 V, 50 Hz *)	F2	175	169
33	DLE4.8CNT	L/MBP	129	341	500	601			242	1.65	420	2.15	696	3.04	4.80	187 – 254 V, 50 Hz	F2	175	169
34	DLE5.7CNT	L/MBP	166	415	607	727			296	1.49	510	2.02	836	2.86	5.70	187 – 254 V, 50 Hz *)	F2	175	169
35	NLE8.0CNT	L/MBP	183	554	827	993			378	1.55	694	2.16	1140	3.13	7.96	187 – 242 V, 50 Hz *)	F2	203	197
36	NLE10CNT	L/MBP	274	748	1094				519	1.54	922	1.99			10.09	187 – 242 V, 50 Hz *)	F2	203	197

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

¹⁾ see data sheets for details
²⁾ alt. cable lengths available
³⁾ compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling
F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O / F₁ possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.					
				LST (RSIR & RSCR)					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories		
	Connectors location			PTC starting device without RC connector	PTC starting device with RC connector	ePTC	Starting relay	Starting capacitor		Starting device	Cord relief	Cover							
	Suction C	Process D	Dis-charge E	6.3	4.8	6.3	4.8	4.8	6.3	4.8			6.3	4.8	6.3				
	[mm]			Spades [mm]															
1	6.2	6.2	5	103N0011	103N0018						117U7004	117U5014		103N1010	103N2010	102H4380	-	195B0435	
2	6.2	6.2	5	103N0011	103N0018						117U7004	117U5014		103N1010	103N2010	102H4490	-	195B0589	
3	6.2	6.2	5	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U7000	117U5014		103N1010	103N2010	102H4590	195B0420	195B0450	
4	6.2	6.2	5					103N0050		117-7129	117U7000	117U5014		103N1010	103N0491	102H4465		195B0727	
5	8.2	6.2	6.2					103N0050		117-7129	117U7001	117U5014		103N1010	103N0491	102H4565		195B0729	
6	8.2	6.2	6.2					103N0050		117-7129	117U7015	117U5015		103N1010	103N0491	102H4653		195B0726	
7	8.2	6.2	6.2					103N0050		117-7129	117U7016	117U5015		103N1010	103N0491	102H4765		195B0730	
8	8.2	6.2	6.2					103N0050			117U7002	117U5015		103N1010	103N0491	102H4853		195B0728	
9	8.2	6.2	6.2	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U7002	117U5015		103N1010	103N2010	105H6756	195B0346	195B0451	
10	8.2	6.2	6.2	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119	117U7002	117U5015		103N1010	103N2010	105H6856	195B0265	195B0499	
11	8.2	6.2	6.2					103N0050		117-7119	117U7002	117U5015		103N1010	103N2010	105H6880		195B0716	
12	8.2	6.2	6.2					103N0050		117-7119	117U7002	117U5015		103N1010	103N2010	105H6175		195B0717	
13	8.2	6.2	6.2					103N0050			117U7003	117U5015		103N1010	103N2010	105H6174		195B0718	
14	8.2	6.2	6.2					103N0050		117-7119	117U7005	117U5015		103N1010	103N2010	105H6177		195B0749	
15	8.2	6.2	6.2					103N0050		117-7119	117U7003	117U5015		103N1010	103N2010	105H6378		195B0751	
16	8.2	6.2	6.2					103N0050		117-7119	117U7011	117U5015		103N1010	103N2010	105H6377		195B0750	
17	8.2	6.2	6.2						?)	?)			117U5372	117-7025	103N1004	103N2009	104H8065		195B0655
18	8.2	6.2	6.2								117U7005	117U5017		103N1004	103N2008	104H8075		195B0676	
19	8.2	6.2	6.2						?)	?)			117U5372	117-7025	103N1004	103N2009	104H8265		195B0649
20	8.2	6.2	6.2								117U7003	117U5017		103N1004	103N2009	104H8266		195B0458	
21	8.2	6.2	6.2								117U7019	117U5017		103N1004	103N2008	104H8275		195B0692	
22	10.2	6.2	6.2						?)	?)		117U5373	117-7031	103N1004	103N2009	104H8565		195B0645	
23	8.2	6.2	6.2								117U7005	117U5017		103N1004	103N2009	104H8566		195B0505	
24	8.2	6.2	6.2								117U7019	117U5017		103N1004	103N2008	104H8575		195B0695	
25	10.2	6.2	6.2						?)	?)		117U5373	117-7052	103N1004	103N2009	104H8865		195B0654	
26	10.2	6.2	6.2								117U7011	117U5017		103N1004	103N2009	104H8866		195B0489	
27	8.2	6.2	6.2								117U7011	117U5017		103N1004	103N2008	104H8875		195B0693	
28	10.2	6.2	6.2								117U7013	117U5012		103N1004	103N2009	104H8166		195B0459	
29	10.2	6.2	6.2						?)	117-7112 ?)	117-7600	117U5373	117-7806		117U1028	104H8163		-	
30	10.2	6.2	6.2						?)	117-7112 ?)	117-7425	117U5373	117-7800		117U1028	104H8160		-	
31	6.2	6.2	5					103N0050		117-7129	117U7000	117U5014		103N1010	103N0491	102H4460			
32	8.2	6.5	6.5					103N0050		117-7129	117U7002	117U5015		103N1010	103N0491	102H4587			
33	8.2	6.2	6.2		103N0050			103N0050		117-7129	117U7001	117U5014		103N1010	103N0491	102H4588			
34	8.2	6.5	6.5					103N0050		117-7129	117U7002	117U5015		103N1010	103N0491	102H4678		-	
35	8.2	6.5	6.5					103N0050		117-7119	117U7003	117U5014		103N1010	103N2011	105H6073		-	
36	8.2	6.5	6.5					103N0050		117-7119	117U7050	117U5014		103N1010	103N2011	105H6179		-	



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Technical data and ordering

Reciprocating compressors - Light Commercial

R290 - 115V | 60 Hz

S.No.	Compressor	Application	ASHRAE						ASHRAE						Displacement	Voltage and frequencies	Compressor cooling	Dimensions	
			T _{cond} = 130 °F, T _{liq} = 90 °F, T _{suc} = 90 °F Capacity [BTU/h]						LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height	
			Evaporating temp. [°F]						Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				[in]	
			-31	5	23	32	50	59	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]				A	B
1	TL4CNX.2	L/MBP	365	1058	1594	1929		722	4.31	1336	6.12			0.24	95 – 135 V, 60 Hz	F2	6.8	6.7	
2	TL4.8CNX.2	L/MBP	468	1296	1908	2276		895	4.57	1607	6.14			0.29	95 – 135 V, 60 Hz	F2	6.8	6.7	
3	DLE4CN	L/MBP	445	1152	1719	2070		799	5.40	1443	7.48			0.24	95 – 135 V, 60 Hz	F2	6.9	6.7	
4	DLE4.8CN	L/MBP	536	1420	2086	2495		991	5.34	1756	7.32			0.29	95 – 135 V, 60 Hz	F2	6.9	6.7	
5	DLE5.7CN	L/MBP	665	1709	2496	2973		1200	5.46	2104	7.22			0.35	95 – 135 V, 60 Hz	F2	6.9	6.7	
6	DLE6.5CN	L/MBP	712	1859	2753	3319		1303	5.48	2313	7.19			0.40	95 – 135 V, 60 Hz	F2	6.9	6.7	
7	NL7.3CNX.2	L/MBP	831	2085	3125	3759		1436	4.89	2624	6.68			0.44	95 – 135 V, 60 Hz	F2	8.0	7.8	
8	NLE8.0CN	L/MBP	845	2266	3343	4016		1583	5.81	2811	7.74			0.49	95 – 135 V, 60 Hz	F2	8.0	7.8	
9	NL8.4CNX.2	L/MBP	909	2384	3541	4259		1658	5.01	2975	6.55			0.51	95 – 135 V, 60 Hz	F2	8.0	7.8	
10	NLE8.8CN	L/MBP	1024	2549	3755	4478		1775	5.72	3162	7.66			0.53	95 – 135 V, 60 Hz	F2	8.0	7.8	
11	NLE10CN	L/MBP	1203	3011	4401	5228		2107	5.72	3711	7.69			0.62	103 – 127 V, 60 Hz	F2	8.0	7.8	
12	NLY10CN	L/MBP	1281	2948	4394	5249		2040	5.76	3696	7.84			0.62	95 – 135 V, 60 Hz	F2	8.0	7.8	
13	NLE11CNL	LBP	1336	3361				2340	6.04					0.68	95 – 135 V, 60 Hz	F2	8.0	7.8	
14	NLE11MN	MBP		3389	4944	5875				4170	7.51	6651	10.09	0.68	95 – 135 V, 60 Hz	F2	8.0	7.8	
15	SC10CNX.2	L/MBP	531	2480	3964	4868		1525	3.98	3302	6.38			0.63	95 – 135 V, 60 Hz	F2	8.2	8.0	
16	SC12CNX.2	L/MBP	961	3171	4853	5876		2088	4.40	4065	6.39			0.79	95 – 135 V, 60 Hz	F2	8.2	8.0	
17	SCE15CNLX	LBP	966	4169	6272			2731	5.38	5269	7.36			0.93	95 – 135 V, 60 Hz	F2	8.6	8.4	
18	SC15MNX	MBP		3991	5742	6826		2480	4.49	4856	6.42			0.93	100 – 127 V, 60 Hz	F2	8.6	8.4	
19	SCE15MNX	MBP		4119	6325	7621				5301	7.38			0.93	103 – 127 V, 60 Hz	F2	8.6	8.4	
20	SCE18CNLX	LBP	1257	4824	7447			3223	5.56	6209	7.36			1.08	95 – 135 V, 60 Hz	F2	8.6	8.4	
21	SC18MNX	MBP		4323	6340	7656		3001	4.29	5331	5.81			1.08	103 – 127 V, 60 Hz	F2	8.6	8.4	
22	SCE18MNX	MBP		4854	7295	8728				6134	7.26			1.08	95 – 135 V, 60 Hz	F2	8.6	8.4	
23	SCE21CNLX	LBP	1615	5530	8323			3720	5.47	6981	7.12			1.28	103 – 127 V, 60 Hz	F2	8.6	8.4	

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
O = Oil cooling

F₁ = Fan cooling 1.5 m/s

(compressor compartment temp. equal to ambient temperature)

F₂ = Fan cooling 3.0 m/s necessary

* = O / F₁ possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque

LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.

HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



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S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.						
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)		HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories		
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory ¹⁾		Starting relay	Starting capacitor	Starting device ²⁾	Cord relief	Cover							
	[in]			Spades [in]																
	Suction C	Process D +-Di -:Do	Dis-charge E	¼	⅜	½	⅝	¾	¾	¾	¾	¾	¾	¾	¾					
1	0.26	0.26	0.20										117U7005	117U5023		103N1010	103N2011	102H3490		195B0706
2	0.26	0.26	0.20										117U7005	117U5023		103N1010	103N2011	102H3590		195B0707
3	0.32	0.26	0.26							117-7118	117-7120	117U7022	117U5023		103N1010	103N0492	102H3482		195B0737	
4	0.32	0.26	0.26							117-7118	117-7120	117U7011	117U5023		103N1010	103N0492	102H3582		195B0738	
5	0.32	0.26	0.26							117-7118	117-7120	117U7011	117U5023		103N1010	103N0492	102H3682		195B0739	
6	0.32	0.26	0.26							117-7118		117U7013	117U5023		103N1010	103N0492	102H3792		195B0740	
7	0.32	0.26	0.26									117U7013	117U5035		103N1010	103N2011	105H6790		195B0708	
8	0.32	0.26	0.26						117L0586	117-7147		117U7013	117U5023		103N1010	103N2011	105H6093		195B0741	
9	0.32	0.26	0.26									117U7013	117U5035		103N1010	103N2011	105H6090		195B0709	
10	0.32	0.26	0.26						117L0533	117-7114		117U7014	117U5025		103N1010	103N2011	105H6094		-	
11	0.32	0.26	0.26						117L0534	117-7118	117-7120	117U7018	117U5025		103N1010	103N2011	105H6194		-	
12	0.32	0.26	0.26						117L0533	117-7118	117-7120	117U7020	117U5035		103N1010	103N2011	105H6164		-	
13	0.32	0.26	0.26						117L0534	117-7114		117U7020	117U5039		103N1010		105H5981		-	
14	0.32	0.26	0.26						117L0533	117-7114		117U7020	117U5023		103N1010		105H5980		-	
15	0.38	0.26	0.26									117U7020	117U5023		103N1004	103N2008	104H7070		195B0710	
16	0.38	0.26	0.26									117U7020	117U5023		103N1004	103N2008	104H7270		195B0711	
17	0.38	0.26	0.26									117-7133	117-7441	117U5350	117-7801		117U1021	104H7578		-
18	0.38	0.26	0.26							117-7114		117-7441	117U5043	117-7053		117U1021	104H7570		-	
19	0.38	0.26	0.26									117-7133	117-7441	117U5350	117-7801		117U1021	104H7579		-
20	0.38	0.26	0.26									117-7133	117-7441	117U5350	117-7801		117U1021	104H7878		-
21	0.38	0.26	0.26											117-7053		117U1021	104H7870		-	
22	0.38	0.26	0.26									117-7133	117-7443	117U5379	117-7805		117U1021	104H7879		-
23	0.38	0.26	0.26									117-7133	117-7443	117U5379	117-7805		117U1021	104H7178		-



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial

R600 - 220 – 240 V | 50 Hz

S.No.	Compressor	Application	ASHRAE												Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions		
			ASHRAE T _{cond} = 54.4 °C, T _{liq} = 32.2 °C, T _{suc} = 32.2 °C Capacity [W]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height [mm]	A	B
			Evaporating temp. [°C]						Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]						
			-35	-15	-5	0	10	15												
1	PLE35K	MBP		63	106	133			38	0.91	88	1.56			2.50	198 – 254 V, 50 Hz	S	137	135	
2	TLES4KTK	LBP	22	91	150	188			55	1.10	125	1.82			3.86	187 – 254 V, 50 Hz	S	173	169	
3	TLES4KK.3	LBP	23	91					57	1.18					4.01	198 – 254 V, 50 Hz	S	163	159	
4	TLX4KK.3	LBP	23	91					57	1.29					4.01	198 – 254 V, 50 Hz	S	163	159	
5	TLX4KK.3	LBP	25	92					60	1.49					4.01	198 – 254 V, 50 Hz	S	173	169	
6	TLX4.8KK.3	LBP	34	115					74	1.37					4.78	198 – 254 V, 50 Hz	S	163	159	
7	TLES4.8KK.3	LBP	34	115					74	1.30					4.78	198 – 254 V, 50 Hz	S	163	159	
8	TLES4.8KK.3	LBP	34	115					74	1.30					4.78	198 – 254 V, 50 Hz	S	163	159	
9	TLES5KTK	LBP	34	121	194	240			77	1.22	162	1.78			5.08	187 – 254 V, 50 Hz	S	173	169	
10	TLES6KTK	LBP	38	136					89	1.23					5.70	187 – 254 V, 50 Hz	S	173	169	
11	TLX5.7KK.3	LBP	45	139					91	1.37					5.70	198 – 254 V, 50 Hz	S	163	159	
12	TLX5.7KK.3	LBP	46	140					94	1.64					5.70	198 – 254 V, 50 Hz	S	173	169	
13	TLES5.7KK.3	LBP	45	139					91	1.32					5.70	198 – 254 V, 50 Hz	S	163	159	
14	TLES7KTK	LBP	49	158					103	1.22					6.49	187 – 254 V, 50 Hz	S	173	169	
15	TLX6.5KK.3	LBP	56	165					109	1.47					6.49	198 – 254 V, 50 Hz	S	163	159	
16	TLX6.5KK.3	LBP	57	163					110	1.66					6.49	198 – 254 V, 50 Hz	S	173	169	
17	TLES6.5KK.3	LBP	55	163					108	1.31					6.49	198 – 254 V, 50 Hz	S	163	159	
18	TLES7.5KK.3	LBP	64	189					125	1.38					7.48	198 – 254 V, 50 Hz	S	163	159	
19	TLX7.5KK.3	LBP	67	192					130	1.68					7.48	198 – 254 V, 50 Hz	S	173	169	
20	TLES8KTK	LBP	59	182					119	1.22					7.76	187 – 254 V, 50 Hz	S	173	169	
21	TLES8.7KTK.3	LBP	71	217					143	1.27					8.67	187 – 254 V, 50 Hz	S	173	169	
22	TLES8.7KK.3	LBP	75	221					147	1.39					8.67	198 – 254 V, 50 Hz	S	163	159	
23	TLX8.7KK.3	LBP	79	224					153	1.67					8.67	198 – 254 V, 50 Hz	S	173	169	
24	TLX10 KK.3	LBP	90	254					170	1.55					10.13	198 – 254 V, 50 Hz	S	173	169	
25	TLES10 KTK.3	LBP	89	249					168	1.36					10.13	187 – 254 V, 50 Hz	S	173	169	
26	DLX4KK	LBP	28	97					62	1.86					4.01	198 – 254 V, 50 Hz	S	175	169	
27	DLX4KK.1	LBP	28	97					62	1.86					4.01	198 – 254 V, 50 Hz	S	175	169	
28	DLX5.7KK.1	LBP	50	151					100	1.88					5.70	198 – 254 V, 50 Hz	S	175	169	
29	DLE8.7KK	LBP	76	219					148	1.56					8.67	198 – 254 V, 50 Hz	S	175	169	
30	DLX9.4KK.1	LBP	85	253					168	1.89					9.38	198 – 254 V, 50 Hz	S	175	169	
31	DLE9.4KK	LBP	87	238					161	1.64					9.38	198 – 254 V, 50 Hz	S	175	169	
32	DLE10 KK	LBP	96	265					182	1.65					10.14	198 – 254 V, 50 Hz	S	175	169	
33	NLU8.0 KK.1	LBP	62	193					127	1.94					8.05	198 – 254 V, 50 Hz	S	203	197	
34	NLX8.0 KK.2	LBP	64	204					133	1.88					8.05	198 – 254 V, 50 Hz	S	203	197	
35	NLE9KTK	LBP	66	202					131	1.33					8.35	187 – 254 V, 50 Hz *)	S	197	190	
36	NLU8.8KK.1	LBP	71	219					145	1.96					8.76	198 – 254 V, 50 Hz	S	203	197	
37	NLX8.8KK.2	LBP	76	228					151	1.89					8.76	198 – 254 V, 50 Hz	S	203	197	
38	NLU8.8KK.1	LBP	71	219					145	1.96					8.76	198 – 254 V, 50 Hz	S	203	197	
39	NLX10 KK.2	LBP	91	265					177	1.89					10.09	198 – 254 V, 50 Hz	S	203	197	
40	NLX10 KK.1	LBP	82	262					172	1.74					10.09	198 – 254 V, 50 Hz	S	203	197	
41	NLU10 KK.1	LBP	86	267					176	1.98					10.09	198 – 254 V, 50 Hz	S	203	197	
42	NLE10 KK.4	LBP	90	252					170	1.57					10.09	198 – 254 V, 50 Hz	S	190	183	
43	NLE11KTK.2	LBP	102	295					198	1.51					11.15	187 – 254 V, 50 Hz	S	203	197	
44	NLX11KK.3	LBP	97	288					195	1.86					11.15	198 – 254 V, 50 Hz	S	203	197	
45	NLU11KK.1	LBP	99	301					200	1.97					11.15	198 – 254 V, 50 Hz	S	203	197	
46	NLE11KTK	LBP	88	251					168	1.31					11.15	187 – 254 V, 50 Hz *)	S	197	190	
47	NLE11KK.4	LBP	100	283					190	1.56					11.15	198 – 254 V, 50 Hz	S	190	183	

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient
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F₁ = Fan cooling 1.5 m/s
(compressor compartment temp. equal to ambient temperature)
F₂ = Fan cooling 3.0 m/s necessary
* = O/F₁ possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque
LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.
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S.No.	Dimensions				Electrical equipment - codes										Compressor - code no.				
					LST (RSIR & RSCR)					HST (CSIR & CSR)			LST / HST		Single pack Compressor with LST accessories	Single pack Compressor with HST accessories			
	Connectors location				PTC starting device without RC connector		PTC starting device with RC connector		ePTC	Run capacitor (RC)		Starting relay	Starting capacitor	Starting device			Cord relief	Cover	
	Suction C	Process D	Dis-charge E	Oil cooler F	6.3	4.8	6.3	4.8	4.8	6.3	4.8	6.3	4.8	6.3					
	[mm]				Spades [mm]														
1	6.2	6.2	5				103N0016	103N0021		117-7117	?)	117-7119	?)			103N1010	103N0491	101H0360	-
2	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4436	-
3	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4438	195B0386
4	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4442	-
5	6.2	6.2	5				103N0016	103N0021	103N0050	117-7117	?)	117-7119	?)			103N1010	103N2010	102H4447	195B0341
6	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4542	-
7	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4579	-
8	6.2	4.5	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4596	-
9	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4536	-
10	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4636	-
11	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4642	-
12	6.2	6.2	5				103N0016	103N0021	103N0050	117-7117	?)	117-7119	?)			103N1010	103N2010	102H4647	-
13	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4694	195B0366
14	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4737	-
15	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4742	195B0526
16	6.2	6.2	5				103N0016	103N0021	103N0050	117-7117	?)	117-7119	?)			103N1010	103N2010	102H4747	-
17	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4783	-
18	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7131	117-7132					103N1010	103N2010	102H4838	195B0368
19	6.2	6.2	5				103N0016	103N0021	103N0050	117-7131	?)	117-7132	?)			103N1010	103N2010	102H4847	195B0359
20	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4836	195B0618
21	6.2	6.2	5		103N0011	103N0018										103N1010	103N2010	102H4834	-
22	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4939	-
23	6.2	6.2	5				103N0016	103N0021	103N0050	117-7117	?)	117-7119	?)			103N1010	103N2010	102H4947	195B0361
24	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4042	-
25	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	102H4050	-
26	6.2	6	5				103N0016	103N0021	103N0055	?)	117-7136	?)				103N1010	103N0491	102H3453	-
27	6.2	6	5				103N0016	103N0021	103N0055	?)	117-7136	?)				103N1010	103N0491	102H3459	-
28	6.2	6	5				103N0021	103N0055	?)	117-7136	?)					103N1010	103N0491	102H3659	-
29	6.2	4.5	5				103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N0491	102H4950	-
30	6.2	6	5				103N0021	103N0055	?)	117-7140	?)					103N1010	103N0491	102H4159	-
31	6.2	4.5	5				103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N0491	102H4952	-
32	6.2	6	5				103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N0491	102H4082	-
33	6.2	6.2	5				103N0021	103N0055	?)	117-7139	?)					103N1010	103N2010	105H6008	-
34	6.2	6.2	5				103N0016	103N0021	103N0050	117-7131	?)	117-7132	?)			103N1010	103N2010	105H6010	-
35	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021		117-7117	117-7119					103N1010	103N2010	105H6071	-
36	6.2	6.2	5				103N0021	103N0055	?)	117-7139	?)					103N1010	103N2010	105H6009	-
37	6.2	6.2	5				103N0021	103N0050	?)	117-7136	?)					103N1010	103N2010	105H6011	-
38	6.2	4.5	5				103N0055	?)	117-7139	?)						103N1010	103N2010	105H6020	-
39	6.2	6.2	5				103N0021	103N0050	?)	117-7136	?)					103N1010	103N2010	105H6101	195B0405
40	6.2	6.2	5				103N0016	103N0021	103N0050	117-7131	?)	117-7132	?)			103N1010	103N2010	105H6104	-
41	6.2	6.2	5				103N0021	103N0055	?)	117-7139	?)					103N1010	103N2010	105H6193	-
42	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	105H6867	-
43	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	105H6173	-
44	6.2	6.2	5				103N0021	103N0050	?)	117-7119	?)					103N1010	103N2010	105H6184	-
45	6.2	6.2	5				103N0021	103N0055	?)	117-7139	?)					103N1010	103N2010	105H6198	-
46	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021		117-7117	117-7119					103N1010	103N2010	105H6948	195B0577
47	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119					103N1010	103N2010	105H6952	-



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Reciprocating compressors - Light Commercial (Count.)

R600 - 220 – 240 V | 50 Hz

S.No.	Compressor	Application	ASHRAE Tcond = 54.4 °C, Tliq = 32.2 °C, Tsuc = 32.2 °C Capacity [W]						ASHRAE						Displacement [cm ³]	Voltage and frequencies	Compressor cooling	Dimensions	
			Evaporating temp. [°C]						LBP rating point -23.3 °C / 54.4 °C		MBP rating point -6.7 °C / 54.4 °C		HBP rating point 7.2 °C / 54.4 °C					Height	
			-35	-15	-5	0	10	15	Cooling capacity	COP	Cooling capacity	COP	Cooling capacity	COP				[mm]	
			[W]	[W]	[W]	[W]	[W]	[W]	[W]	[W/W]	[W]	[W/W]	[W]	[W/W]				A	B
48	NLX11KK.2	LBP	104	292				197	1.87						11,15	198 – 254 V, 50 Hz	S	203	197
49	NLX13KK.2	LBP	114	331				222	1.87						13,25	198 – 254 V, 50 Hz	S	203	197
50	NLX13KK.1	LBP	111	337				223	1.75						13,25	198 – 254 V, 50 Hz	S	203	197
51	NLX13KK.3	LBP	113	345				225	1.85						13,25	198 – 254 V, 50 Hz	S	203	197
52	NLU13KK.1	LBP	114	348				230	1.98						13,25	198 – 254 V, 50 Hz	S	203	197
53	NLU13KTK.1	LBP	116	347				231	1.87						13,25	187 – 254 V, 50 Hz	S	203	197
54	NLE13KTK.2	LBP	117	338				227	1.52						13,25	187 – 254 V, 50 Hz	S	203	197
55	NLE13KK.4	LBP	121	334				226	1.56						13,25	198 – 254 V, 50 Hz	S	190	183
56	NLX15KK.1	LBP	121	376				248	1.71						14,65	198 – 254 V, 50 Hz	S	203	197
57	NLX15KK.3	LBP	132	388				254	1.85						14,65	198 – 254 V, 50 Hz	S	203	197
58	NLE15MKK	MBP		375	586	718		248	1.49	491	1.99	852	2.50		14,65	198 – 254 V, 50 Hz	S	203	197
59	NLU15KK.1	LBP	129	390				259	1.96						14,65	198 – 254 V, 50 Hz	S	203	197
60	NLU15KTK.1	LBP	130	391				260	1.84						14,65	187 – 254 V, 50 Hz	S	203	197
61	NLE15KTK.2	LBP	129	383				254	1.52						14,65	187 – 254 V, 50 Hz	S	203	197
62	NLE15KK.4	LBP	134	374				253	1.59						14,65	198 – 254 V, 50 Hz	S	197	190
63	NLX15KK.2	LBP	135	377				255	1.87						14,65	198 – 254 V, 50 Hz	S	203	197

Reciprocating compressors - Light Commercial

R600a - 220 V | 60 Hz

S.No.	Compressor	Application	ASHRAE Tcond = 130 °F, Tliq = 90 °F, Tsuc = 90 °F Capacity [BTU/h]						ASHRAE						Displacement [cu.in]	Voltage and frequencies	Compressor cooling	Dimensions	
			Evaporating temp. [°F]						LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height	
			-31	5	23	32	50	59	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				[in]	
			[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]				A	B
1	HTD30AG	LBP	73	280	447			176	4.94	374	7.26			0.18	187 – 264 V, 60 Hz *)	S	5.2		
2	HXK80AT	LBP	291	851				573	6.04					0.49	198 – 253 V, 60 Hz *)	S	6.8	6.6	
3	HXK87AT	LBP	365	934				627	6.04					0.54	198 – 253 V, 60 Hz *)	S	6.8	6.6	
4	HXK95AT	LBP	399	1020				685	6.04					0.59	198 – 253 V, 60 Hz *)	S	6.8	6.6	
5	HXK12AT	LBP	468	1196				805	6.04					0.68	198 – 253 V, 60 Hz *)	S	6.8	6.6	
6	NLE11KTK	LBP	349	992				662	4.39					0.68	198 – 254 V, 60 Hz *)	S	7.8	7.5	

Reciprocating compressors - Light Commercial

R600a - 115V | 60 Hz

S.No.	Compressor	Application	ASHRAE Tcond = 130 °F, Tliq = 90 °F, Tsuc = 90 °F Capacity [BTU/h]						ASHRAE						Displacement [cu.in]	Voltage and frequencies	Compressor cooling	Dimensions	
			Evaporating temp. [°F]						LBP rating point -10 °F / 130 °F		MBP rating point 20 °F / 130 °F		HBP rating point 45 °F / 130 °F					Height	
			-31	5	23	32	50	59	Cooling capacity	EER	Cooling capacity	EER	Cooling capacity	EER				[in]	
			[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]	[BTU/h]	[BTU/Wh]				A	B
1	HTD30AE	LBP	96	306	485			198	5.49	406	7.29			0.18	80 – 135 V, 60 Hz	S	5.2		
2	NLE11KTK	L/MBP	360	1059	1645	1959		665	4.18	1390	5.70			0.68	95 – 135 V, 60 Hz	F1	7.8	7.5	
3	NLE13KTK	L/MBP	415	1182	1836	2227		773	4.13	1545	5.52			0.81	95 – 135 V, 60 Hz	F1	7.8	7.5	

Applications

LBP = Low Back Pressure
MBP = Medium Back Pressure
HBP = High Back Pressure

Motor types

RSIR = Resistant Start Induction Run
RSCR = Resistant Start Capacitor Run
CSIR = Capacitor Start Induction Run
CSR = Capacitor Start Run

Voltage and frequencies

*) Dual frequencies

Electrical Equipment

1) see data sheets for details
2) alt. cable lengths available
3) compulsory

Compressor cooling

S = Static cooling normally sufficient

O = Oil cooling

F₁ = Fan cooling 1.5 m/s

(compressor compartment temp. equal to ambient temperature)

F₂ = Fan cooling 3.0 m/s necessary

* = O / F1 possible at 220 V nominal (187 – 242 V)

Starting devices

LST = Low Starting Torque

LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes). The PTC starting device requires 5 minutes cooling before each start.

HST = HST consisting of relay and starting capacitor is used for expansion valve control or for capillary tube control without pressure equalizing.



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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S.No.	Dimensions				Electrical equipment - codes										Compressor - code no.		
					LST (RSIR & RSCR)					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Single pack Compressor with LST accessories	Single pack Compressor with HST accessories
	Connectors location				PTC starting device without RC connector	PTC starting device with RC connector	ePTC	Starting relay	Starting capacitor		Starting device	Cord relief	Cover				
	[mm]									Spades [mm]							
	Suction C	Process D	Dis-charge E	Oil cooler F	6.3	4.8	6.3	4.8	4.8	6.3	4.8	6.3	4.8	6.3			
48	6.2	6.2	5			103N0016	103N0021	103N0050	?)	117-7136 ?)				103N1010	103N2010	105H6970	195B0455
49	6.2	6.2	5			103N0016	103N0021	103N0050	?)	117-7132 ?)				103N1010	103N2010	105H6300	195B0456
50	6.2	6.2	5			103N0016	103N0021	103N0050	117-7117 ?)	117-7119 ?)				103N1010	103N2010	105H6304	-
51	6.2	6.2	5				103N0021	103N0050	?)	117-7119 ?)				103N1010	103N2010	105H6306	-
52	6.2	6.2	5				103N0021	103N0055	117-7131 ?)	117-7132 ?)				103N1010	103N2010	105H6372	-
53	6.2	6.2	5				103N0021	103N0055	?)	117-7129 ?)				103N1010	103N2010	105H6381	-
54	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119			103N1010	103N2010	105H6929	-
55	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119			103N1010	103N2010	105H6939	195B0444
56	6.2	6.2	5				103N0016	103N0021	103N0050	?)	117-7136 ?)			103N1010	103N2010	105H6502	-
57	6.2	6.2	5					103N0021	103N0050	?)	117-7140 ?)			103N1010	103N2010	105H6506	-
58	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119			103N1010	103N2010	105H6533	-
59	6.2	6.2	5					103N0021	103N0055	117-7131 ?)	117-7132 ?)			103N1010	103N2010	105H6553	-
60	6.2	6.2	5					103N0021	103N0055	?)	117-7119 ?)			103N1010	103N2010	105H6554	-
61	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021		117-7117	117-7119			103N1010	103N2010	105H6966	-
62	6.2	6.2	5		103N0011	103N0018	103N0016	103N0021	103N0050	117-7117	117-7119			103N1010	103N2010	105H6968	195B0374
63	8.2	6.2	6.2				103N0016	103N0021	103N0050	117-7117 ?)	117-7119 ?)			103N1010	103N2010	105H6977	195B0454

S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.				
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories	
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory	Starting relay		Starting capacitor	Starting device ?)	Cord relief	Cover					
	[in]								Spades [in]									
	Suction C	Process D +/- Di - Do	Dis-charge E	1/4	3/16	1/4	3/16	1/4	1/4	3/16	1/4	1/4	1/4					
1	0.24	-0.24	0.20													BN	CDO00118	-
2	0.24	-0.24	0.20	DCF5	ZCF5	DCF5	ZCF5	AE18FUX							K100		CDO00135	-
3	0.24	-0.24	0.20	DCFC	ZCFC	DCFC	ZCFC	AE15BUX							K100		CDO00136	-
4	0.24	-0.24	0.20	DCFP	ZCFP	DCFP	ZCFP	AE72FUX							K100		CDO00137	--
5	0.24	-0.24	0.20	DCFP	ZCFP	DCFP	ZCFP	AE72FUX							K100		CDO00138	-
6	0.24	0.24	0.20	103N0011	103N0018	103N0016	103N0021		117-7117	117-7119				103N1010	103N2010	105H6948	195B0577	

S.No.	Dimensions			Electrical equipment - codes										Compressor - code no.				
				LST (RSIR & RSCR) - refer to data sheet for ePTC code no.					Run capacitor (RC)	HST (CSIR & CSR)			LST / HST		Compressor w/o accessories	Single pack Compressor with LST accessories	Single pack Compressor with HST accessories	
	Connectors location			PTC starting device	PTC starting device with RC connector	Protector (external)	optional or compulsory	Starting relay		Starting capacitor	Starting device ?)	Cord relief	Cover					
	[in]								Spades [in]									
	Suction C	Process D +/- Di - Do	Dis-charge E	1/4	3/16	1/4	3/16	1/4	1/4	3/16	1/4	1/4	1/4					
1	0.24	-0.24	0.20		BK E1			AE25FJ6							BK	163806_	CDO00120	
2	0.32	0.26	0.26	103N0026	103N0023	103N0027	103N0024		117-7118	117-7120				103N1010	103N2011	105H5942		
3	0.32	0.26	0.26	103N0026	103N0023	103N0027	103N0024		117-7118	117-7120				103N1010	103N2011	105H5949		

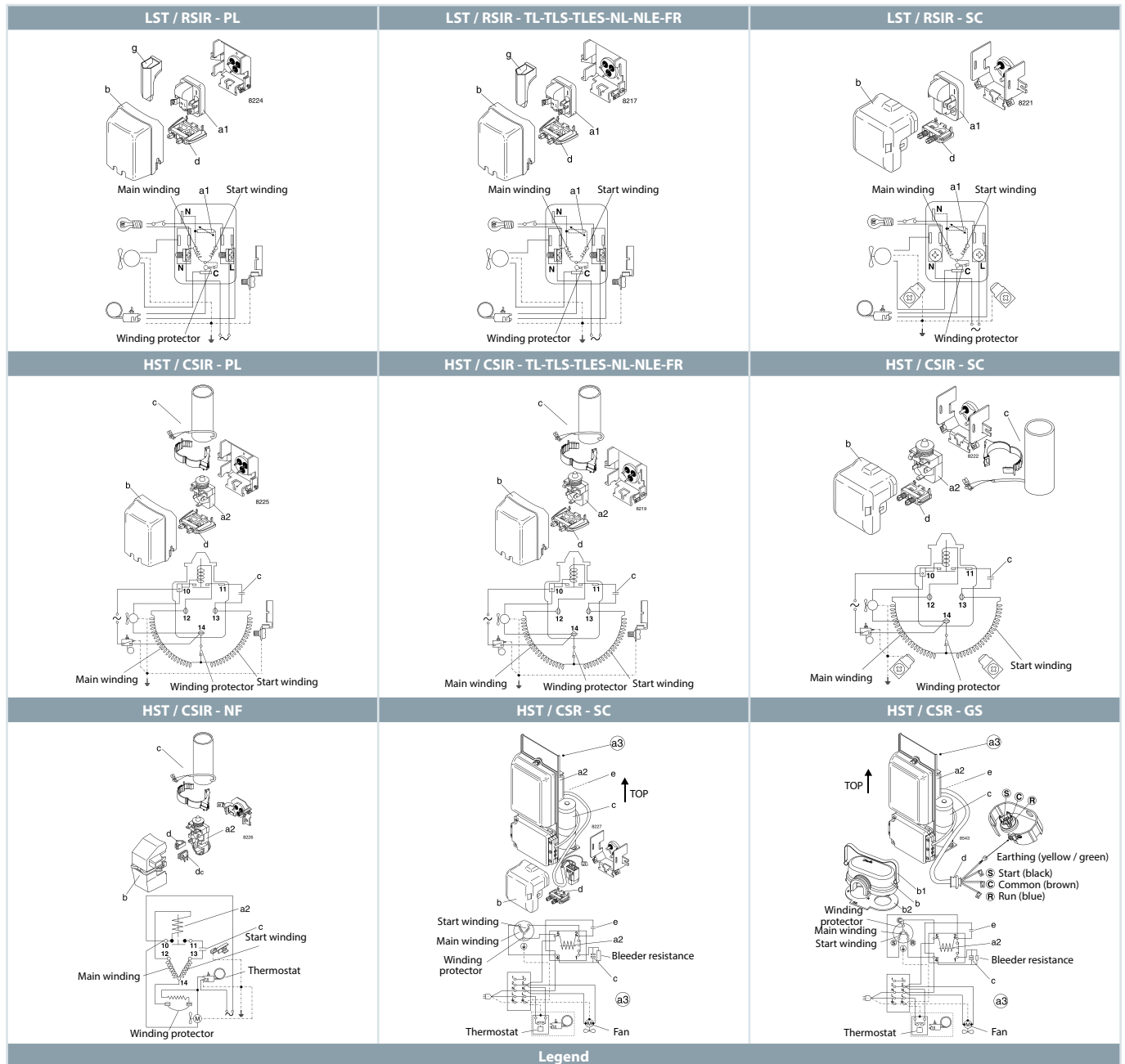


For more information and performance with other refrigerants, please refer to Coolselector *2 at coolselector.danfoss.com or contact Danfoss.

Diagram and dimensions

PL / PLE	TL	TLS / tLES / tLX	SLV				
NL / NLE / NLX	NF	FR					
SC	GS	BD					
Mounting accessories	Protection Screen for PTC	Compressor design	Optimization level	Compressor size	Application range	Start characteristics	Generation
<p>Bolt joint for one compressor: 118-1917 in quantities: 118-1918</p> <p>Bolt joint for one GS compressor: 107B9150 (M8 x 40, base plate distance: 17 mm)</p> <p>Snap-on in quantities: 118-1919</p>	<p>Note: to fulfil the requirements of EN 60355-2-34 the protection screen 103N0476 must be applied to the PTC starting device</p>	<p>PL</p> <p>TL</p> <p>NL</p> <p>FR</p> <p>SC</p> <p>GS</p>	<p><i>Blank</i> Standard energy level</p> <p><i>S</i> Semi-direct intake</p> <p><i>E</i> Energy-optimized</p>	<p><i>Nominal</i> displacement in cm³</p> <p>Exception: For PL compressors the capacity at rating point is stated</p>	<p>CL R404A / R507 LBP</p> <p>CN R290 LBP (MBP)</p> <p>DL R404A / R507 HBP</p> <p>FR R134a LBP / (MBP)</p> <p>FT R134a LBP tropical</p> <p>GR R134a LBP / MBP/hBP</p> <p>GH R134a Heat Pumps</p> <p>GHH R134a Heat Pumps optimized</p> <p>K R600a LBP / (MBP)</p> <p>MF R134a MBP</p> <p>ML R404A / R507 MBP</p>	<p><i>Blank</i> => first generation</p> <p><i>Blank</i> => universal (principal rule)</p> <p>X = HST characteristics (expansion valve)</p> <p>.2 => second generation</p> <p>.3 => third generation</p> <p>etc.</p>	<p>Blank</p> <p>.2</p> <p>.3</p>
Examples							
TL	ES	5,7	FT				.3
NL	E	10	MF				
SC		15	CN	X			.2

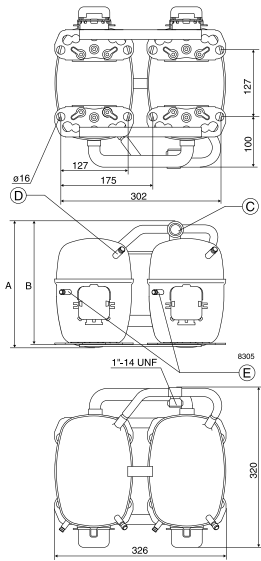
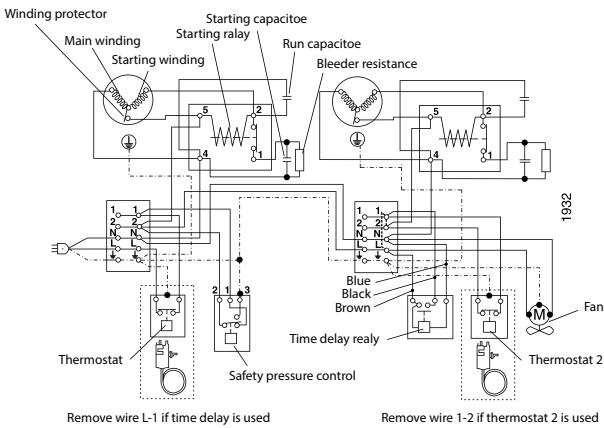
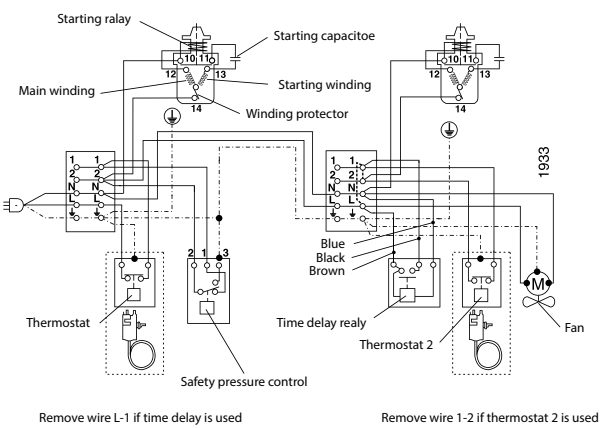
Diagram and dimensions



Legend

- a1) PTC starting device
- a2) Starting relay
- a3) Starting device
- b) Cover
- b1) Clamp (part of compressor)
- b2) Gasket (part of compressor)
- c) Starting capacitor
- d) Cord relief
- e) Run capacitor
- g) Protection screen for PTC

Diagram and dimensions

SC Twin	Accessories for SC Twin
 <p>Top view dimensions: 127, 175, 302, 127, 100, 127.</p> <p>Side view dimensions: A, B, 127, 175, 302, 320, 326.</p> <p>Other: $\phi 16$, 1" - 14 UNF, 6305, E, C, D.</p>	<p>SC10 / 10, SC12 / 12 and SC15 / 15: Service valve for 12 mm tube Solder connector for 12 mm tube 118-7350 104B0584</p> <p>SC18 / 18 and SC21 / 21: Service valve for 16 mm tube Solder connector for 16 mm tube 118-7351 118-7405</p> <p>SC10 / 10, SC12 / 12, SC15 / 15, SC18 / 18 and SC21 / 21: Seal ring for service valve and solder connector Time-delay relay Check valve (to be used with time-delay relay) 118-3638 117N0001 020-1014</p>
HST / CSR - SC Twin	HST / CSIR - SC Twin
 <p>Labels: Winding protector, Main winding, Starting winding, Starting capacitor, Starting relay, Run capacitor, Bleeder resistance, Thermostat, Safety pressure control, Time delay relay, Fan, 1932.</p> <p>Remove wire L-1 if time delay is used</p> <p>Remove wire 1-2 if thermostat 2 is used</p>	 <p>Labels: Starting relay, Starting capacitor, Main winding, Starting winding, Winding protector, Thermostat, Safety pressure control, Time delay relay, Fan, 1933.</p> <p>Remove wire L-1 if time delay is used</p> <p>Remove wire 1-2 if thermostat 2 is used</p>

Applications

LBP: Low Back Pressure
 MBP: Medium Back Pressure
 HBP: High Back Pressure

Motor types

RSIR: Resistant Start Induction Run
 RSCR: Resistant Start Capacitor Run
 CSIR: Capacitor Start Induction Run
 CSR: Capacitor Start Run

Starting devices

LST: Low Starting Torque
 LST is used with capillary tube control and pressure equalizing. (Pressure equalizing may exceed 10 minutes)
 The PTC starting device requires 5 minutes cooling before each start
 HST: High Starting Torque
 HST consisting of relay and starting capacitor, is used for expansion valve control or for capillary tube control without pressure equalizing

Test conditions EN 12900 (CECOMAF)

PL / tL / tLS / NL / FR / SC / BD

Application	R134a	R404A / R507
	R600a	R290
Condensing temperature	55 °C	45 °C
Ambient temperature	32 °C	32 °C
Suction gas temperature	32 °C	32 °C
No subcooling		
PL / tL / tLS / NL / FR / SC: 220 V 50 Hz		
BD: 12 V, 24 V or 56 V DC		

Test conditions ASHRAE

BD

Application	R600a	R404A / R507
	R134a	R290
Condensing temperature	54.4 °C	45 °C
Ambient temperature	32 °C	32 °C
Suction gas temperature	32 °C	32 °C
Liquid temperature	32 °C	32 °C
12 V, 24 V or 56 V DC		

Test conditions EN 12900

GS

Application	LBP	MBP	HBP
Condensing temperature	40 °C	45 °C	50 °C
Ambient temperature	32 °C	32 °C	32 °C
Suction gas temperature	20 °C	20 °C	20 °C
Liquid temperature	no subcooling		
220 V, 50 Hz			

Electrical equipment GS compressors

*) Gasket / cover / clamp are parts of compressor

Compressor cooling

S) Static cooling normally sufficient
 O) Oil cooling
 F₁) Fan cooling 1.5 m/s
 (compressor compartment temperature equal to ambient temperature)
 F₂) Fan cooling 3.0 m/s necessary
 **) run capacitor 4 µF compulsory

Voltages and frequencies

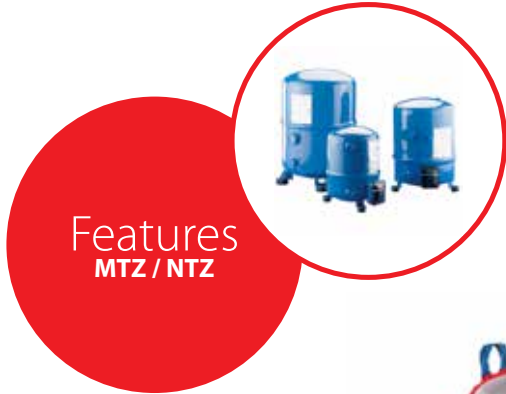
- 1) 198 – 254 V, 50 Hz
- 2) 187 – 254 V, 50 Hz, LBP
- 3) 198 – 254 V, 60 Hz, LBP
- 4) 198 – 254 V, 60 Hz, HBP
- 5) 198 – 254 V, 60 Hz, MBP
- 6) 207 – 254 V, 60 Hz, HBP
- 7) 187 – 254 V, 50 Hz, MBP
- 8) 187 – 254 V, 60 Hz, MBP
- 9) 187 – 254 V, 60 Hz, LBP

1 Watt = 0.86 kcal/h
 1 Watt = 3.41 Btu/h

MTZ / NTZ, Reciprocating compressors

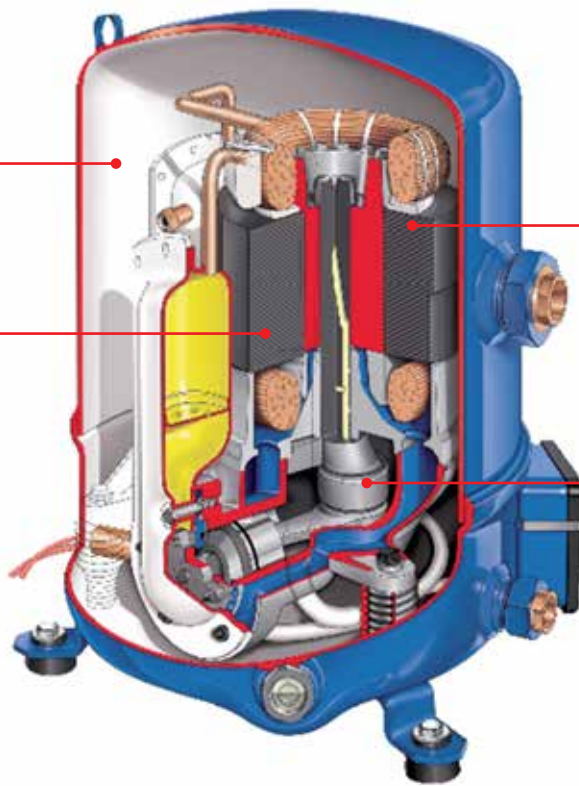
Maneurop® MTZ series compressors are of the hermetic reciprocating type and are designed for medium and high evaporating temperature applications. NTZ are designed for low evaporating temperature applications.

Available in a large variety of single and tandem models for refrigerants R404A, R134a, R407A/F, R407C, R448A, R449A, R452A and R513A, the compressors fit in lots of different applications.



Large internal volume, large oil sump, sturdy design

Internal motor protection



100% suction gas-cooled motor

High efficiency circular valve design

Facts

Applications:

- Walk-in freezers and cold rooms
- Frozen food processing and storage
- Blast freezers
- Low temperature racks
- Ice cream machines
- Display cabinets
- Water chillers
- Large packaged air conditioners

- Operation under extreme conditions
- Versatile

- No need for air circulation around the compressor
- Long lifetime expectancy and reliability

Technical data and ordering

NTZ - Reciprocating compressors

Technical data

Compressor model	Swept volume [cm ³ /rev]	Displacement		Nominal ratings *)				Number of cylinders	Oil charge litre	Net weight [kg]
		50 Hz 2900 rpm [m ³ /h]	60 Hz 3500 rpm [m ³ /h]	50 Hz		60 Hz				
				Cooling capacity [W]	COP [W/W]	Cooling capacity [W]	COP [W/W]			
NTZ048	48	8.40	10.1	995	1.15	1190	1.13	1	0.95	21
NTZ068	68	11.8	14.3	1749	1.15	2065	1.15	1	0.95	23
NTZ096	96	16.7	20.2	2002	1.15	2395	1.16	2	1.8	35
NTZ108	108	18.7	22.6	2465	1.16	2788	1.10	2	1.8	35
NTZ136	136	23.6	28.5	3225	1.11	3739	1.12	2	1.8	35
NTZ215	215	37.5	45.2	4948	1.19	5886	1.19	4	3.9	62
NTZ271	271	47.3	57.0	6955	1.24	8058	1.21	4	3.9	64

*) Motor code 4 operating conditions: R404A, Evap. temp.: -35°C, Cond. temp.: 40°C, RGT: 20°C, SC: 0 K
For full NTZ data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

NTZ - Reciprocating compressors

Ordering single pack *)

Compressor model	Motor voltage code				
	1	3	4	5	9
	208-230/1/60	200-230/3/60	460/3/60 400/3/50	230/1/50	380/3/60
NTZ048	120F0293	120F0279	120F0226	120F0228	120F0302
NTZ068	120F0294	120F0280	120F0230	120F0232	120F0303
NTZ096	120F0295	120F0281	120F0234	–	–
NTZ108	120F0296	120F0282	120F0238	–	120F0304
NTZ136	120F0297	120F0283	120F0236	–	120F0305
NTZ215	–	120F0284	120F0240	–	120F0306
NTZ271	–	120F0285	120F0242	–	120F0307

*) Single pack: one compressor packed in a cardboard box 4 cyl.: cardboard box on 1/4 euro pallet

Technical data and ordering

MTZ - Reciprocating compressors

Technical data

Compressor model	Displacement			Nominal		Net weight [kg]	Available motor voltage codes						
	Code	[cm ³ /rev]	[m ³ /h] at 2900 rpm	Cyl. number	Oil charge [dm ³]		1	3	4	5	6	7	9
MTZ018	JA	30.23	5.26	1	0.95	21	●	●	●	●	–	–	–
MTZ022	JC	38.12	6.63	1	0.95	21	●	●	●	●	●	–	●
MTZ028	JE	48.06	8.36	1	0.95	23	●	●	●	●	●	–	○
MTZ032	JF	53.86	9.37	1	0.95	24	●	●	●	●	●	○	●
MTZ036	JG	60.47	10.52	1	0.95	24	●	●	●	●	●	○	○
MTZ040	JH	67.89	11.81	1	0.95	24	●	●	●	–	●	–	–
MTZ044	HJ	76.22	13.26	2	1.80	35	○	●	●	–	○	○	●
MTZ050	HK	85.64	14.9	2	1.80	35	●	●	●	–	●	○	●
MTZ056	HL	96.13	16.73	2	1.80	37	●	●	●	–	●	●	●
MTZ064	HM	107.71	18.74	2	1.80	37	●	●	●	–	●	–	●
MTZ072	HN	120.94	21.04	2	1.80	40	–	●	●	–	○	–	●
MTZ080	HP	135.78	23.63	2	1.80	40	–	●	●	–	●	–	●
MTZ100	HS	171.26	29.8	4	3.90	60	–	●	●	–	●	●	●
MTZ125	HU	215.44	37.49	4	3.90	64	–	●	●	–	●	●	●
MTZ144	HV	241.87	42.09	4	3.90	67	–	●	●	–	●	●	●
MTZ160	HW	271.55	47.25	4	3.90	67	–	●	●	–	●	●	●

● Available in MT and MTZ

○ Available in MTZ only

MTZ - Reciprocating compressors

Ordering single pack for R404A / R507 / R134a / R407A / C / F / R448A*) / R449A*) / R452A*)

Compressor model	Code no.						
	1	3	4	5	6	7	9
	208-230/1/60	200-230/3/60	460/3/60 400/3/50	230/1/50	230/3/50	575/3/60 500/3/50	380/3/60
MTZ018	MTZ18-1VI	MTZ18-3VI	MTZ18-4VI	MTZ18-5VI	–	–	–
MTZ022	MTZ22-1VI	MTZ22-3VI	MTZ22-4VI	MTZ22-5VI	MTZ22-6VI	–	MTZ22-9VI
MTZ028	MTZ28-1VI	MTZ28-3VI	MTZ28-4VI	MTZ28-5VI	MTZ28-6VI	–	MTZ28-9VI
MTZ032	MTZ32-1VI	MTZ32-3VI	MTZ32-4VI	MTZ32-5VI	MTZ32-6VI	MTZ32-7VI	MTZ32-9VI
MTZ036	MTZ36-1VI	MTZ36-3VI	MTZ36-4VI	MTZ36-5VI	MTZ36-6VI	MTZ36-7VI	MTZ36-9VI
MTZ040	MTZ40-1VI	MTZ40-3VI	MTZ40-4VI	–	MTZ40-6VI	–	–
MTZ044	MTZ44-1VI	MTZ44-3VI	MTZ44-4VI	–	MTZ44-6VI	MTZ44-7VI	MTZ44-9VI
MTZ050	MTZ50-1VI	MTZ50-3VI	MTZ50-4VI	–	MTZ50-6VI	MTZ50-7VI	MTZ50-9VI
MTZ056	MTZ56-1VI	MTZ56-3VI	MTZ56-4VI	–	MTZ56-6VI	MTZ56-7VI	MTZ56-9VI
MTZ064	MTZ64-1VI	MTZ64-3VI	MTZ64-4VI	–	MTZ64-6VI	–	MTZ64-9VI
MTZ072	–	MTZ72-3VI	MTZ72-4VI	–	MTZ72-6VI	–	MTZ72-9VI
MTZ080	–	MTZ80-3VI	MTZ80-4VI	–	MTZ80-6VI	–	MTZ80-9VI
MTZ100	–	MTZ100-3VI	MTZ100-4VI	–	MTZ100-6VI	MTZ100-7VI	MTZ100-9VI
MTZ125	–	MTZ125-3VI	MTZ125-4VI	–	MTZ125-6VI	MTZ125-7VI	MTZ125-9VI
MTZ144	–	MTZ144-3VI	MTZ144-4VI	–	–	MTZ144-7VI	MTZ144-9VI
MTZ160	–	MTZ160-3VI	MTZ160-4VI	–	MTZ160-6VI	MTZ160-7VI	MTZ160-9VI

VI = Single compressor, threaded oil sight glass, 3/8" oil equalisation connection

*) For the availability, please contact Danfoss.

Technical data and ordering

MTZ - R134a - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-25			-20		-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
MTZ018	45	250	0.46	470	0.54	740	0.61	1070	0.69	1480	0.76	1980	0.82	2570	0.87	3260	0.91	4060	0.93	
MTZ022	45	400	0.52	660	0.62	990	0.72	1410	0.81	1920	0.91	2550	0.99	3310	1.06	4210	1.11	5270	1.15	
MTZ028	45	600	0.70	930	0.80	1330	0.91	1820	1.02	2440	1.13	3200	1.23	4130	1.34	5250	1.43	6600	1.51	
MTZ032	45	670	0.77	1040	0.93	1500	1.09	2080	1.25	2800	1.40	3690	1.54	4790	1.66	6110	1.76	7700	1.83	
MTZ036	45	940	0.99	1440	1.14	2030	1.29	2750	1.45	3610	1.60	4620	1.74	5810	1.86	7180	1.97	8770	2.05	
MTZ040	45	1140	1.18	1620	1.32	2200	1.47	2910	1.61	3780	1.75	4830	1.89	6080	2.01	7570	2.12	9310	2.21	
MTZ044	45	940	0.79	1460	1.05	2110	1.29	2930	1.49	3940	1.67	5190	1.83	6720	1.95	8540	2.05	10720	2.13	
MTZ050	45	1060	1.00	1660	1.30	2420	1.57	3360	1.80	4550	2.00	6010	2.17	7790	2.31	9930	2.42	12470	2.51	
MTZ056	45	1160	1.11	1760	1.38	2530	1.64	3530	1.88	4790	2.11	6380	2.31	8340	2.49	10730	2.64	13590	2.77	
MTZ064	45	1310	1.18	2060	1.54	3000	1.87	4190	2.17	5680	2.43	7500	2.67	9720	2.87	12370	3.04	15510	3.18	
MTZ072	45	1610	1.37	2470	1.79	3540	2.16	4870	2.50	6530	2.81	8560	3.08	11030	3.33	13990	3.54	17500	3.74	
MTZ080	45	2100	1.84	3110	2.23	4340	2.59	5860	2.93	7720	3.24	9990	3.54	12720	3.80	16000	4.05	19860	4.27	
MTZ100	45	2080	2.44	3270	2.84	4760	3.25	6620	3.65	8900	4.02	11680	4.35	15010	4.63	18960	4.84	23590	4.96	
MTZ125	45	2670	2.53	4160	3.07	6010	3.63	8310	4.17	11110	4.69	14500	5.16	18540	5.57	23300	5.89	28860	6.09	
MTZ144	45	3740	3.78	5620	4.31	7930	4.85	10730	5.40	14100	5.94	18110	6.46	22840	6.93	28350	7.34	34720	7.67	
MTZ160	45	4230	4.09	6300	4.64	8830	5.23	11900	5.84	15590	6.45	19990	7.06	25190	7.65	31250	8.21	38280	8.72	

To : Evaporating temperature in [°C]
 Tc : Condensing temperature in [°C]
 Qo : Cooling Capacity in [W]
 Pe : Power input in [kW]
 Subcooling : 0 K
 Superheat : 10 K
 Voltage : 400 V / 3 / 50 Hz

MTZ - R134a - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-25			-20		-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
MTZ018	45	310	0.55	560	0.64	890	0.74	1290	0.83	1780	0.91	2370	0.98	3080	1.04	3910	1.09	4870	1.11	
MTZ022	45	480	0.63	790	0.74	1190	0.86	1690	0.98	2310	1.09	3060	1.19	3970	1.27	5050	1.33	6330	1.38	
MTZ028	45	720	0.84	1120	0.97	1590	1.09	2190	1.22	2930	1.35	3840	1.48	4950	1.60	6300	1.71	7920	1.81	
MTZ032	45	800	0.92	1250	1.11	1800	1.31	2490	1.50	3360	1.68	4430	1.85	5750	1.99	7340	2.11	9230	2.19	
MTZ036	45	1130	1.18	1720	1.37	2440	1.55	3300	1.74	4330	1.92	5550	2.09	6970	2.24	8620	2.36	10520	2.46	
MTZ040	45	1370	1.42	1940	1.59	2640	1.76	3500	1.93	4540	2.10	5800	2.26	7300	2.41	9080	2.54	11170	2.65	
MTZ044	45	1130	0.95	1750	1.26	2530	1.54	3510	1.79	4730	2.01	6230	2.19	8060	2.35	10250	2.46	12860	2.55	
MTZ050	45	1270	1.20	1990	1.56	2900	1.88	4040	2.16	5460	2.40	7210	2.61	9350	2.78	11920	2.91	14970	3.01	
MTZ056	45	1400	1.33	2110	1.66	3040	1.97	4230	2.26	5750	2.53	7660	2.77	10010	2.99	12870	3.17	16300	3.32	
MTZ064	45	1580	1.42	2470	1.85	3600	2.24	5030	2.60	6810	2.92	9010	3.20	11670	3.45	14850	3.65	18610	3.81	
MTZ072	45	1930	1.64	2970	2.14	4250	2.60	5850	3.00	7830	3.37	10270	3.70	13230	3.99	16790	4.25	21000	4.49	
MTZ080	45	2520	2.21	3730	2.67	5210	3.11	7030	3.51	9260	3.89	11980	4.24	15270	4.56	19200	4.86	23840	5.13	
MTZ100	45	2500	2.93	3930	3.41	5710	3.90	7940	4.37	10680	4.82	14010	5.22	18010	5.56	22750	5.81	28310	5.95	
MTZ125	45	3200	3.03	4990	3.69	7210	4.35	9970	5.01	13330	5.63	17400	6.20	22240	6.68	27960	7.06	34630	7.31	
MTZ144	45	4490	4.54	6750	5.17	9520	5.82	12880	6.48	16920	7.13	21730	7.75	27400	8.31	34020	8.80	41670	9.21	
MTZ160	45	5080	4.91	7560	5.57	10600	6.28	14280	7.00	18710	7.74	23990	8.47	30220	9.18	37510	9.85	45940	10.47	

To : Evaporating temperature in [°C]
 Tc : Condensing temperature in [°C]
 Qo : Cooling Capacity in [W]
 Pe : Power input in [kW]
 Subcooling : 0 K
 Superheat : 10 K
 Voltage : 460 V / 3 / 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

MTZ - R404A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	390	0.69	650	0.83	980	0.96	1400	1.09	1900	1.21	2520	1.31	3250	1.40	4110	1.47	5120	1.53
MTZ022	45	640	0.86	980	1.03	1410	1.19	1960	1.34	2620	1.48	3440	1.61	4410	1.72	5550	1.82	6880	1.90
MTZ028	45	760	1.05	1250	1.30	1850	1.53	2570	1.75	3430	1.96	4450	2.14	5640	2.31	7040	2.45	8640	2.56
MTZ032	45	1040	1.20	1580	1.46	2240	1.71	3030	1.94	3980	2.16	5110	2.36	6440	2.55	7980	2.71	9760	2.86
MTZ036	45	1300	1.50	1930	1.78	2690	2.06	3600	2.33	4670	2.58	5930	2.81	7400	3.01	9100	3.19	11050	3.34
MTZ040	45	1600	1.70	2320	2.05	3160	2.37	4160	2.67	5330	2.95	6700	3.20	8290	3.44	10130	3.65	12230	3.84
MTZ044	45	1360	1.60	2100	1.94	2990	2.25	4070	2.52	5370	2.77	6910	3.00	8740	3.20	10890	3.38	13370	3.54
MTZ050	45	1700	1.94	2500	2.29	3510	2.62	4750	2.93	6260	3.22	8070	3.48	10220	3.71	12740	3.91	15680	4.07
MTZ056	45	1730	2.04	2620	2.43	3710	2.81	5060	3.17	6710	3.51	8690	3.83	11060	4.11	13840	4.36	17090	4.57
MTZ064	45	2160	2.32	3200	2.83	4480	3.32	6060	3.78	7980	4.20	10300	4.60	13070	4.96	16330	5.28	20150	5.55
MTZ072	45	2550	2.74	3670	3.25	5080	3.75	6810	4.23	8920	4.69	11450	5.11	14450	5.51	17970	5.87	22050	6.19
MTZ080	45	3170	3.15	4530	3.85	6170	4.48	8130	5.07	10470	5.61	13230	6.11	16470	6.57	20240	7.01	24580	7.41
MTZ100	45	3240	4.01	4930	4.80	6960	5.53	9390	6.18	12280	6.76	15700	7.26	19710	7.70	24370	8.06	29760	8.34
MTZ125	45	4660	5.16	6620	6.02	9060	6.86	12060	7.67	15710	8.44	20080	9.16	25250	9.83	31300	10.44	38310	10.98
MTZ144	45	5700	6.08	8060	7.05	10920	8.00	14370	8.91	18490	9.78	23380	10.60	29110	11.36	35770	12.06	43450	12.69
MTZ160	45	6280	6.80	8870	7.95	12010	9.04	15790	10.08	20310	11.08	25640	12.05	31900	13.01	39160	13.97	47540	14.95

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 400 V/3/50 Hz

MTZ - R404A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	340	0.78	730	1.06	1190	1.29	1750	1.48	2410	1.63	3190	1.76	4100	1.85	5160	1.91	6380	1.96
MTZ022	45	820	1.08	1280	1.30	1840	1.51	2510	1.70	3330	1.87	4300	2.03	5440	2.17	6770	2.29	8320	2.39
MTZ028	45	1240	1.42	1840	1.71	2540	1.98	3370	2.23	4350	2.45	5500	2.66	6830	2.84	8360	2.99	10110	3.13
MTZ032	45	1350	1.52	1980	1.84	2740	2.15	3660	2.44	4750	2.72	6050	2.97	7580	3.19	9370	3.37	11440	3.51
MTZ036	45	1400	1.67	2160	2.01	3070	2.35	4170	2.69	5480	3.03	7040	3.35	8860	3.67	10990	3.97	13440	4.24
MTZ040	45	1660	1.93	2520	2.32	3550	2.69	4790	3.05	6260	3.42	8010	3.77	10050	4.12	12420	4.47	15150	4.82
MTZ044	45	1470	1.85	2440	2.33	3600	2.78	4990	3.19	6650	3.55	8600	3.87	10890	4.15	13540	4.38	16580	4.56
MTZ050	45	1970	2.29	3060	2.80	4370	3.27	5930	3.69	7780	4.06	9970	4.38	12520	4.66	15470	4.90	18870	5.10
MTZ056	45	2160	2.41	3430	3.07	4940	3.64	6750	4.14	8870	4.58	11360	4.98	14250	5.34	17580	5.69	21380	6.03
MTZ064	45	2630	2.83	3990	3.52	5610	4.15	7560	4.70	9860	5.21	12580	5.67	15760	6.10	19440	6.51	23680	6.90
MTZ072	45	3160	3.44	4640	4.16	6440	4.83	8610	5.45	11210	6.01	14280	6.53	17900	7.00	22100	7.41	26940	7.77
MTZ080	45	3940	4.02	5580	4.91	7560	5.72	9930	6.47	12760	7.16	16090	7.80	20000	8.40	24540	8.96	29760	9.51
MTZ100	45	3790	4.61	5800	5.63	8220	6.54	11110	7.35	14530	8.06	18560	8.69	23270	9.23	28730	9.70	35000	10.10
MTZ125	45	5820	6.37	8290	7.47	11230	8.52	14710	9.52	18820	10.45	23650	11.30	29260	12.06	35750	12.72	43190	13.28
MTZ144	45	7210	7.40	10030	8.66	13400	9.83	17430	10.91	22200	11.95	27810	12.94	34360	13.92	41950	14.90	50680	15.91
MTZ160	45	8000	8.38	11040	9.64	14670	10.93	18990	12.23	24120	13.52	30160	14.80	37220	16.05	45400	17.26	54800	18.40

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 460 V/3/60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R407A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	260	0.49	510	0.62	830	0.76	1240	0.90	1740	1.02	2340	1.14	3070	1.24	3930	1.32	4940	1.39
MTZ022	45	430	0.60	760	0.77	1190	0.94	1730	1.10	2390	1.26	3200	1.40	4170	1.53	5300	1.64	6630	1.72
MTZ028	45	510	0.74	990	0.99	1570	1.23	2280	1.46	3130	1.67	4140	1.86	5330	2.03	6720	2.19	8330	2.32
MTZ032	45	700	0.85	1240	1.11	1890	1.37	2690	1.61	3630	1.84	4760	2.05	6080	2.25	7630	2.43	9400	2.59
MTZ036	45	870	1.06	1510	1.35	2270	1.64	3180	1.92	4260	2.19	5520	2.44	7000	2.66	8700	2.86	10670	3.03
MTZ040	45	1070	1.21	1830	1.56	2700	1.90	3710	2.22	4890	2.51	6250	2.79	7840	3.04	9670	3.27	11760	3.47
MTZ044	45	920	1.13	1630	1.47	2520	1.79	3590	2.09	4890	2.36	6440	2.60	8270	2.83	10410	3.03	12890	3.20
MTZ050	45	1140	1.36	1940	1.73	2950	2.08	4190	2.42	5700	2.73	7520	3.02	9670	3.28	12190	3.50	15120	3.69
MTZ056	45	1160	1.43	2030	1.84	3120	2.23	4470	2.62	6120	2.98	8100	3.32	10460	3.63	13240	3.91	16480	4.15
MTZ064	45	1450	1.64	2480	2.15	3760	2.64	5340	3.12	7270	3.57	9600	3.99	12360	4.38	15620	4.73	19420	5.03
MTZ072	45	1710	1.93	2850	2.46	4260	2.98	6010	3.49	8130	3.98	10670	4.44	13680	4.87	17190	5.27	21260	5.61
MTZ080	45	2130	2.23	3520	2.91	5190	3.57	7180	4.18	9540	4.76	12330	5.30	15590	5.81	19360	6.28	23710	6.72
MTZ100	45	2170	2.82	3860	3.64	5880	4.41	8300	5.10	11200	5.74	14620	6.31	18640	6.80	23310	7.22	28700	7.56
MTZ125	45	3130	3.65	5130	4.56	7610	5.45	10650	6.33	14330	7.17	18710	7.96	23890	8.70	29950	9.36	36940	9.95
MTZ144	45	3830	4.33	6270	5.37	9190	6.39	12700	7.37	16870	8.32	21780	9.21	27540	10.04	34220	10.81	41910	11.49
MTZ160	45	4220	4.84	6900	6.05	10120	7.21	13960	8.33	18520	9.42	23890	10.48	30180	11.51	37470	12.53	45860	13.53

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 400 V/3/50 Hz

MTZ - R407A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	310	0.58	620	0.75	1000	0.91	1490	1.07	2080	1.22	2810	1.36	3690	1.48	4720	1.59	5930	1.66
MTZ022	45	520	0.72	910	0.93	1420	1.13	2070	1.32	2870	1.51	3840	1.68	5000	1.83	6360	1.96	7950	2.07
MTZ028	45	620	0.89	1190	1.19	1890	1.48	2740	1.75	3760	2.00	4970	2.23	6400	2.44	8070	2.62	9990	2.78
MTZ032	45	840	1.05	1490	1.38	2270	1.70	3220	2.00	4360	2.28	5710	2.55	7300	2.79	9150	3.01	11290	3.21
MTZ036	45	1050	1.27	1810	1.62	2730	1.97	3820	2.31	5110	2.62	6630	2.92	8400	3.19	10440	3.44	12800	3.64
MTZ040	45	1290	1.45	2190	1.87	3230	2.28	4450	2.66	5860	3.02	7510	3.34	9410	3.65	11600	3.92	14110	4.16
MTZ044	45	1100	1.35	1960	1.76	3020	2.15	4310	2.50	5870	2.83	7730	3.12	9920	3.39	12490	3.63	15470	3.84
MTZ050	45	1370	1.63	2330	2.08	3540	2.50	5030	2.90	6840	3.28	9020	3.62	11600	3.93	14630	4.20	18140	4.43
MTZ056	45	1400	1.72	2440	2.21	3750	2.68	5370	3.14	7340	3.58	9720	3.99	12560	4.36	15890	4.69	19770	4.98
MTZ064	45	1740	1.97	2980	2.58	4520	3.17	6410	3.74	8730	4.29	11520	4.79	14840	5.26	18750	5.67	23300	6.03
MTZ072	45	2050	2.32	3420	2.95	5120	3.57	7210	4.18	9760	4.77	12810	5.33	16410	5.85	20630	6.32	25510	6.73
MTZ080	45	2560	2.67	4230	3.50	6230	4.28	8620	5.02	11450	5.71	14800	6.37	18700	6.97	23240	7.54	28450	8.06
MTZ100	45	2610	3.39	4630	4.37	7050	5.29	9960	6.13	13440	6.89	17540	7.57	22360	8.16	27970	8.67	34440	9.08
MTZ125	45	3750	4.38	6150	5.47	9130	6.55	12780	7.59	17190	8.60	22460	9.55	28670	10.44	35930	11.24	44330	11.94
MTZ144	45	4600	5.19	7520	6.45	11030	7.67	15240	8.85	20240	9.98	26140	11.05	33050	12.05	41070	12.97	50300	13.79
MTZ160	45	5060	5.81	8280	7.26	12140	8.65	16750	10.00	22220	11.30	28670	12.57	36210	13.81	44960	15.03	55030	16.24

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 460 V/3/60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R407F - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-25			-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
MTZ018	45	540	0.70	890	0.83	1320	0.96	1850	1.08	2490	1.20	3260	1.30	4170	1.39	5230	1.44	
MTZ022	45	810	0.86	1270	1.02	1840	1.18	2540	1.33	3400	1.48	4410	1.61	5620	1.72	7030	1.80	
MTZ028	45	1030	1.09	1660	1.31	2420	1.53	3320	1.76	4390	1.96	5650	2.15	7130	2.31	8830	2.42	
MTZ032	45	1310	1.22	2010	1.46	2850	1.70	3860	1.94	5050	2.17	6450	2.38	8080	2.56	9970	2.71	
MTZ036	45	1610	1.49	2430	1.76	3390	2.04	4520	2.31	5860	2.57	7410	2.81	9210	3.01	11290	3.16	
MTZ040	45	1930	1.71	2850	2.02	3920	2.34	5170	2.65	6620	2.94	8300	3.21	10250	3.44	12480	3.63	
MTZ044	45	1750	1.62	2690	1.92	3830	2.21	5200	2.49	6830	2.75	8760	2.99	11020	3.19	13660	3.35	
MTZ050	45	2090	1.88	3160	2.24	4470	2.58	6060	2.90	7970	3.19	10240	3.44	12910	3.67	16020	3.85	
MTZ056	45	2180	2.03	3340	2.40	4770	2.78	6500	3.16	8590	3.51	11080	3.84	14020	4.11	17460	4.33	
MTZ064	45	2670	2.38	4040	2.84	5700	3.31	7730	3.78	10180	4.22	13100	4.63	16540	4.97	20580	5.25	
MTZ072	45	3060	2.74	4570	3.21	6410	3.71	8640	4.21	11310	4.69	14480	5.14	18190	5.53	22520	5.85	
MTZ080	45	3790	3.23	5560	3.84	7650	4.44	10140	5.04	13070	5.60	16500	6.13	20490	6.60	25100	7.01	
MTZ100	45	4090	4.01	6270	4.73	8840	5.42	11900	6.07	15500	6.66	19740	7.18	24680	7.59	30400	7.89	
MTZ125	45	5520	5.07	8160	5.88	11360	6.73	15220	7.58	19830	8.41	25290	9.17	31700	9.84	39130	10.38	
MTZ144	45	6730	5.92	9840	6.85	13530	7.81	17910	8.78	23090	9.72	29160	10.60	36220	11.36	44370	11.99	
MTZ160	45	7420	6.70	10820	7.75	14870	8.84	19670	9.95	25320	11.05	31950	12.13	39650	13.16	48540	14.12	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling Capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K

Voltage: 400 V/3 /50 Hz

MTZ - R407F - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-25			-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
MTZ018	45	650	0.84	1060	0.99	1580	1.15	2220	1.30	2990	1.44	3910	1.57	5010	1.66	6280	1.73	
MTZ022	45	970	1.03	1520	1.22	2210	1.41	3050	1.60	4070	1.77	5300	1.93	6740	2.06	8430	2.16	
MTZ028	45	1240	1.30	1990	1.57	2900	1.84	3980	2.11	5270	2.36	6780	2.58	8550	2.77	10600	2.91	
MTZ032	45	1580	1.46	2420	1.75	3430	2.04	4630	2.33	6060	2.60	7740	2.85	9700	3.07	11960	3.25	
MTZ036	45	1930	1.79	2910	2.12	4070	2.45	5430	2.78	7030	3.09	8890	3.37	11060	3.61	13550	3.79	
MTZ040	45	2320	2.05	3420	2.43	4700	2.81	6200	3.18	7940	3.53	9970	3.85	12300	4.13	14980	4.36	
MTZ044	45	2100	1.95	3230	2.30	4600	2.66	6240	2.99	8190	3.30	10510	3.58	13230	3.82	16390	4.01	
MTZ050	45	2500	2.26	3790	2.69	5370	3.09	7270	3.48	9560	3.82	12290	4.13	15490	4.40	19220	4.62	
MTZ056	45	2610	2.44	4010	2.88	5720	3.34	7800	3.79	10310	4.22	13300	4.60	16830	4.94	20950	5.19	
MTZ064	45	3210	2.85	4840	3.40	6840	3.97	9280	4.53	12210	5.07	15710	5.55	19850	5.97	24690	6.30	
MTZ072	45	3680	3.28	5490	3.85	7690	4.45	10370	5.05	13570	5.63	17370	6.17	21830	6.64	27030	7.02	
MTZ080	45	4540	3.87	6670	4.60	9180	5.33	12170	6.05	15680	6.73	19800	7.36	24590	7.92	30120	8.41	
MTZ100	45	4910	4.81	7520	5.67	10610	6.50	14270	7.29	18600	8.00	23690	8.61	29610	9.11	36480	9.47	
MTZ125	45	6630	6.08	9790	7.06	13630	8.07	18260	9.10	23800	10.09	30350	11.00	38040	11.80	46960	12.45	
MTZ144	45	8080	7.11	11810	8.22	16240	9.37	21500	10.54	27710	11.67	34990	12.72	43460	13.64	53240	14.39	
MTZ160	45	8900	8.04	12990	9.30	17850	10.61	23600	11.94	30390	13.27	38340	14.56	47580	15.79	58250	16.94	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling Capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K

Voltage: 460 V/3 /60 Hz



For more information and performance with other refrigerants, please refer to Coolselector[®] 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R407C - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	1080	0.82	1610	0.94	2230	1.04	2980	1.13	3850	1.20	4860	1.25	6030	1.30
MTZ022	45	1620	1.07	2280	1.24	3060	1.39	3970	1.50	5030	1.60	6260	1.67	7670	1.73
MTZ028	45	1980	1.30	2850	1.52	3870	1.72	5070	1.89	6470	2.03	8080	2.13	9940	2.21
MTZ032	45	2480	1.50	3430	1.75	4530	1.95	5820	2.12	7310	2.27	9030	2.38	11000	2.48
MTZ036	45	2990	1.81	4040	2.10	5240	2.36	6620	2.57	8210	2.73	10030	2.86	12100	2.95
MTZ040	45	3560	2.18	4720	2.48	6070	2.74	7630	2.98	9420	3.18	11480	3.35	13820	3.48
MTZ044	45	3260	1.97	4510	2.28	6050	2.54	7910	2.76	10140	2.94	12770	3.10	15830	3.24
MTZ050	45	3850	2.34	5300	2.70	7020	3.00	9070	3.24	11480	3.45	14300	3.61	17560	3.75
MTZ056	45	4150	2.50	5790	2.90	7740	3.24	10080	3.53	12830	3.77	16050	3.98	19790	4.16
MTZ064	45	5080	2.91	6860	3.35	9020	3.73	11600	4.05	14670	4.32	18260	4.57	22430	4.79
MTZ072	45	5770	3.49	7830	3.96	10320	4.39	13280	4.77	16770	5.11	20840	5.39	25550	5.63
MTZ080	45	6670	4.08	9040	4.64	11830	5.12	15100	5.54	18930	5.89	23350	6.19	28450	6.45
MTZ100	45	7200	4.81	10100	5.47	13590	6.04	17730	6.52	22600	6.92	28290	7.26	34860	7.56
MTZ125	45	10530	6.13	14180	6.97	18480	7.69	23510	8.31	29390	8.84	36190	9.30	44020	9.69
MTZ144	45	11580	7.07	15600	7.92	20370	8.70	25970	9.42	32520	10.04	40110	10.58	48860	11.01
MTZ160	45	14060	8.21	18490	9.20	23730	10.09	29910	10.91	37150	11.68	45560	12.42	55270	13.16

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling Capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K

Voltage: 400 V / 3 / 50 Hz

MTZ - R407C - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	1560	1.03	2230	1.20	3010	1.32	3920	1.42	4970	1.49	6180	1.54	7570	1.57
MTZ022	45	2130	1.32	2910	1.52	3840	1.68	4930	1.82	6200	1.93	7670	2.02	9370	2.10
MTZ028	45	2900	1.77	3860	1.96	5000	2.14	6380	2.30	8010	2.45	9950	2.58	12210	2.71
MTZ032	45	3290	1.94	4320	2.17	5550	2.37	7030	2.57	8780	2.74	10850	2.89	13260	3.02
MTZ036	45	3590	2.21	4720	2.54	6110	2.86	7800	3.15	9810	3.41	12190	3.63	14960	3.80
MTZ040	45	3960	2.45	5420	2.81	7130	3.18	9130	3.54	11450	3.90	14140	4.23	17230	4.52
MTZ044	45	4170	2.47	5790	2.87	7700	3.20	9940	3.46	12550	3.67	15570	3.83	19040	3.95
MTZ050	45	4870	2.92	6550	3.32	8570	3.66	10980	3.95	13860	4.19	17260	4.38	21240	4.53
MTZ056	45	5560	3.24	7470	3.69	9770	4.07	12530	4.40	15790	4.69	19630	4.96	24110	5.22
MTZ064	45	6080	3.64	8330	4.14	10940	4.56	13990	4.93	17520	5.27	21590	5.58	26250	5.89
MTZ072	45	7200	4.25	9710	4.88	12670	5.43	16120	5.91	20140	6.33	24780	6.70	30120	7.03
MTZ080	45	7780	4.80	10570	5.47	13820	6.08	17640	6.63	22160	7.15	27480	7.63	33700	8.10
MTZ100	45	9540	5.95	13030	6.79	17160	7.47	22020	8.02	27720	8.48	34350	8.88	42010	9.25
MTZ125	45	13460	7.78	17720	8.75	22720	9.63	28550	10.42	35330	11.15	43170	11.82	52170	12.45
MTZ144	45	15250	8.78	20220	9.90	25920	10.88	32450	11.73	39940	12.47	48480	13.11	58200	13.68
MTZ160	45	17150	9.98	22430	11.22	28610	12.42	35830	13.54	44230	14.57	53930	15.46	65090	16.19

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling Capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K

Voltage: 460 V / 3 / 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R448A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	260	0.48	550	0.64	900	0.78	1330	0.92	1840	1.04	2440	1.14	3160	1.22	3980	1.28	4930	1.32
MTZ022	45	790	0.85	1110	0.98	1500	1.11	1980	1.24	2580	1.37	3320	1.49	4220	1.60	5310	1.70	6610	1.79
MTZ028	45	980	1.05	1370	1.21	1850	1.37	2440	1.53	3180	1.69	4100	1.84	5210	1.97	6560	2.10	8170	2.20
MTZ032	45	1080	1.10	1550	1.30	2110	1.49	2810	1.68	3660	1.87	4700	2.05	5960	2.22	7470	2.37	9250	2.50
MTZ036	45	1180	1.27	1720	1.51	2400	1.76	3240	2.00	4250	2.24	5460	2.46	6900	2.66	8590	2.84	10550	3.00
MTZ040	45	1340	1.49	1960	1.77	2740	2.06	3710	2.34	4880	2.62	6280	2.88	7930	3.12	9870	3.33	12110	3.50
MTZ044	45	1130	1.34	1820	1.64	2670	1.94	3720	2.22	5010	2.49	6570	2.73	8430	2.95	10650	3.12	13240	3.26
MTZ050	45	1250	1.43	2050	1.80	3020	2.18	4230	2.54	5700	2.87	7490	3.18	9620	3.44	12150	3.64	15110	3.78
MTZ056	45	1390	1.57	2280	1.99	3360	2.40	4700	2.79	6340	3.16	8320	3.50	10690	3.78	13500	4.01	16800	4.16
MTZ064	45	1740	1.87	2730	2.33	3960	2.78	5480	3.22	7330	3.62	9540	3.99	12150	4.30	15210	4.56	18740	4.75
MTZ072	45	2000	2.17	3140	2.70	4560	3.23	6310	3.73	8440	4.20	10980	4.62	13990	4.99	17510	5.29	21580	5.52
MTZ080	45	2840	2.82	4140	3.36	5730	3.91	7670	4.45	10010	4.97	12800	5.45	16090	5.89	19930	6.27	24380	6.57
MTZ100	45	2770	3.28	4250	3.91	6120	4.55	8450	5.19	11310	5.79	14780	6.34	18940	6.82	23850	7.21	29600	7.49
MTZ125	45	3740	4.19	5720	5.01	8230	5.85	11370	6.67	15220	7.44	19890	8.15	25470	8.77	32060	9.26	39760	9.60
MTZ144	45	5150	5.02	7430	6.01	10210	6.93	13550	7.81	17560	8.63	22320	9.42	27920	10.16	34430	10.86	41960	11.54
MTZ160	45	5890	5.80	8530	6.88	11710	7.93	15550	8.92	20140	9.87	25590	10.77	32010	11.62	39480	12.42	48120	13.16

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 400 V/3/50 Hz

MTZ - R448A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	310	0.58	660	0.76	1080	0.94	1590	1.10	2210	1.24	2930	1.37	3790	1.47	4780	1.54	5920	1.58
MTZ022	45	950	1.02	1330	1.18	1790	1.33	2370	1.49	3090	1.64	3980	1.79	5070	1.92	6380	2.04	7940	2.15
MTZ028	45	1180	1.26	1640	1.45	2220	1.64	2930	1.84	3820	2.02	4920	2.20	6260	2.37	7880	2.52	9810	2.64
MTZ032	45	1300	1.32	1860	1.56	2540	1.79	3370	2.02	4390	2.25	5640	2.46	7150	2.66	8960	2.84	11100	3.00
MTZ036	45	1410	1.52	2070	1.82	2880	2.11	3880	2.41	5100	2.69	6550	2.95	8280	3.19	10310	3.41	12660	3.60
MTZ040	45	1600	1.79	2350	2.13	3290	2.47	4450	2.81	5850	3.14	7530	3.45	9520	3.74	11840	3.99	14530	4.21
MTZ044	45	1360	1.61	2190	1.97	3210	2.32	4470	2.66	6010	2.98	7880	3.28	10120	3.53	12780	3.75	15890	3.91
MTZ050	45	1510	1.71	2460	2.16	3630	2.61	5070	3.05	6840	3.45	8980	3.81	11550	4.12	14580	4.37	18130	4.54
MTZ056	45	1670	1.89	2730	2.39	4040	2.88	5640	3.35	7610	3.79	9990	4.19	12830	4.54	16210	4.81	20160	5.00
MTZ064	45	2090	2.25	3270	2.80	4760	3.34	6580	3.86	8800	4.35	11450	4.79	14580	5.17	18250	5.48	22490	5.70
MTZ072	45	2400	2.60	3770	3.25	5480	3.87	7580	4.48	10120	5.04	13180	5.55	16790	5.99	21010	6.35	25890	6.62
MTZ080	45	3410	3.39	4960	4.04	6870	4.69	9200	5.34	12010	5.96	15360	6.53	19310	7.06	23920	7.52	29250	7.89
MTZ100	45	3330	3.91	5110	4.69	7350	5.47	10140	6.23	13570	6.95	17740	7.61	22720	8.18	28620	8.65	35510	8.99
MTZ125	45	4490	4.77	6870	5.87	9880	6.96	13640	8.00	18260	8.97	23860	9.83	30560	10.54	38460	11.08	47700	11.42
MTZ144	45	6190	6.03	8920	7.21	12240	8.32	16260	9.37	21080	10.36	26790	11.30	33510	12.19	41330	13.04	50350	13.86
MTZ160	45	7080	6.91	10230	8.24	14050	9.51	18650	10.71	24170	11.85	30720	12.92	38420	13.95	47390	14.91	57750	15.83

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 460 V/3/60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R449A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	260	0.48	550	0.64	900	0.78	1330	0.92	1840	1.04	2440	1.14	3160	1.22	3980	1.28	4930	1.32
MTZ022	45	790	0.85	1110	0.98	1500	1.11	1980	1.24	2580	1.37	3320	1.49	4220	1.60	5310	1.70	6610	1.79
MTZ028	45	980	1.05	1370	1.21	1850	1.37	2440	1.53	3180	1.69	4100	1.84	5210	1.97	6560	2.10	8170	2.20
MTZ032	45	1080	1.10	1550	1.30	2110	1.49	2810	1.68	3660	1.87	4700	2.05	5960	2.22	7470	2.37	9250	2.50
MTZ036	45	1180	1.27	1720	1.51	2400	1.76	3240	2.00	4250	2.24	5460	2.46	6900	2.66	8590	2.84	10550	3.00
MTZ040	45	1340	1.49	1960	1.77	2740	2.06	3710	2.34	4880	2.62	6280	2.88	7930	3.12	9870	3.33	12110	3.50
MTZ044	45	1130	1.34	1820	1.64	2670	1.94	3720	2.22	5010	2.49	6570	2.73	8430	2.95	10650	3.12	13240	3.26
MTZ050	45	1250	1.43	2050	1.80	3020	2.18	4230	2.54	5700	2.87	7490	3.18	9620	3.44	12150	3.64	15110	3.78
MTZ056	45	1390	1.57	2280	1.99	3360	2.40	4700	2.79	6340	3.16	8320	3.50	10690	3.78	13500	4.01	16800	4.16
MTZ064	45	1740	1.87	2730	2.33	3960	2.78	5480	3.22	7330	3.62	9540	3.99	12150	4.30	15210	4.56	18740	4.75
MTZ072	45	2000	2.17	3140	2.70	4560	3.23	6310	3.73	8440	4.20	10980	4.62	13990	4.99	17510	5.29	21580	5.52
MTZ080	45	2840	2.82	4140	3.36	5730	3.91	7670	4.45	10010	4.97	12800	5.45	16090	5.89	19930	6.27	24380	6.57
MTZ100	45	2770	3.28	4250	3.91	6120	4.55	8450	5.19	11310	5.79	14780	6.34	18940	6.82	23850	7.21	29600	7.49
MTZ125	45	3740	4.19	5720	5.01	8230	5.85	11370	6.67	15220	7.44	19890	8.15	25470	8.77	32060	9.26	39760	9.60
MTZ144	45	5150	5.02	7430	6.01	10210	6.93	13550	7.81	17560	8.63	22320	9.42	27920	10.16	34430	10.86	41960	11.54
MTZ160	45	5890	5.80	8530	6.88	11710	7.93	15550	8.92	20140	9.87	25590	10.77	32010	11.62	39480	12.42	48120	13.16

To : Evaporating temperature in [°C]
Tc : Condensing temperature in [°C]
Qo : Cooling Capacity in [W]
Pe : Power input in [kW]
Subcooling : 0 K
Superheat : 10 K
Voltage : 400 V / 3 / 50 Hz

MTZ - R449A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	310	0.58	660	0.76	1080	0.94	1590	1.10	2210	1.24	2930	1.37	3790	1.47	4780	1.54	5920	1.58
MTZ022	45	950	1.02	1330	1.18	1790	1.33	2370	1.49	3090	1.64	3980	1.79	5070	1.92	6380	2.04	7940	2.15
MTZ028	45	1180	1.26	1640	1.45	2220	1.64	2930	1.84	3820	2.02	4920	2.20	6260	2.37	7880	2.52	9810	2.64
MTZ032	45	1300	1.32	1860	1.56	2540	1.79	3370	2.02	4390	2.25	5640	2.46	7150	2.66	8960	2.84	11100	3.00
MTZ036	45	1410	1.52	2070	1.82	2880	2.11	3880	2.41	5100	2.69	6550	2.95	8280	3.19	10310	3.41	12660	3.60
MTZ040	45	1600	1.79	2350	2.13	3290	2.47	4450	2.81	5850	3.14	7530	3.45	9520	3.74	11840	3.99	14530	4.21
MTZ044	45	1360	1.61	2190	1.97	3210	2.32	4470	2.66	6010	2.98	7880	3.28	10120	3.53	12780	3.75	15890	3.91
MTZ050	45	1510	1.71	2460	2.16	3630	2.61	5070	3.05	6840	3.45	8980	3.81	11550	4.12	14580	4.37	18130	4.54
MTZ056	45	1670	1.89	2730	2.39	4040	2.88	5640	3.35	7610	3.79	9990	4.19	12830	4.54	16210	4.81	20160	5.00
MTZ064	45	2090	2.25	3270	2.80	4760	3.34	6580	3.86	8800	4.35	11450	4.79	14580	5.17	18250	5.48	22490	5.70
MTZ072	45	2400	2.60	3770	3.25	5480	3.87	7580	4.48	10120	5.04	13180	5.55	16790	5.99	21010	6.35	25890	6.62
MTZ080	45	3410	3.39	4960	4.04	6870	4.69	9200	5.34	12010	5.96	15360	6.53	19310	7.06	23920	7.52	29250	7.89
MTZ100	45	3330	3.91	5110	4.69	7350	5.47	10140	6.23	13570	6.95	17740	7.61	22720	8.18	28620	8.65	35510	8.99
MTZ125	45	4490	4.77	6870	5.87	9880	6.96	13640	8.00	18260	8.97	23860	9.83	30560	10.54	38460	11.08	47700	11.42
MTZ144	45	6190	6.03	8920	7.21	12240	8.32	16260	9.37	21080	10.36	26790	11.30	33510	12.19	41330	13.04	50350	13.86
MTZ160	45	7080	6.91	10230	8.24	14050	9.51	18650	10.71	24170	11.85	30720	12.92	38420	13.95	47390	14.91	57750	15.83

To : Evaporating temperature in [°C]
Tc : Condensing temperature in [°C]
Qo : Cooling Capacity in [W]
Pe : Power input in [kW]
Subcooling : 0 K
Superheat : 10 K
Voltage : 460 V / 3 / 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R452A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	410	0.56	700	0.73	1050	0.89	1480	1.03	2000	1.15	2610	1.24	3340	1.32	4190	1.37	5180	1.39
MTZ022	45	790	0.91	1160	1.07	1610	1.22	2150	1.37	2810	1.51	3580	1.63	4490	1.73	5560	1.81	6780	1.87
MTZ028	45	1210	1.23	1560	1.39	2000	1.55	2550	1.70	3250	1.86	4130	2.00	5210	2.14	6520	2.26	8100	2.36
MTZ032	45	1100	1.18	1590	1.42	2190	1.65	2910	1.86	3790	2.06	4830	2.24	6070	2.40	7530	2.54	9220	2.65
MTZ036	45	1450	1.48	1960	1.75	2580	2.00	3350	2.25	4300	2.48	5440	2.69	6810	2.88	8430	3.04	10330	3.18
MTZ040	45	1670	1.72	2290	2.04	3040	2.34	3960	2.63	5090	2.89	6450	3.14	8070	3.36	10000	3.55	12250	3.71
MTZ044	45	1370	1.58	2100	1.91	2990	2.21	4060	2.49	5370	2.73	6920	2.96	8770	3.16	10940	3.34	13460	3.50
MTZ050	45	1520	1.65	2360	2.09	3370	2.49	4610	2.84	6110	3.16	7890	3.44	10000	3.68	12480	3.89	15340	4.07
MTZ056	45	1690	1.84	2620	2.31	3750	2.74	5130	3.13	6790	3.47	8780	3.78	11120	4.06	13870	4.29	17060	4.48
MTZ064	45	2100	2.17	3160	2.71	4440	3.19	5990	3.60	7840	3.98	10030	4.31	12610	4.61	15610	4.88	19060	5.13
MTZ072	45	2410	2.53	3630	3.15	5110	3.69	6890	4.18	9020	4.61	11550	4.99	14520	5.34	17970	5.66	21950	5.95
MTZ080	45	3090	3.18	4320	3.78	5800	4.32	7570	4.81	9680	5.26	12180	5.67	15100	6.07	18500	6.45	22410	6.82
MTZ100	45	3330	3.77	4990	4.50	6990	5.19	9410	5.81	12310	6.37	15770	6.87	19880	7.29	24690	7.65	30280	7.93
MTZ125	45	4340	4.76	6500	5.75	9110	6.66	12270	7.47	16070	8.19	20600	8.83	25940	9.37	32190	9.83	39440	10.20
MTZ144	45	6060	5.56	8270	6.89	10920	7.96	14080	8.84	17830	9.58	22250	10.23	27430	10.84	33440	11.48	40370	12.19
MTZ160	45	6730	6.92	9220	8.04	12180	9.05	15700	9.96	19880	10.80	24810	11.61	30580	12.41	37290	13.24	45040	14.12

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 400 V/3/50 Hz

MTZ - R452A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	490	0.67	840	0.88	1260	1.07	1780	1.23	2390	1.38	3130	1.49	4010	1.58	5030	1.64	6220	1.67
MTZ022	45	950	1.09	1390	1.28	1930	1.47	2580	1.65	3370	1.81	4300	1.96	5390	2.08	6670	2.18	8140	2.24
MTZ028	45	1450	1.48	1870	1.67	2400	1.86	3060	2.04	3900	2.23	4950	2.40	6250	2.57	7830	2.71	9730	2.83
MTZ032	45	1320	1.42	1910	1.71	2620	1.98	3490	2.24	4540	2.47	5800	2.69	7290	2.88	9040	3.04	11070	3.17
MTZ036	45	1730	1.78	2350	2.10	3100	2.40	4020	2.70	5160	2.97	6530	3.23	8170	3.45	10110	3.65	12390	3.81
MTZ040	45	2010	2.07	2750	2.45	3650	2.81	4760	3.15	6110	3.47	7740	3.77	9690	4.03	12000	4.26	14700	4.46
MTZ044	45	1640	1.89	2520	2.29	3580	2.66	4880	2.98	6440	3.28	8310	3.55	10520	3.79	13120	4.01	16150	4.20
MTZ050	45	1830	1.98	2830	2.51	4050	2.99	5540	3.41	7330	3.79	9470	4.13	12010	4.42	14970	4.67	18410	4.88
MTZ056	45	2030	2.21	3150	2.77	4500	3.29	6160	3.75	8150	4.17	10530	4.54	13350	4.87	16650	5.14	20480	5.38
MTZ064	45	2520	2.61	3790	3.25	5330	3.82	7190	4.33	9410	4.77	12040	5.17	15130	5.53	18730	5.85	22880	6.15
MTZ072	45	2900	3.04	4360	3.78	6130	4.43	8270	5.01	10830	5.53	13860	5.99	17420	6.41	21560	6.79	26340	7.14
MTZ080	45	3700	3.81	5180	4.53	6960	5.18	9080	5.77	11620	6.31	14610	6.81	18120	7.28	22200	7.74	26890	8.18
MTZ100	45	3990	4.52	5990	5.41	8390	6.22	11290	6.97	14770	7.65	18930	8.24	23850	8.75	29620	9.18	36340	9.52
MTZ125	45	5210	5.71	7790	6.90	10930	7.99	14720	8.96	19280	9.83	24720	10.59	31130	11.25	38630	11.79	47330	12.24
MTZ144	45	7270	6.67	9930	8.26	13100	9.55	16890	10.61	21390	11.50	26700	12.27	32920	13.01	40130	13.77	48440	14.62
MTZ160	45	8070	8.30	11060	9.65	14620	10.86	18840	11.95	23860	12.96	29770	13.93	36700	14.89	44750	15.89	54040	16.95

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Qo: Cooling Capacity in [W]
Pe: Power input in [kW]
Subcooling: 0 K
Superheat: 10 K
Voltage: 460 V/3/60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MTZ - R513A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	340	0.42	570	0.54	840	0.64	1180	0.74	1590	0.81	2080	0.87	2670	0.91	3370	0.92	4180	0.91
MTZ022	45	530	0.56	790	0.67	1130	0.78	1550	0.88	2070	0.97	2700	1.05	3450	1.11	4350	1.15	5400	1.17
MTZ028	45	690	0.76	1020	0.89	1430	1.02	1950	1.14	2590	1.25	3360	1.35	4280	1.43	5370	1.49	6640	1.53
MTZ032	45	800	0.81	1210	0.97	1710	1.13	2320	1.27	3060	1.40	3940	1.52	4980	1.62	6190	1.69	7590	1.75
MTZ036	45	880	0.91	1370	1.13	1960	1.32	2670	1.47	3520	1.61	4540	1.72	5740	1.82	7150	1.91	8780	2.00
MTZ040	45	1190	1.24	1720	1.44	2370	1.62	3170	1.78	4140	1.94	5300	2.08	6670	2.22	8280	2.35	10130	2.48
MTZ044	45	970	1.02	1540	1.26	2270	1.48	3180	1.68	4300	1.85	5630	1.99	7220	2.10	9090	2.17	11240	2.20
MTZ050	45	1350	1.25	1950	1.48	2690	1.70	3620	1.90	4770	2.08	6170	2.24	7850	2.36	9860	2.45	12220	2.49
MTZ056	45	1300	1.31	1930	1.57	2760	1.81	3820	2.05	5140	2.26	6740	2.45	8650	2.61	10900	2.74	13520	2.83
MTZ064	45	1500	1.47	2250	1.77	3210	2.06	4420	2.34	5900	2.59	7700	2.82	9840	3.01	12360	3.17	15300	3.29
MTZ072	45	1850	1.78	2670	2.09	3720	2.40	5040	2.69	6670	2.98	8650	3.24	11020	3.47	13810	3.67	17080	3.84
MTZ080	45	2080	2.03	2990	2.40	4190	2.75	5700	3.09	7580	3.41	9850	3.71	12570	4.00	15760	4.28	19470	4.54
MTZ100	45	2570	2.64	3800	3.10	5300	3.52	7150	3.91	9410	4.26	12140	4.57	15420	4.83	19310	5.04	23890	5.18
MTZ125	45	3860	3.32	5400	3.83	7290	4.33	9610	4.81	12480	5.27	15970	5.70	20190	6.11	25240	6.48	31220	6.82
MTZ144	45	4390	3.86	6110	4.46	8290	5.04	11000	5.60	14310	6.13	18290	6.64	23010	7.12	28540	7.57	34950	7.99
MTZ160	45	5030	4.36	7000	5.06	9460	5.73	12490	6.38	16160	7.01	20560	7.61	25750	8.20	31830	8.76	38860	9.31

To: Evaporating temperature in [°C]
 Tc: Condensing temperature in [°C]
 Qo: Cooling Capacity in [W]
 Pe: Power input in [kW]
 Subcooling: 0 K
 Superheat: 10 K
 Voltage: 400 V/3/50 Hz

MTZ - R513A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-30		-25		-20		-15		-10		-5		0		5		10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	420	0.50	690	0.64	1040	0.76	1460	0.87	1980	0.96	2600	1.04	3330	1.10	4190	1.14	5180	1.16
MTZ022	45	630	0.65	990	0.82	1440	0.97	1980	1.11	2620	1.23	3400	1.33	4300	1.41	5360	1.46	6590	1.48
MTZ028	45	850	0.88	1320	1.08	1880	1.25	2560	1.41	3360	1.55	4310	1.67	5420	1.76	6700	1.84	8180	1.90
MTZ032	45	990	0.97	1560	1.21	2230	1.42	3020	1.60	3960	1.77	5050	1.90	6330	2.02	7800	2.12	9480	2.20
MTZ036	45	1050	1.12	1630	1.39	2330	1.61	3170	1.80	4190	1.96	5390	2.10	6820	2.22	8500	2.33	10440	2.44
MTZ040	45	1410	1.40	2020	1.65	2800	1.88	3760	2.08	4930	2.28	6340	2.47	8000	2.66	9940	2.87	12190	3.09
MTZ044	45	1270	1.27	1920	1.55	2770	1.81	3850	2.04	5190	2.26	6810	2.44	8750	2.60	11020	2.73	13660	2.83
MTZ050	45	1630	1.57	2340	1.85	3240	2.12	4360	2.38	5740	2.61	7430	2.80	9450	2.96	11870	3.07	14710	3.12
MTZ056	45	1570	1.58	2470	1.97	3590	2.31	4970	2.63	6620	2.90	8590	3.14	10910	3.35	13620	3.53	16750	3.68
MTZ064	45	1670	1.74	2740	2.21	4020	2.63	5570	2.99	7430	3.31	9610	3.58	12180	3.82	15160	4.03	18590	4.21
MTZ072	45	2330	2.17	3450	2.62	4810	3.04	6450	3.42	8420	3.78	10760	4.10	13510	4.39	16720	4.65	20430	4.86
MTZ080	45	2690	2.53	4040	3.07	5630	3.55	7520	3.99	9750	4.38	12360	4.75	15400	5.08	18900	5.39	22920	5.69
MTZ100	45	3060	3.02	4560	3.66	6440	4.24	8760	4.76	11560	5.22	14920	5.61	18880	5.95	23510	6.23	28860	6.46
MTZ125	45	4630	3.96	6670	4.75	9130	5.45	12070	6.09	15580	6.66	19730	7.18	24580	7.67	30220	8.14	36720	8.58
MTZ144	45	5480	4.73	7770	5.58	10510	6.34	13810	7.03	17720	7.67	22350	8.27	27770	8.86	34060	9.45	41310	10.07
MTZ160	45	6670	5.32	9010	6.39	11880	7.30	15380	8.11	19580	8.84	24590	9.56	30500	10.29	37380	11.07	45340	11.97

To: Evaporating temperature in [°C]
 Tc: Condensing temperature in [°C]
 Qo: Cooling Capacity in [W]
 Pe: Power input in [kW]
 Subcooling: 0 K
 Superheat: 10 K
 Voltage: 460 V/3/60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

NTZ - R404A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-40		-35		-30		-25		-20		-15		-10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
NTZ048	45	420	0.59	710	0.84	1070	1.09	1700	1.34	2240	1.57	2860	1.79	3570	1.99
NTZ068	45	870	1.28	1290	1.54	1810	1.81	2790	2.09	3570	2.38	4490	2.68	5540	2.99
NTZ096	45	910	1.29	1420	1.67	2090	2.09	3360	2.53	4510	2.99	5900	3.48	7550	3.97
NTZ108	45	1120	1.57	1770	2.03	2590	2.49	4080	2.95	5340	3.40	6820	3.85	8530	4.29
NTZ136	45	1570	2.27	2360	2.86	3350	3.47	5200	4.08	6750	4.69	8570	5.29	10710	5.87
NTZ215	45	2220	3.23	3530	4.10	5120	5.00	8020	5.91	10430	6.81	13210	7.68	16420	8.49
NTZ271	45	3460	4.60	5140	5.65	7200	6.73	11040	7.82	14170	8.92	17790	10.03	21970	11.13

To : Evaporating temperature in [°C]

Tc : Condensing temperature in [°C]

Qo : Cooling Capacity in [W]

Pe : Power input in [kW]

Subcooling : 0 K

Superheat : 10 K

Voltage : 400 V / 3 / 50 Hz

NTZ - R404A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	-40		-35		-30		-25		-20		-15		-10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
NTZ048	45	500	0.71	850	1.02	1270	1.33	2040	1.62	2690	1.89	3440	2.13	4310	2.33
NTZ068	45	1020	1.51	1530	1.82	2140	2.14	3290	2.47	4220	2.81	5290	3.16	6530	3.53
NTZ096	45	890	1.40	1630	1.96	2550	2.54	4160	3.12	5560	3.70	7190	4.24	9050	4.75
NTZ108	45	1240	2.04	2040	2.51	3030	3.04	4860	3.62	6440	4.24	8290	4.88	10460	5.53
NTZ136	45	1690	2.65	2720	3.31	3970	4.03	6260	4.80	8170	5.60	10380	6.44	12920	7.31
NTZ215	45	2640	3.74	4170	4.81	6050	5.91	9480	7.01	12320	8.09	15600	9.11	19380	10.05
NTZ271	45	4090	5.44	6070	6.68	8500	7.94	13040	9.21	16740	10.50	21050	11.80	26010	13.10

To : Evaporating temperature in [°C]

Tc : Condensing temperature in [°C]

Qo : Cooling Capacity in [W]

Pe : Power input in [kW]

Subcooling : 0 K

Superheat : 10 K

Voltage : 460 V / 3 / 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector[®] 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

NTZ - R452A - Reciprocating compressors - 50 Hz

Nominal performance data

Compressor model	To	-40		-35		-30		-25		-20		-15		-10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
NTZ048	45	520	0.70	760	0.87	1080	1.06	1660	1.26	2190	1.47	2830	1.69	3580	1.91
NTZ068	45	840	1.16	1260	1.33	1790	1.54	2730	1.79	3540	2.12	4490	2.53	5600	3.04
NTZ096	45	1020	1.28	1540	1.62	2220	1.99	3450	2.39	4580	2.79	5930	3.20	7520	3.59
NTZ108	45	1430	1.71	2030	2.06	2790	2.43	4200	2.82	5440	3.23	6930	3.66	8680	4.10
NTZ136	45	1810	2.27	2560	2.79	3530	3.32	5310	3.87	6870	4.43	8740	5.00	10960	5.60
NTZ215	45	2370	3.24	3580	3.99	5080	4.77	7760	5.57	10110	6.38	12900	7.20	16160	8.02
NTZ271	45	2990	3.81	4660	4.87	6690	5.97	10230	7.10	13300	8.22	16890	9.32	21060	10.38

To : Evaporating temperature in [°C]

Tc : Condensing temperature in [°C]

Qo : Cooling Capacity in [W]

Pe : Power input in [kW]

Subcooling : 0 K

Superheat : 10 K

Voltage : 400 V/3/50 Hz

NTZ - R452A - Reciprocating compressors - 60 Hz

Nominal performance data

Compressor model	To	0		-35		-30		-25		-20		-15		-10	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
NTZ048	45	650	0.84	950	1.04	1350	1.26	2070	1.51	2730	1.76	3530	2.02	4470	2.29
NTZ068	45	960	1.36	1450	1.56	2060	1.80	3130	2.10	4060	2.49	5160	2.97	6420	3.57
NTZ096	45	1250	1.59	1880	2.01	2720	2.48	4230	2.97	5620	3.47	7270	3.97	9220	4.46
NTZ108	45	1720	2.10	2440	2.53	3360	2.99	5060	3.47	6560	3.97	8350	4.50	10450	5.04
NTZ136	45	2170	2.73	3080	3.35	4240	3.99	6390	4.64	8270	5.31	10520	6.01	13190	6.73
NTZ215	45	3020	3.90	4550	4.95	6450	5.97	9840	6.96	12820	7.95	16350	8.94	20480	9.97
NTZ271	45	3780	4.93	5880	6.31	8450	7.74	12920	9.19	16800	10.64	21330	12.07	26600	13.44

To : Evaporating temperature in [°C]

Tc : Condensing temperature in [°C]

Qo : Cooling Capacity in [W]

Pe : Power input in [kW]

Subcooling : 0 K

Superheat : 10 K

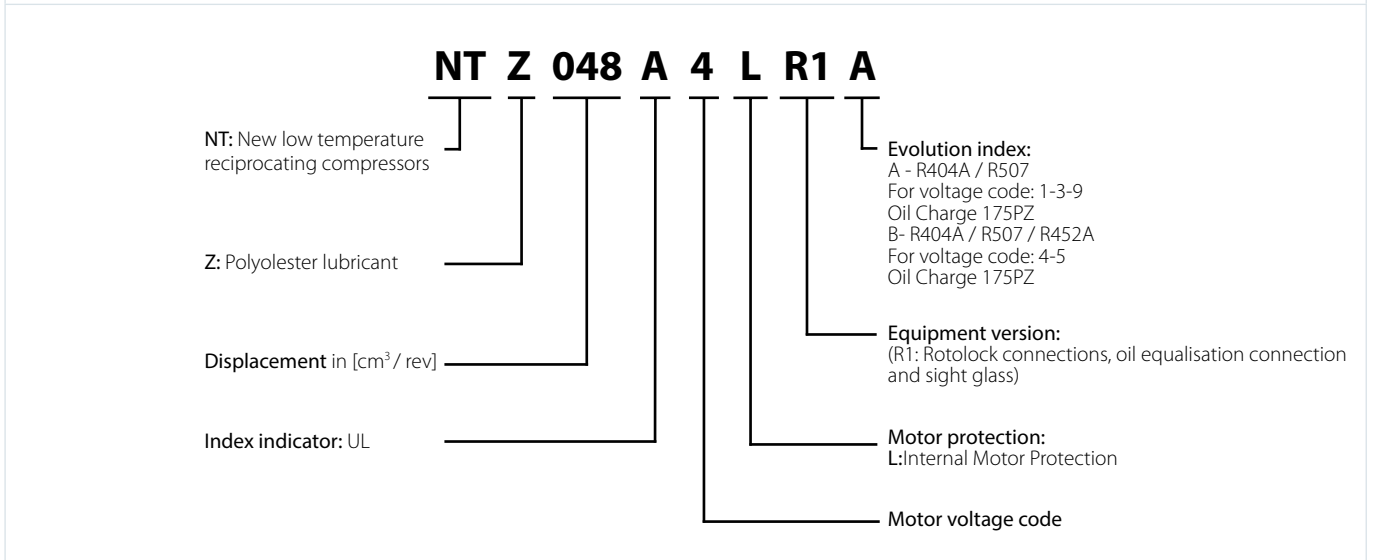
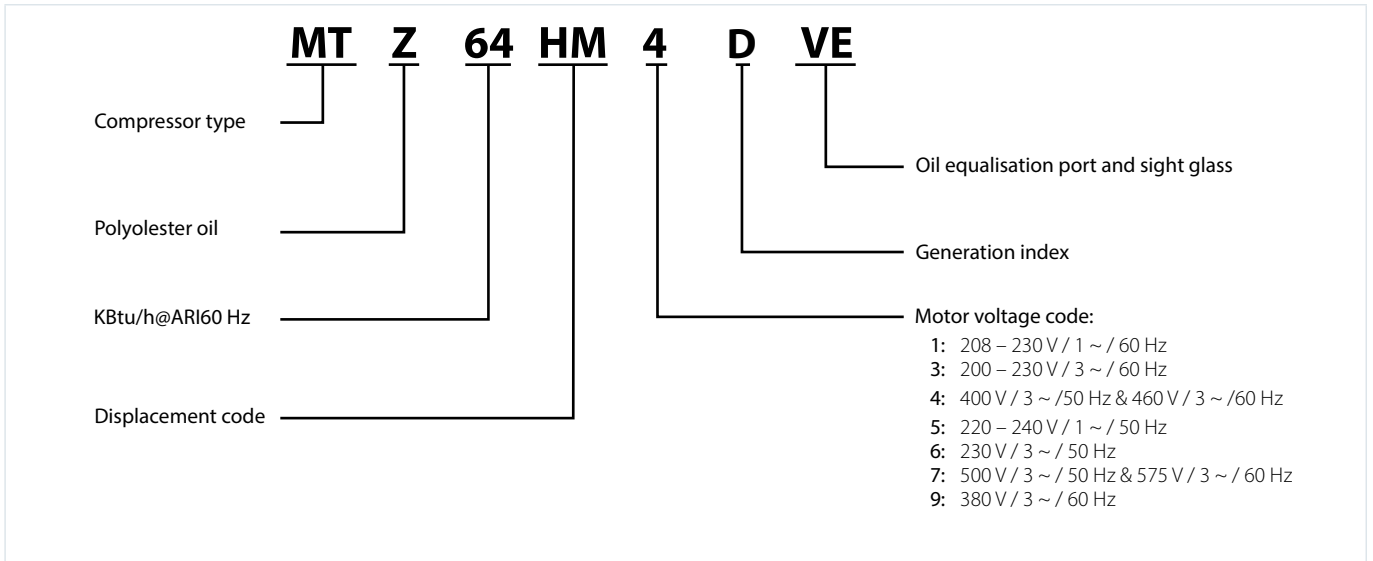
Voltage : 460 V/3/60 Hz



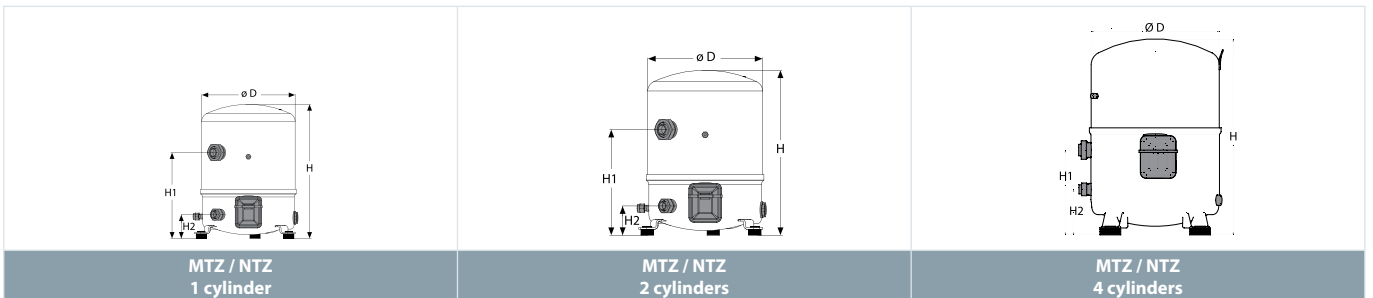
For more information and performance with other refrigerants, please refer to Coolselector[®] 2 at coolselector.danfoss.com or contact Danfoss.

Nomenclature and Dimensions

Nomenclature



Please consult Danfoss for motor version available



Single compressors [mm]

Type	D	H	H1	H2
1 cylinder	224	333 / 358	263	68
2 cylinders	288	413	265	74
4 cylinders	352	519 / 540	233	128

Quick Selection Notes:

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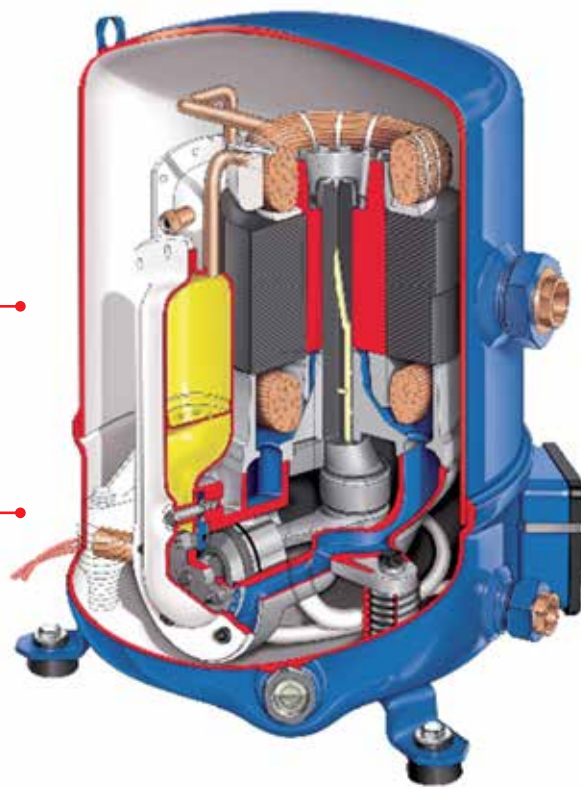
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VTZ, Inverter reciprocating compressor

Maneurop® -VTZ reciprocating inverter compressors 3 – 48 kW multirefrigerant units - R404A, R407C and R134a - for commercial and process cooling applications prevent you from oversized and short cycling systems by automatically adapting to the current load in your commercial package air conditioning, chillers and rooftops.

Use the innovative and intelligent compressor package that utilizes variable speed technology to ensure superior efficiency across the entire operating range.



High COP across the whole operating range for great energy savings

One qualified "plug & play" compressor and drive solution

Flexibility and precision cooling within a wide capacity range (30 – 90 rps)

Highly reliable solution

Facts

Applications:

- Packaged air conditioning
- Rooftops
- Chillers
- Close controls
- Heat pumps
- Data centers

- Capacity modulation: adapts motorspeed to varying load continuously, quickly and smoothly
- Tight temperature control $\pm 0.3 \text{ }^\circ\text{C}$
- Pre-qualified compressor and drive package
- Drive protection
- Multi-refrigerant capability inverter reciprocating compressors
- Advanced energy efficiency cuts the electric bill and easily meets the energy standards

- Improves comfort and process reliability, greater humidity control
- Lower noise level during part-load operations
- Faster time to market, saves time on development and enhances overall system reliability
- Reduces the size of needed power back up systems
- Reduces installation costs with elimination of components

Technical data and ordering

VTZ - Inverter reciprocating compressor - Voltage code G 380 – 480 V and CD302

Ordering

Type	Compressor		Frequency converter				
	Code no.		Model & power	IP class	RFI class	LCP	Code no.
	Single pack	Industrial pack					Single pack
VTZ038-G	120B0001	NA	CD302 - 4.0 kW	IP20	H1	yes	131B3543
	120B0001	NA	CD302 - 4.0 kW	IP20	H1	no	131B3544
	120B0001	NA	CD302 - 4.0 kW	IP20	H2	yes	131B3545
	120B0001	NA	CD302 - 4.0 kW	IP20	H2	no	131B3546
	120B0001	NA	CD302 - 4.0 kW	IP55	H1	yes	131B3547
	120B0001	NA	CD302 - 4.0 kW	IP55	H1	no	131B3548
	120B0001	NA	CD302 - 4.0 kW	IP55	H2	yes	131B3550
VTZ054-G	120B0001	NA	CD302 - 4.0 kW	IP55	H2	no	131B3549
	120B0002	NA	CD302 - 5.5 kW	IP20	H1	yes	131B3552
	120B0002	NA	CD302 - 5.5 kW	IP20	H1	no	131B3553
	120B0002	NA	CD302 - 5.5 kW	IP20	H2	yes	131B3554
	120B0002	NA	CD302 - 5.5 kW	IP20	H2	no	131B3555
	120B0002	NA	CD302 - 5.5 kW	IP55	H1	yes	131B3556
	120B0002	NA	CD302 - 5.5 kW	IP55	H1	no	131B3557
	120B0002	NA	CD302 - 5.5 kW	IP55	H2	yes	131B3558
	120B0002	NA	CD302 - 5.5 kW	IP55	H2	no	131B3559
	120B0003	120B0054	CD302 - 7.5 kW	IP20	H1	yes	131B3560
	120B0003	120B0054	CD302 - 7.5 kW	IP20	H1	no	131B3561
	120B0003	120B0054	CD302 - 7.5 kW	IP20	H2	yes	131B3562
	120B0003	120B0054	CD302 - 7.5 kW	IP20	H2	no	131B3563
	120B0003	120B0054	CD302 - 7.5 kW	IP55	H1	yes	131B3564
	120B0003	120B0054	CD302 - 7.5 kW	IP55	H1	no	131B3565
	120B0003	120B0054	CD302 - 7.5 kW	IP55	H2	yes	131B3566
	120B0003	120B0054	CD302 - 7.5 kW	IP55	H2	no	131B3567
	120B0004	120B0052	CD302 - 11.0 kW	IP20	H1	no	131X2198
	120B0004	120B0052	CD302 - 11.0 kW	IP21	H1	yes	131B3568
	120B0004	120B0052	CD302 - 11.0 kW	IP21	H1	no	131B3569
	120B0004	120B0052	CD302 - 11.0 kW	IP21	H2	yes	131B3570
120B0004	120B0052	CD302 - 11.0 kW	IP21	H2	no	131B3571	
120B0004	120B0052	CD302 - 11.0 kW	IP55	H1	yes	131B3572	
120B0004	120B0052	CD302 - 11.0 kW	IP55	H1	no	131B3573	
120B0004	120B0052	CD302 - 11.0 kW	IP55	H2	yes	131B3574	
120B0004	120B0052	CD302 - 11.0 kW	IP55	H2	no	131B3575	
VTZ171-G	120B0005	120B0055	CD302 - 15.0 kW	IP20	H1	no	131X2199
	120B0005	120B0055	CD302 - 15.0 kW	IP21	H1	yes	131B3576
	120B0005	120B0055	CD302 - 15.0 kW	IP21	H1	no	131B3577
	120B0005	120B0055	CD302 - 15.0 kW	IP21	H2	yes	131B3578
	120B0005	120B0055	CD302 - 15.0 kW	IP21	H2	no	-
	120B0005	120B0055	CD302 - 15.0 kW	IP55	H1	yes	131B3580
	120B0005	120B0055	CD302 - 15.0 kW	IP55	H1	no	-
	120B0005	120B0055	CD302 - 15.0 kW	IP55	H2	yes	131B3582
VTZ215-G	120B0005	120B0055	CD302 - 15.0 kW	IP55	H2	no	131B3583
	120B0006	120B0056	CD302 - 18.5 kW	IP20	H1	no	131X2200
	120B0006	120B0056	CD302 - 18.5 kW	IP21	H1	yes	131B3584
	120B0006	120B0056	CD302 - 18.5 kW	IP21	H1	no	131B3585
	120B0006	120B0056	CD302 - 18.5 kW	IP21	H2	yes	131B3586
	120B0006	120B0056	CD302 - 18.5 kW	IP21	H2	no	131B3587
	120B0006	120B0056	CD302 - 18.5 kW	IP55	H1	yes	131B3588
	120B0006	120B0056	CD302 - 18.5 kW	IP55	H1	no	131B3589
120B0006	120B0056	CD302 - 18.5 kW	IP55	H2	yes	131B3590	
120B0006	120B0056	CD302 - 18.5 kW	IP55	H2	no	131B3591	

Technical data and ordering

VTZ - Inverter reciprocating compressor - Voltage code J 200 - 240 V and CD302

Ordering

Type	Compressor		Frequency converter				
	Code no.		Model and power	IP class	RFI class	LCP	Code no.
	Single pack	Industrial pack					Single pack
VTZ038-J	120B0029	NA	CD302 - 4.0 kW	IP20	H1	yes	131B5347
	120B0029	NA	CD302 - 4.0 kW	IP20	-	no	131B5348
	120B0029	NA	CD302 - 4.0 kW	IP20	H2	yes	131B5349
	120B0029	NA	CD302 - 4.0 kW	IP20	H2	no	131B5350
	120B0029	NA	CD302 - 4.0 kW	IP55	H1	yes	-
	120B0029	NA	CD302 - 4.0 kW	IP55	-	no	-
	120B0029	NA	CD302 - 4.0 kW	IP55	H2	yes	-
VTZ054-J	120B0030	NA	CD302 - 5.5 kW	IP21	H1	yes	131B5351
	120B0030	NA	CD302 - 5.5 kW	IP21	-	no	131B5352
	120B0030	NA	CD302 - 5.5 kW	IP21	H2	yes	131B5355
	120B0030	NA	CD302 - 5.5 kW	IP21	H2	no	131B5356
	120B0030	NA	CD302 - 5.5 kW	IP55	H1	yes	-
	120B0030	NA	CD302 - 5.5 kW	IP55	-	no	131B5354
	120B0030	NA	CD302 - 5.5 kW	IP55	H2	yes	131B5357
VTZ086-J	120B0031	NA	CD302 - 7.5 kW	IP21	H1	yes	131B5009
	120B0031	NA	CD302 - 7.5 kW	IP21	-	no	131B5359
	120B0031	NA	CD302 - 7.5 kW	IP21	H2	yes	-
	120B0031	NA	CD302 - 7.5 kW	IP21	H2	no	131B5360
	120B0031	NA	CD302 - 7.5 kW	IP55	H1	yes	131B5361
	120B0031	NA	CD302 - 7.5 kW	IP55	-	no	131B5362
	120B0031	NA	CD302 - 7.5 kW	IP55	H2	yes	131B5363
VTZ121-J	120B0032	tbd	CD302 - 11.0 kW	IP21	H1	yes	131B5365
	120B0032	tbd	CD302 - 11.0 kW	IP21	H1	no	-
	120B0032	tbd	CD302 - 11.0 kW	IP21	H2	yes	131B5367
	120B0032	tbd	CD302 - 11.0 kW	IP21	H2	no	131B5368
	120B0032	tbd	CD302 - 11.0 kW	IP55	H1	yes	131B5369
	120B0032	tbd	CD302 - 11.0 kW	IP55	H1	no	131B5370
	120B0032	tbd	CD302 - 11.0 kW	IP55	H2	yes	131B5371
	120B0032	tbd	CD302 - 11.0 kW	IP55	H2	no	131B5372

Technical data and ordering

VTZ - Inverter reciprocating compressor

Electrical specification

Supply voltage	Compressor Type	Nominal motor power [kW]	RW [Ohm]	RT [Ohm]	RLA [A]	MMT [A]	LRA [A]
200 – 240 V	VTZ038-J	3.59	0.31	0.65	13.5	17	69
	VTZ054-J	5	0.215	0.44	20	25	93
	VTZ086-J	7.8	0.158	0.317	32.5	40.6	88
	VTZ121-J	12.5	0.095	0.156	50	64.4	160
380 – 480 V	VTZ038-G	3.59	1.684	3.37	7.35	9.2	30.5
	VTZ054-G	4.95	1.039	2.08	12	15	47
	VTZ086-G	7.8	0.685	1.37	16	20	74
	VTZ121-G	11.66	0.294	0.59	23.2	29	139
	VTZ171-G	16	0.337	0.67	30.5	38.1	130
	VTZ215-G	21.3	0.236	0.47	40.8	51	197

RW: Winding resistance per winding (in CD302 parameter list)

RT: Winding resistance as measured at motor terminals

RLA: Rated load current with R404A at 5 – 60 °C

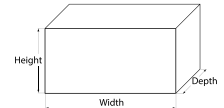
MMT: Maximum must trip current

LRA: Locked rotor current

Note that parameter 1-30 in the frequency converter settings reflects the winding resistance per winding
This is not the same value as measured at the motor terminals

VTZ - Inverter reciprocating compressor

Frequency converter single pack



Drive supply voltage	Drive supply voltage code	Drive power [kW]	IP20			IP21			IP55		
			Drive enclosure	Overall dimension (H x W x L) [mm]	Weight [kg]	Drive enclosure	Overall dimension (H x W x L) [mm]	Weight [kg]	Drive enclosure	Overall dimension (H x W x L) [mm]	Weight [kg]
200 – 240 / 3 / 50 – 60	T2	3.7	A3	290x390x200	6.6	–	–	–	–	–	–
	T2	5.5	–	–	–	B1	346x810x320	23	B1	346x810x320	23
	T2	7.5	–	–	–	B1	346x810x320	23	B1	346x810x320	23
	T2	11	–	–	–	B2	346x810x320	28	B2	346x810x320	28
380 – 480 / 3 / 50 – 60	T4	4	A2	290x390x160	5	–	–	–	A5	335x550x280	15
	T4	5.5	A3	290x390x200	6.6	–	–	–	A5	335x550x280	15
	T4	7.5	A3	290x390x200	6.6	–	–	–	A5	335x550x280	15
	T4	11	B3	349x500x330	13	B1	346x810x320	23	B1	346x810x320	23
	T4	15	B3	349x500x330	13	B1	346x810x320	23	B1	346x810x320	23
	T4	18.5	B4	346x810x320	24	B2	346x810x320	28	B2	346x810x320	28
	T4	22	–	–	–	B2	346x810x320	28	B2	346x810x320	28

Dimensions are given with drives in delivery position, without black plastic pallet

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Technical data and ordering

VTZ - Inverter reciprocating compressor - R134a - 380 – 480 V

Performance table

Type	[rpm]	Te	-15		-10		-5		0		5		10		15	
			Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VTZ038-G	2100	40	800	0.52	1000	0.60	1300	0.67	1800	0.72	2300	0.77	2900	0.80	3700	0.82
	2100	50	600	0.52	800	0.61	1100	0.70	1500	0.77	1900	0.84	2500	0.90	3200	0.94
	2100	60	-	-	-	-	900	0.73	1200	0.82	1600	0.90	2100	0.98	2700	1.04
	3600	40	1400	0.95	1900	1.09	2500	1.20	3300	1.30	4200	1.39	5400	1.45	6800	1.49
	3600	50	1100	0.95	1500	1.12	2000	1.27	2700	1.40	3600	1.52	4600	1.62	5900	1.70
	3600	60	-	-	-	-	1600	1.31	2200	1.48	2900	1.63	3800	1.76	4900	1.88
	5400	40	2100	1.41	2800	1.60	3800	1.77	4900	1.92	6400	2.04	8100	2.13	10300	2.19
	5400	50	1600	1.40	2300	1.64	3100	1.87	4100	2.06	5400	2.24	7000	2.38	8900	2.50
	5400	60	-	-	-	-	2400	1.92	3300	2.17	4400	2.40	5800	2.60	7500	2.77
VTZ054-G	2100	40	1200	0.73	1600	0.81	2100	0.90	2700	0.98	3400	1.06	4200	1.13	5100	1.20
	2100	50	900	0.76	1300	0.86	1700	0.96	2300	1.07	2900	1.17	3600	1.27	4500	1.37
	2100	60	-	-	-	-	1400	1.02	1900	1.14	2400	1.27	3000	1.40	3800	1.52
	3600	40	2200	1.32	2900	1.47	3800	1.63	4900	1.78	6300	1.92	7800	2.05	9500	2.16
	3600	50	1700	1.37	2400	1.56	3200	1.75	4200	1.93	5300	2.12	6700	2.30	8300	2.47
	3600	60	-	-	-	-	2600	1.84	3500	2.07	4500	2.30	5600	2.53	7000	2.76
	5400	40	3300	1.93	4400	2.17	5800	2.39	7500	2.62	9500	2.83	11800	3.02	14400	3.19
	5400	50	2600	2.02	3700	2.29	4900	2.57	6400	2.85	8100	3.12	10200	3.39	12500	3.64
	5400	60	-	-	-	-	4000	2.71	5200	3.04	6800	3.38	8500	3.71	10600	4.04
VTZ086-G	1800	40	1500	0.99	2100	1.12	2800	1.23	3600	1.32	4600	1.39	5800	1.45	7200	1.50
	1800	50	1200	1.00	1700	1.16	2300	1.31	3000	1.44	3900	1.55	5000	1.65	6200	1.74
	1800	60	-	-	-	-	1800	1.36	2500	1.52	3200	1.67	4100	1.80	5200	1.93
	3600	40	3200	2.10	4500	2.37	6000	2.59	7900	2.77	10000	2.92	12600	3.07	15600	3.20
	3600	50	2500	2.11	3600	2.46	5000	2.77	6600	3.03	8500	3.25	10800	3.46	13400	3.66
	3600	60	-	-	-	-	3900	2.87	5300	3.21	6900	3.52	8900	3.81	11200	4.08
	5400	40	4900	3.04	6800	3.49	9100	3.85	11900	4.13	15200	4.35	19100	4.52	23700	4.65
	5400	50	3800	3.06	5500	3.61	7600	4.08	10000	4.48	12900	4.82	16300	5.11	20300	5.38
	5400	60	-	-	-	-	5900	4.26	8000	4.74	10500	5.18	13500	5.57	16900	5.95
VTZ121-G	1800	40	2400	1.39	3100	1.54	4000	1.69	5000	1.83	6300	1.96	7700	2.08	9400	2.19
	1800	50	2000	1.49	2700	1.68	3400	1.86	4300	2.04	5400	2.21	6700	2.37	8300	2.53
	1800	60	-	-	-	-	2800	1.99	3600	2.21	4500	2.43	5700	2.64	7000	2.84
	3600	40	5100	2.92	6600	3.23	8400	3.54	10500	3.83	13100	4.11	16200	4.36	19700	4.60
	3600	50	4300	3.13	5600	3.52	7200	3.90	9100	4.28	11400	4.64	14200	4.98	17400	5.30
	3600	60	-	-	-	-	5900	4.19	7500	4.65	9500	5.10	11900	5.54	14800	5.97
	5100	40	7300	4.05	9400	4.49	11900	4.92	15000	5.34	18700	5.72	23100	6.08	28200	6.38
	5100	50	6100	4.35	7900	4.88	10200	5.41	13000	5.93	16300	6.45	20200	6.94	24800	7.40
	5100	60	-	-	-	-	8300	5.82	10700	6.45	13600	7.08	17000	7.70	21100	8.31
VTZ171-G	1800	40	2900	2.09	4000	2.31	5500	2.49	7200	2.64	9200	2.76	11600	2.86	14400	2.96
	1800	50	2100	2.12	3200	2.44	4400	2.71	5900	2.94	7700	3.13	9800	3.29	12300	3.43
	1800	60	-	-	-	-	3400	2.84	4700	3.18	6200	3.46	8000	3.71	10200	3.92
	3600	40	6500	4.23	9000	4.76	12100	5.22	15700	5.62	20000	5.97	25000	6.28	30800	6.55
	3600	50	4900	4.22	7200	4.93	9900	5.55	13100	6.10	16900	6.60	21400	7.03	26600	7.43
	3600	60	-	-	-	-	7600	5.69	10400	6.43	13700	7.10	17600	7.71	22100	8.25
	5400	40	10000	6.22	13800	7.25	18300	8.19	23600	9.02	29900	9.73	37200	10.31	45700	10.74
	5400	50	7600	6.19	11000	7.32	15100	8.44	19900	9.51	25600	10.54	32300	11.50	40000	12.38
	5400	60	-	-	-	-	11800	8.62	16000	9.80	21000	11.00	26900	12.21	33800	13.41
VTZ215-G	1800	40	4300	2.77	5700	3.07	7500	3.33	9500	3.56	11900	3.79	14800	4.03	18000	4.29
	1800	50	3500	2.88	4800	3.28	6300	3.63	8200	3.94	10300	4.23	12900	4.50	15800	4.78
	1800	60	-	-	-	-	5100	3.82	6700	4.25	8600	4.63	10900	4.99	13500	5.33
	3600	40	9300	5.87	12400	6.51	16200	7.08	20600	7.60	25800	8.10	31800	8.61	38700	9.14
	3600	50	7500	6.07	10300	6.93	13700	7.68	17700	8.35	22400	8.96	27700	9.54	33900	10.11
	3600	60	-	-	-	-	11100	8.07	14600	8.97	18700	9.77	23500	10.49	29000	11.17
	5400	40	14000	8.66	18800	9.56	24500	10.38	31200	11.16	39100	11.92	48300	12.70	58900	13.54
	5400	50	11300	8.97	15600	10.16	20700	11.23	26800	12.22	33900	13.17	42200	14.09	51900	15.02
	5400	60	-	-	-	-	16800	11.83	22100	13.12	28300	14.32	35700	15.46	44300	16.58

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K

Voltage code: G: 380 – 480 V / 3 / 50 and 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VTZ - Inverter reciprocating compressor - R404A - 380 – 480 V

Performance table

Type	[rpm]	Te	-30		-25		-20		-15		-10		-5		0		5	
			Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VTZ038-G	2100	20	1100	0.61	1400	0.67	1800	0.71	2400	0.74	2900	0.76	3700	0.77	-	-	-	-
	2100	30	800	0.64	1100	0.72	1500	0.79	1900	0.85	2400	0.89	3000	0.93	3700	0.95	4600	0.96
	2100	40	600	0.64	900	0.75	1100	0.85	1500	0.94	1900	1.02	2400	1.09	3000	1.14	3700	1.18
	2100	50	400	0.62	600	0.76	800	0.90	1100	1.02	1500	1.14	1900	1.24	2400	1.33	2900	1.40
	2100	60	-	-	-	-	500	0.92	700	1.08	1000	1.23	1300	1.37	1700	1.50	2200	1.61
	3600	20	1700	1.08	2300	1.20	3000	1.29	3900	1.37	4900	1.43	6100	1.45	-	-	-	-
	3600	30	1400	1.10	1900	1.26	2600	1.40	3400	1.52	4300	1.62	5400	1.69	6700	1.74	8200	1.75
	3600	40	1000	1.10	1500	1.30	2100	1.49	2800	1.66	3600	1.81	4600	1.93	5700	2.03	7000	2.11
	3600	50	600	1.04	1000	1.29	1500	1.52	2100	1.75	2800	1.95	3600	2.14	4600	2.30	5800	2.44
	3600	60	-	-	-	-	1000	1.47	1400	1.75	2000	2.02	2600	2.27	3400	2.50	4400	2.70
	5400	20	2200	1.76	3100	2.01	4200	2.22	5500	2.39	7000	2.51	8800	2.57	-	-	-	-
	5400	30	1700	1.74	2500	2.08	3500	2.38	4600	2.64	6000	2.86	7700	3.03	9500	3.15	11700	3.22
	5400	40	1100	1.60	1900	2.03	2700	2.43	3700	2.78	5000	3.10	6400	3.37	8100	3.60	10000	3.78
	5400	50	600	1.34	1200	1.86	1900	2.34	2800	2.79	3800	3.21	5100	3.58	6500	3.92	8200	4.20
	5400	60	-	-	-	-	1200	2.11	1900	2.66	2700	3.17	3600	3.65	4800	4.09	6200	4.49
VTZ054-G	2100	20	1500	0.88	2000	0.97	2600	1.05	3400	1.11	4300	1.16	5400	1.19	-	-	-	-
	2100	30	1200	0.94	1600	1.06	2100	1.16	2800	1.26	3600	1.34	4500	1.40	5700	1.45	7100	1.48
	2100	40	900	0.96	1300	1.11	1700	1.25	2200	1.38	2900	1.50	3700	1.60	4700	1.69	5800	1.76
	2100	50	700	0.96	900	1.14	1300	1.32	1700	1.49	2200	1.64	2900	1.79	3700	1.92	4600	2.03
	2100	60	-	-	-	-	900	1.37	1200	1.57	1600	1.77	2100	1.96	2700	2.13	3500	2.29
	3600	20	2500	1.58	3300	1.76	4300	1.91	5400	2.05	6900	2.16	8600	2.26	-	-	-	-
	3600	30	2100	1.67	2800	1.89	3700	2.09	4800	2.28	6100	2.44	7600	2.59	9400	2.72	11400	2.82
	3600	40	1700	1.69	2300	1.96	3100	2.22	4000	2.46	5100	2.69	6500	2.90	8000	3.09	9900	3.25
	3600	50	1200	1.64	1700	1.97	2400	2.29	3100	2.60	4100	2.89	5200	3.17	6500	3.42	8100	3.66
	3600	60	-	-	-	-	1600	2.29	2200	2.66	2900	3.03	3800	3.37	4900	3.71	6200	4.02
	5400	20	3700	2.45	4900	2.76	6200	3.06	7900	3.34	9900	3.61	12200	3.84	-	-	-	-
	5400	30	3000	2.47	4000	2.84	5300	3.21	6800	3.57	8600	3.92	10700	4.26	13200	4.58	16100	4.87
	5400	40	2200	2.43	3100	2.85	4200	3.28	5500	3.72	7100	4.16	9000	4.59	11200	5.02	13800	5.43
	5400	50	1400	2.30	2200	2.77	3100	3.26	4200	3.77	5500	4.29	7100	4.82	9000	5.35	11300	5.87
	5400	60	-	-	-	-	1900	3.15	2800	3.73	3900	4.32	5100	4.94	6700	5.56	8600	6.19
VTZ086-G	1800	20	1800	1.18	2600	1.31	3500	1.42	4700	1.49	6000	1.54	7700	1.56	-	-	-	-
	1800	30	1300	1.21	2000	1.40	2700	1.56	3700	1.69	4800	1.80	6200	1.87	7800	1.92	9600	1.94
	1800	40	900	1.16	1400	1.43	2000	1.66	2800	1.85	3700	2.02	4800	2.16	6100	2.27	7700	2.35
	1800	50	600	1.04	1000	1.38	1500	1.69	2000	1.97	2800	2.21	3600	2.42	4700	2.60	5900	2.75
	1800	60	-	-	-	-	900	1.67	1400	2.03	1900	2.36	2600	2.65	3400	2.91	4300	3.14
	3600	20	4300	2.46	5800	2.74	7600	2.97	9800	3.16	12400	3.29	15500	3.38	-	-	-	-
	3600	30	3300	2.53	4600	2.91	6200	3.25	8100	3.54	10400	3.78	13100	3.96	16300	4.10	19900	4.18
	3600	40	2300	2.46	3400	2.97	4800	3.42	6500	3.82	8400	4.17	10800	4.47	13500	4.72	16700	4.91
	3600	50	1400	2.24	2300	2.87	3500	3.45	4800	3.98	6500	4.46	8400	4.88	10700	5.25	13400	5.56
	3600	60	-	-	-	-	2200	3.34	3200	4.00	4500	4.62	6000	5.18	7900	5.68	10100	6.13
	5400	20	6200	3.89	8300	4.34	11000	4.74	14100	5.10	17900	5.40	22300	5.66	-	-	-	-
	5400	30	5000	4.00	6900	4.59	9300	5.13	12100	5.61	15500	6.05	19400	6.44	23900	6.78	29100	7.07
	5400	40	3600	3.91	5400	4.66	7400	5.35	9900	5.99	12800	6.58	16200	7.11	20200	7.60	24700	8.03
	5400	50	2300	3.59	3700	4.51	5500	5.38	7500	6.19	10000	6.94	12800	7.64	16200	8.28	20000	8.87
	5400	60	-	-	-	-	3400	5.16	5100	6.15	7000	7.09	9300	7.96	12000	8.78	15100	9.55



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

VTZ - Inverter reciprocating compressor - R404A - 380 – 480 V

Performance table

Type	[rpm]	Te	-30		-25		-20		-15		-10		-5		0		5	
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo
VTZ121-G	1800	20	2700	1.89	3700	2.05	4800	2.19	6200	2.30	7900	2.39	10000	2.46	-	-	-	-
	1800	30	2300	2.03	3100	2.25	4100	2.44	5400	2.60	6900	2.74	8700	2.85	10800	2.95	13300	3.02
	1800	40	1800	2.10	2500	2.38	3400	2.64	4400	2.86	5700	3.06	7300	3.24	9100	3.39	11300	3.52
	1800	50	1200	2.08	1800	2.44	2500	2.77	3400	3.07	4400	3.35	5700	3.60	7300	3.82	9100	4.01
	1800	60	-	-	-	-	1700	2.82	2300	3.21	3100	3.57	4100	3.90	5300	4.20	6700	4.48
	3600	20	5500	3.69	7500	4.09	9900	4.47	12900	4.85	16400	5.21	20600	5.56	-	-	-	-
	3600	30	4500	3.88	6200	4.36	8400	4.82	11000	5.26	14100	5.70	17900	6.12	22300	6.54	27400	6.96
	3600	40	3500	3.99	5000	4.56	6800	5.11	9000	5.64	11800	6.17	15000	6.68	18900	7.18	23400	7.68
	3600	50	2600	4.00	3800	4.68	5200	5.33	7000	5.98	9300	6.60	12000	7.21	15200	7.81	19100	8.41
	3600	60	-	-	-	-	3700	5.49	5000	6.25	6700	6.99	8800	7.72	11400	8.43	14600	9.14
	5100	20	8100	5.47	10800	6.11	14200	6.73	18300	7.32	23400	7.85	29400	8.31	-	-	-	-
	5100	30	6400	5.63	8800	6.38	11700	7.14	15300	7.90	19800	8.64	25000	9.34	31300	9.99	39000	10.59
	5100	40	4900	5.67	6900	6.50	9400	7.38	12400	8.29	16200	9.20	20700	10.10	26100	10.99	33000	11.59
	5100	50	3400	5.64	5100	6.53	7100	7.49	9600	8.51	12600	9.57	16400	10.65	20900	11.74	26700	12.39
	5100	60	-	-	-	-	4900	7.52	6800	8.62	9100	9.79	12100	11.02	15700	12.29	20100	12.99
VTZ171-G	1800	20	3900	2.31	5400	2.59	7200	2.83	9400	3.04	12000	3.20	15200	3.31	-	-	-	-
	1800	30	2900	2.32	4200	2.65	5700	2.96	7600	3.24	9800	3.47	12400	3.67	15500	3.82	19100	3.91
	1800	40	2100	2.31	3100	2.72	4300	3.11	5900	3.48	7700	3.81	9900	4.10	12500	4.36	15500	4.57
	1800	50	1400	2.23	2200	2.74	3100	3.23	4300	3.70	5800	4.14	7500	4.56	9600	4.94	12100	5.28
	1800	60	-	-	-	-	2100	3.25	2900	3.84	4000	4.41	5300	4.97	6900	5.49	8800	5.98
	3600	20	7700	4.52	10400	5.12	13800	5.67	18100	6.16	23200	6.61	29200	7.03	-	-	-	-
	3600	30	6200	4.73	8700	5.49	11700	6.16	15400	6.77	19900	7.32	25200	7.82	31400	8.28	38600	8.71
	3600	40	4700	4.78	6800	5.75	9500	6.61	12600	7.39	16400	8.08	21000	8.71	26300	9.28	32500	9.81
	3600	50	3100	4.54	4900	5.76	7100	6.87	9700	7.87	12900	8.77	16600	9.58	21000	10.31	26200	10.98
	3600	60	-	-	-	-	4700	6.81	6700	8.08	9200	9.24	12100	10.29	15600	11.24	19700	12.10
	5400	20	11300	7.31	15900	8.36	21500	9.26	28000	10.05	35600	10.73	44300	11.32	-	-	-	-
	5400	30	8900	7.54	13000	8.95	17900	10.20	23700	11.32	30400	12.32	38000	13.21	46600	14.03	56100	14.77
	5400	40	6400	7.24	10000	9.03	14200	10.66	19300	12.14	25000	13.50	31600	14.73	39000	15.87	47200	16.93
	5400	50	3800	6.29	6800	8.51	10400	10.55	14700	12.44	19500	14.17	25000	15.78	31200	17.28	38100	18.69
	5400	60	-	-	-	-	6500	9.78	9900	12.09	13900	14.25	18300	16.27	23300	18.16	28900	19.95
VTZ215-G	1800	20	4800	3.00	6700	3.31	9000	3.58	11900	3.79	15400	3.95	19500	4.04	-	-	-	-
	1800	30	3700	3.18	5300	3.60	7400	3.97	9800	4.30	12800	4.57	16300	4.79	20400	4.94	25200	5.02
	1800	40	2700	3.24	4100	3.78	5800	4.28	7800	4.74	10300	5.15	13300	5.51	16800	5.80	20800	6.03
	1800	50	1800	3.15	2900	3.83	4200	4.48	5900	5.09	7900	5.65	10300	6.16	13200	6.62	16500	7.02
	1800	60	-	-	-	-	2800	4.52	4100	5.30	5600	6.03	7400	6.72	9700	7.36	12300	7.95
	3600	20	9200	5.45	12700	6.26	17200	7.01	22700	7.68	29400	8.27	37400	8.76	-	-	-	-
	3600	30	7600	5.86	10700	6.85	14600	7.79	19300	8.68	25100	9.49	32100	10.23	40300	10.86	49800	11.38
	3600	40	5900	6.12	8600	7.28	11900	8.41	15900	9.49	20800	10.53	26700	11.49	33700	12.38	41900	13.16
	3600	50	4100	6.24	6400	7.55	9200	8.85	12500	10.13	16500	11.37	21300	12.56	27100	13.68	33900	14.72
	3600	60	-	-	-	-	6300	9.13	8900	10.58	12000	12.02	15700	13.41	20300	14.76	25700	16.04
	5400	20	15200	9.71	20500	11.10	27000	12.40	34800	13.62	44100	14.73	55000	15.73	-	-	-	-
	5400	30	12200	9.94	17200	11.64	23200	13.30	30300	14.90	38800	16.44	48700	17.91	60200	19.30	73400	20.59
	5400	40	9000	9.79	13400	11.78	18700	13.76	25000	15.73	32500	17.67	41200	19.58	51400	21.44	63200	23.24
	5400	50	5800	9.21	9500	11.46	13900	13.73	19100	16.03	25400	18.35	32900	20.66	41600	22.97	51800	25.26
	5400	60	-	-	-	-	8900	13.17	13000	15.77	17900	18.43	23800	21.13	30900	23.85	39300	26.60

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K

Voltage code: G: 380 – 480 V / 3 / 50 and 60 Hz

) Error 3: Evaporating temperature too high. Approximative result



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VTZ - Inverter reciprocating compressor - R407C - 380 – 480 V

Performance table

Type	[rpm]	Te	-15		-10		-5		0		5		10		15	
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo
VTZ038-G	2100	20	2000	0.69	2600	0.71	3300	0.73	4100	0.72	-	-	-	-	-	-
	2100	30	1700	0.77	2200	0.84	2800	0.89	3600	0.91	4400	0.93	5400	0.93	-	-
	2100	40	1300	0.82	1800	0.93	2300	1.01	3000	1.08	3700	1.13	4600	1.17	5600	1.20
	2100	50	-	-	1400	0.98	1900	1.11	2400	1.22	3100	1.32	3800	1.40	4700	1.47
	2100	60	-	-	-	-	1400	1.18	1800	1.34	2400	1.48	3000	1.61	3800	1.73
	3600	20	3200	1.11	4200	1.19	5400	1.25	6900	1.30	-	-	-	-	-	-
	3600	30	2700	1.24	3600	1.35	4700	1.45	6000	1.53	7500	1.59	9400	1.63	-	-
	3600	40	2200	1.34	3000	1.49	3900	1.63	5100	1.75	6400	1.86	8000	1.94	9900	2.01
	3600	50	-	-	2400	1.60	3300	1.79	4200	1.96	5400	2.11	6700	2.25	8400	2.36
	3600	60	-	-	-	-	2600	1.92	3400	2.14	4300	2.35	5500	2.54	6900	2.71
	5400	20	4600	1.79	6000	2.00	7600	2.19	9700	2.35	-	-	-	-	-	-
	5400	30	4000	1.96	5200	2.22	6700	2.47	8600	2.70	10900	2.91	13600	3.08	-	-
	5400	40	3300	2.06	4400	2.38	5700	2.68	7400	2.98	9400	3.26	11800	3.51	14700	3.73
	5400	50	-	-	3500	2.49	4600	2.85	6100	3.21	7800	3.55	9900	3.88	12500	4.18
	5400	60	-	-	-	-	3600	2.98	4800	3.40	6200	3.81	8000	4.21	10200	4.59
VTZ054-G	2100	20	2700	0.90	3500	0.94	4400	0.97	5500	0.99	-	-	-	-	-	-
	2100	30	2300	1.03	3000	1.11	3800	1.17	4800	1.21	6000	1.24	7500	1.26	-	-
	2100	40	1900	1.13	2500	1.26	3200	1.36	4100	1.45	5100	1.51	6400	1.56	7900	1.60
	2100	50	-	-	1900	1.37	2500	1.53	3300	1.67	4200	1.79	5300	1.88	6600	1.96
	2100	60	-	-	-	-	1900	1.65	2500	1.86	3300	2.04	4200	2.20	5200	2.33
	3600	20	4700	1.66	6100	1.79	7800	1.90	9900	1.99	-	-	-	-	-	-
	3600	30	4000	1.82	5200	2.00	6800	2.16	8700	2.32	10900	2.46	13500	2.58	-	-
	3600	40	3300	1.96	4400	2.19	5700	2.41	7400	2.62	9400	2.83	11700	3.02	14400	3.20
	3600	50	-	-	3600	2.33	4700	2.62	6100	2.89	7800	3.17	9900	3.43	12300	3.69
	3600	60	-	-	-	-	3700	2.76	4900	3.10	6300	3.45	8100	3.79	10200	4.13
	5400	20	6600	2.70	8600	3.01	11200	3.28	14300	3.51	-	-	-	-	-	-
	5400	30	5700	2.92	7500	3.32	9700	3.70	12400	4.05	15800	4.37	19800	4.63	-	-
	5400	40	4700	3.05	6300	3.53	8200	4.01	10600	4.48	13500	4.93	17000	5.34	21200	5.69
	5400	50	-	-	5200	3.63	6800	4.20	8800	4.78	11300	5.35	14300	5.89	17900	6.41
	5400	60	-	-	-	-	5400	4.26	7100	4.93	9100	5.62	11700	6.29	14700	6.96
VTZ086-G	1800	20	3700	1.14	5000	1.19	6500	1.22	8400	1.24	-	-	-	-	-	-
	1800	30	2900	1.34	3900	1.45	5200	1.53	6700	1.58	8600	1.62	10700	1.65	-	-
	1800	40	2200	1.47	3100	1.67	4100	1.82	5400	1.93	6800	2.02	8600	2.09	10700	2.14
	1800	50	-	-	2300	1.78	3200	2.03	4200	2.23	5500	2.40	6900	2.53	8600	2.63
	1800	60	-	-	-	-	2400	2.13	3300	2.45	4300	2.71	5400	2.93	6800	3.12
	3600	20	6300	2.61	8600	2.76	11500	2.88	14900	2.96	-	-	-	-	-	-
	3600	30	5500	2.86	7600	3.10	10100	3.28	13000	3.42	16500	3.53	20500	3.62	-	-
	3600	40	4600	3.04	6400	3.40	8600	3.69	11200	3.92	14200	4.10	17700	4.25	21700	4.38
	3600	50	-	-	5200	3.61	7100	4.04	9400	4.40	11900	4.69	14800	4.94	18200	5.16
	3600	60	-	-	-	-	5500	4.27	7400	4.80	9500	5.24	11900	5.63	14700	5.97
	5400	20	10200	3.86	13400	4.11	17500	4.31	22600	4.44	-	-	-	-	-	-
	5400	30	8800	4.33	11500	4.69	14900	5.02	19200	5.30	24500	5.52	31100	5.65	-	-
	5400	40	7700	4.72	9900	5.19	12700	5.65	16200	6.07	20700	6.45	26100	6.76	32800	7.00
	5400	50	-	-	8400	5.62	10800	6.19	13700	6.75	17300	7.29	21800	7.77	27300	8.21
	5400	60	-	-	-	-	8900	6.66	11300	7.35	14300	8.04	17900	8.69	22400	9.31



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VTZ - Inverter reciprocating compressor - R407C - 380 – 480 V

Performance table

Type	[rpm]	Te	-15		-10		-5		0		5		10		15	
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VTZ121-G	1800	20	5200	1.66	6900	1.77	8900	1.84	11300	1.85	–	–	–	–	–	–
	1800	30	4400	1.91	5800	2.10	7600	2.25	9700	2.35	12200	2.40	15100	2.39	–	–
	1800	40	3500	2.11	4800	2.39	6400	2.62	8200	2.80	10400	2.94	12900	3.02	15800	3.04
	1800	50	–	–	3900	2.63	5200	2.95	6800	3.21	8600	3.43	10800	3.60	13300	3.71
	1800	60	–	–	–	–	4100	3.23	5400	3.58	6900	3.89	8700	4.15	10900	4.35
	3600	20	11100	3.94	14300	4.27	18200	4.60	22800	4.92	–	–	–	–	–	–
	3600	30	9400	4.21	12200	4.60	15700	4.98	19900	5.34	24800	5.69	30600	6.03	–	–
	3600	40	7800	4.52	10300	5.01	13300	5.47	17100	5.93	21500	6.36	26700	6.77	32700	7.16
	3600	50	–	–	8400	5.36	11100	5.97	14300	6.55	18200	7.11	22800	7.64	28200	8.15
	3600	60	–	–	–	–	8900	6.33	11600	7.09	14900	7.82	18900	8.51	23700	9.18
	5100	20	15400	5.71	19800	6.34	25000	6.98	31300	7.64	–	–	–	–	–	–
	5100	30	13100	6.11	17100	6.81	21900	7.52	27600	8.26	34300	9.02	42200	9.79	–	–
	5100	40	10900	6.48	14400	7.28	18700	8.09	23800	8.92	29900	9.77	37000	10.64	45200	11.52
	5100	50	–	–	11800	7.68	15500	8.62	19900	9.56	25300	10.53	31600	11.51	39000	12.51
	5100	60	–	–	–	–	12400	9.04	16100	10.13	20700	11.23	26100	12.35	32600	13.49
VTZ171-G	1800	20	6900	2.27	9000	2.38	11700	2.45	14800	2.47	–	–	–	–	–	–
	1800	30	6000	2.68	7900	2.88	10300	3.05	13200	3.17	16700	3.24	20800	3.27	–	–
	1800	40	4900	3.00	6600	3.31	8800	3.59	11400	3.84	14500	4.04	18100	4.19	22500	4.28
	1800	50	–	–	5200	3.64	7100	4.05	9300	4.44	12000	4.78	15200	5.08	19000	5.33
	1800	60	–	–	–	–	5300	4.38	7100	4.93	9300	5.44	12000	5.92	15300	6.34
	3600	20	15300	5.05	19600	5.33	24800	5.49	30900	5.50	–	–	–	–	–	–
	3600	30	12900	5.67	16900	6.18	21700	6.59	27400	6.88	34200	7.02	42100	7.00	–	–
	3600	40	10500	6.06	14100	6.82	18400	7.49	23700	8.06	29900	8.50	37200	8.80	45700	8.93
	3600	50	–	–	11300	7.25	15100	8.19	19700	9.04	25300	9.80	31900	10.43	39700	10.91
	3600	60	–	–	–	–	11800	8.69	15700	9.84	20600	10.91	26400	11.88	33300	12.72
	5400	20	21100	7.82	27300	8.46	34800	9.00	43600	9.43	–	–	–	–	–	–
	5400	30	18500	8.77	24500	9.71	31600	10.55	39900	11.31	49600	11.97	60700	12.54	–	–
	5400	40	15600	9.47	21100	10.71	27600	11.87	35300	12.96	44200	13.96	54600	14.89	66400	15.73
	5400	50	–	–	17300	11.40	23100	12.89	30000	14.31	38100	15.66	47400	16.95	58200	18.18
	5400	60	–	–	–	–	18300	13.52	24200	15.29	31300	17.01	39600	18.67	49100	20.29
VTZ215-G	1800	20	9200	2.96	11800	3.13	15100	3.26	18900	3.37	–	–	–	–	–	–
	1800	30	8100	3.48	10500	3.75	13400	3.98	17000	4.16	21200	4.31	26300	4.42	–	–
	1800	40	6800	3.93	8900	4.34	11600	4.70	14700	5.00	18500	5.26	23100	5.47	28400	5.64
	1800	50	–	–	7200	4.82	9500	5.35	12300	5.82	15600	6.23	19600	6.58	24300	6.88
	1800	60	–	–	–	–	7400	5.87	9700	6.54	12500	7.14	15900	7.68	19900	8.15
	3600	20	20700	6.67	26200	7.18	32800	7.63	40600	8.03	–	–	–	–	–	–
	3600	30	17800	7.45	22800	8.14	28900	8.79	36000	9.38	44400	9.92	54100	10.40	–	–
	3600	40	14800	8.04	19300	8.97	24800	9.85	31200	10.68	38800	11.45	47700	12.16	57900	12.81
	3600	50	–	–	15800	9.62	20600	10.78	26300	11.88	33100	12.93	41000	13.92	50300	14.85
	3600	60	–	–	–	–	16400	11.54	21300	12.96	27200	14.33	34200	15.64	42400	16.89
	5400	20	28400	10.93	36500	12.14	46200	13.25	57500	14.22	–	–	–	–	–	–
	5400	30	24600	11.71	32100	13.25	41100	14.75	51600	16.17	63800	17.48	77800	18.64	–	–
	5400	40	20600	12.27	27500	14.11	35700	15.97	45300	17.81	56400	19.60	69300	21.30	84000	22.87
	5400	50	–	–	22700	14.80	30000	16.98	38600	19.20	48600	21.43	60100	23.64	73500	25.78
	5400	60	–	–	–	–	24100	17.85	31600	20.42	40400	23.06	50600	25.73	62500	28.40

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

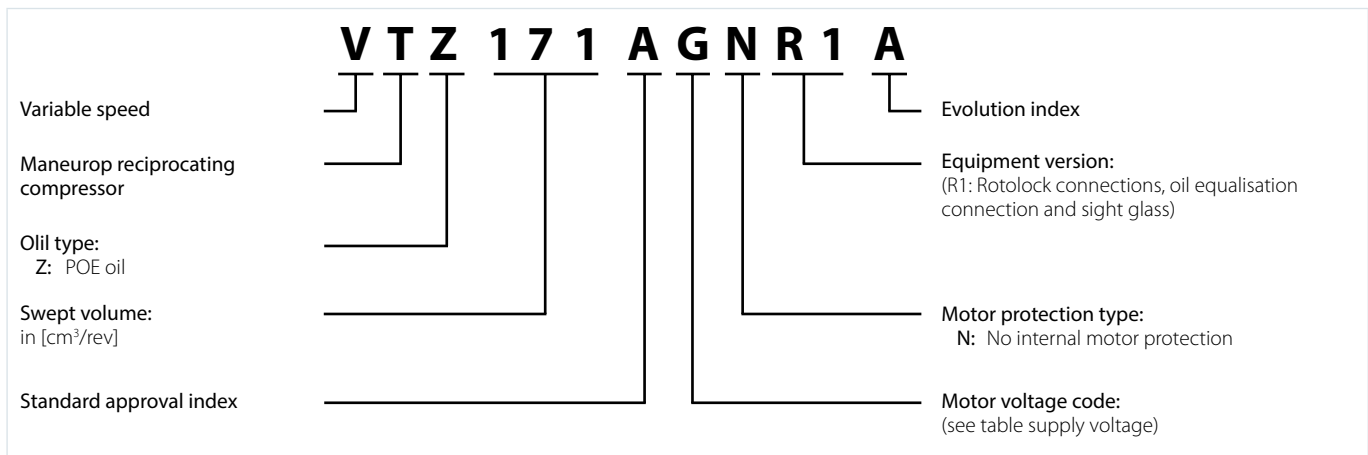
Superheat: 10 K

Voltage code: G: 380 – 480 V / 3 / 50 and 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

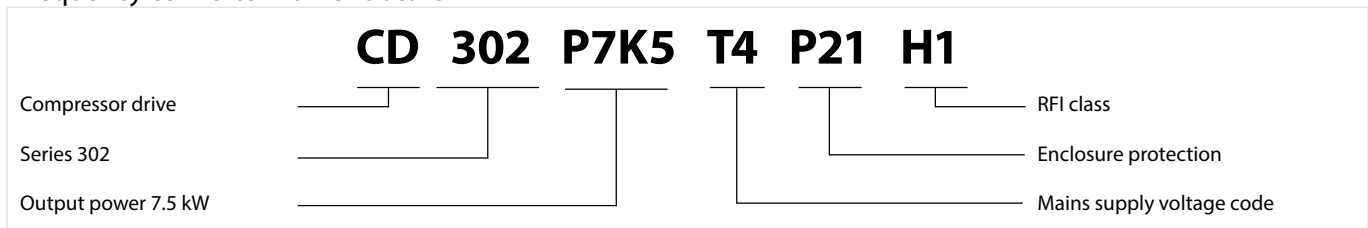
Nomenclature



Compressor specifications

Compressor Type	Swept volume [cm ³ /rev]	Displacement			Cyl. nbr	Oil charge [dm ³]	Net Weight [kg]
		Min speed [m ³ /h]	50 Hz [m ³ /h]	Max speed [m ³ /h]			
VTZ038	38.12	4.57	6.63	12.12	1	0.95	21
VTZ054	53.86	6.46	9.37	17.13	1	0.95	24
VTZ086	85.64	8.74	14.90	27.23	2	1.80	35
VTZ121	120.94	12.34	21.04	36.28	2	1.80	40
VTZ171	171.26	17.47	29.80	54.46	4	3.90	60
VTZ215	215.44	21.97	37.49	68.51	4	3.90	64

Frequency converter nomenclature

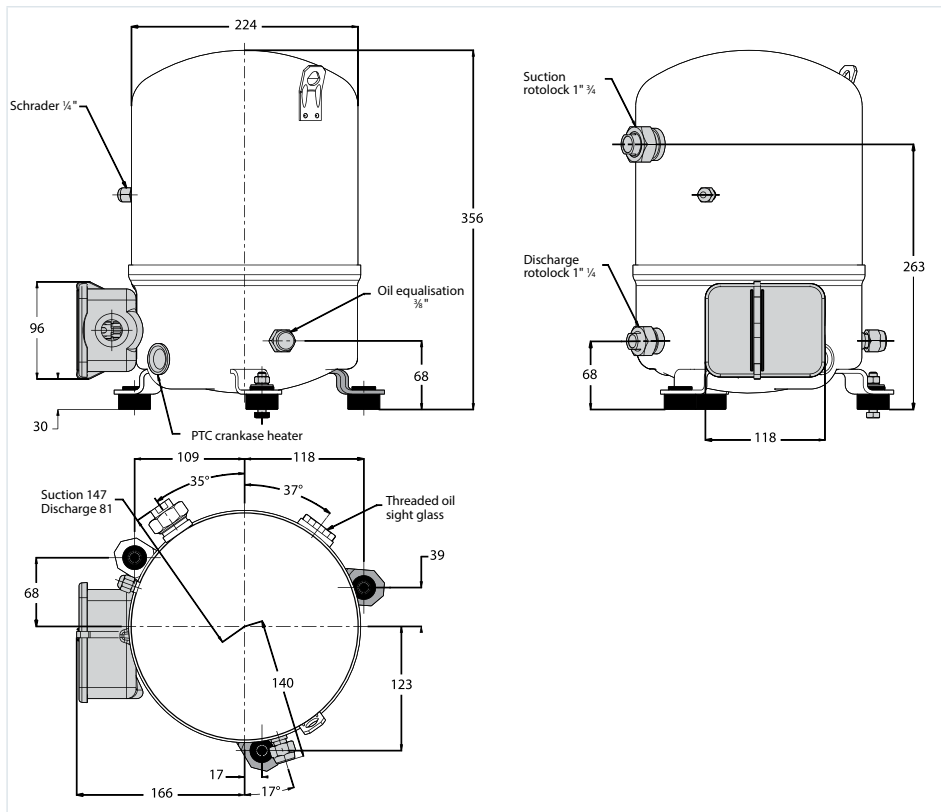


Frequency converter specifications

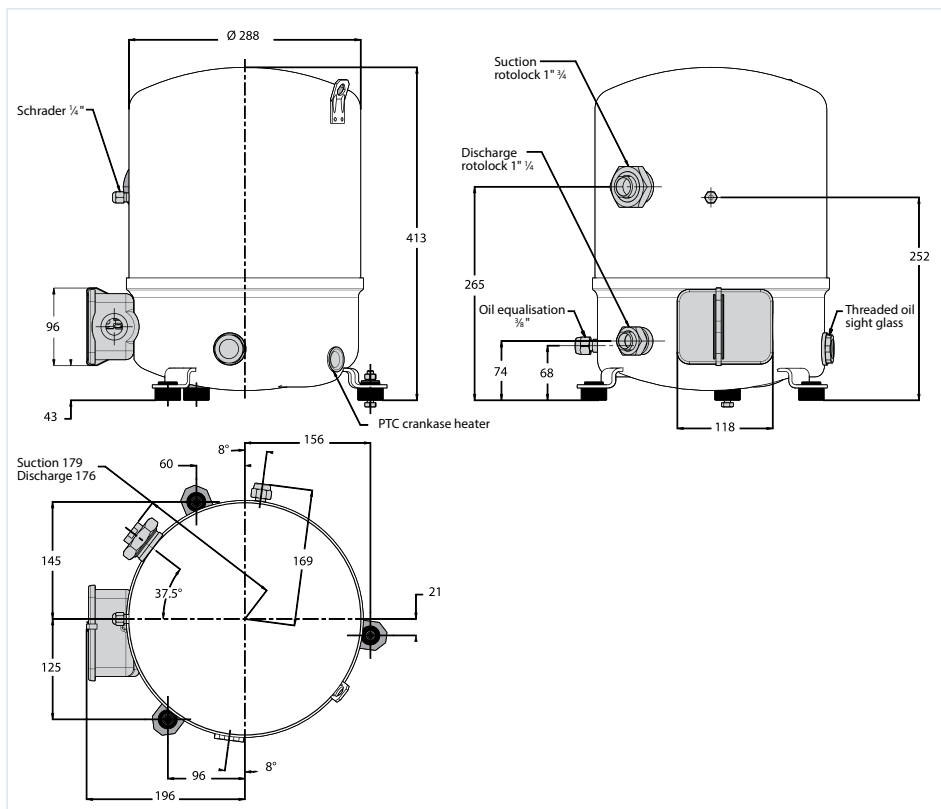
Mains supply voltage	T2: 200 – 240 V ± 10% (3-phase), T4: 380 – 480 V ± 10% (3-phase)
Supply frequency	50 / 60 Hz
Output voltage	0 – 100% of supply voltage
Inputs	6 digital (0 – 24 V), 2 analogue (-10 – 10V or 0 / 4 V -20 mA, scalable)
Programmable outputs	2 digital (0 – 24 V), 1 analogue, 2 relay
Protection functions	Over-current protection, over-modulation handling, low / high current handling
Smart Logic Control functions	Pump-down function, Anti short-cycle function, Oil return management
Communication	Modbus

Dimensions

VTZ038 / VTZ054

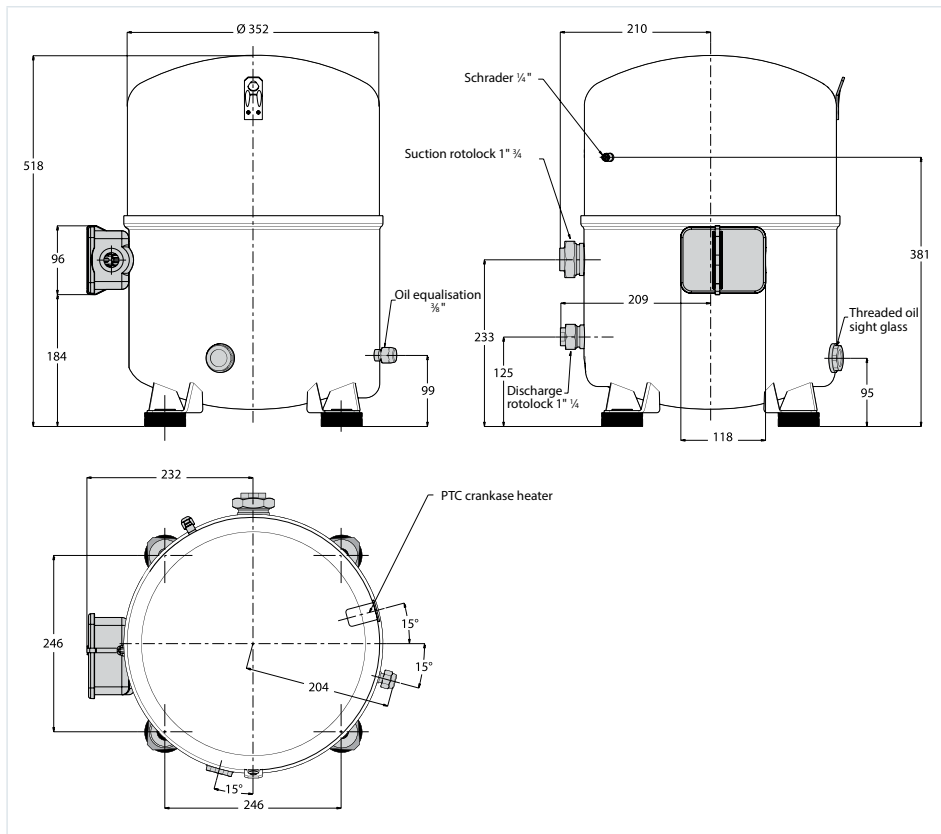


VTZ086 / VTZ121



Dimensions

VTZ171 / VTZ215



- 01
- 02
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- 18**
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Technical data

Sight glass

VTZ compressors come equipped with a threaded oil sight glass with 1 1/8 – 18 inch UNEF connection. It can be used for visual check of oil amount and conditions, or it may be replaced by an oil management device.

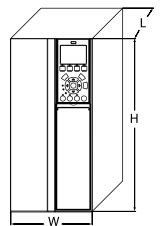
Schrader

The oil fill connection and gauge port is a 1/4 inch male flare connector incorporating a schrader valve.

Suction and discharge connections

VTZ compressors are all delivered with suction and discharge rotolock connections only.

Type	Rotolock connections size		Pipe sizing		Rotolock valve	
	Suction [in]	Discharge [in]	Suction [in]	Discharge [in]	Suction	Discharge
VTZ038 – 054	1 1/4	1	5/8	1/2	V09	V06
VTZ086 – 121	1 3/4	1 1/4	7/8	3/4	V07	V04
VTZ171 – 215	1 3/4	1 1/4	1 1/8	3/4	V02	V04



VTZ - Inverter reciprocating compressors

Frequency converter dimensions

Drive supply voltage	Drive power [kW]	Compressor voltage code	Compressor model	IP20			IP21			IP55		
				Drive enclosure	Overall dimension (H x W x L) [mm]	Weight [kg]	Drive enclosure	Overall dimension (H x W x L) [mm]	Weight [kg]	Drive enclosure	Overall dimension (H x W x L) [mm]	Weight [kg]
T2: 200 – 240 / 3 / 50 – 60	3.7	J	VTZ038	A3	268x130x205	6.6	–	–	–	–	–	–
	5.5	J	VTZ054	–	–	–	B1	494x242x260	23	B1	480x242x260	23
	7.5	J	VTZ086	–	–	–	B1	494x242x260	23	B1	480x242x260	23
	11	J	VTZ121	–	–	–	B2	664x242x260	27	B2	664x242x260	27
T4: 380 – 480 / 3 / 50 – 60	4	G	VTZ038	A2	268x90x205	4.9	–	–	–	A5	420x242x200	13.5
	5.5	G	VTZ054	A3	268x130x205	6.6	–	–	–	A5	420x242x200	13.5
	7.5	G	VTZ086	A3	268x130x205	6.6	–	–	–	A5	420x242x200	13.5
	11	G	VTZ121	B3	399x165x248	12	B1	494x242x260	23	B1	480x242x260	23
	15	G	VTZ171	B3	399x165x248	12	B1	494x242x260	23	B1	480x242x260	23
	18.5	G	VTZ215	B4	518x231x242	23	B2	664x242x260	27	B2	650x242x260	27

Frequency converter dimensions depend on supply voltage, IP rating and power

The below table gives an overview of the overall dimensions and different drive enclosures (B1 - C3)

Details for each drive enclosure are on the following pages

01

02

03

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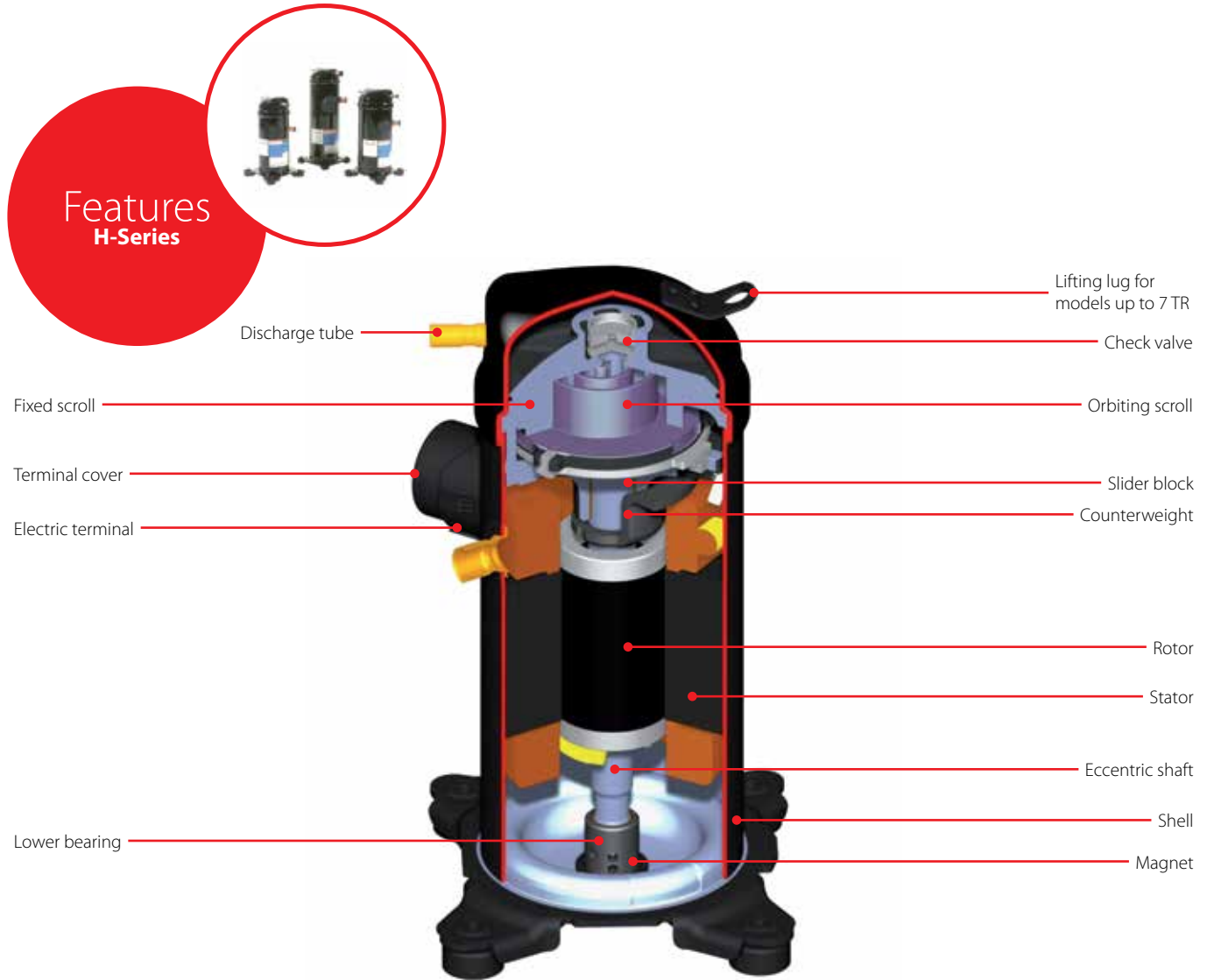
19

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H-Series, Scroll compressor

Danfoss scrolls are designed for excellence in performance, silence and endurance. They feature compressors that are among the quietest, most efficient, reliable and available on the market. Ranging from 2.5 – 10 TR, the universal dimension, footprint and connections of the H series make it the natural choice for greater comfort in existing or new residences.

Available in a large variety of single and tandem models for refrigerants R407C, and R410A. The compressors combine high energy efficiency with low sound and minimal vibration.



Facts

- Discharge check valve: no reverse rotation hence no shutdown noise
- Radial scroll compliance: good resistance to liquid flood back
- Axial scroll compliance: low starting current
- Oil injection: good lubrication at fierce conditions
- Lead-free bearings: high reliability even with low lubrication
- Patented internal protection combined with HOOP (Hot Oil Over Protector) thermal valve: excellent reliability
- Standard dimensions and tubing: ideal for both new installations and replacement markets

Technical data and ordering

H series - Scroll compressor - R407C / R410A - 50 Hz

Technical data

Type	Nominal tons 60 Hz	Nominal cooling capacity		Power input	COP	E.E.R	Swept volume	Displacement	Oil charge	Net weight	
	[TR]	[W]	[Btu/h]	[kW]	[W/W]	[Btu/h/W]	[cm ³ /rev]	[m ³ /h]	[dm ³]	[kg]	
R407C	HRP025T4	2	5730	19 570	1.86	3.08	10.5	34.1	5.9	1.06	32
	HRP034T4	2.8	7 940	27 080	2.68	2.96	10.1	46.2	8.03	1.06	32
	HRP038T4	3.2	8 840	30 150	2.82	3.14	10.7	51.6	8.98	1.06	32
	HRP040T4	3.3	9 110	31 080	3.14	2.9	9.9	54.4	9.47	1.06	32
	HRP042T4	3.5	9 580	32 680	3.3	2.9	9.9	57.2	9.95	1.06	32
	HRP045T4	3.8	10 810	36 890	3.58	3.02	10.3	61.5	10.69	1.33	32
	HRP047T4	3.9	11 130	37 980	3.69	3.02	10.3	64.1	11.15	1.33	32
	HRP048T4	4	11 100	37 880	3.35	3.31	11.3	64.4	11.21	1.57	39
	HRP051T4	4.3	12 120	41 370	3.83	3.17	10.8	68.8	11.98	1.57	39
	HRP054T4	4.5	12 570	42 880	3.97	3.17	10.8	72.8	12.66	1.57	41
	HRP058T4	4.8	13 470	45 970	4.25	3.17	10.8	78.2	13.6	1.57	41
	HRP060T4	5	13 860	47 280	4.26	3.25	11.1	81	14.09	1.57	41
	HLP068T4	5.7	15 700	53 560	5.1	3.08	10.5	93.1	16.2	1.57	41
	HLP072T4	6	16 620	56 740	5.3	3.14	10.7	98.7	17.17	1.57	41
	HLP075T4	6.3	18 040	61 550	5.54	3.26	11.1	102.8	17.88	1.57	41
	HLP081T4	6.8	19 480	66 510	5.99	3.25	11.1	110.9	19.3	1.57	41
	HCP094T4	7.8	21 590	73 660	6.63	3.26	11.1	126	21.93	2.66	47
HCP109T4	9.1	26 060	88 950	7.93	3.28	11.2	148.8	25.89	2.66	47	
HCP120T4	10	28 150	96 080	8.88	3.17	10.8	162.4	28.26	2.66	47	
R410A	HRH029U4	2.4	7 120	24 310	2.43	2.93	10	27.8	4.84	1.06	32
	HRH031U4	2.6	7 530	25 710	2.67	2.82	9.62	29.8	5.19	1.06	32
	HRH032U4	2.7	7 670	26 170	2.75	2.79	9.51	30.6	5.33	1.06	32
	HRH034U4	2.8	8 500	29 000	2.9	2.93	10	33.3	5.75	1.06	32
	HRH036U4	3	8 820	30 110	3.13	2.82	9.62	34.7	6.04	1.06	32
	HRH038U4	3.2	9 250	31 560	3.35	2.76	9.41	36.5	6.36	1.06	39
	HRH040U4	3.3	10 200	34 810	3.58	2.85	9.72	39.6	6.9	1.33	39
	HRH041U4	3.3	10 050	34 300	3.43	2.93	10	39.3	6.8	1.57	39
	HRH044U4	3.7	10 830	36 940	3.92	2.76	9.41	42.6	7.41	1.57	39
	HRH047U4	3.9	11 340	38 700	3.87	2.93	10.01	44.4	7.73	1.57	39
	HRH049U4	4.1	12 110	41 320	4.04	2.99	10.22	47.4	8.24	1.57	39
	HRH051U4	4.3	12 860	43 890	4.21	3.05	10.42	49.3	8.58	1.57	41
	HRH054U4	4.5	13 340	45 510	4.41	3.02	10.32	52.1	9.07	1.57	41
	HRH056U4	4.7	13 830	47 200	4.58	3.02	10.31	54.1	9.42	1.57	41
	HLH061T4	5.1	15 210	51 880	4.89	3.11	10.61	57.8	10.1	1.57	41
	HLH068T4	5.7	16 880	57 610	5.26	3.21	10.96	64.4	11.21	1.57	41
	HLJ072T4	6	17 840	60 900	5.56	3.21	11	68	11.82	1.57	41
	HLJ075T4	6.3	18 600	63 490	5.77	3.22	11	70.8	12.32	1.57	41
	HLJ083T4	6.9	20 420	69 690	6.28	3.25	11.1	78.1	13.59	1.57	41
	H CJ090T4	7.5	22 320	76 190	7.19	3.11	10.6	86.9	15.11	2.66	44
H CJ091T4	7.5	22 380	76 360	7.03	3.18	10.87	86.9	15.11	2.46	49	
H CJ105T4	8.8	26 100	89 090	8.25	3.16	10.8	101.6	17.68	2.66	44	
H CJ106T4	8.8	26 050	88 880	8.07	3.23	11.01	101.6	17.68	2.46	49	
H CJ120T4	10	29 610	101 080	9.53	3.11	10.6	116.4	20.24	2.66	44	
H CJ121T4	10	29 720	101 400	9.22	3.22	11	116.4	20.24	2.46	49	

TR: Ton of Refrigeration

COP: Coefficient Of Performance

EER: Energy Efficiency Ratio

*) ARI standard rating conditions,
400 V / 3 ph / 50 Hz

Evaporating temperature: 7.2 °C
Condensing temperature: 54.4 °C
Superheat: 11.1 K
Sub-cooling: 8.3 K

Technical data and ordering

H series - Scroll compressor - R407C / R410A - 60 Hz

Technical data

Type	Nominal tons 60 Hz	Nominal cooling capacity		Power input	COP	E.E.R	Swept volume	Displacement	Oil charge	Net weight	
	[TR]	[W]	[Btu/h]	[kW]	[W/W]	[Btu/h/W]	[cm ³ /rev]	[m ³ /h]	[dm ³]	[kg]	
R407C	HRP025T4	2	6880	23 490	2.22	3.11	10.6	34.1	7.12	1.06	32
	HRP034T4	2.8	9580	32 700	3.2	3	10.2	46.2	9.69	1.06	32
	HRP038T4	3.2	10 670	36 410	3.36	3.18	10.8	46.2	10.84	1.06	32
	HRP040T4	3.3	10 990	37 510	3.7	2.97	10.1	54.4	11.43	1.06	32
	HRP042T4	3.5	11 560	39 460	3.93	2.94	10	57.2	12.01	1.06	32
	HRP045T4	3.8	13 050	44 540	4.27	3.06	10.4	61.5	12.9	1.33	32
	HRP047T4	3.9	12 690	43 300	4.24	3	10.2	64.1	13.46	1.33	32
	HRP048T4	4	13 400	45 740	3.99	3.36	11.5	64.4	13.53	1.57	39
	HRP051T4	4.3	14 380	49080	4.46	3.23	11	68.8	14.46	1.57	39
	HRP054T4	4.5	15 120	51 770	4.73	3.21	11	72.8	15.28	1.57	41
	HRP058T4	4.8	16 260	55 510	5.07	3.17	10.8	78.2	16.41	1.57	41
	HRP060T4	5	16 720	57 010	5.07	3.3	11.3	81	17.01	1.57	41
	HLP068T4	5.7	18 950	64 660	6.08	3.12	10.6	93.1	19.55	1.57	41
	HLP072T4	6	20 060	68 480	6.32	3.17	10.8	98.7	20.72	1.57	41
	HLP075T4	6.3	21 770	74 330	6.6	3.3	11.3	102.8	21.58	1.57	41
	HLP081T4	6.8	23 380	79 810	7.14	3.27	11.2	110.9	23.29	1.57	41
	HCP094T4	7.8	26 060	88 950	7.9	3.3	11.3	126	26.47	2.66	47
	HCP109T4	9.1	31 450	107 350	9.46	3.32	11.3	148.8	31.25	2.66	47
HCP120T4	10	33 970	115 960	10.59	3.21	11	162.4	34.11	2.66	47	
R410A	HRH029U4	2.4	8 500	29 000	2.84	2.99	10.2	27.8	5.84	1.06	32
	HRH031U4	2.6	9 080	30 990	3.04	2.99	10.2	29.8	6.26	1.06	32
	HRH032U4	2.7	9 380	31 990	3.1	3.02	10.3	30.6	6.43	1.06	32
	HRH034U4	2.8	10 110	34 510	3.38	2.99	10.2	33.3	6.94	1.06	32
	HRH036U4	3	10 370	35 390	3.47	2.99	10.2	34.7	7.3	1.06	32
	HRH038U4	3.2	11 100	37 890	3.79	2.93	10	36.5	7.67	1.06	39
	HRH040U4	3.3	12 160	41 490	4.03	3.02	10.3	39.6	8.3	1.33	39
	HRH041U4	3.3	12 100	41 300	4.05	2.99	10.2	39.3	8.3	1.57	39
	HRH044U4	3.7	13 010	44 390	4.31	3.02	10.3	42.6	8.95	1.57	39
	HRH047U4	3.9	13 630	46 510	4.56	2.99	10.2	44.4	9.33	1.57	39
	HRH049U4	4.1	14 360	48 990	4.66	3.08	10.5	47.4	9.95	1.57	39
	HRH051U4	4.3	15 180	51 780	4.84	3.14	10.7	49.3	10.36	1.57	41
	HRH054U4	4.5	15 970	54 480	5.14	3.11	10.6	52.1	10.94	1.57	41
	HRH056U4	4.7	16 670	56 880	5.36	3.11	10.6	54.1	11.36	1.57	41
	HLH061T4	5.1	18 050	61 580	5.7	3.17	10.8	57.8	12.13	1.57	41
	HLH068T4	5.7	20 130	68 670	6.3	3.2	10.9	64.4	13.52	1.57	41
	HLJ072T4	6	21 240	72 500	6.65	3.19	10.9	68	14.27	1.57	41
	HLJ075T4	6.3	22 320	76 190	6.86	3.25	11.1	70.8	14.87	1.57	41
	HLJ083T4	6.9	24 340	83 090	7.55	3.22	11	78.1	16.4	1.57	41
	H CJ090T4	7.5	26 810	91 500	8.47	3.16	10.8	86.9	18.24	2.66	44
	H CJ091T4	7.5	27 140	92 600	8.37	3.24	11.07	86.9	18.24	2.46	49
H CJ105T4	8.8	31 170	106 390	9.75	3.2	10.9	101.6	21.34	2.66	44	
H CJ106T4	8.8	31 670	108 050	9.67	3.28	11.18	101.6	21.34	2.46	49	
H CJ120T4	10	35 620	121 600	11.15	3.2	10.9	116.4	24.43	2.66	44	
H CJ121T4	10	35 940	122 620	11.07	3.25	11.08	116.4	24.43	2.46	49	

TR: Ton of Refrigeration
 COP: Coefficient Of Performance
 EER: Energy Efficiency Ratio

*) ARI standard rating conditions,
 460 V / 3 ph / 60 Hz

Evaporating temperature: 7.2 °C
 Condensing temperature: 54.4 °C
 Superheat: 11.1 K
 Sub-cooling: 8.3 K

Technical data and ordering

H series - Scroll compressor - R410A

Ordering industrial pack

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
HRH029	U	P	6	120U2274	120U2279	120U2284	-	-	-
HRH031	U	P	6	120U1133	120U1248	120U1188	120U1163	-	-
HRH032	U	P	6	120U1138	120U1253	120U1193	120U1168	120U1218	-
HRH034	U	P	6	120U1143	120U1258	120U2446	120U2647	120U1223	-
HRH036	U	P	6	120U1148	120U1263	120U1198	120U1173	120U1228	-
HRH038	U	P	6	120U1153	120U1268	120U1203	120U1178	-	120U2655
HRH039	U	P	6	120U2463	-	-	-	-	-
HRH040	U	P	6	120U1158	120U1273	120U1208	120U1183	120U1238	-
HRH041	U	P	6	120U1278	120U1448	120U1353	-	120U1403	-
	U	C	8	-	120U2404	120U2394	-	-	-
HRH044	U	P	6	120U1283	120U1453	120U1358	-	-	-
HRH047	U	P	6	120U2359	-	-	-	-	-
HRH048	U	P	6	120U2579	-	-	-	-	-
HRH049	U	P	6	120U1288	120U1458	120U1363	-	-	-
	U	C	8	-	120U2479	120U2471	-	120U2475	-
HRH050	U	P	6	120U2467	-	-	-	-	-
HRH051	U	P	6	120U1293	120U1463	120U1368	120U1323	120U1418	-
HRH054	U	P	6	120U1298	120U1468	120U1373	120U1328	120U1423	-
HRH056	U	C	6	-	-	120U1383	-	120U2234	-
HRH056	U	P	6	120U1303	120U1473	120U1378	120U1333	120U1428	-
HLH061	T	P	6	120U2039	-	-	120U2044	-	-
	T	C	6	-	120U2059	120U2049	-	120U2054	120U2447
	T	C	8	-	120U2491	120U2483	-	120U2487	-
HLH068	T	C	6	-	120U1478	120U1388	-	120U1433	-
	T	C	8	-	120U2424	120U2414	-	120U2419	-
	T	P	6	120U1308	-	-	120U1338	-	-
HLJ072	T	C	6	-	120U1483	120U1393	-	120U2034	-
	T	C	8	-	120U2174	120U2164	-	120U2495	-
	T	P	6	120U1313	-	-	120U1343	-	-
HLJ075	T	C	6	-	120U2269	120U2264	-	-	120U1443
HLJ083	T	C	6	-	120U1488	120U1398	-	120U1438	120U2384
	T	C	8	-	120U2179	120U2169	-	120U2499	-
	T	P	6	120U1318	-	-	120U1348	-	-
HCJ090	T	C	6	-	120U2304	120U2299	-	120U2309	-
	T	C	7	-	120U2539	120U2531	-	120U2507	-
	T	C	8	-	120U2543	120U2535	-	-	-
HCJ105	T	C	6	-	120U2324	120U2319	-	120U2329	-
	T	C	7	-	-	120U2571	-	-	-
	T	C	8	-	120U2551	120U2575	-	-	-
HCJ120	T	C	6	-	120U2344	120U2339	-	120U2349	-
	T	C	7	-	-	120U2555	-	-	-
	T	C	8	-	120U2567	120U2559	-	-	-

Technical data and ordering

H series - Scroll compressor - R407C

Ordering single pack

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
HRP025	T	P	6	-	-	120U3088	-	-	-
HRP034	T	P	6	-	-	120U2024	120U2019	-	-
HRP038	T	P	6	-	120U1086	120U1006	120U0961	-	-
HRP040	T	P	6	-	120U1096	120U1016	120U1929	-	-
HRP042	T	P	6	-	-	120U1026	120U2157	-	-
HRP045	T	P	6	-	-	120U1036	120U0976	-	-
HRP047	T	P	6	-	120U1126	120U1046	120U0986	-	-
HRP048	T	C	8	-	-	120U1661	-	-	-
HRP048	T	P	6	-	-	120U1656	-	-	-
HRP051	T	P	6	120U1501	120U1861	120U1681	-	-	-
HRP054	T	P	6	-	-	120U1691	120U2197	-	-
HRP058	T	P	6	-	-	120U1701	120U1596	-	-
HRP060	T	C	8	-	-	120U1731	-	-	-
	T	P	6	-	120U2297	120U1726	120U1606	-	-
HLP068	T	C	6	-	-	120U2014	-	-	-
	T	P	6	120U1561	-	-	120U1621	-	-
HLP072	T	C	6	-	-	120U1756	-	-	-
	T	C	8	-	-	120U2072	-	-	-
	T	P	6	120U1571	-	-	120U1631	-	-
HLP075	T	C	6	-	-	120U1766	-	-	-
HLP078	T	C	6	-	120U2458	120U2454	-	-	-
HLP081	T	C	6	-	120U1916	120U1781	-	-	-
	T	C	8	-	-	120U1786	-	-	-
	T	P	6	120U1591	-	-	120U1651	-	-
HCP094	T	C	6	-	120U0906	120U0601	-	-	-
	T	C	7	-	-	120U0606	-	-	-
	T	C	8	-	120U0916	120U0611	-	-	-
HCP109	T	C	6	-	-	120U0376	-	-	-
	T	C	7	-	-	120U0381	-	-	-
	T	C	8	-	-	120U0386	-	-	-
HCP120	T	C	6	-	120U0766	120U0401	-	-	-
	T	C	7	-	-	120U0406	-	-	-
	T	C	8	-	-	120U0411	-	-	-

Technical data and ordering

H-Series - Scroll compressors - R410A - 50 Hz

Performance table

Type	To	-25		-20		-15		-10		-5		0		5		10	
	Tc	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe
HRH029U4	35	–	–	2670	1.62	3480	1.60	4430	1.58	5550	1.56	6850	1.54	8330	1.52	10010	1.49
	55	–	–	–	–	–	–	–	–	4150	2.56	5230	2.52	6460	2.48	7860	2.44
HRH031U4	35	–	–	2870	1.74	3730	1.71	4750	1.69	5950	1.67	7340	1.65	8930	1.63	10730	1.60
	55	–	–	–	–	–	–	–	–	4380	2.82	5520	2.78	6830	2.74	8300	2.69
HRH032U4	35	–	–	2910	1.71	3780	1.68	4820	1.66	6040	1.65	7450	1.63	9060	1.60	10890	1.57
	55	–	–	–	–	–	–	–	–	4470	2.91	5630	2.87	6960	2.82	8470	2.78
HRH034U4	35	–	–	3220	1.88	4190	1.86	5340	1.83	6690	1.81	8250	1.79	10030	1.77	12060	1.74
	55	–	–	–	–	–	–	–	–	4950	3.06	6230	3.01	7700	2.97	9370	2.91
HRH036U4	35	–	–	3350	1.98	4350	1.95	5550	1.93	6950	1.91	8570	1.88	10420	1.86	12530	1.82
	55	–	–	–	–	–	–	–	–	5130	3.31	6470	3.26	8000	3.21	9730	3.15
HRH038U4	35	–	–	3550	2.16	4610	2.13	5880	2.10	7360	2.08	9080	2.05	11050	2.02	13280	1.99
	55	–	–	–	–	–	–	–	–	5390	3.55	6790	3.49	8390	3.44	10210	3.38
HRH040U4	35	–	–	3850	2.34	5010	2.31	6390	2.28	8000	2.25	9870	2.23	12000	2.20	14430	2.16
	55	–	–	–	–	–	–	–	–	5940	3.78	7480	3.73	9250	3.67	11250	3.60
HRH041U4	35	–	–	5380	2.55	6720	2.58	8210	2.59	9930	2.60	11940	2.58	14310	2.54	17130	2.48
	55	–	–	–	–	–	–	–	–	7340	4.11	9150	4.12	11080	4.11	13200	4.09
HRH044U4	35	–	–	5830	2.70	7280	2.73	8890	2.75	10750	2.75	12930	2.73	15500	2.69	18550	2.63
	55	–	–	–	–	–	–	–	–	7890	4.38	9840	4.39	11910	4.38	14190	4.35
HRH047U4	35	–	–	5130	3.00	6670	2.96	8500	2.93	10640	2.89	13130	2.86	15970	2.82	19190	2.77
	55	–	–	–	–	–	–	–	–	7930	4.80	10000	4.73	12360	4.66	15030	4.58
HRH048U4	35	–	–	5350	3.14	6960	3.10	8880	3.06	11120	3.02	13710	2.99	16680	2.95	20050	2.90
	55	–	–	–	–	–	–	–	–	8220	4.93	10360	4.86	12810	4.78	15580	4.70
HRH049U4	35	–	–	6380	2.95	7970	2.98	9740	3.00	11770	3.00	14150	2.98	16970	2.94	20310	2.87
	55	–	–	–	–	–	–	–	–	8710	4.74	10860	4.75	13150	4.74	15670	4.71
HRH050U4	35	–	–	5620	3.29	7310	3.25	9320	3.21	11670	3.18	14400	3.14	17520	3.10	21060	3.04
	55	–	–	–	–	–	–	–	–	8610	5.16	10860	5.09	13420	5.01	16320	4.92
HRH051U4	35	–	–	6800	3.10	8490	3.13	10370	3.15	12540	3.15	15080	3.13	18080	3.08	21640	3.01
	55	–	–	–	–	–	–	–	–	9200	4.92	11470	4.92	13890	4.91	16560	4.88
HRH054U4	35	–	–	7160	3.31	8940	3.35	10920	3.37	13200	3.37	15870	3.35	19030	3.30	22780	3.22
	55	–	–	–	–	–	–	–	–	9680	5.22	12070	5.23	14620	5.22	17420	5.19
HRH056U4	35	–	–	6320	3.65	8220	3.60	10470	3.56	13120	3.52	16170	3.48	19680	3.43	23650	3.37
	55	–	–	–	–	–	–	–	–	9700	5.65	12230	5.57	15120	5.48	18390	5.38
HLH061T4	35	6160	3.82	8040	3.89	10050	3.93	12270	3.95	14840	3.95	17840	3.93	21390	3.87	25600	3.79
	55	–	–	–	–	–	–	8360	5.78	11000	5.81	13720	5.82	16610	5.81	19790	5.77
HLH068T4	35	6810	4.10	8880	4.16	11090	4.21	13550	4.23	16380	4.23	19700	4.20	23620	4.14	28260	4.05
	55	–	–	–	–	–	–	9280	6.37	12210	6.39	15220	6.40	18440	6.39	21970	6.35
HLJ072T4	35	7190	4.31	9380	4.38	11710	4.43	14310	4.45	17290	4.45	20790	4.42	24930	4.36	29840	4.26
	55	–	–	–	–	–	–	9800	6.72	12890	6.75	16070	6.76	19460	6.75	23190	6.70
HLJ075T4	35	7680	4.62	10040	4.70	12540	4.75	15320	4.78	18510	4.78	22260	4.75	26700	4.68	31950	4.58
	55	–	–	–	–	–	–	10280	6.92	13540	6.96	16880	6.97	20440	6.95	24350	6.91
HLJ083T4	35	8320	5.08	10860	5.17	13570	5.23	16570	5.26	20030	5.26	24090	5.22	28890	5.15	34570	5.03
	55	–	–	–	–	–	–	11220	7.62	14770	7.66	18410	7.67	22290	7.65	26560	7.60
HCJ090T4	35	9020	5.49	11770	5.57	14710	5.61	17990	5.61	21740	5.61	26110	5.62	31250	5.68	37300	5.79
	55	–	–	–	–	–	–	13710	8.55	16960	8.59	20540	8.59	24600	8.58	29280	8.58
HCJ091T4	35	9770	5.36	12280	5.38	15200	5.42	18590	5.46	22510	5.51	27020	5.57	32180	5.64	38040	5.71
	55	–	–	–	–	–	–	13910	8.43	17050	8.43	20680	8.44	24850	8.46	29640	8.50
HCJ105T4	35	10580	6.03	13810	6.13	17350	6.21	21310	6.29	25790	6.39	30920	6.51	36790	6.69	43510	6.93
	55	–	–	–	–	–	–	15690	9.53	19420	9.62	23650	9.71	28510	9.81	34100	9.94
HCJ106T4	35	11410	6.19	14330	6.25	17740	6.30	21700	6.35	26270	6.41	31530	6.48	37550	6.56	44390	6.66
	55	–	–	–	–	–	–	16230	9.75	19890	9.76	24130	9.77	29000	9.79	34580	9.81
HCJ120T4	35	12110	7.01	15810	7.13	19860	7.22	24390	7.30	29520	7.39	35390	7.53	42110	7.74	49810	8.04
	55	–	–	–	–	–	–	17950	10.94	22190	11.00	27030	11.08	32580	11.20	38980	11.38
HCJ121T4	35	12950	7.09	16270	7.12	20130	7.17	24620	7.22	29800	7.29	35770	7.36	42590	7.46	50340	7.56
	55	–	–	–	–	–	–	18430	11.14	22580	11.15	27390	11.17	32910	11.20	39240	11.25

To: Evaporating temperature in [°C]
 Tc: Condensing temperature in [°C]
 H: Heating capacity in [W]
 Pe: Power input in [kW]
 Subcooling: 8.3 K
 Superheat: 11.1 K
 Voltage code: G: 380 – 480 V / 3 / 50 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

H-Series - Scroll compressors - R410A - 60 Hz

Performance table

Type	To	-25		-20		-15		-10		-5		0		5		10	
	Tc	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe
HRH029U4	35	-	-	3210	1.91	4180	1.89	5320	1.87	6670	1.84	8220	1.82	10000	1.80	12020	1.77
	55	-	-	-	-	-	-	-	-	4950	2.99	6230	2.95	7710	2.90	9370	2.85
HRH031U4	35	-	-	3430	2.05	4470	2.02	5690	2.00	7130	1.97	8790	1.95	10700	1.92	12860	1.89
	55	-	-	-	-	-	-	-	-	5290	3.20	6660	3.15	8240	3.10	10020	3.05
HRH032U4	35	-	-	3520	2.10	4580	2.07	5840	2.05	7310	2.02	9010	2.00	10970	1.97	13180	1.94
	55	-	-	-	-	-	-	-	-	5460	3.27	6880	3.22	8500	3.17	10350	3.12
HRH034U4	35	-	-	3810	2.25	4950	2.22	6310	2.20	7900	2.17	9750	2.15	11860	2.12	14250	2.08
	55	-	-	-	-	-	-	-	-	5880	3.56	7420	3.51	9170	3.46	11150	3.40
HRH036U4	35	-	-	3940	2.33	5120	2.30	6520	2.27	8170	2.25	10080	2.22	12260	2.19	14740	2.15
	55	-	-	-	-	-	-	-	-	6040	3.66	7610	3.60	9400	3.54	11440	3.48
HRH038U4	35	-	-	4180	2.47	5440	2.44	6930	2.41	8680	2.38	10710	2.35	13030	2.32	15660	2.28
	55	-	-	-	-	-	-	-	-	6460	4.00	8150	3.94	10070	3.87	12250	3.81
HRH040U4	35	-	-	4560	2.69	5930	2.65	7560	2.62	9470	2.59	11680	2.56	14210	2.53	17080	2.48
	55	-	-	-	-	-	-	-	-	7080	4.24	8920	4.18	11030	4.12	13420	4.04
HRH041U4	35	-	-	5380	2.55	6720	2.58	8210	2.59	9930	2.60	11940	2.58	14310	2.54	17130	2.48
	55	-	-	-	-	-	-	-	-	7340	4.11	9150	4.12	11080	4.11	13200	4.09
HRH044U4	35	-	-	5830	2.70	7280	2.73	8890	2.75	10750	2.75	12930	2.73	15500	2.69	18550	2.63
	55	-	-	-	-	-	-	-	-	7890	4.38	9840	4.39	11910	4.38	14190	4.35
HRH047U4	35	-	-	5130	3.00	6670	2.96	8500	2.93	10640	2.89	13130	2.86	15970	2.82	19190	2.77
	55	-	-	-	-	-	-	-	-	7930	4.80	10000	4.73	12360	4.66	15030	4.58
HRH048U4	35	-	-	5350	3.14	6960	3.10	8880	3.06	11120	3.02	13710	2.99	16680	2.95	20050	2.90
	55	-	-	-	-	-	-	-	-	8220	4.93	10360	4.86	12810	4.78	15580	4.70
HRH049U4	35	-	-	6380	2.95	7970	2.98	9740	3.00	11770	3.00	14150	2.98	16970	2.94	20310	2.87
	55	-	-	-	-	-	-	-	-	8710	4.74	10860	4.75	13150	4.74	15670	4.71
HRH050U4	35	-	-	5620	3.29	7310	3.25	9320	3.21	11670	3.18	14400	3.14	17520	3.10	21060	3.04
	55	-	-	-	-	-	-	-	-	8610	5.16	10860	5.09	13420	5.01	16320	4.92
HRH051U4	35	-	-	6800	3.10	8490	3.13	10370	3.15	12540	3.15	15080	3.13	18080	3.08	21640	3.01
	55	-	-	-	-	-	-	-	-	9200	4.92	11470	4.92	13890	4.91	16560	4.88
HRH054U4	35	-	-	7160	3.31	8940	3.35	10920	3.37	13200	3.37	15870	3.35	19030	3.30	22780	3.22
	55	-	-	-	-	-	-	-	-	9680	5.22	12070	5.23	14620	5.22	17420	5.19
HRH056U4	35	-	-	6320	3.65	8220	3.60	10470	3.56	13120	3.52	16170	3.48	19680	3.43	23650	3.37
	55	-	-	-	-	-	-	-	-	9700	5.65	12230	5.57	15120	5.48	18390	5.38
HLH061T4	35	6160	3.82	8040	3.89	10050	3.93	12270	3.95	14840	3.95	17840	3.93	21390	3.87	25600	3.79
	55	-	-	-	-	-	-	8360	5.78	11000	5.81	13720	5.82	16610	5.81	19790	5.77
HLH068T4	35	6810	4.10	8880	4.16	11090	4.21	13550	4.23	16380	4.23	19700	4.20	23620	4.14	28260	4.05
	55	-	-	-	-	-	-	9280	6.37	12210	6.39	15220	6.40	18440	6.39	21970	6.35
HLJ072T4	35	7190	4.31	9380	4.38	11710	4.43	14310	4.45	17290	4.45	20790	4.42	24930	4.36	29840	4.26
	55	-	-	-	-	-	-	9800	6.72	12890	6.75	16070	6.76	19460	6.75	23190	6.70
HLJ075T4	35	7680	4.62	10040	4.70	12540	4.75	15320	4.78	18510	4.78	22260	4.75	26700	4.68	31950	4.58
	55	-	-	-	-	-	-	10280	6.92	13540	6.96	16880	6.97	20440	6.95	24350	6.91
HLJ083T4	35	8320	5.08	10860	5.17	13570	5.23	16570	5.26	20030	5.26	24090	5.22	28890	5.15	34570	5.03
	55	-	-	-	-	-	-	11220	7.62	14770	7.66	18410	7.67	22290	7.65	26560	7.60
HCJ090T4	35	9020	5.49	11770	5.57	14710	5.61	17990	5.61	21740	5.61	26110	5.62	31250	5.68	37300	5.79
	55	-	-	-	-	-	-	13710	8.55	16960	8.59	20540	8.59	24600	8.58	29280	8.58
HCJ091T4	35	9770	5.36	12280	5.38	15200	5.42	18590	5.46	22510	5.51	27020	5.57	32180	5.64	38040	5.71
	55	-	-	-	-	-	-	13910	8.43	17050	8.43	20680	8.44	24850	8.46	29640	8.50
HCJ105T4	35	10580	6.03	13810	6.13	17350	6.21	21310	6.29	25790	6.39	30920	6.51	36790	6.69	43510	6.93
	55	-	-	-	-	-	-	15690	9.53	19420	9.62	23650	9.71	28510	9.81	34100	9.94
HCJ106T4	35	11410	6.19	14330	6.25	17740	6.30	21700	6.35	26270	6.41	31530	6.48	37550	6.56	44390	6.66
	55	-	-	-	-	-	-	16230	9.75	19890	9.76	24130	9.77	29000	9.79	34580	9.81
HCJ120T4	35	12110	7.01	15810	7.13	19860	7.22	24390	7.30	29520	7.39	35390	7.53	42110	7.74	49810	8.04
	55	-	-	-	-	-	-	17950	10.94	22190	11.00	27030	11.08	32580	11.20	38980	11.38
HCJ121T4	35	12950	7.09	16270	7.12	20130	7.17	24620	7.22	29800	7.29	35770	7.36	42590	7.46	50340	7.56
	55	-	-	-	-	-	-	18430	11.14	22580	11.15	27390	11.17	32910	11.20	39240	11.25

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

H: Heating capacity in [W]

Pe: Power input in [kW]

Subcooling: 8.3 K

Superheat: 11.1 K

Voltage code: G: 380 – 480 V / 3 / 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector *2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

H-Series - Scroll compressors - R407C - 50 Hz

Performance table

Type	To	-25			-20		-15		-10		-5		0		5		10	
	Tc	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	
HRP025T4	35	1920	1.11	2440	1.15	3050	1.18	3750	1.21	4550	1.24	5460	1.26	6480	1.29	7630	1.32	
	55	-	-	-	-	-	-	3020	1.76	3680	1.81	4440	1.85	5290	1.88	6240	1.89	
HRP034T4	35	2480	1.73	3190	1.71	4050	1.70	5080	1.69	6290	1.68	7710	1.67	9340	1.64	11220	1.59	
	55	-	-	-	-	-	-	3790	2.77	4760	2.76	5900	2.75	7220	2.73	8740	2.71	
HRP038T4	35	2710	1.85	3480	1.83	4410	1.82	5530	1.82	6850	1.80	8390	1.79	10170	1.76	12210	1.71	
	55	-	-	-	-	-	-	4230	2.91	5300	2.90	6570	2.89	8040	2.87	9740	2.84	
HRP040T4	35	2850	2.03	3670	2.01	4660	2.00	5840	1.99	7230	1.97	8850	1.95	10730	1.92	12890	1.87	
	55	-	-	-	-	-	-	4350	3.24	5460	3.23	6770	3.22	8280	3.20	10030	3.17	
HRP042T4	35	3000	2.13	3860	2.11	4900	2.10	6140	2.09	7600	2.08	9310	2.06	11290	2.02	13560	1.97	
	55	-	-	-	-	-	-	4570	3.41	5740	3.40	7120	3.38	8710	3.36	10550	3.33	
HRP045T4	35	3270	2.19	4200	2.16	5320	2.15	6670	2.14	8260	2.13	10120	2.11	12270	2.07	14720	2.01	
	55	-	-	-	-	-	-	5170	3.70	6490	3.69	8040	3.68	9840	3.66	11920	3.62	
HRP047T4	35	3430	2.30	4410	2.28	5600	2.26	7020	2.25	8690	2.24	10650	2.22	12910	2.18	15500	2.12	
	55	-	-	-	-	-	-	5320	3.81	6680	3.80	8270	3.78	10130	3.76	12270	3.73	
HRP048T4	35	3460	2.39	4450	2.38	5640	2.37	7070	2.36	8760	2.35	10730	2.32	13010	2.28	15620	2.23	
	55	-	-	-	-	-	-	5300	3.44	6660	3.44	8250	3.42	10100	3.40	12230	3.37	
HRP051T4	35	3750	2.33	4790	2.36	6070	2.39	7610	2.42	9420	2.46	11540	2.50	14000	2.54	16810	2.60	
	55	-	-	-	-	-	-	5830	4.00	7300	3.95	9030	3.91	11040	3.89	13350	3.87	
HRP054T4	35	3920	2.44	5010	2.46	6350	2.50	7950	2.53	9850	2.57	12070	2.61	14630	2.66	17580	2.72	
	55	-	-	-	-	-	-	6050	4.15	7570	4.10	9360	4.06	11440	4.03	13840	4.01	
HRP058T4	35	4200	2.61	5380	2.64	6810	2.68	8530	2.71	10560	2.75	12940	2.80	15690	2.85	18840	2.91	
	55	-	-	-	-	-	-	6490	4.45	8120	4.39	10030	4.35	12260	4.32	14840	4.30	
HRP060T4	35	4340	2.71	5560	2.74	7040	2.78	8820	2.81	10920	2.85	13380	2.90	16230	2.95	19490	3.02	
	55	-	-	-	-	-	-	6690	4.50	8350	4.42	10320	4.36	12610	4.32	15260	4.31	
HLP068T4	35	5320	3.37	6830	3.42	8630	3.46	10790	3.50	13340	3.55	16330	3.60	19820	3.67	23850	3.77	
	55	-	-	-	-	-	-	7760	5.43	9540	5.31	11680	5.22	14240	5.16	17260	5.15	
HLP072T4	35	5580	3.57	7170	3.66	9060	3.71	11330	3.75	14010	3.78	17150	3.83	20810	3.89	25040	4.00	
	55	-	-	-	-	-	-	8200	5.76	10090	5.56	12370	5.42	15080	5.35	18280	5.37	
HLP075T4	35	5550	3.84	7130	3.81	9040	3.80	11330	3.78	14040	3.76	17200	3.72	20850	3.65	25020	3.56	
	55	-	-	-	-	-	-	8620	5.70	10820	5.69	13410	5.67	16410	5.64	19880	5.58	
HLP078T4	35	5940	3.42	7600	3.46	9620	3.50	12050	3.55	14930	3.61	18290	3.67	22180	3.74	26630	3.81	
	55	-	-	-	-	-	-	9220	6.04	11550	6.00	14280	5.96	17460	5.93	21130	5.91	
HLP081T4	35	5730	4.16	7330	4.15	9280	4.13	11640	4.11	14420	4.07	17660	4.02	21400	3.95	25670	3.85	
	55	-	-	-	-	-	-	9340	6.26	11700	6.21	14490	6.16	17750	6.10	21510	6.02	
HCP094T4	35	6600	4.61	8480	4.59	10750	4.57	13480	4.55	16690	4.52	20450	4.47	24790	4.40	29750	4.29	
	55	-	-	-	-	-	-	10320	6.83	12960	6.81	16050	6.78	19650	6.74	23800	6.68	
HCP109T4	35	8100	4.80	10230	4.93	12990	5.02	16360	5.09	20270	5.15	24670	5.21	29530	5.26	34780	5.32	
	55	-	-	-	-	-	-	12560	7.84	15580	7.98	19310	8.05	23700	8.06	28700	8.01	
HCP120T4	35	8980	5.49	11340	5.64	14380	5.75	18060	5.81	22330	5.86	27160	5.91	32520	5.98	38360	6.07	
	55	-	-	-	-	-	-	13670	8.82	16830	8.94	20810	8.99	25560	9.01	31050	8.99	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

H: Heating capacity in [W]

Pe: Power input in [kW]

Subcooling: 8.3 K

Superheat: 11.1 K

Voltage code: G: 380 – 480 V / 3 / 50 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

H-Series, Scroll compressors - R407C - 60 Hz

Performance table

Type	To	-25			-20			-15			-10			-5			0			5			10		
	Tc	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe		
HRP025T4	35	2310	1.31	2930	1.35	3650	1.40	4500	1.43	5460	1.47	6550	1.50	7780	1.53	9150	1.57								
	55	-	-	-	-	-	-	-	3620	2.09	4420	2.15	5320	2.20	6340	2.23	7490	2.25							
HRP034T4	35	2960	2.17	3810	2.15	4840	2.14	6060	2.13	7510	2.12	9190	2.09	11150	2.06	13390	2.01								
	55	-	-	-	-	-	-	-	4530	3.34	5690	3.33	7050	3.31	8630	3.30	10450	3.26							
HRP040T4	35	3490	2.07	4460	2.08	5650	2.11	7070	2.14	8760	2.18	10730	2.22	13010	2.26	15640	2.29								
	55	-	-	-	-	-	-	-	5320	3.79	6630	3.78	8180	3.78	9990	3.77	12100	3.75							
HRP042T4	35	3630	2.51	4670	2.49	5930	2.47	7430	2.46	9200	2.45	11270	2.42	13660	2.38	16410	2.32								
	55	-	-	-	-	-	-	-	5510	4.02	6920	4.01	8570	4.00	10490	3.97	12710	3.94							
HRP047T4	35	4110	2.38	5260	2.40	6660	2.43	8330	2.47	10310	2.51	12630	2.56	15320	2.60	18420	2.64								
	55	-	-	-	-	-	-	-	6180	4.34	7670	4.33	9450	4.32	11530	4.31	13970	4.29							
HRP051T4	35	4410	2.98	5660	2.96	7180	2.94	9000	2.93	11150	2.91	13660	2.88	16560	2.83	19870	2.76								
	55	-	-	-	-	-	-	-	6880	4.60	8630	4.58	10690	4.57	13090	4.54	15850	4.50							
HRP060T4	35	5100	3.53	6560	3.50	8320	3.48	10430	3.47	12910	3.44	15820	3.41	19170	3.35	23020	3.27								
	55	-	-	-	-	-	-	-	7920	5.50	9950	5.48	12320	5.46	15080	5.43	18270	5.38							
HLP072T4	35	6700	4.23	8600	4.30	10880	4.36	13590	4.40	16810	4.45	20580	4.52	24980	4.61	30050	4.74								
	55	-	-	-	-	-	-	-	9830	6.70	12110	6.53	14840	6.40	18100	6.32	21940	6.30							
HLP078T4	35	7120	4.32	9110	4.37	11540	4.43	14460	4.49	17910	4.55	21940	4.63	26610	4.72	31950	4.82								
	55	-	-	-	-	-	-	-	11070	7.30	13860	7.19	17150	7.11	20960	7.05	25360	7.03							
HLP081T4	35	6880	4.95	8790	4.92	11140	4.90	13960	4.88	17300	4.85	21200	4.80	25680	4.72	30800	4.60								
	55	-	-	-	-	-	-	-	11210	7.34	14040	7.33	17390	7.31	21300	7.26	25810	7.19							
HCP094T4	35	8220	4.91	10390	5.05	13170	5.14	16550	5.20	20470	5.24	24910	5.28	29820	5.34	35160	5.43								
	55	-	-	-	-	-	-	-	12570	7.85	15490	7.94	19160	7.99	23530	8.00	28560	7.99							
HCP120T4	35	10760	6.69	13600	6.90	17240	7.01	21650	7.07	26770	7.11	32570	7.16	38990	7.24	45990	7.40								
	55	-	-	-	-	-	-	-	16410	10.56	20210	10.65	24980	10.69	30680	10.70	37260	10.74							

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

H: Heating capacity in [W]

Pe: Power input in [kW]

Subcooling: 8.3 K

Superheat: 11.1 K

Voltage code: G: 380 – 480 V / 3 / 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Nomenclature and Dimensions

Type	Size	Motor	Features
HRH	036	U1L	P6

Application:
H: high temperature / air conditioning

Family:
C: light commercial scroll
R: residential scroll (new platform)
L: light commercial scroll (new platform)

Refrigerant & Lubricant:
M: LR22, alkylbenzene lubricant
P: R407C, PVE lubricant
H: R410A, PVE lubricant
J: R410A, PVE lubricant

Nominal capacity:
in thousand Btu/h at 60 Hz, ARI conditions

Model variation:
T: design optimized for 7.2 / 54.4 °C
U: design optimized for 7.2 / 37.8 °C


Other features

	Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port
6	None	None	None	None	None
7	Threaded	None	None	None	None
8	None	Brazed	None	None	Brazed

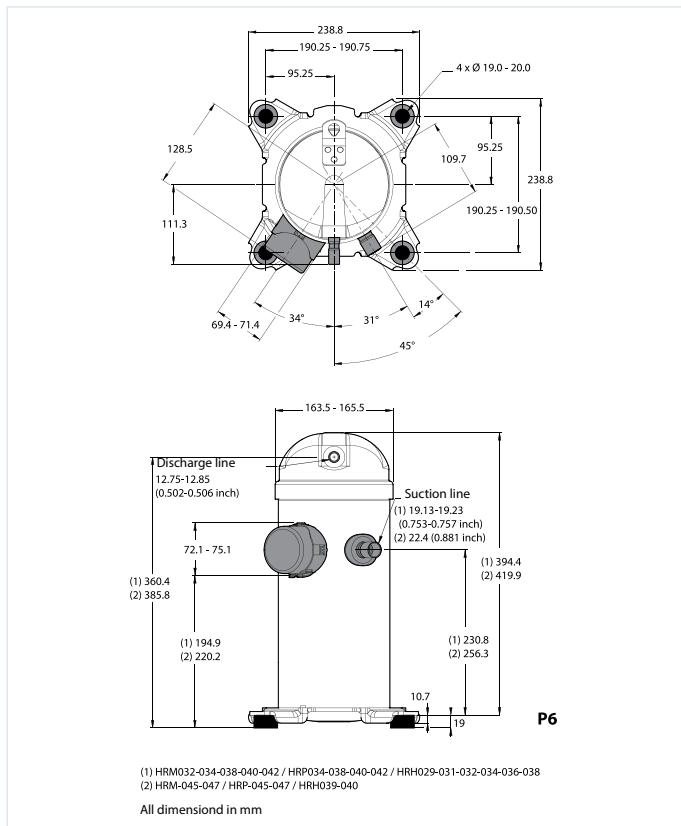
Tubing and electrical connections:
P: brazed connections, spade terminals
C: brazed connections, screw terminals

Motor protection:
L: internal motor protection

Motor voltage code:
1: 208 – 230 V / 1 ~ / 60 Hz
2: 200 – 220 V / 3 ~ / 50 Hz & 208 – 230 V / 3 ~ / 60 Hz
4: 380 – 400 V / 3 ~ / 50 Hz & 460 V / 3 ~ / 60 Hz
5: 220 – 240 V / 1 ~ / 50 Hz
7: 500 V / 3 ~ / 50 Hz & 575 V / 3 ~ / 60 Hz
9: 380 V / 3 ~ / 60 Hz

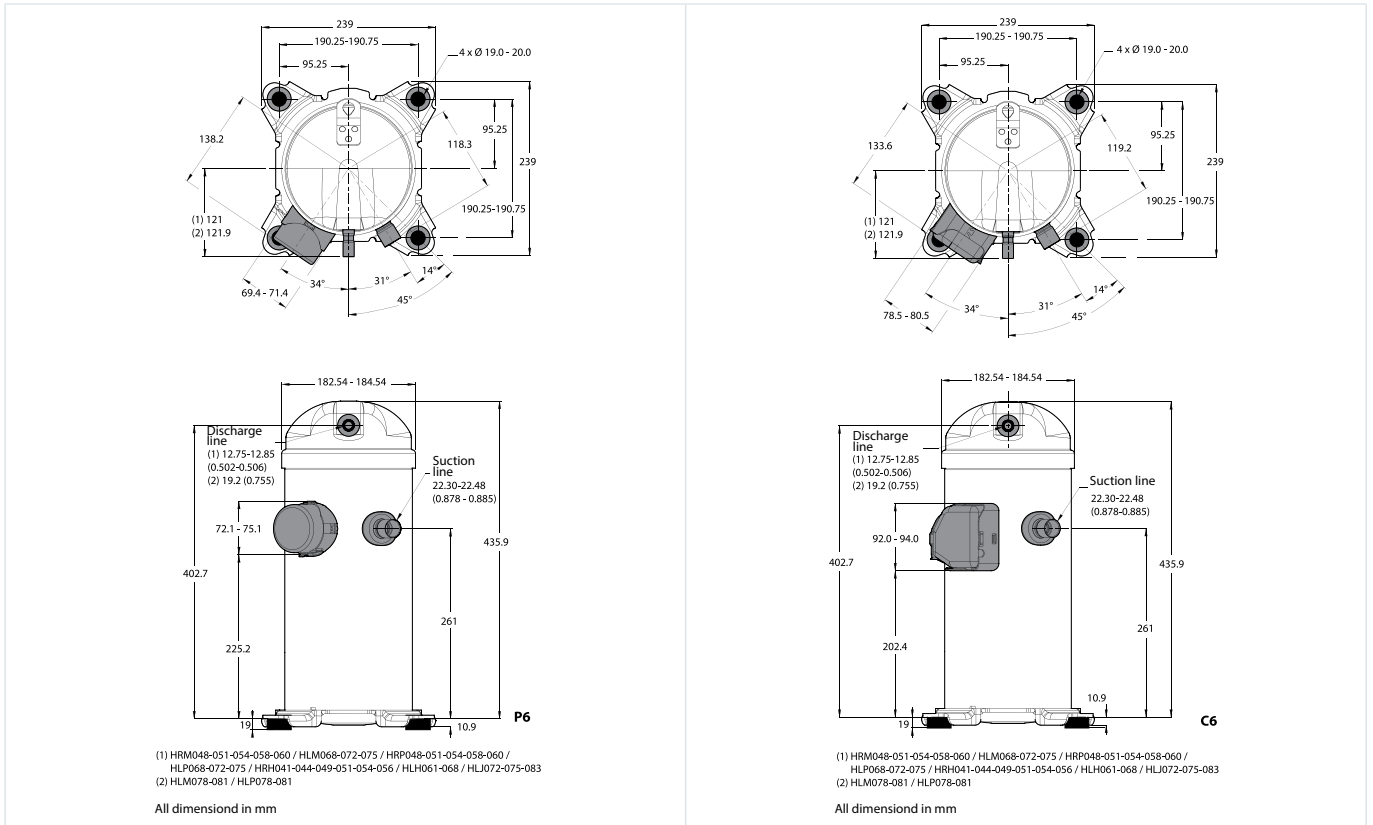


HRM032-034-038-040-042 / HRP034-038-040-042 / HRH029-031-032-034-036-038 / HRM-045-047 / HRP-045-047 / HRH039-040



Dimensions

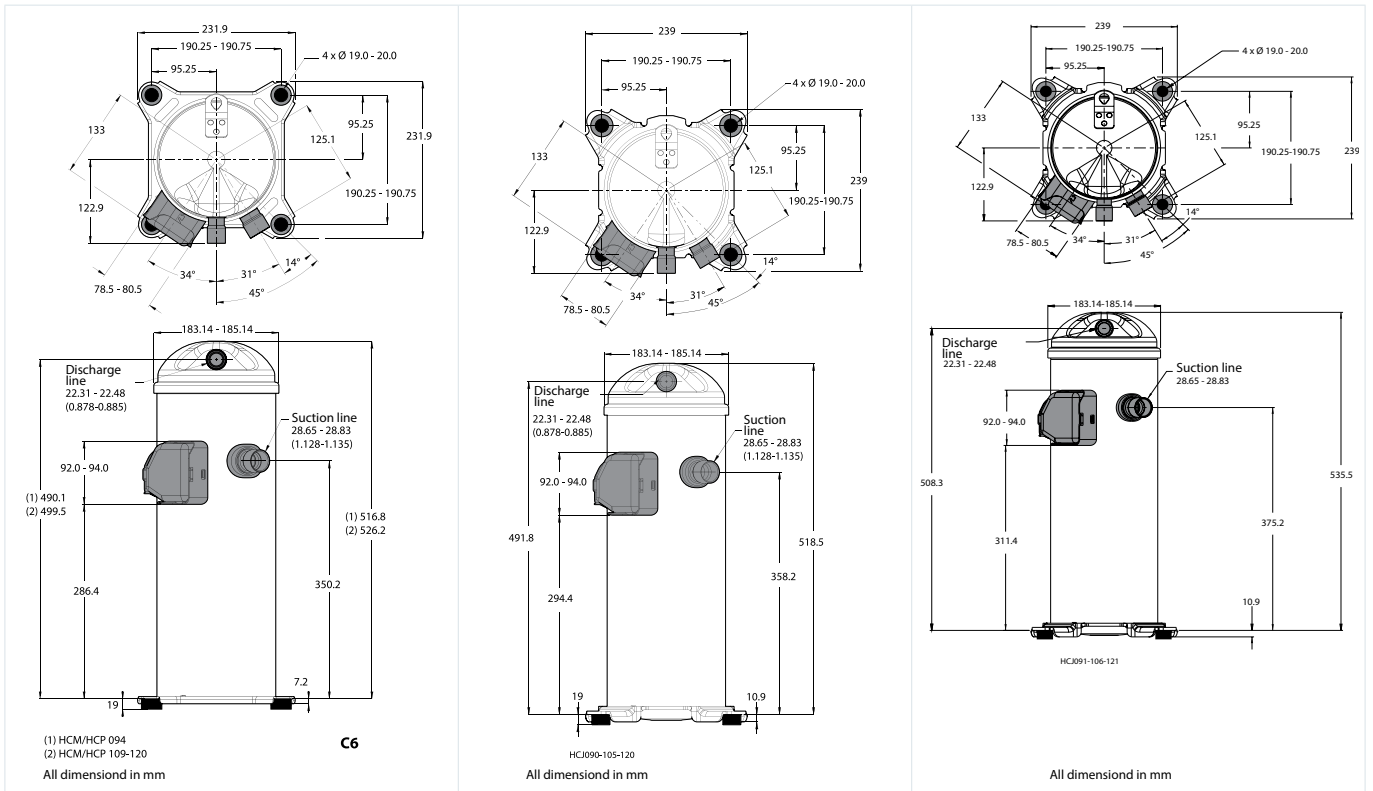
**HRM048-051-054-058-060 / HLM068-072-075-078-081 / HRP048-051-054-058-060 /
HLP068-072-075-078-081 / HRH041-044-049-051-054-056 / HLH061-068 / HLJ072-075-083**



HCM / HCP 094-109-120

HCJ090-105-120

HCJ091-106-121



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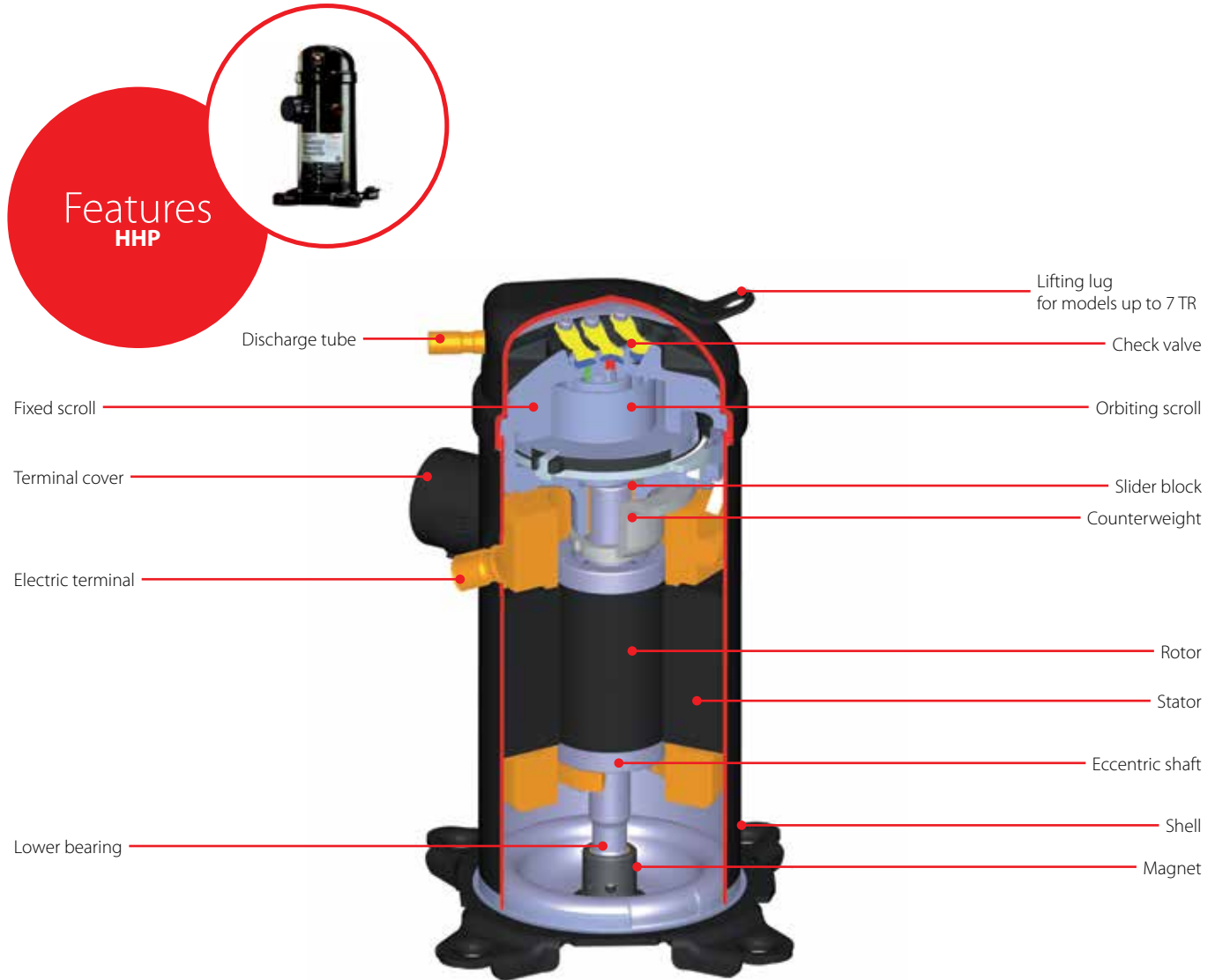
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HHP, Scroll heating compressor optimized - R407C

The Heat Pump Scroll compressor has an extended operating envelope. This means that your heat pumps will still be highly efficient when the outdoor temperature is below -20 °C.

Your customers will be able to save energy by reducing the use of a supplementary heating source.



Facts

- Discharge check valve: no reverse rotation hence no shutdown noise
- Radial scroll compliance: good resistance to liquid flood back
- Axial scroll compliance: low starting current
- Oil injection: good lubrication at fierce conditions
- Lead-free bearings: high reliability even with low lubrication
- Patented internal protection combined with HOOP (Hot Oil Over Protector) thermal valve: excellent reliability
- Standard dimensions and tubing: ideal for both new installations and replacement markets

Technical data and ordering

HHP - Scroll compressor for heating - R407C - 50 Hz

Technical data

Type	Heating capacity	Power input	Max. A.	Heating efficiency	Swept volume	Displacement	Oil charge	Net weight
	[W]	[W]	[A]	COP [W/W]	[cm ³ /rev]	[m ³ /hr] at 2900 [rpm]	[l]	[kg]
HHP015T4LP6	4800	1540	5.1	3.13	34	5.9	1.06	31
HHP015T5LP6	4880	1660	14.2	2.93	34	5.9	1.06	30
HHP019T4LP6	5780	1910	5.8	3.02	41	7.1	1.06	31
HHP019T5LP6	5830	2040	17.7	2.86	41	7.1	1.06	31
HHP021T4LP6	6410	2030	5.8	3.16	46	8	1.06	31
HHP021T5LP6	6630	2110	18.2	3.15	46	8	1.06	31
HHP026T4LP6	8100	2520	7.1	3.22	57	10	1.06	31
HHP026T5LP6	8160	2680	22.7	3.04	57	10	1.06	31
HHP030T4LC6	9700	3070	8.6	3.17	67	11.7	1.57	37
HHP030T5LC6	9790	3190	27.7	3.07	67	11.7	1.57	41
HHP038T4LC6	12050	3730	10.8	3.23	82	14.2	1.57	39
HHP038T5LC6	12140	3850	35.2	3.16	82	14.2	1.57	41
HHP045T4LC6	13940	4300	12.6	3.25	99	17.2	1.57	40

Evaporating temperature: -7 °C

Condensing temperature: 50 °C

Superheat: 10 K

Subcooling: 5 K

Subject to modification without prior notification

Conditions: 400 V / 3 ph / 50 Hz (motor T4), 230 V / 1 ph / 50 Hz (motor T5)

HHP - Scroll compressor for heating - R407C - 50 Hz

Ordering

Type	Model Variation	Connections	Features	Single pack		Industrial pack	
				4	5	4	5
HHP015	T	P	6	121U9002	121U9004	121U9001	121U9003
HHP019	T	P	6	121U9006	121U9008	121U9005	121U9007
HHP021	T	P	6	121U9010	121U9012	121U9009	121U9011
HHP026	T	P	6	121U9014	121U9016	121U9013	121U9015
HHP030	T	C	6	121U9018	121U9020	121U9017	121U9019
HHP038	T	C	6	121U9022	121U9024	121U9021	121U9023
HHP045	T	C	6	121U9026	-	121U9025	-

HHP - Scroll compressor for heating - R407C - 50 Hz

Performance table

Type	Tc	-25		-20		-15		-10		-5		0		5		10		15	
		H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe
HHP015T4	40	2 550	1.1	3 070	1.1	3 720	1.2	4 510	1.3	5 450	1.3	6 520	1.4	7 730	1.4	9 080	1.4	10 570	1.4
	50	2 620	1.5	3 050	1.5	3 620	1.5	4 320	1.5	5 150	1.6	6 120	1.6	7 220	1.7	8 460	1.7	9 840	1.7
	60	-	-	-	-	3 860	2.2	4 410	2.1	5 090	2.1	5 890	2.1	6 830	2.1	7 900	2.1	9 100	2.1
HHP019T4	40	3 070	1.3	3 680	1.4	4 450	1.5	5 400	1.5	6 520	1.6	7 810	1.7	9 270	1.7	10 900	1.7	12 690	1.7
	50	3 180	1.7	3 680	1.7	4 340	1.8	5 180	1.9	6 180	1.9	7 340	2.0	8 670	2.1	10 160	2.2	11 830	2.2
	60	-	-	-	-	4 660	2.3	5 300	2.4	6 110	2.4	7 070	2.5	8 200	2.6	9 480	2.7	10 930	2.8
HHP021T4	40	3 530	1.4	4 250	1.5	5 090	1.6	6 080	1.7	7 230	1.7	8 570	1.8	10 100	1.8	11 840	1.7	13 820	1.7
	50	3 430	1.6	4 080	1.8	4 860	1.9	5 770	2.0	6 830	2.1	8 070	2.1	9 500	2.2	11 140	2.2	13 000	2.2
	60	-	-	-	-	4 710	2.2	5 530	2.3	6 510	2.5	7 650	2.6	8 970	2.7	10 490	2.8	12 240	2.8
HHP026T4	40	4 540	1.7	5 410	1.9	6 440	2.0	7 650	2.1	9 070	2.1	10 740	2.2	12 690	2.2	14 950	2.1	17 550	2.0
	50	4 590	2.0	5 350	2.1	6 260	2.3	7 330	2.4	8 610	2.6	10 120	2.6	11 900	2.7	13 970	2.7	16 370	2.7
	60	-	-	-	-	6 240	2.7	7 150	2.9	8 250	3.0	9 560	3.2	11 130	3.3	12 980	3.3	15 150	3.3
HHP030T4	40	4 910	2.1	6 100	2.3	7 480	2.4	9 050	2.6	10 830	2.6	12 830	2.7	15 060	2.7	17 520	2.8	20 240	2.9
	50	4 830	2.3	5 940	2.6	7 230	2.8	8 690	3.0	10 350	3.1	12 200	3.2	14 270	3.4	16 560	3.5	19 090	3.6
	60	-	-	-	-	7 000	3.1	8 330	3.4	9 850	3.6	11 550	3.8	13 440	4.0	15 540	4.2	17 870	4.4
HHP038T4	40	6 150	2.4	7 600	2.8	9 360	3.0	11 390	3.2	13 660	3.2	16 130	3.3	18 750	3.3	21 510	3.4	24 360	3.6
	50	5 730	2.2	7 120	2.8	8 800	3.3	10 740	3.6	12 890	3.8	15 220	4.0	17 700	4.1	20 280	4.2	22 940	4.4
	60	-	-	-	-	8 090	3.2	9 930	3.8	11 970	4.2	14 170	4.5	16 500	4.7	18 920	5.0	21 400	5.2
HHP045T4	40	7 110	3.0	8 800	3.1	10 830	3.3	13 180	3.5	15 800	3.7	18 660	3.8	21 700	3.9	24 890	3.8	28 180	3.7
	50	6 630	3.5	8 240	3.7	10 190	3.9	12 420	4.2	14 910	4.4	17 610	4.6	20 480	4.7	23 460	4.8	26 540	4.8
	60	-	-	-	-	9 360	4.5	11 490	4.8	13 850	5.1	16 400	5.5	19 100	5.7	21 890	6.0	24 760	6.1

To: Evaporating temperature in [°C]
Subcooling: 5 K

Tc: Condensing temperature in [°C]
Superheat: 5 K

H: Heating capacity in [W]

Pe: Power input in [kW]



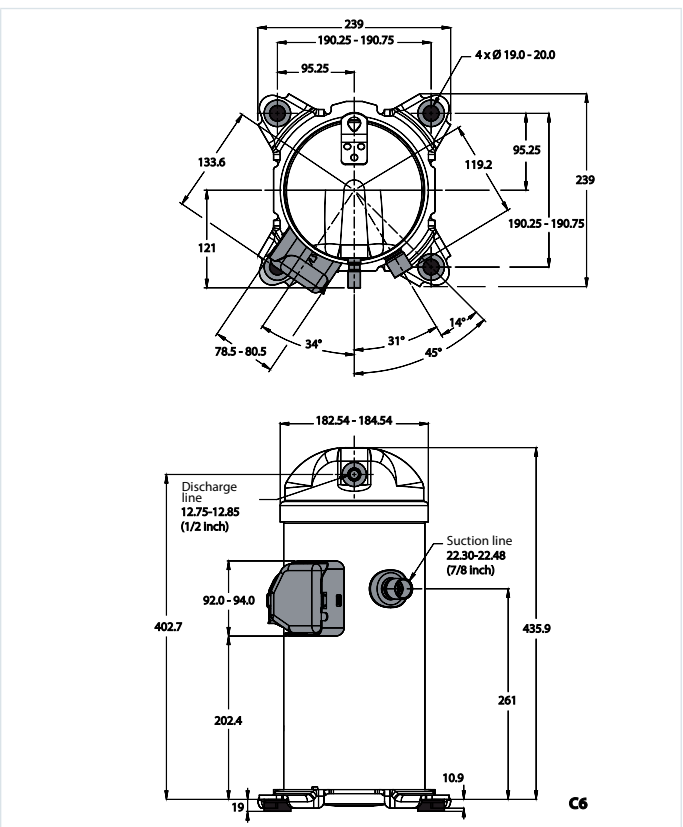
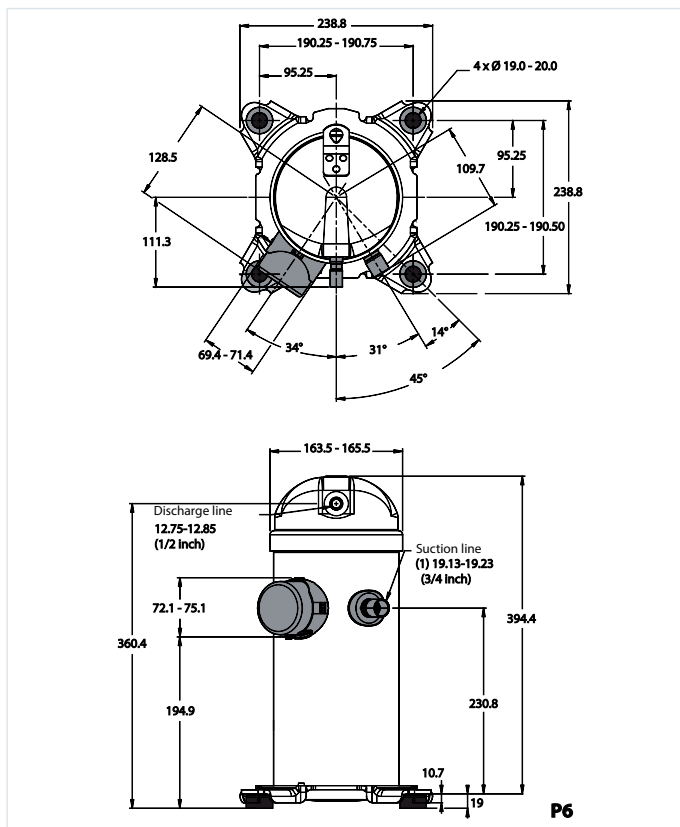
For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Nomenclature and Dimensions

	Type	Size	Motor	Features												
	HHP	030	T4L	P6												
Application:	H: high temperature															
Family:	HP: heat pump R407C PVE															
Nominal capacity																
Model variation:	T: motor design															
	Other features <table border="1"> <thead> <tr> <th></th> <th>Oil sight glass</th> <th>Oil equalisation</th> <th>Oil drain</th> <th>LP gauge port</th> <th>Gas equalis. port</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> <td>None</td> </tr> </tbody> </table>					Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port	6	None	None	None	None	None
	Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port											
6	None	None	None	None	None											
	Tubing and electrical connections: P: brazed connections, spade terminals C: brazed connections, screw terminals															
	Motor protection: L: internal motor protection															
	Motor voltage code: 4: 380 – 400 V / 3 ~ / 50 Hz 5: 220 – 240 V / 1 ~ / 50 Hz															

HHP015-019-021-026

HHP030-038-045

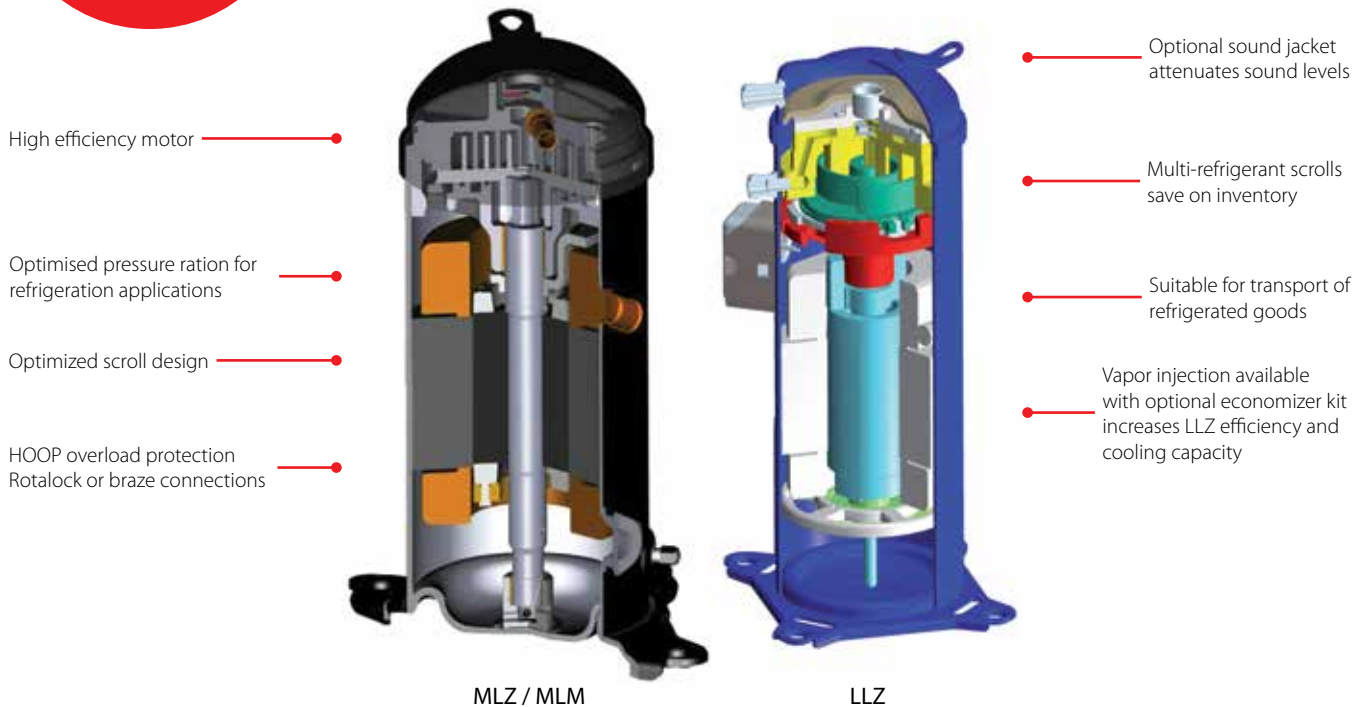
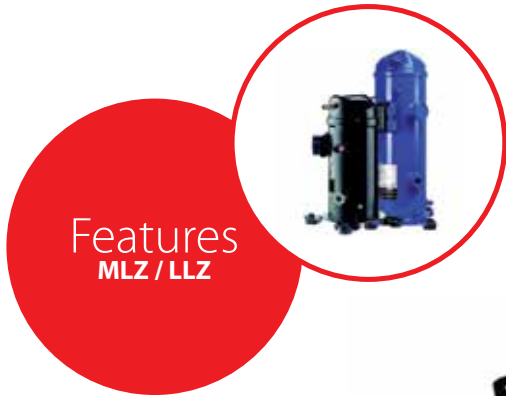


Quick Selection Notes:

MLZ / LLZ, Scroll compressors for refrigeration

MLZ and LLZ scroll compressors are dedicated to commercial and light commercial refrigeration applications with refrigerants R134a, R404A / R507A, R407A. Both brazed and rotolock connections are available for most of the compressors.

MLZ: medium-temperature scroll compressors R404 / R507A, R407A / F, R134a, R448A, R449A, R452A, LLZ: low-temperature scroll available with and without liquid injection and operate with R404A, R507A, R452A.



Facts

- Compact design esp. in large capacities
- Complete the existing scroll range for medium temperatures
- **Energy Savings**
Optimize your system with the scroll compressors for refrigeration. The combination of an energy efficient motor and an optimized scroll wrap for refrigeration applications delivers high efficiency in fixed-speed compressors. Optional vapor injection boosts the cooling capacity and efficiency by more than 20% on LLZ
- **Reliability**
Improve your system reliability to reduce your maintenance and warranty costs. Reliability is built into this compressor range, from the compliant scroll design and the engineered bearings to the simplified manufacturing process (30% fewer parts). The patented thermal fault protection also contributes to excellent reliability. A smart way to reduce your field service costs
- **Low sound**
Improve the sound environment with the lowest sound level in the industry. Scroll technology is quiet by design: the scroll provides smooth continuous compression, the absence of suction and discharge valves, and the unique disc check valve design ensure quiet, vibration-free operations
- **Compactness**
Footprint up to 30% smaller than alternative reduces the logistics costs and frees up space in the system

Technical data and ordering

Type	Model	Connections	Features	Voltage code 1	Voltage code 2	Voltage code 4	Voltage code 5	Voltage code 7	Voltage code 9
MLZ015	T	P	9	-	120U8036	121U8002	121U8024	-	-
MLZ019	T	P	9	121U8060	121U8038	121U8004	121U8026	-	-
MLZ021	T	P	9	121U8062	121U8040	121U8006	121U8028	-	-
MLZ026	T	P	9	121U8064	121U8042	121U8008	121U8030	-	-
MLZ030	T	C	9	121U8066	121U8044	121U8010	121U8032	-	-
MLZ038	T	C	9	121U8068	121U8046	121U8012	121U8034	-	-
MLZ042	T	C	9	-	-	-	121U8419	-	-
MLZ045	T	C	9	-	121U8048	121U8014	-	-	-
MLZ048	T	C	9	-	121U8050	121U8016	-	-	-
MLZ058	T	C	9	-	121U8052	121U8018	-	-	-
MLZ066	T	C	9	-	121U8054	121U8020	-	-	-
MLZ076	T	C	9	-	121U8056	121U8022	-	-	-
MLZ015	T	P	9	120U8058	120U8036	120U8002	120U8024	-	120U8413
MLZ019	T	P	9	120U8060	120U8038	120U8004	120U8026	-	120U8266
MLZ021	T	P	9	120U8062	120U8040	120U8006	120U8028	-	120U8272
MLZ026	T	P	9	120U8064	120U8042	120U8008	120U8030	-	120U8278
MLZ030	T	C	9	120U8066	120U8044	120U8010	120U8032	-	120U8284
MLZ038	T	C	9	120U8068	120U8046	120U8012	120U8034	-	120U8296
MLZ042	T	C	9	120U8399	-	-	-	-	-
MLZ045	T	C	9	-	120U8048	120U8014	-	120U8332	120U8302
MLZ048	T	C	9	-	120U8050	120U8016	-	120U8338	120U8308
MLZ058	T	C	9	-	120U8052	120U8018	-	120U8344	120U8314
MLZ066	T	C	9	-	120U8054	120U8020	-	120U8350	-
MLZ076	T	C	9	-	120U8056	120U8022	-	120U8356	-

Technical data and ordering

MLZ - Scroll compressors - R404A / R134a / R448A / R449A - 50 Hz

Technical data

Type	HP	Nominal cooling capacity ¹⁾		Power input ¹⁾	Efficiency ¹⁾		Swept volume		Displacement		Oil charge		Net weight (with oil)		
		[W]	[Btu/h]		[kW]	COP	EER	[cm ³ /rev]	[cu.in/rev]	[m ³ /h]	[cu.ft/h]	[Litres]	[oz]	[kg]	[lb]
					[W/W]	[Btu/h/W]									
R404A ²⁾	MLZ015	2	3300	11300	1.75	1.89	6.45	33.8	2.06	5.9	208	1.1	37	31	68
	MLZ019	2.5	4500	15400	2.16	2.06	7.03	43.5	2.65	7.6	268	1.1	37	31	68
	MLZ021	3	4700	16000	2.27	2.08	7.1	46.2	2.82	8	283	1.1	37	31	68
	MLZ026	3.5	5800	19800	2.9	2	6.83	57.1	3.48	9.9	350	1.1	37	31	68
	MLZ030	4	7100	24200	3.35	2.11	7.2	68.8	4.2	12	424	1.6	54	41	90
	MLZ038	5	8400	28700	3.86	2.19	7.47	81	4.94	14.1	498	1.6	54	41	90
	MLZ042	5.5	9500	32400	4.72	2.02	6.89	93.1	5.68	16.2	572	1.6	54	41	90
	MLZ045	6	10200	34800	4.81	2.11	7.2	98.6	6.02	17.2	607	1.6	54	41	90
	MLZ048	7	11100	37900	5.17	2.14	7.3	107.5	6.56	18.7	660	1.6	54	41	90
	MLZ058	7.5	13000	44400	6.08	2.13	7.27	126	7.69	21.9	773	2.7	91	47	104
	MLZ066	9	15100	51500	7.01	2.15	7.34	148.8	9.08	25.9	915	2.7	91	47	104
MLZ076	10	17300	59000	7.93	2.18	7.44	162.4	9.91	28.3	999	2.7	91	47	104	
R134a ³⁾	MLZ015	2	2000	6800	1.02	1.95	6.66	33.8	2.06	5.9	208	1.1	37	31	68
	MLZ019	2.5	2500	8500	1.28	1.98	6.76	43.5	2.65	7.6	268	1.1	37	31	68
	MLZ021	3	2700	9200	1.33	2.04	6.96	46.2	2.82	8	283	1.1	37	31	68
	MLZ026	3.5	3300	11300	1.62	2.06	7.03	57.1	3.48	9.9	350	1.1	37	31	68
	MLZ030	4	4000	13700	1.93	2.09	7.13	68.8	4.2	12	424	1.6	54	41	90
	MLZ038	5	4700	16000	2.34	2.02	6.89	81	4.94	14.1	498	1.6	54	41	90
	MLZ042	5.5	5300	18100	2.74	1.95	6.66	93.1	5.68	16.2	572	1.6	54	41	90
	MLZ045	6	5900	20100	2.69	2.17	7.41	98.6	6.02	17.2	607	1.6	54	41	90
	MLZ048	7	6200	21200	2.91	2.14	7.3	107.5	6.56	18.7	660	1.6	54	41	90
	MLZ058	7.5	7400	25300	3.61	2.06	7.03	126	7.69	21.9	773	2.7	91	47	104
	MLZ066	9	8600	29400	4.1	2.1	7.17	148.8	9.08	25.9	915	2.7	91	47	104
MLZ076	10	9600	32800	4.67	2.06	7.03	162.4	9.91	28.3	999	2.7	91	47	104	
R448A ⁴⁾	MLZ015	2	3200	11000	1.68	1.91	6.52	33.8	2.06	5.9	208	1.1	37	31	68
	MLZ019	2.5	4200	14300	2.11	1.99	6.79	43.5	2.65	7.6	268	1.1	37	31	68
	MLZ021	3	4400	15000	2.23	1.97	6.73	46.2	2.82	8	283	1.1	37	31	68
	MLZ026	3.5	5500	18700	2.78	1.97	6.72	57.1	3.48	9.9	350	1.1	37	31	68
	MLZ030	4	6600	22500	3.17	2.08	7.09	68.8	4.2	12	424	1.6	54	41	90
	MLZ038	5	7800	26600	3.64	2.14	7.3	81	4.94	14.1	498	1.6	54	41	90
	MLZ042	5.5	9100	31000	4.55	1.99	6.81	93.1	5.68	16.2	572	1.6	54	41	90
	MLZ045	6	9700	33000	4.58	2.11	7.21	98.6	6.02	17.2	607	1.6	54	41	90
	MLZ048	7	10400	35500	5.06	2.06	7.02	107.5	6.56	18.7	660	1.6	54	41	90
	MLZ058	7.5	12200	41700	5.57	2.19	7.48	126	7.69	21.9	773	2.7	91	47	104
	MLZ066	9	14200	48500	6.75	2.11	7.21	148.8	9.08	25.9	915	2.7	91	47	104
MLZ076	10	15200	51700	7.61	1.99	6.8	162.4	9.91	28.3	999	2.7	91	47	104	

¹⁾ at EN12900 conditions: To= -10 °C / 14 °F, Tc= 45 °C / 113 °F, RGT= 20 °C / 68 °F, SC= 0 K

²⁾ R507 performance data are nearly identical to R404A performance data

³⁾ To= -10°C(14°F), Tc= 45 °C / 113 °F, SH= 10 K(18 °F), SC= 0 K

⁴⁾ R449A performance data are nearly identical to R448A performance data

All performance test data after run-in 72hrs. Motor voltage code 4: 400 V/3~/50 Hz, MLZ042: Motor voltage code 5: 220-240 V/1~/50 Hz

Technical data and ordering

MLZ - Scroll compressors - R407A / R407F/ R452A - 50 Hz

Technical data

Type	HP	Nominal cooling capacity ¹⁾		Power input ¹⁾	Efficiency ¹⁾		Swept volume		Displacement		Oil charge		Net weight (with oil)		
		[W]	[Btu/h]		COP	EER	[cm ³ /rev]	[cu.in/rev]	[m ³ /h]	[cu.ft/h]	[Litres]	[oz]	[kg]	[lb]	
				[kW]	[W/W]	[Btu/h/W]									
R407A	MLZ015	2	3100	10580	1.55	2	6.83	33.8	2.06	5.9	208	1.1	37	31	68
	MLZ019	2.5	4000	13652	2.04	1.96	6.69	43.5	2.65	7.6	268	1.1	37	31	68
	MLZ021	3	4200	14334	2.21	1.91	6.52	46.2	2.82	8	283	1.1	37	31	68
	MLZ026	3.5	5300	18089	2.71	1.96	6.69	57.1	3.48	9.9	350	1.1	37	31	68
	MLZ030	4	6500	22184	2.99	2.17	7.41	68.8	4.2	12	424	1.6	54	41	90
	MLZ038	5	7500	25597	3.47	2.16	7.37	81	4.94	14.1	498	1.6	54	41	90
	MLZ042	5.5	8600	29352	4.53	1.9	6.48	93.1	5.68	16.2	572	1.6	54	41	90
	MLZ045	6	9100	31058	4.55	2.01	6.86	98.6	6.02	17.2	607	1.6	54	41	90
	MLZ048	7	10000	34130	5.01	2	6.83	107.5	6.56	18.7	660	1.6	54	41	90
	MLZ058	7.5	11500	39249	5.69	2.02	6.89	126	7.69	21.9	773	2.7	91	47	104
MLZ066	9	13400	45734	6.78	1.98	6.76	148.8	9.08	25.9	915	2.7	91	47	104	
MLZ076	10	14700	50171	7.51	1.96	6.69	162.4	9.91	28.3	999	2.7	91	47	104	
R407F	MLZ015	2	3300	11263	1.66	2	6.83	33.8	2.06	5.9	208	1.1	37	31	68
	MLZ019	2.5	4300	14676	2.19	1.96	6.69	43.5	2.65	7.6	268	1.1	37	31	68
	MLZ021	3	4500	15358	2.37	1.91	6.52	46.2	2.82	8	283	1.1	37	31	68
	MLZ026	3.5	5700	19454	2.9	1.96	6.69	57.1	3.48	9.9	350	1.1	37	31	68
	MLZ030	4	6900	23549	3.2	2.17	7.41	68.8	4.2	12	424	1.6	54	41	90
	MLZ038	5	8000	27304	3.72	2.16	7.37	81	4.94	14.1	498	1.6	54	41	90
	MLZ042	5.5	9200	31399	4.85	1.9	6.48	93.1	5.68	16.2	572	1.6	54	41	90
	MLZ045	6	9800	33447	4.87	2.01	6.86	98.6	6.02	17.2	607	1.6	54	41	90
	MLZ048	7	10800	36860	5.37	2.01	6.86	107.5	6.56	18.7	660	1.6	54	41	90
	MLZ058	7.5	12300	41980	6.09	2.02	6.89	126	7.69	21.9	773	2.7	91	47	104
MLZ066	9	14400	49147	7.26	1.99	6.79	148.8	9.08	25.9	915	2.7	91	47	104	
MLZ076	10	15800	53925	8.04	1.96	6.69	162.4	9.91	28.3	999	2.7	91	47	104	
R452A	MLZ015	2	3400	11500	1.71	1.97	6.72	33.8	2.06	5.9	208	1.1	37	31	68
	MLZ019	2.5	4300	14700	2.17	1.99	6.8	43.5	2.65	7.6	268	1.1	37	31	68
	MLZ021	3	4600	15700	2.27	2.02	6.89	46.2	2.82	8	283	1.1	37	31	68
	MLZ026	3.5	5700	29400	2.81	2.02	6.9	57.1	3.48	9.9	350	1.1	37	31	68
	MLZ030	4	6800	23400	3.27	2.1	7.18	68.8	4.2	12	424	1.6	54	41	90
	MLZ038	5	8000	27300	3.81	2.1	7.18	81	4.94	14.1	498	1.6	54	41	90
	MLZ042	5.5	9300	31700	4.84	1.92	6.56	93.1	5.68	16.2	572	1.6	54	41	90
	MLZ045	6	10100	34300	4.81	2.09	7.14	98.6	6.02	17.2	607	1.6	54	41	90
	MLZ048	7	11000	37500	5.17	2.12	7.25	107.5	6.56	18.7	660	1.6	54	41	90
	MLZ058	7.5	12900	44000	5.89	2.19	7.48	126	7.69	21.9	773	2.7	91	47	104
MLZ066	9	15100	51500	7.15	2.11	7.2	148.8	9.08	25.9	915	2.7	91	47	104	
MLZ076	10	16200	55200	7.94	2.04	6.95	162.4	9.91	28.3	999	2.7	91	47	104	

¹⁾ at EN12900 conditions: To = -10°C (14°F), Tc = 45°C (113°F), RGT = 20°C (68°F), SC = 0 K

Only motor code 4, code 5 of MLZ are qualified with R407A / R407F

All performance test data after run-in 72hrs

Motor voltage code 4: 400 V/3~/50 Hz

MLZ042: Motor voltage code 5: 220-240 V/1~/50 Hz

Technical data and ordering

MLZ - Scroll compressors - R404A / R134a / R448A / R449A - 60 Hz

Technical data

Type	HP	Nominal cooling capacity ¹⁾		Power input ¹⁾	Efficiency ¹⁾		Swept volume		Displacement		Oil charge		Net weight (with oil)		
		[W]	[Btu/h]		[kW]	COP	EER	[cm ³ /rev]	[cu.in/rev]	[m ³ /h]	[cu.ft/h]	[Litres]	[oz]	[kg]	[lb]
		[W]	[Btu/h]	[kW]	[W/W]	[Btu/h/W]	[cm ³ /rev]	[cu.in/rev]	[m ³ /h]	[cu.ft/h]	[Litres]	[oz]	[kg]	[lb]	
R404A ²⁾	MLZ015	2	4100	14000	2.1	1.94	6.62	33.8	2.06	7.1	251	1.1	37	31	68
	MLZ019	2.5	5500	18800	2.58	2.11	7.2	43.5	2.65	9.1	321	1.1	37	31	68
	MLZ021	3	5800	19800	2.74	2.13	7.27	46.2	2.82	9.7	343	1.1	37	31	68
	MLZ026	3.5	7200	24600	3.44	2.1	7.17	57.1	3.48	12	424	1.1	37	31	68
	MLZ030	4	8500	29000	3.9	2.18	7.44	68.8	4.2	14.4	509	1.6	54	41	90
	MLZ038	5	10200	34800	4.7	2.18	7.44	81	4.94	17	600	1.6	54	41	90
	MLZ042	5.5	11800	40300	5.73	2.07	7.06	93.1	5.68	19.6	692	1.6	54	41	90
	MLZ045	6	12400	42300	5.64	2.19	7.47	98.6	6.02	20.7	731	1.6	54	41	90
	MLZ048	7	13500	46100	6.15	2.2	7.51	107.5	6.56	22.6	798	1.6	54	41	90
	MLZ058	7.5	15700	53600	7.35	2.14	7.3	126	7.69	26.4	932	2.7	91	47	104
R134a ³⁾	MLZ066	9	18400	62800	8.4	2.18	7.44	148.8	9.08	31.3	1105	2.7	91	47	104
	MLZ076	10	20900	71300	9.59	2.18	7.44	162.4	9.91	34.1	1204	2.7	91	47	104
	MLZ015	2	2400	8200	1.19	2.05	7	33.8	2.06	7.1	251	1.1	37	31	68
	MLZ019	2.5	3100	10600	1.53	2.03	6.93	43.5	2.65	9.1	321	1.1	37	31	68
	MLZ021	3	3300	11300	1.58	2.1	7.17	46.2	2.82	9.7	343	1.1	37	31	68
	MLZ026	3.5	4100	14000	1.91	2.15	7.34	57.1	3.48	12	424	1.1	37	31	68
	MLZ030	4	5000	17100	2.35	2.11	7.2	68.8	4.2	14.4	509	1.6	54	41	90
	MLZ038	5	5800	19800	2.8	2.09	7.13	81	4.94	17	600	1.6	54	41	90
	MLZ042	5.5	6500	22200	3.33	1.94	6.62	93.1	5.68	19.6	692	1.6	54	41	90
	MLZ045	6	7100	24200	3.32	2.14	7.3	98.6	6.02	20.7	731	1.6	54	41	90
R448A ⁴⁾	MLZ048	7	7600	25900	3.54	2.14	7.3	107.5	6.56	22.6	798	1.6	54	41	90
	MLZ058	7.5	9100	31100	4.28	2.13	7.27	126	7.69	26.4	932	2.7	91	47	104
	MLZ066	9	10400	35500	4.85	2.15	7.34	148.8	9.08	31.3	1105	2.7	91	47	104
	MLZ076	10	11700	39900	5.61	2.09	7.13	162.4	9.91	34.1	1204	2.7	91	47	104
	MLZ015	2	3800	13100	1.96	1.96	6.69	33.8	2.06	7.1	251	1.1	37	31	68
	MLZ019	2.5	5100	17400	2.48	2.06	7.02	43.5	2.65	9.1	321	1.1	37	31	68
	MLZ021	3	5400	18400	2.62	2.06	7.03	46.2	2.82	9.7	343	1.1	37	31	68
	MLZ026	3.5	6800	23200	3.21	2.12	7.23	57.1	3.48	12	424	1.1	37	31	68
	MLZ030	4	6600	22500	3.17	2.08	7.09	68.8	4.2	14.5	512	1.6	54	41	90
	MLZ038	5	8200	28100	3.72	2.22	7.56	81	4.94	17	600	1.6	54	41	90
MLZ042	5.5	11000	37600	5.55	1.99	6.79	94	5.74	19.6	692	1.6	54	41	90	
MLZ045	6	11600	39500	5.57	2.08	7.1	98.6	6.02	20.7	731	1.6	54	41	90	
MLZ048	7	12800	43800	5.93	2.16	7.38	107.5	6.56	22.6	798	1.6	54	41	90	
MLZ058	7.5	15100	51500	6.65	2.27	7.74	126	7.69	26.5	936	2.7	91	47	104	
MLZ066	9	17400	59300	8.05	2.16	7.36	148.8	9.08	31.3	1105	2.7	91	47	104	
MLZ076	10	18700	63800	8.88	2.11	7.19	162.4	9.91	34.1	1204	2.7	91	47	104	

¹⁾ at EN12900 conditions: To= -10 °C/ 14 °F, Tc= 45 °C/ 113 °F, RGT= 20 °C/ 68 °F, SC= 0 K

²⁾ R507 performance data are nearly identical to R404A performance data

³⁾ : To= -10 °C/ 14 °F, Tc= 45 °C/ 113 °F, SH= 10 K(18 °F), SC= 0 K

⁴⁾ R449A performance data are nearly identical to R448A performance data

All performance test data after run-in 72hrs

Motor voltage code 4: 460 V/3~/60 Hz

MLZ042: Motor voltage code 1: 208-230 V/1~/60 Hz



For more information and performance with other refrigerants, please refer to Coolselector[®] 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

MLZ - Scroll compressors - R407A / R407F / R452A - 60 Hz

Technical data

Type	HP	Nominal cooling capacity ¹⁾		Power input ¹⁾	Efficiency ¹⁾		Swept volume		Displacement		Oil charge		Net weight (with oil)		
		[W]	[Btu/h]		[kW]	COP	EER	[cm ³ /rev]	[cu.in/rev]	[m ³ /h]	[cu.ft/h]	[Litres]	[oz]	[kg]	[lb]
					[W/W]	[Btu/h/W]									
R407A	MLZ015	2	3800	12969	1.85	2.04	6.96	33.8	2.06	7.1	251	1.1	37	31	68
	MLZ019	2.5	4900	16724	2.4	2.06	7.03	43.5	2.65	9.1	321	1.1	37	31	68
	MLZ021	3	5300	18089	2.63	2.01	6.86	46.2	2.82	9.7	343	1.1	37	31	68
	MLZ026	3.5	6400	21843	3.1	2.07	7.06	57.1	3.48	12	424	1.1	37	31	68
	MLZ030	4	7900	26962	3.52	2.25	7.68	68.8	4.2	14.5	512	1.6	54	41	90
	MLZ038	5	9200	31399	4.1	2.24	7.65	81	4.94	17	600	1.6	54	41	90
	MLZ045	6	11200	38225	5.37	2.09	7.13	98.6	6.02	20.7	731	1.6	54	41	90
	MLZ048	7	12200	41638	6.01	2.03	6.93	107.5	6.56	22.6	798	1.6	54	41	90
	MLZ058	7.5	14300	48805	6.68	2.14	7.3	126	7.69	26.5	936	2.7	91	47	104
	MLZ066	9	16700	56997	7.89	2.12	7.24	148.8	9.08	31.3	1105	2.7	91	47	104
MLZ076	10	18100	61775	8.64	2.09	7.13	162.4	9.91	34.1	1204	2.7	91	47	104	
R407F	MLZ015	2	4100	13993	1.98	2.05	7	33.8	2.06	7.1	251	1.1	37	31	68
	MLZ019	2.5	5300	18089	2.57	2.06	7.03	43.5	2.65	9.1	321	1.1	37	31	68
	MLZ021	3	5700	19454	2.81	2.01	6.86	46.2	2.82	9.7	343	1.1	37	31	68
	MLZ026	3.5	6900	23549	3.32	2.08	7.1	57.1	3.48	12	424	1.1	37	31	68
	MLZ030	4	8500	29010	3.77	2.26	7.71	68.8	4.2	14.5	512	1.6	54	41	90
	MLZ038	5	9800	33447	4.38	2.24	7.65	81	4.94	17	600	1.6	54	41	90
	MLZ045	6	12000	40956	5.75	2.09	7.13	98.6	6.02	20.7	731	1.6	54	41	90
	MLZ048	7	13100	44710	6.44	2.04	6.96	107.5	6.56	22.6	798	1.6	54	41	90
	MLZ058	7.5	15300	52218	7.15	2.14	7.3	126	7.69	26.5	936	2.7	91	47	104
	MLZ066	9	18000	61433	8.45	2.13	7.27	148.8	9.08	31.3	1105	2.7	91	47	104
MLZ076	10	19400	66212	9.25	2.09	7.13	162.4	9.91	34.1	1204	2.7	91	47	104	
R452A	MLZ015	2	4100	13900	2.05	1.99	6.78	33.8	2.06	7.1	251	1.1	37	31	68
	MLZ019	2.5	5200	17900	2.57	2.03	6.94	43.5	2.65	9.1	321	1.1	37	31	68
	MLZ021	3	5500	18800	2.7	2.05	6.99	46.2	2.82	9.7	343	1.1	37	31	68
	MLZ026	3.5	6800	23300	3.34	2.04	6.97	57.1	3.48	12	424	1.1	37	31	68
	MLZ030	4	8400	28700	3.94	2.14	7.29	68.8	4.2	14.5	512	1.6	54	41	90
	MLZ038	5	9800	33300	4.55	2.15	7.34	81	4.94	17	600	1.6	54	41	90
	MLZ042	5.5	11400	38900	5.68	2.01	6.85	93.1	5.68	19.6	692	1.6	54	41	90
	MLZ045	6	12000	41000	5.71	2.11	7.18	98.6	6.02	20.7	731	1.6	54	41	90
	MLZ048	7	13300	45200	6.24	2.13	7.26	107.5	6.56	22.6	798	1.6	54	41	90
	MLZ058	7.5	15500	53000	7.09	2.19	7.48	126	7.69	26.5	936	2.7	91	47	104
MLZ066	9	18500	63100	8.42	2.2	7.5	148.8	9.08	31.3	1105	2.7	91	47	104	
MLZ076	10	19800	67600	9.26	2.14	7.3	162.4	9.91	34.1	1204	2.7	91	47	104	

¹⁾ at EN12900 conditions: To= -10°C(14°F), Tc= 45°C(113°F), RGT= 20°C(68°F), SC= 0 K
 Only motor code 4, code 5 of MLZ are qualified with R407A / R407F
 All performance test data after run-in 72hrs
 Motor voltage code 4: 460 V/3~/60 Hz
 MLZ042: Motor voltage code 1: 208-230 V/1~/60 Hz



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Technical data and ordering

MLZ - Scroll compressors - R134a - 50 / 60 Hz

Performance table

Type	To	-10		-5		0		5		10		15		
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
50 Hz	MLZ015T4	30	2400	0.74	3000	0.75	3700	0.75	4500	0.76	5400	0.77	–	–
		40	–	–	2700	0.92	3300	0.93	4100	0.94	4900	0.95	5900	0.96
		50	–	–	2400	1.14	3000	1.15	3600	1.16	4400	1.17	5200	1.18
	MLZ019T4	30	3100	0.95	3800	0.96	4700	0.96	5800	0.97	7000	0.99	–	–
		40	–	–	3500	1.18	4300	1.19	5200	1.20	6300	1.21	7600	1.22
		50	–	–	3100	1.44	3800	1.46	4700	1.48	5600	1.49	6700	1.50
	MLZ021T4	30	3300	0.98	4100	0.99	5000	1.00	6100	1.01	7400	1.03	–	–
		40	–	–	3700	1.22	4600	1.23	5600	1.25	6700	1.26	8000	1.28
		50	–	–	3300	1.49	4000	1.51	4900	1.53	6000	1.54	7200	1.56
	MLZ026T4	30	4100	1.19	5100	1.20	6200	1.22	7600	1.23	9100	1.25	–	–
		40	–	–	4600	1.48	5600	1.50	6900	1.52	8300	1.54	9900	1.55
		50	–	–	4100	1.82	5000	1.85	6100	1.87	7400	1.89	8900	1.91
	MLZ030T4	30	4900	1.42	6100	1.43	7500	1.45	9100	1.46	11000	1.48	–	–
		40	–	–	5500	1.76	6800	1.78	8300	1.80	10000	1.82	12000	1.84
		50	–	–	4900	2.16	6000	2.19	7400	2.21	8900	2.23	10700	2.26
	MLZ038T4	30	5800	1.73	7200	1.75	8800	1.77	10700	1.79	12900	1.81	–	–
		40	–	–	6500	2.15	8000	2.18	9700	2.20	11700	2.22	14000	2.24
		50	–	–	5700	2.64	7100	2.68	8700	2.71	10500	2.73	12500	2.75
	MLZ042T5	30	6600	2.15	8200	2.20	10100	2.23	12100	2.28	14400	2.35	–	–
		40	–	–	7500	2.60	9200	2.64	11100	2.68	13200	2.72	15700	2.78
		50	–	–	6500	3.08	8100	3.15	9900	3.19	11800	3.22	14100	3.25
	MLZ045T4	30	7100	1.96	8900	1.99	11000	2.00	13300	2.01	16000	2.02	–	–
		40	–	–	8000	2.46	9900	2.49	12100	2.51	14600	2.53	17400	2.55
		50	–	–	7100	3.03	8800	3.07	10800	3.10	13000	3.13	15600	3.17
	MLZ048T4	30	7600	2.12	9500	2.15	11600	2.18	14100	2.20	16900	2.22	–	–
		40	–	–	8500	2.66	10500	2.70	12800	2.72	15400	2.74	18300	2.75
		50	–	–	7500	3.27	9300	3.32	11400	3.36	13800	3.38	16400	3.39
	MLZ058T4	30	9100	2.64	11300	2.69	13800	2.77	16600	2.83	20000	2.87	–	–
		40	–	–	10100	3.33	12400	3.40	15100	3.44	18100	3.45	21600	3.40
		50	–	–	9000	4.06	11100	4.15	13400	4.20	16100	4.20	19200	4.12
	MLZ066T4	30	10500	3.01	13000	3.07	16000	3.14	19300	3.20	23200	3.24	–	–
		40	–	–	11800	3.79	14500	3.85	17500	3.89	21100	3.90	25000	3.86
		50	–	–	10400	4.62	12800	4.70	15600	4.75	18800	4.75	22300	4.69
	MLZ076T4	30	11800	3.41	14600	3.49	17900	3.58	21600	3.65	25800	3.69	–	–
		40	–	–	13100	4.31	16100	4.39	19600	4.44	23500	4.45	28000	4.39
		50	–	–	11600	5.26	14300	5.36	17400	5.42	21000	5.42	25000	5.34
60 Hz	MLZ015T4	30	3000	0.89	3700	0.90	4600	0.92	5500	0.94	6600	0.96	–	–
		40	–	–	3400	1.10	4200	1.12	5100	1.14	6100	1.16	7200	1.18
		50	–	–	3000	1.33	3700	1.36	4600	1.38	5500	1.40	6500	1.43
	MLZ019T4	30	3800	1.15	4800	1.18	5900	1.20	7100	1.22	8500	1.25	–	–
		40	–	–	4300	1.43	5400	1.46	6500	1.48	7800	1.50	9300	1.54
		50	–	–	3900	1.73	4800	1.77	5900	1.79	7100	1.82	8400	1.84
	MLZ021T4	30	4100	1.19	5100	1.21	6200	1.23	7600	1.25	9100	1.28	–	–
		40	–	–	4600	1.48	5700	1.50	6900	1.52	8300	1.54	9900	1.57
		50	–	–	4100	1.79	5100	1.83	6200	1.85	7500	1.87	8900	1.90
	MLZ026T4	30	5000	1.44	6300	1.46	7700	1.49	9300	1.52	11200	1.57	–	–
		40	–	–	5700	1.78	7000	1.82	8600	1.85	10300	1.88	12200	1.91
		50	–	–	5100	2.16	6300	2.22	7700	2.26	9300	2.29	11000	2.30
	MLZ030T4	30	6000	1.75	7500	1.78	9300	1.81	11300	1.85	13500	1.90	–	–
		40	–	–	6800	2.18	8500	2.21	10300	2.24	12400	2.28	14700	2.33
		50	–	–	6100	2.64	7600	2.68	9300	2.72	11200	2.76	13300	2.81
	MLZ038T4	30	7100	2.06	8800	2.10	10900	2.15	13200	2.21	15900	2.26	–	–
		40	–	–	8000	2.57	9900	2.62	12100	2.67	14600	2.72	17300	2.77
		50	–	–	7200	3.14	8900	3.19	10900	3.24	13200	3.29	15700	3.34
	MLZ042T1	30	8800	2.45	11000	2.49	13500	2.53	16300	2.58	19500	2.65	–	–
		40	–	–	9900	3.05	12200	3.09	14800	3.13	17800	3.18	21100	3.26
		50	–	–	8600	3.74	10700	3.79	13100	3.83	15800	3.88	18900	3.94
	MLZ045T4	30	9300	2.61	11600	2.66	14200	2.72	17200	2.78	20600	2.86	–	–
		40	–	–	10400	3.26	12900	3.31	15600	3.37	18800	3.43	22200	3.49
		50	–	–	9200	3.99	11300	4.06	13900	4.11	16700	4.16	19900	4.21
	MLZ048T4	30	11100	3.14	13700	3.23	16800	3.35	20200	3.47	24000	3.57	–	–
		40	–	–	12400	3.96	15200	4.07	18300	4.17	21900	4.24	25900	4.27
		50	–	–	11000	4.84	13500	4.96	16300	5.06	19600	5.12	23300	5.13
	MLZ058T4	30	12700	3.60	15700	3.70	19200	3.83	23200	3.97	27600	4.10	–	–
		40	–	–	14200	4.53	17400	4.66	21100	4.77	25200	4.85	29800	4.90
		50	–	–	12600	5.52	15500	5.68	18800	5.79	22500	5.86	26700	5.85
	MLZ066T4	30	14300	4.12	17600	4.23	21500	4.38	26000	4.54	31000	4.70	–	–
		40	–	–	16000	5.19	19600	5.33	23600	5.46	28300	5.56	33400	5.61
		50	–	–	14200	6.35	17400	6.51	21100	6.64	25300	6.71	29800	6.71
	MLZ076T4	30	14 300	4.1	17 600	4.2	21 500	4.4	26 000	4.5	31 000	4.7	–	–
		40	–	–	16 000	5.2	19 600	5.3	23 600	5.5	28 300	5.6	33 400	5.6
		50	–	–	14 200	6.4	17 400	6.5	21 100	6.6	25 300	6.7	29 800	6.7

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

RGT: 20 °C

Capacity data at other conditions are available in the datasheets at: www.danfoss.com/odsg



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

LLZ (Evolution A) - Scroll Compressors - R404A / R507/R452A / R448A / R449A

Ordering - Rotolock version - Single pack

Type	Model Variation	Connections	Features	Evolution	Voltage Code 2	Voltage Code 4	Voltage Code 9
LLZ013	T	Q	9	A	121L9545	121L9535	121L9555
LLZ015	T	Q	9	A	121L9547	121L9537	121L9557
LLZ018	T	Q	9	A	121L9549	121L9539	121L9559
LLZ024	T	Q	9	A	121L9551	121L9541	121L9561
LLZ034	T	Q	9	A	121L9553	121L9543	121L9563

LLZ (Evolution A) - Scroll Compressors - R404A / R507/R452A / R448A / R449A

Ordering - Rotolock version - Single pack

Type	Model Variation	Connections	Features	Evolution	Voltage Code 2	Voltage Code 4	Voltage Code 9
LLZ013	T	Q	9	A	121L9544	121L9534	121L9554
LLZ015	T	Q	9	A	121L9546	121L9536	121L9556
LLZ018	T	Q	9	A	121L9548	121L9538	121L9558
LLZ024	T	Q	9	A	121L9550	121L9540	121L9560
LLZ034	T	Q	9	A	121L9552	121L9542	121L9562

LLZ - Scroll compressors - R404A / R507

Ordering - Rotolock version - Single pack

Type	Model variation	Connections	Features	Voltage code 2	Voltage code 4	Voltage code 9	
Danfoss pallet	LLZ013	T	Q	9	121L9519	121L9517	121L9531
	LLZ015	T	Q	9	121L9515	121L9513	121L9529
	LLZ018	T	Q	9	121L9511	121L9509	121L9527
	LLZ024	T	Q	9	121L9507	121L9505	121L9525
	LLZ034	T	Q	9	NA	121L9521	121L9533

LLZ - Scroll compressors - R404A / R507

Ordering - Rotolock version - Industrial pack

Type	Model variation	Connections	Features	Voltage code 2	Voltage code 4	Voltage code 9	
Danfoss pallet	LLZ013	T	Q	9	121L9518	121L9516	121L9530
	LLZ015	T	Q	9	121L9514	121L9512	121L9528
	LLZ018	T	Q	9	121L9510	121L9508	121L9526
	LLZ024	T	Q	9	121L9506	121L9504	121L9524
	LLZ034	T	Q	9	NA	121L9520	121L9532

Technical data and ordering

LLZ - Scroll compressors - R448A / R449A*) - 50/60 Hz

Technical data - with Liquid injection line

Type	Nominal tons 60 Hz	Nominal cooling capacity		Power input ¹⁾	COP	EER	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
		[TR]	[W]								[Btu/h]
50 Hz	LLZ013	4	2048	6990	2106	0.97	3.32	67.4	11.7	1.62	42
	LLZ015	5	2605	8890	2642	0.99	3.37	83.5	14.5	1.62	42
	LLZ018	6	3084	10525	2964	1.04	3.55	97.6	17	1.62	43
	LLZ024	8	3846	13126	3542	1.09	3.71	120.2	20.9	2.51	46
	LLZ034	10	5480	18704	4684	1.17	3.99	168.7	29.4	2.51	51
60 Hz	LLZ013	4	3314	11310	2737	1.21	4.13	67.4	14.2	1.62	42
	LLZ015	5	4097	13983	3416	1.2	4.09	83.5	17.5	1.62	42
	LLZ018	6	4900	16723	3815	1.28	4.38	97.6	20.5	1.62	43
	LLZ024	8	6046	20636	4580	1.32	4.51	120.2	25.3	2.51	46
	LLZ034	10	8531	29116	5928	1.44	4.91	168.7	35.4	2.51	51

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration, EER: Energy Efficiency Ratio, COP: Coefficient Of Performance, Refrigerant: R448A*)

Rating condition:

50 Hz data: EN12900 LT, Evaporating temperature -35°C, Condensing temperature 40°C, Super Heat 10 K, Subcooling 5K.

60 Hz data: ARI 540 LT, Evaporating temperature -31.5°C, Condensing temperature 40.5°C, Return Gas Temperature 4.5°C, Subcooling 5K.

All of the compressor performance test after run-in 72h

*) R449A performance data are nearly identical to R448A performance data

Subject to modification without prior notification.

Data given for motor code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

LLZ - Scroll compressors - R404A / R507*) - 50/60 Hz

Technical data - without injection

Type	Nominal tons 60 Hz	Nominal cooling capacity		Power input ¹⁾	COP	EER	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
		[TR]	[W]								[Btu/h]
50 Hz	LLZ013	4	2417	8249	2366	1.02	3.48	67.4	11.7	1.62	42
	LLZ015	5	2937	10024	2776	1.06	3.62	83.5	14.5	1.62	42
	LLZ018	6	3453	11785	3150	1.1	3.75	97.6	17	1.62	43
	LLZ024	8	4411	15055	3957	1.11	3.79	120.2	20.9	2.51	46
	LLZ034	10	6051	20652	5458	1.11	3.79	168.7	29.4	2.51	51
60 Hz	LLZ013	4	2896	9884	2774	1.04	3.55	67.4	14.2	1.62	42
	LLZ015	5	3552	12123	3307	1.07	3.65	83.5	17.5	1.62	42
	LLZ018	6	4228	14430	3799	1.11	3.79	97.6	20.5	1.62	43
	LLZ024	8	5278	18014	4611	1.14	3.89	120.2	25.3	2.51	46
	LLZ034	10	7404	25270	6157	1.2	4.1	168.7	35.4	2.51	51

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration, Standard rating conditions: ARI, Evaporating temperature: -31.7 °C, Superheat: 50 K

EER: Energy Efficiency Ratio, Condensing temperature: 40.6 °C, Subcooling: 0 K, COP: Coefficient Of Performance, Refrigerant: R404A*)

All of the compressor performance test after run-in 72h

*) R507 performance data are nearly identical to R404A performance data

Subject to modification without prior notification.

Data given for motor code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

Technical data and ordering

LLZ - Scroll compressors - R448A / R449A*) - 50 / 60 Hz

Technical data - without injection

Type		Nominal cooling capacity		Power input ¹⁾	COP	EER	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
		Nominal tons 60 Hz	[W]								[Btu/h]
50 Hz	LLZ013	4	2048	6990	2106	0.97	3.32	67.4	11.7	1.62	42
	LLZ015	5	2605	8890	2642	0.99	3.37	83.5	14.5	1.62	42
	LLZ018	6	3084	10525	2964	1.04	3.55	97.6	17	1.62	43
	LLZ024	8	3846	13126	3542	1.09	3.71	120.2	20.9	2.51	46
	LLZ034	10	5480	18704	4684	1.17	3.99	168.7	29.4	2.51	51
60 Hz	LLZ013	4	3314	11310	2737	1.21	4.13	67.4	14.2	1.62	42
	LLZ015	5	4097	13983	3416	1.2	4.09	83.5	17.5	1.62	42
	LLZ018	6	4900	16723	3815	1.28	4.38	97.6	20.5	1.62	43
	LLZ024	8	6046	20636	4580	1.32	4.51	120.2	25.3	2.51	46
	LLZ034	10	8531	29116	5928	1.44	4.91	168.7	35.4	2.51	51

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration, EER: Energy Efficiency Ratio, COP: Coefficient Of Performance, Refrigerant: R448A*)

Rating condition:

50 Hz data: EN12900 LT, Evaporating temperature -35°C, Condensing temperature 40°C, Super Heat 10 K, Subcooling 5K.

60 Hz data: ARI 540 LT, Evaporating temperature -31.5°C, Condensing temperature 40.5°C, Return Gas Temperature 4.5°C, Subcooling 5K.

All of the compressor performance test after run-in 72h

*) R449A performance data are nearly identical to R448A performance data

Subject to modification without prior notification.

Data given for motor code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

LLZ - Scroll compressors - R404A*) - 50 / 60 Hz

Technical data - without injection

Type		Nominal cooling capacity		Power input ¹⁾	COP	EER	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
		Nominal tons 60 Hz	[W]								[Btu/h]
50 Hz	LLZ013	4	3213	10966	2507	1.28	4.37	67.4	11.7	1.62	42
	LLZ015	5	3898	13304	2949	1.32	4.51	83.5	14.5	1.62	42
	LLZ018	6	4583	15642	3346	1.37	4.68	97.6	17	1.62	43
	LLZ024	8	5854	19980	4204	1.39	4.74	120.2	20.9	2.51	46
	LLZ034	10	7991	27273	5772	1.38	4.71	168.7	29.4	2.51	51
60 Hz	LLZ013	4	3857	13164	2938	1.31	4.47	67.4	14.2	1.62	42
	LLZ015	5	4718	16102	3507	1.35	4.61	83.5	17.5	1.62	42
	LLZ018	6	5616	19167	4028	1.39	4.74	97.6	20.5	1.62	43
	LLZ024	8	7011	23928	4889	1.43	4.88	120.2	25.3	2.51	46
	LLZ034	10	9791	33416	6616	1.48	5.05	168.7	35.4	2.51	51

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration, Standard rating conditions: ARI, Evaporating temperature: -31.7 °C, Superheat: 50 K

EER: Energy Efficiency Ratio, Condensing temperature: 40.6 °C, Subcooling: 0 K, COP: Coefficient Of Performance, Refrigerant: R404A*)

All of the compressor performance test after run-in 72h

*) R507 performance data are nearly identical to R404A performance data

Subject to modification without prior notification.

Data given for motor code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

Technical data and ordering

LLZ - Scroll compressors - R452A - 50 Hz

Technical data - without injection

Type	Nominal tons 60 Hz	Nominal cooling capacity		Power input ¹⁾	COP	EER	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
	[TR]	[W]	[Btu/h]	[kW]	[W/W]	[Btu/h/W]	[cm ³ /rev]	[m ³ /h]	[dm ³]	[kg]	
50 Hz	LLZ013	4	2189	7469	1990	1.1	3.75	67.4	11.7	1.62	42
	LLZ015	5	2718	9274	2514	1.08	3.69	83.5	14.5	1.62	42
	LLZ018	6	3223	10997	2960	1.09	3.72	97.6	17	1.62	43
	LLZ024	8	4000	13648	3609	1.11	3.78	120.2	20.9	2.51	46
	LLZ034	10	5865	20011	5082	1.15	3.94	168.7	29.4	2.51	51

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration, Standard rating conditions: EN12900, Evaporating temperature: -35 °C, Superheat: 10 K

EER: Energy Efficiency Ratio, COP: Coefficient Of Performance Condensing temperature: 40 °C, Subcooling: 0 K, Refrigerant: R452A

All of the compressor performance test after run-in 72h

Subject to modification without prior notification.

Data given for motor code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

LLZ - Scroll compressors - R452A - 60 Hz

Technical data - without injection

Type	Nominal tons 60 Hz	Nominal cooling capacity		Power input ¹⁾	COP	EER	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
	[TR]	[W]	[Btu/h]	[kW]	[W/W]	[Btu/h/W]	[cm ³ /rev]	[m ³ /h]	[dm ³]	[kg]	
50 Hz	LLZ013	4	3335	11383	2886	1.16	3.94	67.4	14.2	1.62	42
	LLZ015	5	4187	14289	3476	1.2	4.11	83.5	17.5	1.62	42
	LLZ018	6	4919	16788	3952	1.24	4.25	97.6	20.5	1.62	43
	LLZ024	8	6137	20945	4829	1.27	4.34	120.2	25.3	2.51	46
	LLZ034	10	8516	29065	6595	1.29	4.41	168.7	35.4	2.51	51

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration, Standard rating conditions: ARI 540 LT standard, Evaporating temperature: -31.5 °C, Return Gas Temperature: 4.5 °C

EER: Energy Efficiency Ratio, Condensing temperature: 40.5 °C, Subcooling: 0 K, COP: Coefficient Of Performance, Refrigerant: R452A

All of the compressor performance test after run-in 72h

Subject to modification without prior notification.

Data given for motor code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

Technical data and ordering

LLZ - Scroll compressors - R404A - 50 / 60 Hz

Performance table - Without economizer

Type		To	-40			-35		-30		-25		-20		-15		-10	
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
50 Hz	LLZ013T4	30	2200	1,94	2900	2,10	3700	2,25	4600	2,40	5700	2,53	6900	2,62	8400	2,66	
		40	1800	2,19	2400	2,37	3100	2,55	3900	2,74	4800	2,91	6000	3,06	7300	3,17	
		50	-	-	1900	2,72	2500	2,92	3200	3,14	3900	3,35	4900	3,55	6000	3,73	
	LLZ015T4	30	2700	2,28	3500	2,48	4400	2,69	5600	2,89	7000	3,08	8600	3,25	10600	3,38	
		40	2300	2,57	2900	2,78	3800	3,01	4700	3,26	5900	3,50	7400	3,74	9000	3,96	
		50	-	-	2300	3,16	3000	3,41	3800	3,69	4800	3,98	6000	4,28	7400	4,58	
	LLZ018T4	30	3200	2,59	4100	2,81	5200	3,05	6600	3,28	8200	3,50	10200	3,69	12400	3,83	
		40	2700	2,91	3500	3,15	4400	3,42	5600	3,69	7000	3,98	8600	4,24	10600	4,49	
		50	-	-	2800	3,58	3500	3,87	4500	4,18	5600	4,52	7000	4,86	8700	5,19	
	LLZ024T4	30	4100	3,25	5200	3,54	6700	3,83	8400	4,12	10500	4,40	13000	4,63	15900	4,81	
		40	3400	3,66	4400	3,96	5600	4,29	7100	4,64	8900	5,00	11000	5,33	13600	5,64	
		50	-	-	3500	4,50	4500	4,86	5700	5,25	7200	5,68	9000	6,10	11100	6,52	
60 Hz	LLZ013T4	30	2600	2,27	3400	2,46	4400	2,65	5500	2,81	6800	2,94	8300	3,03	10100	3,06	
		40	2200	2,57	2900	2,77	3700	2,99	4700	3,20	5800	3,39	7100	3,56	8600	3,69	
		50	-	-	2300	3,15	3000	3,39	3800	3,63	4700	3,88	5800	4,11	7100	4,32	
	LLZ015T4	30	3300	2,74	4200	2,98	5300	3,22	6700	3,46	8400	3,68	10400	3,85	12800	3,96	
		40	2700	3,07	3600	3,31	4500	3,58	5700	3,86	7200	4,15	8900	4,41	10900	4,63	
		50	-	-	2900	3,76	3700	4,03	4700	4,34	5900	4,67	7300	5,00	9000	5,31	
	LLZ018T4	30	3900	3,15	5000	3,42	6400	3,70	8000	3,98	10000	4,23	12400	4,42	15200	4,55	
		40	3300	3,53	4200	3,80	5400	4,11	6800	4,44	8600	4,77	10600	5,07	13000	5,32	
		50	-	-	3400	4,32	4400	4,63	5600	4,99	7000	5,36	8700	5,74	10700	6,10	
	LLZ024T4	30	4800	3,82	6200	4,15	7900	4,49	10000	4,83	12500	5,13	15500	5,37	19000	5,53	
		40	4100	4,28	5300	4,61	6800	4,99	8500	5,39	10700	5,78	13200	6,15	16300	6,46	
		50	-	-	4200	5,24	5500	5,62	6900	6,05	8700	6,51	10900	6,97	13400	7,41	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

LLZ - Scroll compressors - R404A - 50 / 60 Hz

Performance table - With economizer

Type		To	-40			-35		-30		-25		-20		-15		-10	
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
50 Hz	LLZ013T4	30	3300	2,44	4200	2,59	5100	2,74	6100	2,88	7300	3,01	8500	3,13	9800	3,24	
		40	3200	2,96	4000	3,13	4800	3,28	5800	3,42	6900	3,55	8000	3,68	9200	3,80	
		50	-	-	3700	3,80	4600	3,99	5500	4,18	6500	4,35	7500	4,51	8600	4,66	
	LLZ015T4	30	4000	2,90	5000	3,05	6000	3,20	7200	3,35	8600	3,49	10200	3,58	12000	3,63	
		40	3900	3,48	4700	3,66	5700	3,85	6900	4,04	8200	4,22	9700	4,36	11300	4,46	
		50	-	-	4500	4,46	5400	4,71	6500	4,95	7700	5,19	9000	5,40	10500	5,56	
	LLZ018T4	30	4800	3,34	5900	3,50	7200	3,68	8600	3,86	10300	4,01	12200	4,13	14300	4,18	
		40	4600	4,01	5600	4,21	6800	4,43	8200	4,65	9800	4,86	11500	5,02	13500	5,14	
		50	-	-	5400	5,14	6500	5,42	7700	5,70	9200	5,97	10800	6,21	12500	6,40	
	LLZ024T4	30	6000	4,13	7400	4,33	9000	4,55	10800	4,77	12900	4,96	15300	5,10	17900	5,16	
		40	5800	4,95	7100	5,20	8600	5,48	10300	5,75	12300	6,00	14500	6,21	16900	6,35	
		50	-	-	6700	6,35	8100	6,69	9700	7,04	11500	7,38	13500	7,67	15700	7,91	
60 Hz	LLZ013T4	30	3900	2,80	5000	2,99	6100	3,16	7300	3,31	8600	3,45	10100	3,57	11800	3,67	
		40	3800	3,42	4800	3,62	5800	3,80	6900	3,97	8100	4,12	9500	4,25	11000	4,36	
		50	-	-	4500	4,40	5500	4,65	6500	4,88	7600	5,10	8800	5,29	10200	5,47	
	LLZ015T4	30	4900	3,42	5900	3,64	7200	3,83	8700	3,99	10400	4,14	12300	4,28	14500	4,41	
		40	4700	4,08	5700	4,33	6900	4,57	8300	4,79	9900	5,00	11700	5,22	13600	5,44	
		50	-	-	5400	5,26	6600	5,56	7800	5,85	9300	6,14	10900	6,44	12600	6,76	
	LLZ018T4	30	5900	3,89	7100	4,15	8600	4,36	10400	4,55	12400	4,72	14700	4,88	17300	5,03	
		40	5600	4,65	6800	4,94	8200	5,21	9900	5,46	11800	5,70	13900	5,95	16300	6,20	
		50	-	-	6500	6,00	7800	6,33	9400	6,66	11100	6,99	13000	7,34	15100	7,70	
	LLZ024T4	30	7300	4,75	8800	5,06	10600	5,32	12800	5,55	15400	5,76	18200	5,95	21400	6,14	
		40	6900	5,67	8400	6,03	10200	6,36	12300	6,66	14600	6,96	17300	7,26	20200	7,57	
		50	-	-	8000	7,32	9700	7,73	11600	8,13	13800	8,54	16100	8,96	18700	9,40	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10 K



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

LLZ - Scroll compressors - R452A - 50 Hz

Performance table - Without economizer

Type	To	-40			-35			-30			-25			-20			-15			-10			
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe		
50 Hz	LLZ013T4A	30	1951	1.63	2551	1.85	3300	2.03	4220	2.18	5333	2.31	6663	2.44	8231	2.57							
		40	1684	1.66	2187	1.99	2821	2.27	3608	2.50	4570	2.70	5733	2.87	7121	3.04							
		50	1429	1.55	1826	2.03	2335	2.43	2978	2.77	3778	3.07	4762	3.32	5955	3.55							
	LLZ015T4A	30	2482	2.05	3192	2.31	4055	2.51	5095	2.68	6335	2.83	7802	2.98	9518	3.16							
		40	2097	2.12	2715	2.51	3468	2.83	4379	3.10	5474	3.32	6779	3.52	8320	3.71							
		50	1687	2.01	2197	2.60	2822	3.08	3588	3.49	4520	3.83	5645	4.12	6992	4.38							
	LLZ018T4A	30	2939	2.39	3787	2.69	4813	2.92	6045	3.12	7513	3.29	9246	3.47	11273	3.69							
		40	2478	2.51	3220	2.96	4118	3.32	5201	3.62	6497	3.87	8038	4.10	9855	4.33							
		50	1982	2.47	2601	3.13	3354	3.66	4268	4.11	5374	4.48	6705	4.81	8292	5.12							
	LLZ024T4A	30	3653	2.94	4699	3.27	5967	3.54	7492	3.78	9310	4.00	11458	4.22	13971	4.46							
		40	3084	3.11	3997	3.61	5104	4.03	6442	4.38	8046	4.70	9956	4.98	12208	5.25							
		50	2472	3.12	3230	3.85	4156	4.47	5283	5.00	6651	5.45	8297	5.85	10265	6.21							
	LLZ034T4A	30	5364	4.11	6902	4.59	8764	4.97	11002	5.30	13670	5.60	16821	5.91	20507	6.28							
		40	4519	4.36	5861	5.08	7487	5.67	9451	6.16	11805	6.58	14605	6.98	17909	7.39							
		50	3611	4.37	4726	5.42	6084	6.29	7738	7.02	9743	7.65	12158	8.21	15041	8.74							
60 Hz	LLZ013T4A	30	2361	2.22	3076	2.42	3945	2.60	4990	2.78	6236	2.94	7704	3.10	9418	3.24							
		40	1969	2.45	2601	2.70	3365	2.94	4283	3.16	5380	3.38	6681	3.58	8210	3.77							
		50	1556	2.69	2097	3.00	2747	3.30	3530	3.58	4472	3.85	5598	4.11	6935	4.35							
	LLZ015T4A	30	2997	2.62	3877	2.83	4954	3.06	6258	3.30	7821	3.53	9672	3.74	11840	3.90							
		40	2509	3.07	3279	3.28	4218	3.53	5359	3.80	6732	4.07	8371	4.33	10309	4.56							
		50	2009	3.65	2661	3.84	3455	4.09	4424	4.37	5602	4.67	7023	4.98	8723	5.27							
	LLZ018T4A	30	3490	2.96	4514	3.21	5766	3.51	7288	3.81	9122	4.10	11308	4.36	13888	4.56							
		40	2953	3.47	3856	3.72	4951	4.02	6278	4.35	7880	4.70	9801	5.04	12086	5.34							
		50	2379	4.20	3154	4.40	4083	4.68	5207	5.02	6572	5.40	8221	5.79	10205	6.17							
	LLZ024T4A	30	4300	3.56	5577	3.91	7142	4.28	9043	4.66	11327	5.01	14044	5.31	17238	5.55							
		40	3674	4.15	4807	4.51	6175	4.92	7828	5.35	9814	5.77	12185	6.17	14991	6.52							
		50	2963	4.98	3943	5.33	5109	5.75	6508	6.22	8191	6.70	10212	7.18	12627	7.63							
	LLZ034T4A	30	5832	4.79	7638	5.31	9860	5.80	12556	6.28	15785	6.74	19604	7.20	24069	7.65							
		40	5100	5.47	6660	6.11	8570	6.73	10888	7.32	13676	7.90	16996	8.45	20910	9.00							
		50	4350	6.27	5639	7.07	7211	7.84	9126	8.58	11447	9.29	14240	9.98	17575	10.66							

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling capacity in [W]

Pe: Power input in [kW]

Subcooling: 0 K

Superheat: 10



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Nomenclature and Dimensions

Type	Size	Motor	Features	Evolution
MLZ	021	T 4 L	P 9	A

Application:
M: Medium temperature refrigeration

Family, Refrigerant:
LZ(A): R404A - R507 - R134a - R407A
- R407F - R448A - R449A - R452A

Nominal capacity:
In thousand Btu/h at 60 Hz, ARI, MBP conditions

Model variation:
T: Design optimised for refrigeration

Index
- with PVE oil
A with POE oil


Other features

Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalisation port
9	Threaded	None	Schrader	None

Tubing and electrical connections:
P: Brazed connections, spade terminals
C: Brazed connections, screw terminals
T: Rotolock connections, spade terminals
Q: Rotolock connections, screws terminals

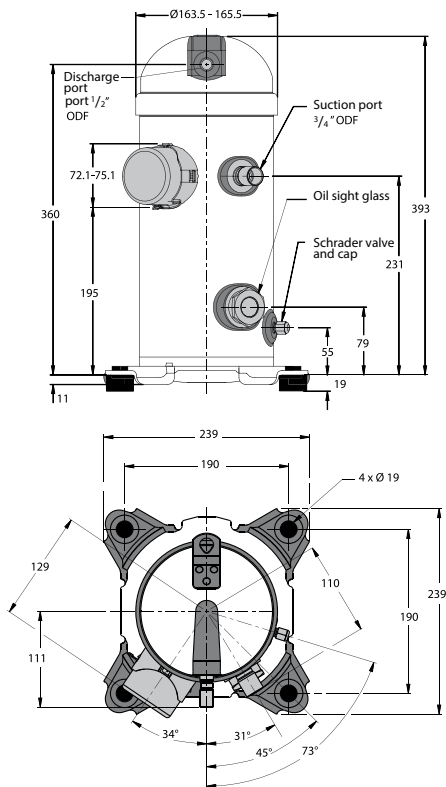
Motor protection:
L: internal motor protection

Motor voltage code
1: 208-230 V/1~/60 Hz
2: 200-220 V/3~/50 Hz & 208-230 V/3~/60 Hz
4: 380-415V/3~/50 Hz & 460 V/3~/60 Hz
5: 220-240 V/1~/50 Hz
7: 575V/ 3~/60 Hz
9: 380 V/3~/60 Hz

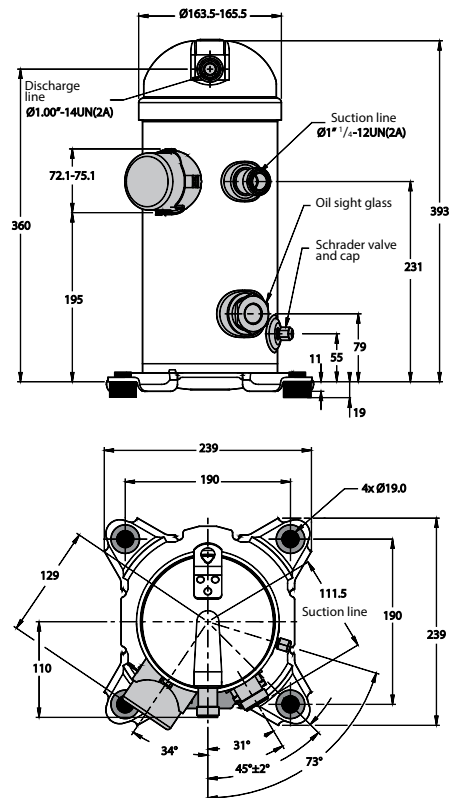


MLZ015-019-021-026

Brazed



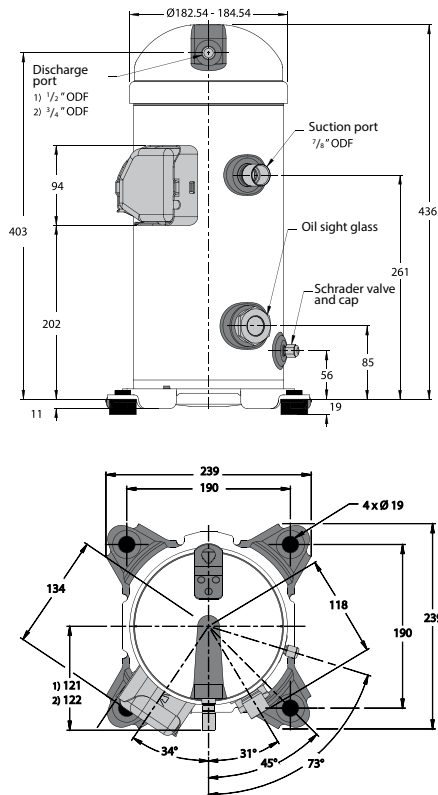
Rotolock



Dimensions

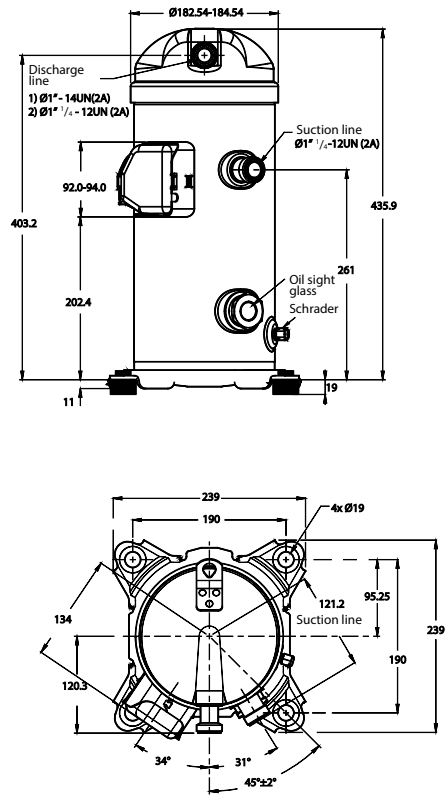
MLZ030-038-042-045-048

Brazed



1) MLZ030-038-042-045
2) MLZ048

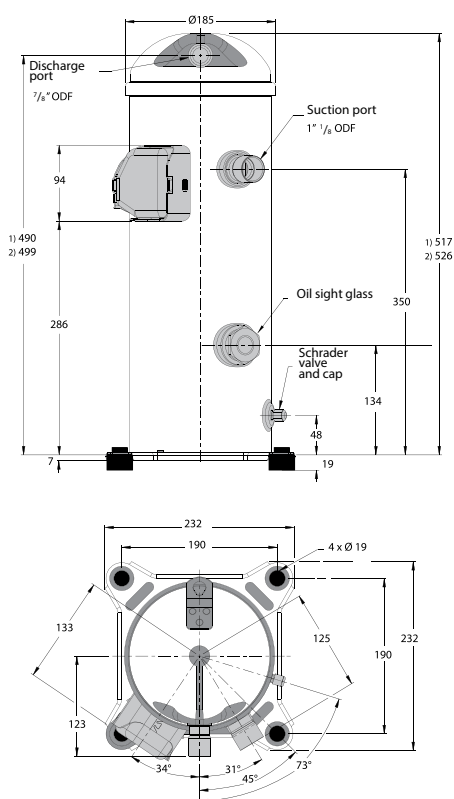
Rotolock



1) MLZ030-038-042-045
2) MLZ048

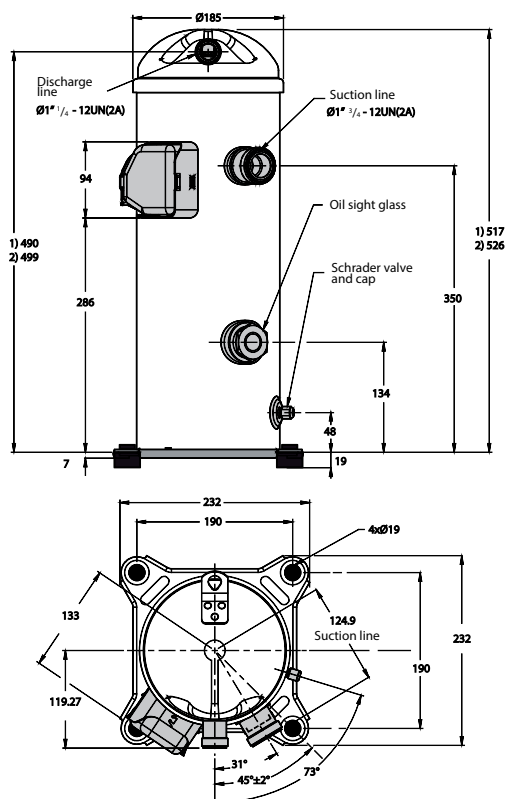
MLZ058-066-076

Brazed



1) MLZ030-038-042-045
2) MLZ048

Rotolock



1) MLZ085
2) MLZ066-076

Nomenclature and Dimensions

Type	Size	Motor	Features	Evolution
LLZ	013	T 4 L	Q 9	A

Application:
L: low temperature refrigeration

Family, Refrigerant:
LZ: R404A, R507, R452A, R448A, R449A

Nominal capacity:
In thousand Btu/h at 60 Hz, ARI, LBP conditions of R404A

Model variation:
T: design optimised for refrigeration

Evolution:
A - with PVE Oil
A with POE Oil


Other features

Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port
9	Threaded	None	Schrader	None

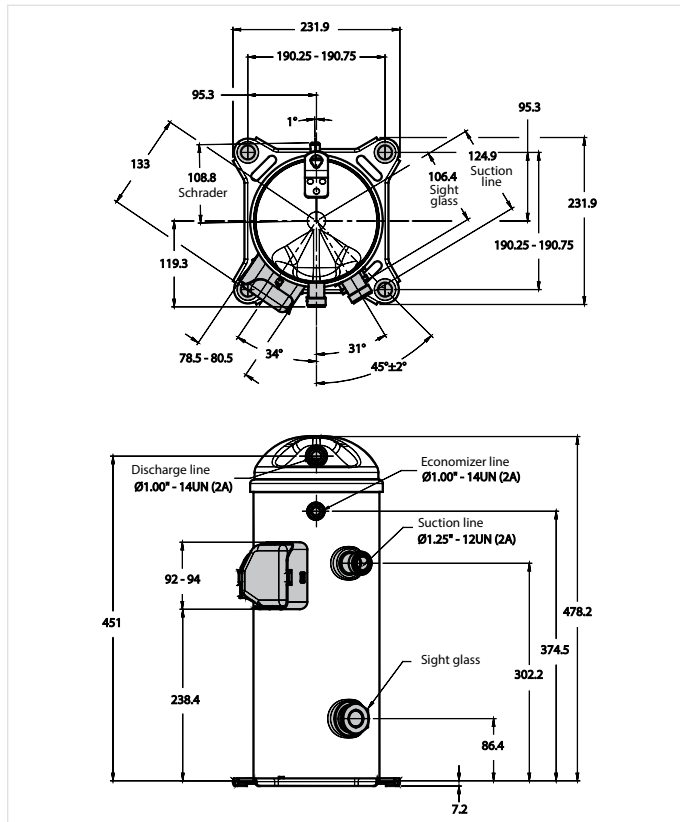
Tubeing and electrical connections:
Q: Rotolock connections, screw terminals

Motor protection:
L: Internal motor protection

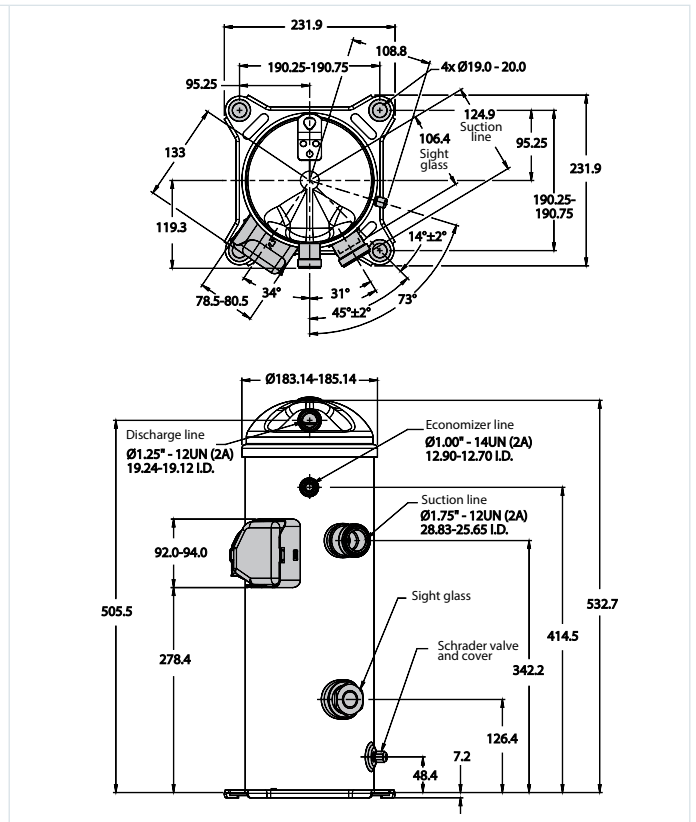
Motor voltage code:
2: 200-220 V/3~/50 Hz & 208-230 V/3~/60 Hz
4: 380-415V/3~/50 Hz & 460 V/3~/60 Hz
9: 380 V/3~60 Hz



LLZ013-015-018



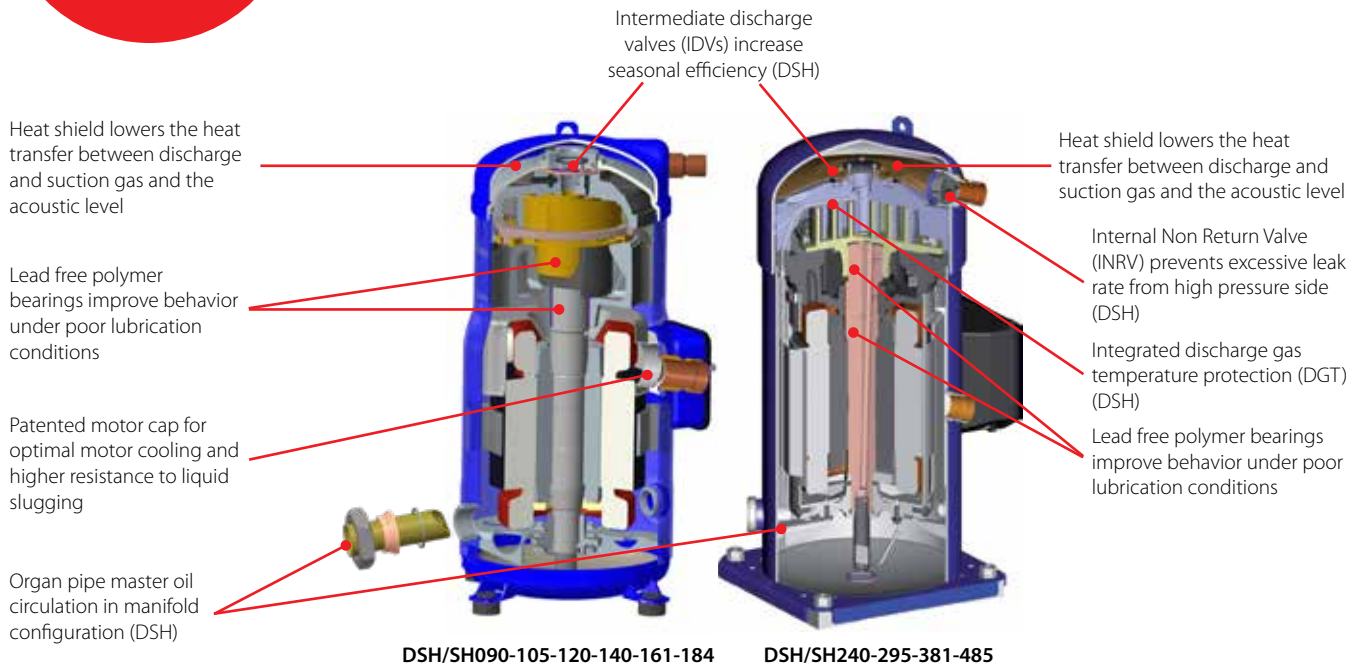
LLZ024



DSH / SH series, Scroll compressors

Danfoss Scrolls SH and DSH are industry leading ranges of high efficiency scrolls optimized for rooftop and chiller applications. They range from 7.5 to 40TR (SH range) and 50 TR (DSH range). Innovative design of the DSH range bring a new level of compressor

robustness and system reliability. They are available in a large variety of single and manifold models for refrigerants R410A, and alternate refrigerants with lower-GWP in the fall of 2018 and 2019.



Facts

Applications:

- Ideal for chillers, rooftops, CRAC systems from 7.5 to 50TR with a single compressor, up to 150 TR per circuit
- The Danfoss Scrolls DSH include several innovative features to improve compressor and system robustness.

- **Intermediate Discharge Valves (IDVs)**
- Mechanically reduce excessive compression of refrigerant under part-load conditions while maintaining the same cooling capacity. They adapt the effort of the motor to the pressure conditions in the system by opening when condensing pressure and pressure ratio (part-load) fall below the built-in optimization point of the scroll. This reduces the effort of the motor and its electrical consumption thus improving the system's seasonal energy efficiency. IDV technology enhances

system efficiency by 15% on average in Water-to-Water chillers and by 6% in rooftops and Air-to-Water chillers.

- Reduce the load on mechanical parts at start up, provide safer operation at high condensing and evaporating temperatures and contribute to better liquid management

Technical data and ordering

DSH - Single scroll compressor - R410A

Ordering - Single pack

Compressor model	Connections	Motor protection	Code no.			
			3	4	7	9
			200-230/3/60	380-415/3/50 460/3/60	575/3/60	380-400/3/60
DSH090	Brazed	Internal	120H1180	120H1182	120H1184	120H1186
DSH105	Brazed	Internal	120H1188	120H1190	120H1192	120H1194
DSH120	Brazed	Internal	120H1196	120H1198	120H1200	120H1202
DSH140	Brazed	Internal	120H1204	120H1206	120H1208	120H1210
DSH161	Brazed	Internal	120H1212	120H1214	120H1216	120H1218
DSH184	Brazed	Internal	120H1220	120H1222	120H1224	120H1226
DSH240	Brazed	Module 24V AC ¹⁾	120H1159	120H1119	120H1151	120H1135
	Brazed	Module 110 – 240 V ¹⁾	120H1161	120H1121	120H1152	120H1137
DSH295	Brazed	Module 24V AC ¹⁾	120H1163	120H1123	120H1153	120H1139
	Brazed	Module 110 – 240 V ¹⁾	120H1165	120H1125	120H1154	120H1141
DSH381	Brazed	Module 24V AC ¹⁾	120H1167	120H1127	120H1155 ²⁾	120H1143 ²⁾
	Brazed	Module 110 – 240 V ¹⁾	120H1169	120H1129	120H1156 ²⁾	120H1145 ²⁾
DSH485	Brazed	Module 24V AC ¹⁾	120H1105 ²⁾	120H1131	120H1157	120H1147
	Brazed	Module 110 – 240 V ¹⁾	–	120H1133	120H1158	120H1149

¹⁾ Electronic motor protection, module located in terminal box

²⁾ Soon to be released

Mounting kit for DSH240-295-381-485 single compressor applications : **Ref 8156138**

Technical data and ordering

DSH - Single scroll compressor - R410A - 50 / 60 Hz

Technical data

Compressor model	Nominal tons 60 Hz	Nominal cooling capacity		Power input	COP	EER	Swept volume		Displacement ¹⁾		Oil charge		Net weight ²⁾		
	[TR]	[W]	[Btu/h]	[kW]	[W/W]	[Btu/h/W]	[cm ³ /rev]	[cu.in/rev]	[m ³ /h]	[cu.ft/h]	[Litres]	[oz]	[kg]	[lb]	
50 Hz	DSH090	7.5	20050	68413	6.54	3.06	10.46	88.4	5.39	15.4	544	3	102	58	128
	DSH105	9	23580	80457	7.65	3.08	10.52	103.5	6.32	18	636	3.3	113	64	141
	DSH120	10	26790	91410	8.61	3.11	10.62	116.9	7.13	20.3	717	3.3	113	64	141
	DSH140	12	30370	103625	9.69	3.13	10.69	133	8.12	23.1	816	3.3	113	67	148
	DSH161	13	34890	119048	11.03	3.16	10.79	151.7	9.26	26.4	932	3.3	113	69	152
	DSH184	15	39040	133208	12.36	3.16	10.78	170.3	10.39	29.6	1045	3.6	123	71.5	158
	DSH240	20	52730	179920	17.04	3.09	10.56	227.6	13.89	39.6	1398	6.7	229	108	238
	DSH295	25	64520	220149	20.35	3.17	10.82	276.2	16.85	48.1	1699	6.7	229	111	245
	DSH381	30	81490	278052	26.21	3.11	10.61	345	21.05	60	2119	6.7	229	159	351
	DSH485	40	103500	353152	32.72	3.16	10.79	442.6	27.01	77	2719	6.7	229	175	386
60 Hz	DSH090	7.5	27470	93730	8.55	3.21	10.96	88.4	5.39	18.6	657	3	102	58	128
	DSH105	9	32280	110100	10.01	3.22	11	103.5	6.32	21.8	770	3.3	113	64	141
	DSH120	10	36630	125000	11.25	3.26	11.11	116.9	7.13	24.6	869	3.3	113	64	141
	DSH140	12	41510	141600	12.75	3.26	11.11	133	8.12	27.9	985	3.3	113	67	148
	DSH161	13	47220	161100	14.7	3.21	10.96	151.7	9.26	31.9	1127	3.3	113	69	152
	DSH184	15	53160	181400	16.36	3.25	11.09	170.3	10.39	35.8	1264	3.6	123	71.5	158
	DSH240	20	71760	244852	22.46	3.2	10.9	227.6	13.89	47.8	1688	6.7	229	108	238
	DSH295	25	87610	298934	26.96	3.25	11.09	276.2	16.85	58	2048	6.7	229	111	245
	DSH381	30	110300	376355	34.52	3.2	10.9	345	21.05	72.3	2553	6.7	229	159	351
	DSH485	40	141900	484177	43.66	3.25	11.09	442.6	27.01	92.9	3281	6.7	229	175	386

¹⁾ Displacement at nominal speed: 2900rpm at 50 Hz, 3500rpm at 60 Hz

²⁾ Net weight with oil charge

TR: Ton of Refrigeration

COP: Coefficient Of Performance

EER: Energy Efficiency Ratio

Standard rating conditions

For 50 Hz: Evaporating temperature: 5 °C / 41 °F

Condensing temperature: 50 °C / 122 °F

Superheat: 10 K (18 °F)

Subcooling: 0 K (0 °F)

For 60 Hz: Evaporating temperature: 7.2 °C / 45 °F

Condensing temperature: 54.4 °C / 130 °F

Superheat: 11.1 K (20 °F)

Subcooling: 8.3 K (15 °F)

Subject to modification without prior notification.

Data given for motor code 4 compressor with above condition, for full data details and capacity tables refer to Coolselector®2

www.coolselector.danfoss.com

Technical data and ordering

DSH - Single scroll compressor - R410A - 50 Hz

Performance table

Type	To	-30			-20		-10		0		10		15		20		25	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
DSH090	35	5660	4.69	9666	4.60	15073	4.68	22285	4.67	31702	4.32	37363	3.93	43725	3.36	50839	2.57	
	45	-	-	8535	5.86	13368	5.81	19837	5.86	28350	5.75	33500	5.56	39314	5.24	45842	4.74	
	55	-	-	-	-	11477	7.35	17085	7.31	24586	7.30	29177	7.23	34398	7.07	40302	6.80	
DSH105	35	6904	5.79	11575	5.51	17891	5.53	26330	5.52	37369	5.15	44013	4.73	51484	4.10	59844	3.21	
	45	-	-	9986	7.02	15681	6.85	23329	6.87	33415	6.77	39523	6.57	46423	6.21	54173	5.66	
	55	-	-	-	-	13212	8.62	19960	8.51	28997	8.50	34530	8.43	40820	8.26	47932	7.95	
DSH120	35	8062	6.28	13295	6.19	20402	6.24	29928	6.17	42417	5.71	49942	5.26	58411	4.61	67893	3.73	
	45	-	-	11723	7.78	18057	7.74	26567	7.75	37806	7.55	44621	7.29	52326	6.87	60989	6.26	
	55	-	-	-	-	15519	9.63	22919	9.60	32829	9.52	38902	9.39	45814	9.14	53637	8.75	
DSH140	35	9552	7.22	15309	6.85	23210	6.94	33891	7.02	47981	6.60	56502	6.05	66111	5.20	76889	3.99	
	45	-	-	13527	8.78	20559	8.57	30113	8.68	42829	8.65	50574	8.42	59349	7.98	69236	7.26	
	55	-	-	-	-	17681	10.81	26012	10.70	37276	10.79	44213	10.76	52130	10.59	61109	10.23	
DSH161	35	10645	7.80	17464	7.75	26674	7.89	38974	7.90	55063	7.48	64746	7.00	75638	6.30	87826	5.32	
	45	-	-	15354	9.73	23590	9.77	34637	9.89	49204	9.77	58028	9.52	67998	9.10	79202	8.46	
	55	-	-	-	-	20201	12.17	29837	12.25	42742	12.29	50647	12.19	59643	11.98	69820	11.60	
DSH184	35	12424	8.68	19896	8.75	30097	8.93	43818	8.95	61846	8.53	72722	8.08	84969	7.40	98686	6.49	
	45	-	-	17510	10.85	26573	10.96	38837	11.09	55101	10.98	64983	10.74	76165	10.33	88747	9.72	
	55	-	-	-	-	22726	13.63	33369	13.73	47728	13.76	56557	13.67	66623	13.45	78028	13.08	
DSH240	35	16780	12.17	26933	11.94	40691	12.17	59073	12.27	83094	11.64	97535	10.87	113767	9.70	131914	8.04	
	45	-	-	23718	15.05	36005	15.02	52491	15.25	74204	15.14	87343	14.77	102176	14.10	118830	13.05	
	55	-	-	-	-	30845	18.84	45210	18.90	64422	19.01	76176	18.91	89537	18.59	104639	17.99	
DSH295	35	20543	14.40	32995	14.28	49827	14.50	72283	14.61	101601	14.18	119219	13.62	139016	12.77	161145	11.55	
	45	-	-	29069	17.87	44117	17.93	64253	18.18	90735	18.19	106748	17.97	124818	17.52	145103	16.79	
	55	-	-	-	-	37809	22.37	55362	22.54	78779	22.77	93088	22.77	109346	22.62	127716	22.27	
DSH381	35	25441	19.05	41177	18.60	62453	18.90	90843	19.16	127915	18.55	150195	17.67	175232	16.27	203221	14.25	
	45	-	-	36483	23.05	55512	23.02	80968	23.49	114443	23.64	134685	23.34	157528	22.65	183171	21.49	
	55	-	-	-	-	47895	28.44	70102	28.74	99709	29.25	117797	29.34	138346	29.18	161563	28.67	
DSH485	35	32323	22.60	52665	23.38	78979	24.07	114448	24.07	162237	22.77	191738	21.45	225501	19.58	263920	17.09	
	45	-	-	46624	28.51	70684	29.03	102564	29.51	145479	29.33	172078	28.81	202638	27.89	237560	26.51	
	55	-	-	-	-	61128	35.41	89251	35.89	127171	36.36	150832	36.40	178176	36.20	209613	35.71	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling Capacity in [W]

Pe: Power input in [kW]

Subcooling: 8.3 K

Superheat: 11.1 K

Voltage: 400 V/3/50 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

DSH - Single scroll compressor - R410A - 60 Hz

Performance table

Type	To	-30			-20		-10		0		10		15		20		25	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
DSH090	35	7355	5.59	12044	5.54	18414	5.65	26974	5.65	38229	5.27	45026	4.86	52687	4.25	61276	3.41	
	45	-	-	10602	6.89	16324	6.92	24060	7.00	34319	6.90	40552	6.68	47607	6.32	55545	5.78	
	55	-	-	-	-	14103	8.58	20905	8.63	30054	8.66	35668	8.58	42060	8.40	49292	8.08	
DSH105	35	8621	7.03	14212	6.60	21759	6.63	31863	6.67	45122	6.29	53122	5.80	62137	5.03	72240	3.93	
	45	-	-	12376	8.41	19176	8.14	28327	8.20	40429	8.16	47774	7.96	56082	7.56	65428	6.91	
	55	-	-	-	-	16431	10.27	24506	10.10	35328	10.15	41956	10.11	49496	9.96	58022	9.65	
DSH120	35	10077	7.52	16257	7.41	24702	7.48	36099	7.44	51136	6.98	60234	6.51	70500	5.81	82019	4.86	
	45	-	-	14322	9.22	21871	9.19	32124	9.25	45768	9.09	54076	8.84	63489	8.42	74094	7.79	
	55	-	-	-	-	18927	11.37	27923	11.38	40060	11.37	47522	11.27	56026	11.05	65660	10.67	
DSH140	35	11841	8.61	18705	8.14	28137	8.29	40909	8.47	57792	8.12	68018	7.57	79561	6.67	92518	5.35	
	45	-	-	16607	10.43	25014	10.20	36508	10.40	51861	10.46	61226	10.26	71845	9.81	83815	9.05	
	55	-	-	-	-	21692	12.88	31725	12.78	45364	12.94	53777	12.94	63381	12.79	74273	12.42	
DSH161	35	13416	9.23	21424	9.42	32288	9.62	46882	9.65	66080	9.32	77679	8.96	90756	8.43	105421	7.73	
	45	-	-	18988	11.60	28672	11.83	41731	12.00	59040	11.92	69560	11.73	81471	11.41	94881	10.93	
	55	-	-	-	-	24880	14.57	36249	14.80	51513	14.89	60878	14.83	71545	14.67	83622	14.38	
DSH184	35	15104	10.13	24121	10.50	36368	10.77	52833	10.83	74503	10.56	87599	10.26	102367	9.84	118930	9.28	
	45	-	-	21299	12.75	32223	13.14	46983	13.38	66565	13.36	78474	13.21	91959	12.95	107143	12.56	
	55	-	-	-	-	27853	16.02	40717	16.41	58021	16.59	68647	16.56	80753	16.44	94464	16.21	
DSH240	35	20540	14.43	32608	14.19	49037	14.58	71088	14.87	100021	14.31	117462	13.47	137097	12.15	159082	10.23	
	45	-	-	28853	17.83	43535	17.82	63354	18.27	89573	18.41	105475	18.14	123450	17.52	143655	16.45	
	55	-	-	-	-	37698	22.19	55016	22.38	78248	22.82	92476	22.91	108656	22.78	126944	22.35	
DSH295	35	25444	16.99	40028	16.97	59962	17.39	86807	17.78	122124	17.64	143447	17.22	167473	16.49	194398	15.39	
	45	-	-	35398	21.13	53208	21.33	77368	21.85	109441	22.18	128931	22.13	150985	21.86	175797	21.31	
	55	-	-	-	-	45983	26.49	67103	26.87	95575	27.42	113055	27.61	132958	27.66	155480	27.51	
DSH381	35	30518	22.58	49235	22.23	74569	22.73	108461	23.26	152851	22.98	179590	22.28	209681	21.05	243368	19.22	
	45	-	-	43530	27.41	66291	27.50	96866	28.22	137197	28.74	161627	28.66	189224	28.22	220230	27.31	
	55	-	-	-	-	57544	33.78	84428	34.25	120324	35.13	142258	35.47	167173	35.59	195312	35.39	
DSH485	35	40492	27.82	63625	28.10	95560	28.96	138816	29.44	195912	28.56	230438	27.32	269368	25.37	313018	22.59	
	45	-	-	56457	34.11	85244	34.86	124320	35.87	176204	36.18	207736	35.77	243415	34.82	283556	33.21	
	55	-	-	-	-	74094	42.19	108623	43.30	154928	44.36	183284	44.57	215529	44.41	251977	43.75	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Qo: Cooling Capacity in [W]

Pe: Power input in [kW]

Subcooling: 8.3 K

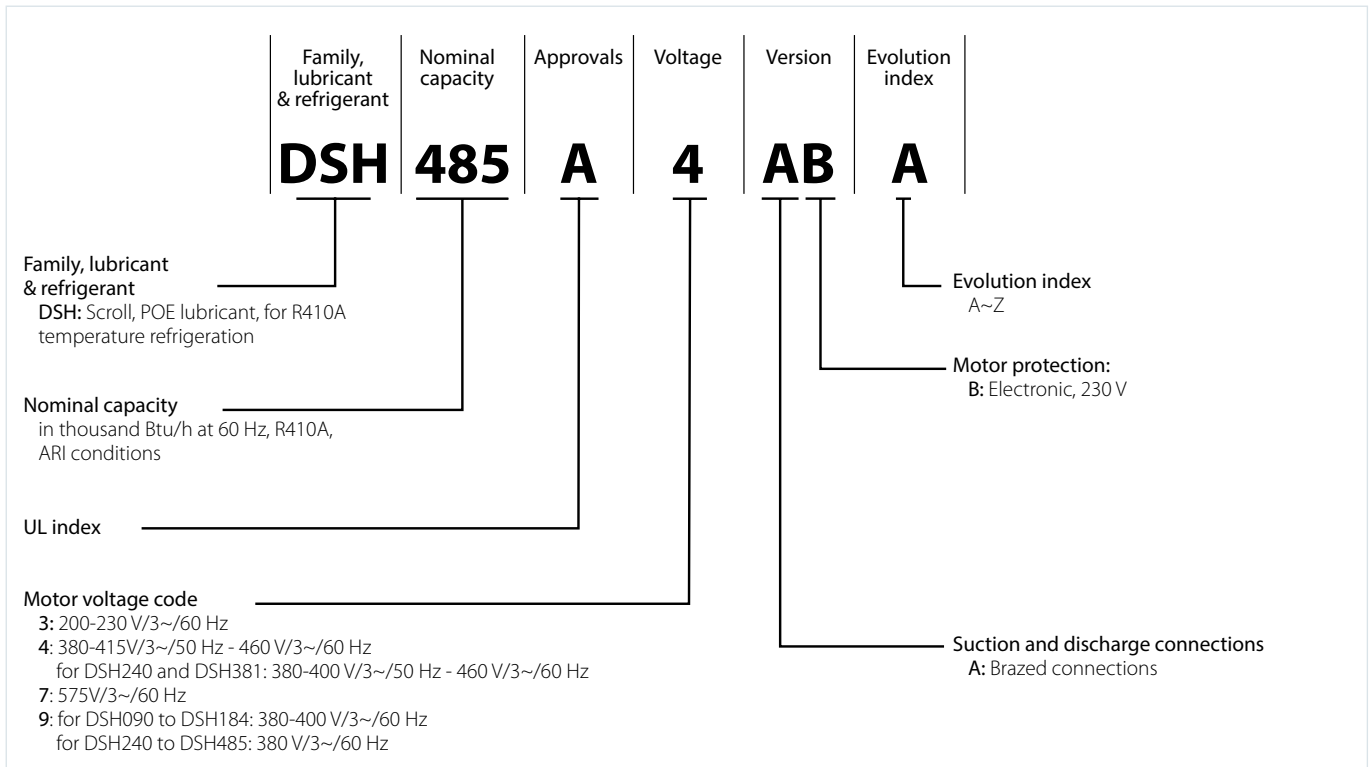
Superheat: 11.1 K

Voltage: 460 V/3 /60 Hz

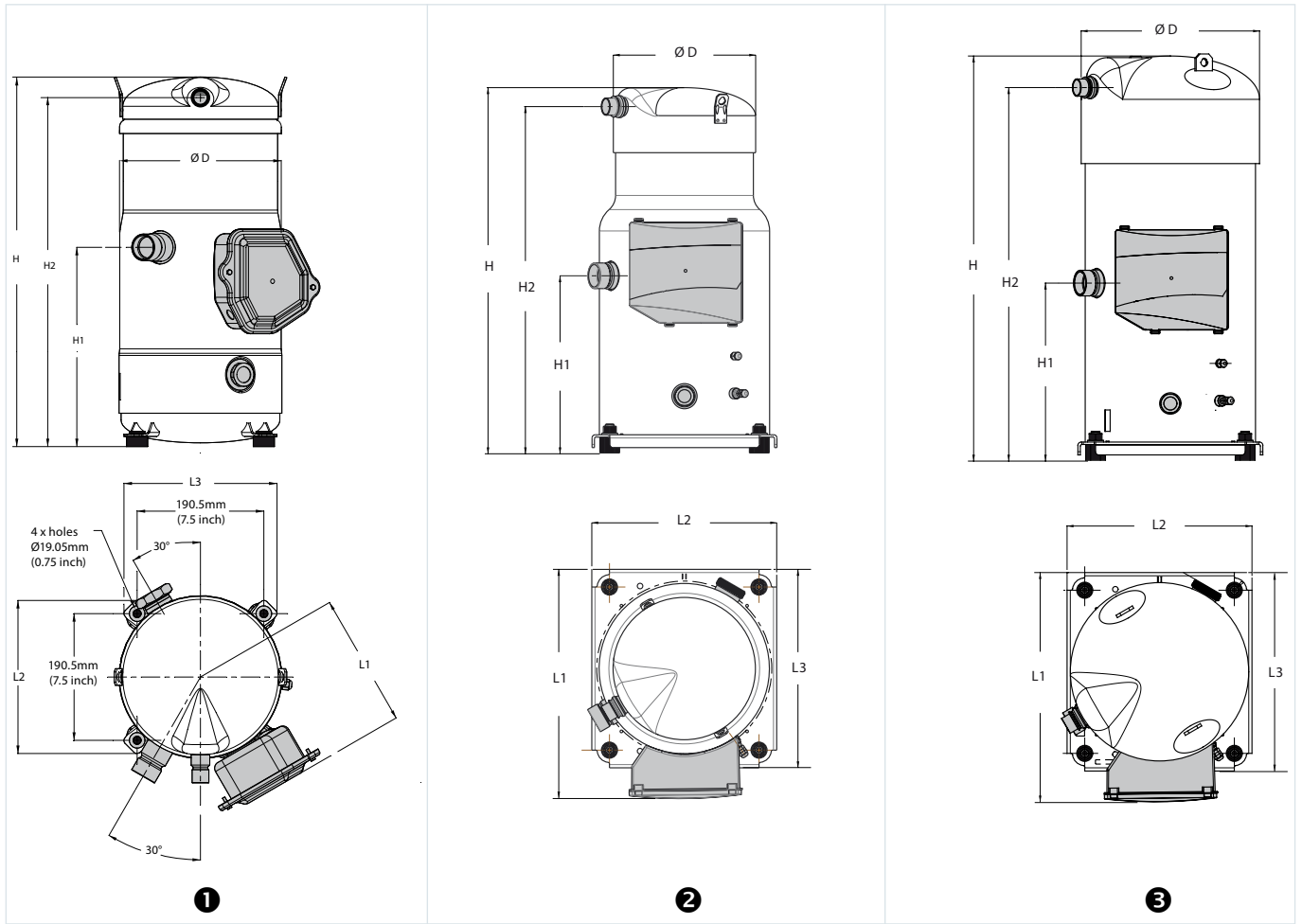


For more information and performance with other refrigerants, please refer to Coolselector[®] 2 at coolselector.danfoss.com or contact Danfoss.

Nomenclature



Dimensions



Type	D		H		H1		H2		L1		L2		L3		Outline drawing number	
	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]	[mm]	[in]		
DSH090	243	9.57	485	19.09	235	9.25	451	17.76	180	7.09	230	9.06	230	9.06		8560004
DSH105-120-140-161	243	9.57	542	21.34	278	10.94	509	20.04	180 ¹⁾ 201 ²⁾	7.09 ¹⁾ 7.91 ²⁾	230	9.06	230	9.06	1	8560003 1) 8560041 2)
DSH184	243	9.57	558	21.97	299	11.77	524	20.63	201	7.91	230	9.06	230	9.06		8560023
DSH240	318	12.52	683	26.89	331	13.03	648	25.51	428	16.85	345	13.58	371	14.61	2	8556089
DSH295	318	12.52	683	26.89	331	13.03	648	25.51	428	16.85	345	13.58	371	14.61		
DSH381	333	13.11	755	29.72	331	13.03	697	27.44	428 ¹⁾ 477 ²⁾	16.85 ¹⁾ 18.78 ²⁾	345	13.58	371	14.61	3	8556091 1) 8556059 2)
DSH485	333	13.11	755	29.72	331	13.03	697	27.44	428 ¹⁾ 446 ²⁾	16.85 ¹⁾ 17.56 ²⁾	345	13.58	371	14.61		8556133 8556160 2)

¹⁾ compressor motor codes 4, 7, 9
²⁾ compressor motor code 3

Technical data and ordering

DSH - Tandem Scroll compressors - R410A - 50 / 60 Hz

Ordering

Cp1	Cp2	Tandem Model	Suction From	Washer Reference	Washer Inner Diameter		Washer In Suction Of	Kit code no.	
					[mm]	[in]			
DSH090	+	DSH090	DSH180E	Left	Not needed			120Z0634	
				Right	Not needed				
DSH090	+	DSH105	DSH195U	Left	5312497P01	25	0.98	Cp2	120Z0694
				Right	5312497P05	26	1.02	Cp2	
DSH090	+	DSH120	DSH210U	Left	5312497P04	27	1.06	Cp2	120Z0694
				Right	5312497P04	27	1.06	Cp2	
DSH105	+	DSH105	DSH210E	Left	Not needed			120Z0634	
				Right	Not needed				
DSH090	+	DSH140	DSH230U	Left	5312639P05	23	0.91	Cp1	120Z0694
				Right	5312639P05	23	0.91	Cp1	
DSH120	+	DSH120	DSH240E	Left	Not needed			120Z0634	
				Right	Not needed				
DSH090	+	DSH161	DSH251U	Left	5312639P07	21	0.83	Cp1	120Z0694
				Right	5312639P07	21	0.83	Cp1	
DSH120	+	DSH140	DSH260U	Left	5312497P04	27	1.06	Cp1	120Z0692
				Right	5312497P04	27	1.06	Cp1	
DSH090	+	DSH184	DSH274U	Left	5312639P01	20	0.79	Cp1	120Z0693
				Right	5312639P01	20	0.79	Cp1	
DSH120	+	DSH161	DSH281U	Left	5312497P01	25	0.98	Cp1	120Z0692
				Right	5312497P01	25	0.98	Cp1	
DSH140	+	DSH140	DSH280E	Left	Not needed			120Z0634	
				Right	Not needed				
DSH105	+	DSH184	DSH289U	Left	5312497P03	23	0.91	Cp1	120Z0693
				Right	5312497P03	23	0.91	Cp1	
DSH140	+	DSH161	DSH301U	Left	5312497P08	27.5	1.08	Cp1	120Z0692
				Right	5312497P05	26	1.02	Cp1	
DSH120	+	DSH184	DSH304U	Left	5312497P06	24	0.94	Cp1	120Z0694
				Right	5312497P06	24	0.94	Cp1	
DSH161	+	DSH161	DSH322E	Left	Not needed			120Z0634	
				Right	Not needed				
DSH140	+	DSH184	DSH324U	Left	5312497P01	25	0.98	Cp1	120Z0694
				Right	5312497P01	25	0.98	Cp1	
DSH161	+	DSH184	DSH345U	Left	5312639P08	27.5	1.08	Cp1	120Z0694
				Right	5312639P08	27.5	1.08	Cp1	
DSH120	+	DSH240	DSH360X	Left	5312497P06	24	0.94	Cp1	120Z0709
				Right	5312497P01	25	0.98	Cp1	
DSH184	+	DSH184	DSH368E	Left	Not needed			120Z0634	
				Right	Not needed				
DSH184	+	DSH240	DSH424X	Left	5311579P10	35.5	1.4	CP2	120Z0709
				Right	5311579P10	35.5	1.4	CP2	
DSH161	+	DSH295	DSH456X	Left	5312497P01	25	0.98	Cp1	120Z0709
				Right	5312497P05	26	1.02	Cp1	
DSH184	+	DSH295	DSH479X	Left	5312497P05	26	1.02	CP1	120Z0709
				Right	5312497P05	26	1.02	CP1	
DSH240	+	DSH240	DSH482	Left	Not needed			7777041	
				Right	Not needed				
DSH240	+	DSH295	DSH535	Left	5311579P01	31	1.22	Cp1	7777037
				Right	5311579P01	31	1.22	Cp1	
DSH184	+	DSH381	DSH565X	Left	5312497P06	24	0.94	CP1	120Z0709
				Right	5312497P06	24	0.94	CP1	
DSH295	+	DSH295	DSH590	Left	Not needed			7777041	
				Right	Not needed				
DSH240	+	DSH381	DSH620	Left	5311579P05	29	1.14	Cp1	7777048
				Right	5311579P05	29	1.14	Cp1	
DSH295	+	DSH381	DSH675	Left	5311579P01	31	1.22	Cp1	7777037
				Right	5311579P01	31	1.22	Cp1	
DSH240	+	DSH485	DSH725	Left	5311579P09	24	0.94	Cp1	120Z0569
				Right	5311579P09	24	0.94	Cp1	
DSH381	+	DSH381	DSH760	Left	Not needed			7777041	
				Right	Not needed				

Tandem to be achieved by assembly of individual compressors

For cross platform tandem application, which tandem model name ending with X, a external non-return valve (NRV) is highly recommended to install on DSH120/161/184 discharge line.

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Technical data and ordering

DSH - Tandem Scroll compressors - R410A - 50 / 60 Hz (cont.)

Ordering

Cp1	Cp2	Tandem Model	Suction From	Washer Reference	Washer Inner Diameter		Washer In Suction Of	Kit code no.	
					[mm]	[in]			
DSH295	+	DSH485	DSH780	Left	5311579P07	27	1.06	Cp1	120Z0551
			Right						
DSH381	+	DSH485	DSH865	Left	5311579P08	30	1.18	Cp1	120Z0550
			Right						
DSH485	+	DSH485	DSH970	Left	Not needed				120Z0578
			Right						

Tandem to be achieved by assembly of individual compressors

For cross platform tandem application, which tandem model name ending with X, a external non-return valve (NRV) is highly recommended to install on DSH120/161/184 discharge line.

DSH - Trio Scroll compressors - R410A - 50 / 60 Hz

Ordering

Cp1	Cp2	Cp3	Tandem Model	Suction From	Washer Reference	Washer Inner Diameter		Washer In Suction Of	Kit Code o.				
						[mm]	[in]						
DSH140	+	DSH140	+	DSH140	=	DSH420	Left	5312497P05	26	1.02	CP1	120Z0672	
								5312497P06	24	0.94	CP3		
								Right	5312639P04	24.5	0.96		CP1
									5312639P04	24.5	0.96		CP3
DSH161	+	DSH161	+	DSH161	=	DSH483	Left	5312497P05	26	1.02	CP1	120Z0684	
								5312497P01	25	0.98	CP3		
								Right	5312497P05	26	1.02		CP1
									5312497P01	25	0.98		CP3
DSH184	+	DSH184	+	DSH184	=	DSH552	Left	5312497P04	27	1.06	CP1	120Z0685	
								5312497P06	24	0.94	CP3		
								Right	5312497P08	26.5	1.04		CP1
									5312639P04	24.5	0.96		CP3
DSH240	+	DSH240	+	DSH240	=	DSH720	Left	5311579P08	30	1.18	Cp3	120Z0673	
							Right	5311579P03	34.5	1.36	Cp1 and Cp3	7777039	
DSH295	+	DSH295	+	DSH295	=	DSH885	Left	5311579P08	30	1.18	Cp3	120Z0673	
							Right	5311579P03	34.5	1.36	Cp1 and Cp3	7777039	
DSH381	+	DSH381	+	DSH381	=	DSH1140	Left	5311579P01	31	1.22	Cp1	120Z0686	
								5311579P05	29	1.14	Cp3		
							Right	5311579P01	31	1.22	Cp1	120Z0688	
DSH381	+	DSH381	+	DSH485	=	DSH1245	Left	5311579P05	29	1.14	Cp1	7777063	
							Right						
DSH485	+	DSH485	+	DSH381	=	DSH1350	Left	5311579P05	29	1.14	Cp3	7777063	
							Right						
DSH485	+	DSH485	+	DSH485	=	DSH1455	Left	5311579P02	33	1.3	Cp2 and Cp3	7777040	
							Right						

Tandem to be achieved by assembly of individual compressors

For cross platform tandem application, which tandem model name ending with X, a external non-return valve (NRV) is highly recommended to install on DSH120/161/184 discharge line.

Technical data and ordering

SH - Scroll compressors - R410A - 50 / 60 Hz

Technical data

Type	Nominal tons 60 Hz	Nominal cooling capacity			Power input	COP	E.E.R.	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾
		[TR]	[W]	[Btu/h]							
50 Hz	SH090	7.5	22300	76100	7.19	3.10	10.58	88.40	15.4	3.0	58.0
	SH105	9	26800	91500	8.47	3.17	10.82	103.50	18.0	3.3	64.0
	SH120	10	30000	102400	9.46	3.17	10.82	116.90	20.3	3.3	64.0
	SH140	12	34700	118400	10.58	3.28	11.19	133.00	23.1	3.3	67.0
	SH161	13	38800	132400	12.15	3.19	10.89	151.70	26.4	3.3	69.0
	SH184	15	44700	152600	13.73	3.25	11.09	170.30	29.6	3.6	71.5
	SH180	15	44500	151900	13.87	3.21	10.96	170.20	29.6	6.7	108.0
	SH240	20	59700	203800	18.50	3.23	11.02	227.60	39.6	6.7	108.0
	SH295 ³⁾	25	73200	249800	22.51	3.25	11.09	276.20	48.1	6.7	111.0
	SH380	30	90500	308900	28.18	3.21	10.96	345.00	60.0	6.7	159.0
SH485	40	116400	397300	35.65	3.26	11.13	442.60	77.0	6.7	175.0	
60 Hz	SH090	7.5	27100	92500	8.57	3.16	10.78	88.40	18.6	3.0	58.0
	SH105	9	32100	109600	9.96	3.22	10.99	103.50	21.8	3.3	64.0
	SH120	10	36800	125600	11.25	3.27	11.16	116.90	24.6	3.3	64.0
	SH140	12	42300	144400	12.77	3.31	11.30	133.00	27.9	3.3	67.0
	SH161	13	47200	161100	14.43	3.27	11.16	151.70	31.9	3.3	69.0
	SH184	15	54000	184300	16.45	3.28	11.19	170.30	35.8	3.6	71.5
	SH180	15	54300	185300	16.58	3.27	11.16	170.20	35.7	6.7	108.0
	SH240	20	72200	246400	22.10	3.27	11.16	227.60	47.8	6.7	108.0
	SH295 ³⁾	25	88500	302000	27.21	3.25	11.09	276.20	58.0	6.7	111.0
	SH380	30	109600	374100	33.99	3.22	10.99	345.00	72.3	6.7	159.0
SH485	40	140600	479900	43.28	3.25	11.09	442.60	92.9	6.7	175.0	

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

TR) Ton of Refrigeration

EER) Energy Efficiency Ratio

COP) Coefficient Of Performance

Standard rating conditions ARI standard

Refrigerant: R410A

Evaporating temperature: 7.2 °C

Condensing temperature: 54.4 °C

Superheat: 11.1 K

Subcooling: 8.3 K

Subject to modification without prior notification

Data given for motor code 4 compressor

³⁾ SH295 replaces SH300. SH300 model remains available for after-market

SH - Scroll compressors - R410A - 50 / 60 Hz

Ordering single pack

Compressor model	Connections	Mounting feet	Motor protection	Code no.			
				3	4	7	9
				200-230/3/60	460/3/60 380-400/3/50	575/3/60 500/3/50	380/3/60
SH090	Brazed	Flexible	Internal	120H0001	120H0003	120H0007	120H0009
SH105	Brazed	Flexible	Internal	120H0209	120H0211	120H0215	120H0217
SH120	Brazed	Flexible	Internal	120H0011	120H0013	120H0017	120H0019
SH140	Brazed	Flexible	Internal	120H0199	120H0201	120H0205	120H0207
SH161	Brazed	Flexible	Internal	120H0021	120H0023	120H0027	120H0029
SH184	Brazed	Flexible	Internal	120H0359	120H0361	120H0365	120H0367
SH180	Brazed	Rigid	Module 24V AC ¹⁾	120H0265	120H0267	-	120H0271
		Rigid	Module 110-240 V ¹⁾	120H0273	120H0275	120H0277	120H0279
SH240	Brazed	Rigid	Module 24V AC ¹⁾	120H0289	120H0291	-	120H0295
		Rigid	Module 110-240 V ¹⁾	120H0297	120H0299	120H0301	120H0303
SH295	BRAZED	Rigid	Module 24V AC ¹⁾	120H0851	120H0825	-	120H0841
		Rigid	Module 110-240 V ¹⁾	120H0853	120H0827	120H0835	120H0843
SH380	Brazed	Rigid	Module 24V AC ¹⁾	120H0151	120H0253	-	120H0261
		Rigid	Module 110-240 V ¹⁾	120H0152	120H0255	120H0259	120H0263
SH485	Brazed	Rigid	Module 24V AC ¹⁾	-	120H1062	-	120H1072
		Rigid	Module 110-240 V ¹⁾	-	120H1064	120H1098	120H1074

¹⁾ Electronic motor protection, module located in terminal box

Technical data and ordering

SH - Scroll compressors - R410A - 50 Hz

Performance table

Compressor model	To	-20			-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	
SH090-4	35	9700	4.5	12100	4.6	15000	4.7	18200	4.8	22000	4.8	26300	4.9	31200	4.9	36800	4.9	
	45	8500	5.6	10700	5.7	13200	5.7	16200	5.8	19600	5.9	23500	5.9	28000	6.0	33000	6.0	
	55	-	-	-	-	11300	7.1	13900	7.1	16900	7.2	20400	7.3	24400	7.3	28900	7.4	
SH105-4	35	11200	5.4	14100	5.5	17400	5.6	21400	5.7	25900	5.7	31200	5.9	37200	6.0	44000	6.1	
	45	10200	6.7	12800	6.7	15900	6.8	19400	6.8	23500	6.9	28100	7.0	33400	7.2	39500	7.3	
	55	-	-	-	-	13900	8.4	17000	8.4	20600	8.5	24600	8.5	29200	8.6	34500	8.8	
SH120-4	35	13100	5.9	16300	6.0	20100	6.1	24500	6.2	29500	6.3	35300	6.4	41900	6.5	49400	6.5	
	45	11400	7.4	14300	7.4	17800	7.5	21800	7.6	26300	7.7	31600	7.8	37600	7.9	44400	7.9	
	55	-	-	-	-	15200	9.3	18700	9.4	22800	9.5	27400	9.6	32700	9.6	38800	9.7	
SH140-4	35	15700	6.8	19300	6.9	23500	7.0	28400	7.0	34000	7.1	40400	7.2	47700	7.2	56000	7.2	
	45	13700	8.3	17000	8.4	20900	8.5	25400	8.6	30500	8.6	36400	8.7	43200	8.8	50800	8.8	
	55	-	-	-	-	18000	10.5	22000	10.5	26500	10.6	31800	10.7	37900	10.7	44800	10.8	
SH161-4	35	17300	7.8	21500	7.9	26300	7.9	31900	8.0	38300	8.0	45700	8.1	54100	8.2	63600	8.4	
	45	15100	9.8	18900	9.8	23300	9.8	28400	9.8	34300	9.9	41000	9.9	48700	10.0	57400	10.1	
	55	-	-	-	-	19900	12.4	24300	12.3	29500	12.3	35500	12.3	42400	12.3	50200	12.3	
SH180-4	35	19200	9.1	24000	9.1	29600	9.1	36000	9.2	43500	9.2	52100	9.2	61800	9.3	72700	9.4	
	45	16600	11.3	21000	11.3	26200	11.3	32100	11.3	39000	11.3	46800	11.3	55700	11.3	65800	11.4	
	55	-	-	-	-	22300	14.1	27600	14.1	33700	14.1	40700	14.1	48700	14.0	57800	14.0	
SH184-4	35	20200	8.7	24900	8.8	30300	9.0	36700	9.2	44000	9.4	52400	9.5	61900	9.7	72700	9.8	
	45	17800	10.6	22100	10.8	27100	10.9	32800	11.1	39400	11.2	47000	11.4	55700	11.6	65500	11.8	
	55	-	-	-	-	23400	13.4	28400	13.5	34300	13.6	41000	13.8	48700	14.0	57500	14.2	
SH240-4	35	26700	12.0	33200	12.0	40700	12.1	49200	12.1	59000	12.2	70200	12.3	82800	12.4	97100	12.6	
	45	23300	14.8	29300	14.9	36100	15.0	43900	15.0	52800	15.1	63000	15.1	74500	15.2	87400	15.3	
	55	-	-	-	-	30900	18.6	37800	18.6	45800	18.7	54800	18.7	65100	18.8	76800	18.8	
SH295-4	35	32700	14.5	40600	14.6	49800	14.7	60300	14.8	72400	14.9	86100	15.1	101700	15.5	119200	15.9	
	45	28700	17.9	35800	18.1	44100	18.2	53600	18.3	64600	18.3	77100	18.5	91200	18.7	107200	18.9	
	55	-	-	-	-	37800	22.4	46200	22.6	56000	22.7	67100	22.7	79900	22.9	94300	23.0	
SH380-4	35	40400	18.4	50000	18.6	61100	18.7	74000	18.8	88900	19.0	105900	19.2	125300	19.6	147200	20.2	
	45	35500	22.3	44200	22.7	54300	22.9	66000	23.0	79600	23.1	95100	23.3	112900	23.5	133000	23.8	
	55	-	-	-	-	46600	28.0	57000	28.2	69000	28.3	82900	28.5	98900	28.6	117100	28.8	
SH485-4	35	52600	23.0	64800	23.5	78900	23.8	95400	24.1	114400	24.1	136200	23.9	161100	23.4	189400	22.6	
	45	46700	28.0	57700	28.4	70600	28.8	85400	29.2	102500	29.4	122200	29.5	144700	29.4	170300	29.0	
	55	-	-	-	-	61200	35.0	74300	35.4	89400	35.8	106900	36.0	126900	36.1	149800	36.0	

To: Evaporating temperature in [°C]
Subcooling: 8.3 K

Tc: Condensing temperature in [°C]
Superheat: 11.1 K

Pe: Power input in [kW]
Voltage: 400 V / 3 / 50 Hz

Qo: Cooling capacity in [W]



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

SH - Scroll compressors - R410A - 60 Hz

Performance table

Compressor model	To	-20			-15		-10		-5		0		5		10		15	
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
SH090	35	11500	5.53	14400	5.56	17800	5.61	21800	5.66	26400	5.72	31600	5.79	37600	5.87	44400	5.96	
	45	10000	6.84	12700	6.87	15800	6.90	19500	6.94	23600	6.98	28500	7.04	33900	7.11	40200	7.20	
	55	-	-	-	-	13500	8.58	16800	8.60	20500	8.62	24800	8.66	29700	8.71	35300	8.77	
SH105	35	14200	6.51	17500	6.59	21400	6.68	25900	6.78	31000	6.88	37000	6.96	43700	7.03	51300	7.06	
	45	12500	7.91	15600	7.94	19200	8.01	23300	8.10	28000	8.21	33500	8.33	39700	8.44	46800	8.55	
	55	-	-	-	-	16600	9.76	20300	9.81	24500	9.90	29400	10.01	35100	10.15	41500	10.29	
SH120	35	16000	7.15	19900	7.26	24500	7.38	29800	7.51	35800	7.67	42800	7.85	50700	8.06	59700	8.31	
	45	14000	8.80	17600	8.88	21800	8.98	26600	9.08	32200	9.21	38500	9.36	45700	9.55	53900	9.77	
	55	-	-	-	-	18700	11.08	23000	11.14	28000	11.22	33700	11.32	40100	11.46	47500	11.63	
SH140	35	19100	8.18	23400	8.31	28500	8.44	34400	8.59	41200	8.73	49000	8.88	57900	9.02	67900	9.16	
	45	16900	9.97	20900	10.07	25500	10.19	30900	10.32	37100	10.47	44300	10.63	52400	10.80	61700	10.96	
	55	-	-	-	-	22100	12.47	26900	12.57	32400	12.70	38800	12.85	46100	13.01	54500	13.18	
SH161	35	21400	9.22	26300	9.34	32100	9.47	38700	9.60	46400	9.75	55200	9.91	65200	10.09	76600	10.28	
	45	18700	11.37	23300	11.47	28500	11.56	34600	11.67	41600	11.79	49600	11.92	58800	12.07	69200	12.24	
	55	-	-	-	-	24500	14.34	29900	14.40	36100	14.48	43200	14.56	51500	14.67	60800	14.79	
SH180	35	23400	10.85	29300	10.89	36100	10.93	44000	10.96	53200	11.00	63600	11.03	75500	11.07	88900	11.11	
	45	20300	13.46	25700	13.48	31900	13.51	39200	13.54	47600	13.56	57200	13.59	68100	13.62	80400	13.65	
	55	-	-	-	-	27200	16.86	33600	16.84	41100	16.82	49600	16.81	59400	16.79	70600	16.78	
SH184	35	24500	10.44	30100	10.66	36600	10.89	44100	11.11	52700	11.32	62600	11.51	73800	11.66	86500	11.76	
	45	21600	12.68	26700	12.87	32700	13.08	39500	13.31	47500	13.55	56500	13.77	66800	13.98	78500	14.16	
	55	-	-	-	-	28300	15.90	34400	16.09	41500	16.31	49600	16.53	58900	16.76	69500	16.98	
SH240	35	32800	14.32	40400	14.41	49200	14.48	59400	14.56	71200	14.69	84600	14.89	100000	15.20	117300	15.65	
	45	28800	17.53	35700	17.71	43800	17.83	53000	17.92	63700	18.01	75900	18.14	89900	18.33	105800	18.62	
	55	-	-	-	-	37800	21.90	46000	22.07	55400	22.20	66300	22.32	78700	22.46	93000	22.66	
SH295	35	40300	17.44	49600	17.66	60300	17.86	72800	18.07	87200	18.37	103700	18.79	122400	19.39	143600	20.23	
	45	35500	21.18	43900	21.55	53700	21.82	65000	22.04	78000	22.26	93000	22.54	110100	22.93	129400	23.48	
	55	-	-	-	-	46400	26.60	56400	26.92	68000	27.18	81300	27.42	96500	27.69	113800	28.06	
SH380	35	48700	22.23	60200	22.44	73600	22.71	89200	23.02	107100	23.37	127600	23.77	151000	24.19	177500	24.65	
	45	42800	27.08	53300	27.23	65400	27.44	79600	27.69	96000	28.00	114800	28.35	136300	28.73	160800	29.15	
	55	-	-	-	-	56400	33.48	68900	33.68	83500	33.94	100400	34.24	119900	34.58	142100	34.97	
SH485	35	63100	28.00	77700	28.38	94700	28.81	114500	29.22	137400	29.50	163800	29.56	193900	29.33	228200	28.71	
	45	55800	34.23	69100	34.42	84500	34.79	102400	35.24	123100	35.69	147100	36.05	174500	36.23	205800	36.14	
	55	-	-	-	-	73300	42.35	89200	42.68	107600	43.12	129000	43.58	153500	43.99	181700	44.24	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Pe: Power input in [kW]

Qo: Cooling capacity in [W]

Subcooling: 8.3 K

Superheat: 11.1 K

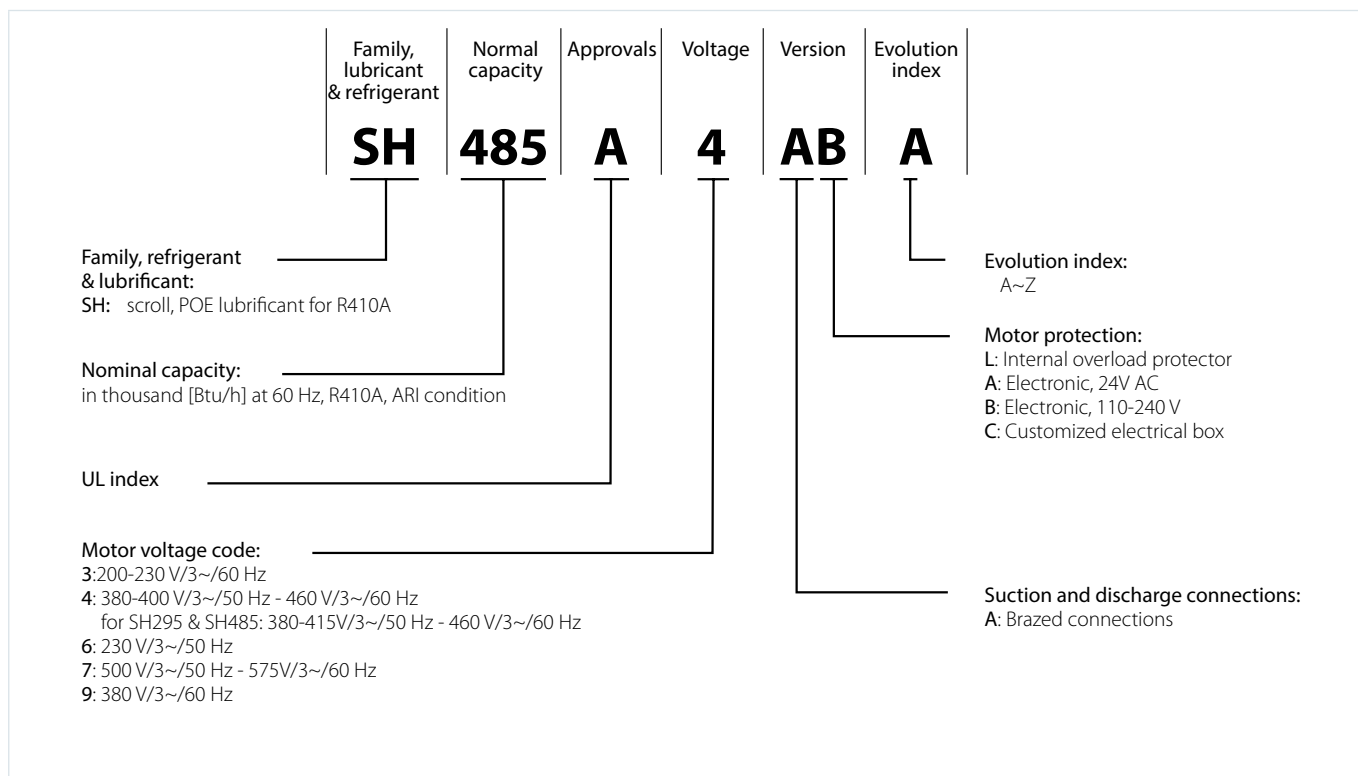
Voltage: 400 V / 3 / 60 Hz



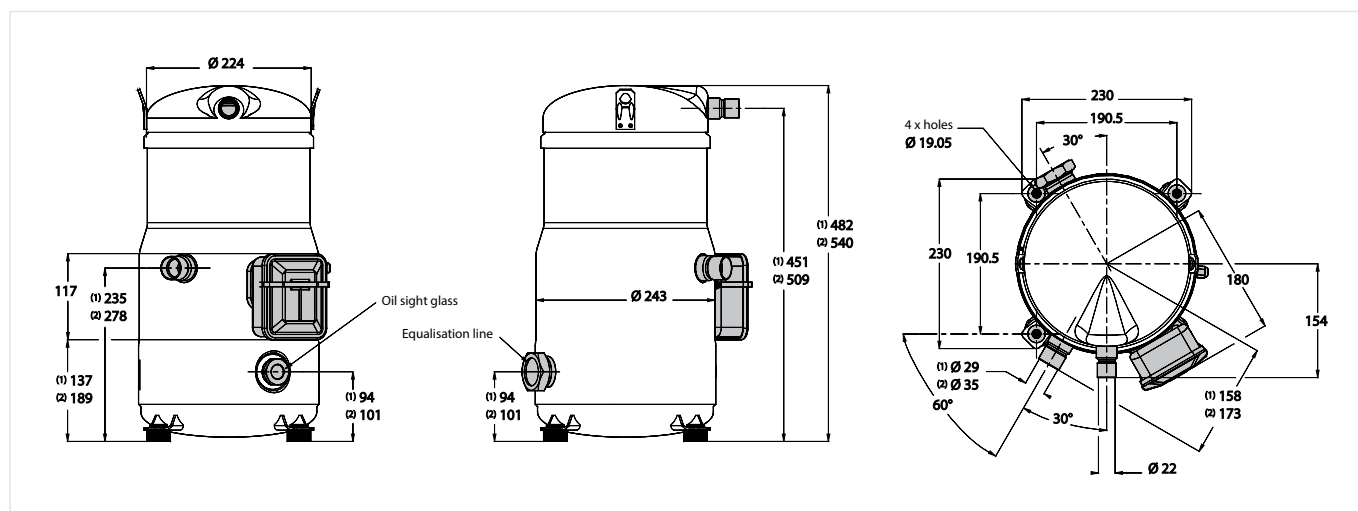
For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Nomenclature and Dimensions



SH090 / 105 / 120 / 140³⁾ / 161³⁾



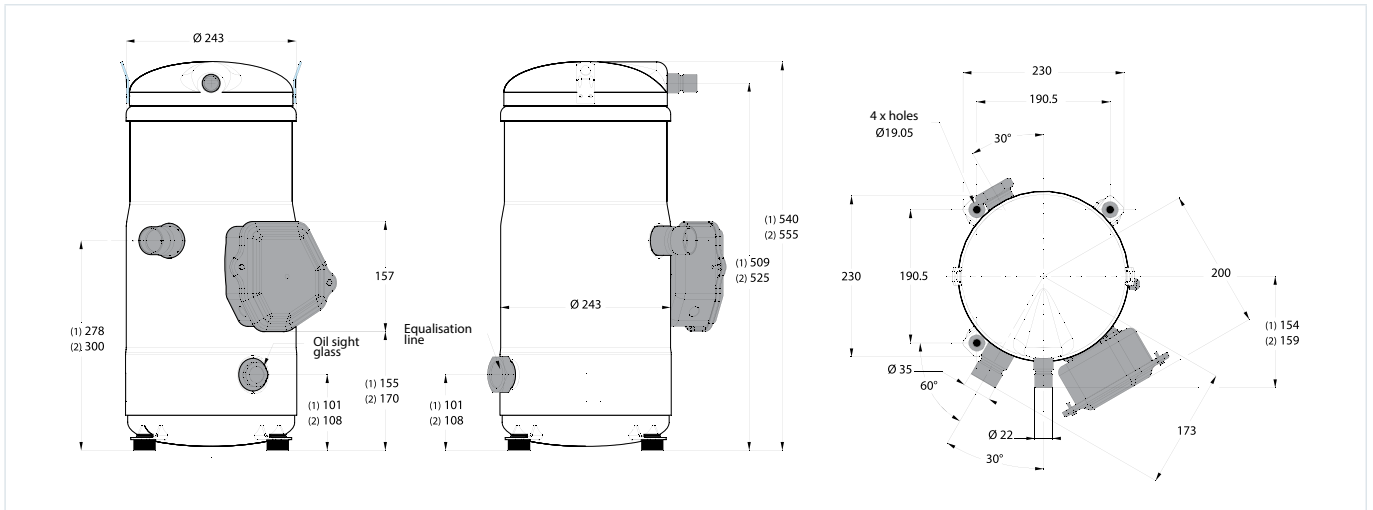
¹⁾ SH090

²⁾ SH105 / 120 / 140 / 161

³⁾ except code 3

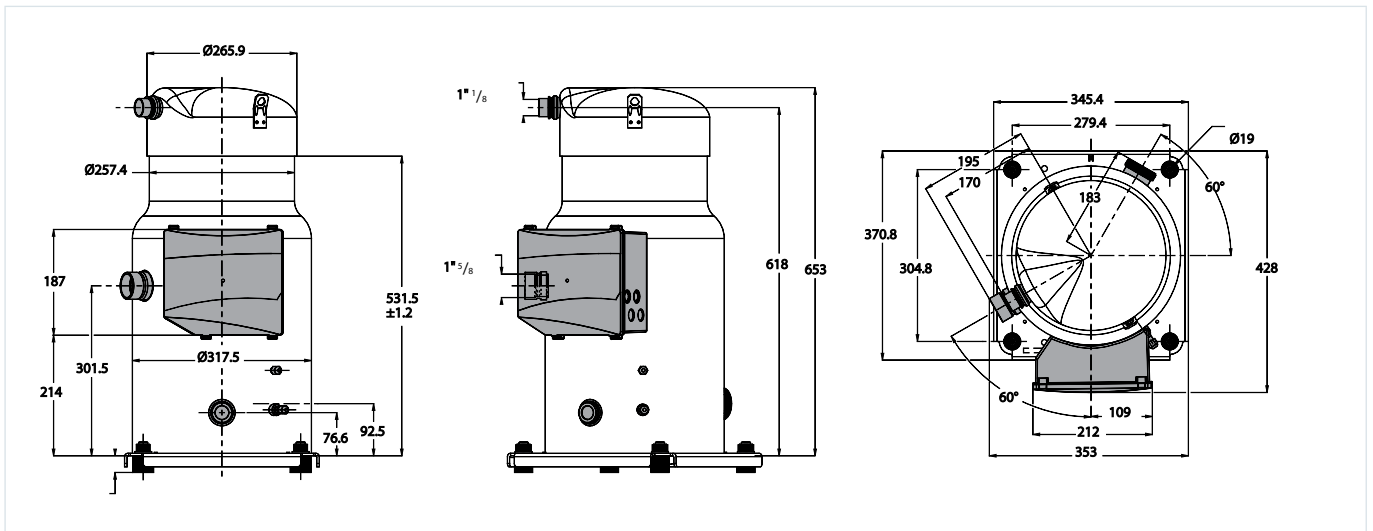
Dimensions

SH 140 / 161 code 3 and SH184

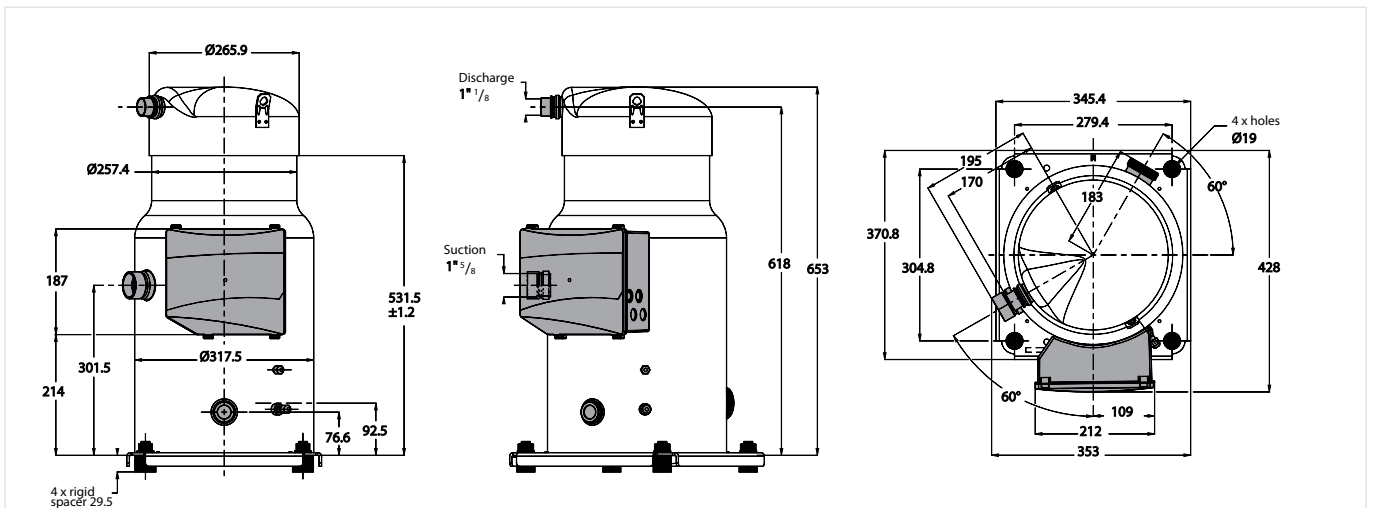


1) SH140/161 code 3
2) SH184

SH380-485 (except code 3)



SH180-240-295



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Technical data

Tandem models

Ordering

CP1		CP2		Tandem model	Suction from	Washer reference	Washer Ø [mm]	Washer in suction of	Kit code no.
SH090	+	SH090	=	SH182	Left				7777044
					Right		Not needed		
SH090	+	SH105	=	SH195	Left	5312497P03	23	CP2	7777043
					Right	5312497P03	23	CP2	
SH090	+	SH120	=	SH210	Left	5312497P01	25	CP2	7777043
					Right	5312497P02	24	CP1	
SH105	+	SH105	=	SH212	Left				7777044
					Right		Not needed		
SH090	+	SH140	=	SH230	Left				7777043
					Right		Not needed		
SH120	+	SH120	=	SH242	Left				7777044
					Right		Not needed		
SH120	+	SH140	=	SH260	Left				7777042
					Right	5312497P01	25	CP1	
SH120	+	SH161	=	SH281	Left	5312497P01	25	CP1	7777042
					Right	5312497P03	23	CP1	
SH140	+	SH140	=	SH282	Left				7777044
					Right		Not needed		
SH140	+	SH161	=	SH301	Left	5312497P05	26	CP1	7777042
					Right				
SH120	+	SH184	=	SH304	Left	5312497P03	23	CP1	7777052
					Right				
SH161	+	SH161	=	SH322	Left				7777044
					Right		Not needed		
SH140	+	SH184	=	SH324	Left	5312479P06	35	CP1	7777052
					Right				
SH161	+	SH184	=	SH345	Left	5312479P05	26	CP1	7777052
					Right				
SH180	+	SH180	=	SH360	Left				7777041
					Right		Not needed		
SH184	+	SH184	=	SH368	Left				7777054
					Right		Not needed		
SH180	+	SH240	=	SH420	Left	5311579P01	31	CP1	7777037
					Right	5311579P01	31	CP1	
SH180	+	SH295	=	SH475	Left	5311579P04	26	CP1	7777038
					Right	5311579P04	26	CP1	
SH240	+	SH240	=	SH482	Left				7777041
					Right		Not needed		
SH240	+	SH294	=	SH535	Left	5311579P01	31	CP1	7777037
					Right	5311579P01	31	CP1	
SH240	+	SH295	=	SH535	Left	5311579P01	31	CP1	7777037
					Right	5311579P01	31	CP1	
SH180	+	SH380	=	SH560	Left	5311579P04	26	CP1	7777038
					Right	5311579P04	26	CP1	
SH295	+	SH295	=	SH590	Left				7777041
					Right		Not needed		
SH240	+	SH380	=	SH620	Left	5311579P05	29	CP1	7777048
					Right	5311579P05	29	CP1	
SH295	+	SH380	=	SH675	Left	5311579P01	31	CP1	7777037
					Right	5311579P01	31	CP1	
SH240	+	SH485	=	SH725	Left	5311579P09	24	CP1	120Z0569
					Right				
SH380	+	SH380	=	SH760	Left				7777041
					Right		Not needed		
SH295	+	SH485	=	SH780	Left	5311579P07	27	CP1	120Z0551
					Right				
SH380	+	SH485	=	SH865	Left	5311579P08	30	CP1	120Z0550
					Right				
SH485	+	SH485	=	SH970	Left				120Z0578
					Right		Not needed		

Technical data

Trio models

Ordering

CP1	CP2	CP3	Trio model	Suction from	Washer reference	Washer Ø [mm]	Washer in suction of	Kit code no.			
SH180	+	SH180	+	SH180	=	SH550	Left	5311579P02	33	CP3	7777040
								Right	5311579P03	34.5	CP1 and CP3
SH184	+	SH184	+	SH184	=	SH552	Right	5312497P05	33	CP1 and CP3	120Z0640
								Left	5311579P02	33	CP3
SH294	+	SH294	+	SH294	=	SH885	Right	5311579P03	34.5	CP1 and CP3	7777039
								Left	5311579P08	33	CP3
SH240	+	SH240	+	SH240	=	SH720	Right	5311579P03	34.5	CP1 and CP3	7777039
								Left	5311579P08	33	CP3
SH295	+	SH295	+	SH295	=	SH885	Right	5311579P03		CP1 and CP3	7777039
								Left	5311579P08	33	CP3
SH380	+	SH380	+	SH380	=	SH1140	Right	5311579P05	Not needed		7777049
								Left	5311579P01/ 5311579P05	29/31	CP1 and CP3
SH485	+	SH485	+	SH485	=	SH1455	Right	5311579P02	33	CP2 and CP3	7777040
								Left			

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SY / SZ, S-Series, Scroll compressors

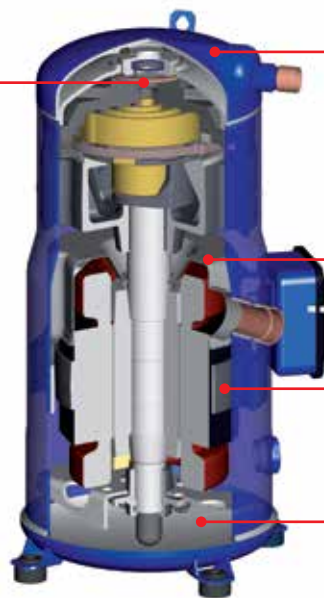
By combining an in-depth understanding of customer needs with continuous investment in product technology Danfoss is able to offer you the SY / SZ series, which comprise a 7-30TR industry-leading range of scroll compressors optimized for rooftop and chiller applications.

Available in a large variety of single and manifold models for R407C, R134a. Well established technology with proven track records.

Features SY / SZ



New PTFE spring seal for even lower leaks



Heat shield that lowers the heat transfer between discharge and suction gas and the acoustic level

Patented motor cap

Patented motor centring spacer

Improved lower bearing centring

Facts

S-Series compressor design

- Environmentally-friendly lead-free bearings

- Prepared for manifolding with oil sight glass and oil equalizer

- Easy maintenance with oil drain tube

Technical data and ordering

Compressor model	Nominal Cap. 60 Hz	Nominal cooling capacity		Power input	COP	E.E.R.	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾
	[TR]	[W]	[Btu/h]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm ³ /rev]	[m ³ /h]	[dm ³]	[kg]
SZ084	7	19 300	65 900	6.13	3.15	10.8	114.5	19.9	3.25	64
SZ090	7.5	20 400	69 600	6.45	3.16	10.8	120.5	21	3.25	65
SZ100	8	21 600	73 700	6.84	3.15	10.8	127.2	22.1	3.25	65
SZ110	9	24 600	84 000	7.76	3.17	10.8	144.2	25.1	3.25	73
SZ120	10	28 600	97 600	8.99	3.17	10.8	166.6	29	3.25	73
SZ147	12	34 900	119 079	9.92	3.52	12	193.5	33.7	3.3	67
SZ148	12	35 100	119 800	10.99	3.19	10.9	199	34.6	3.6	88
SZ161	13	38 000	129 700	11.84	3.21	11	216.6	37.7	3.6	88
SZ175	14	40 100	136 900	12.67	3.17	10.8	233	40.5	6.2	100
SZ185	15	43 100	147 100	13.62	3.16	10.8	249.9	43.5	6.2	100
SY240	20	59 100	201 700	18.55	3.19	10.9	347.8	60.5	8	150
SY300	25	72 700	248 100	22.73	3.2	10.9	437.5	76.1	8	157
SY380	30	89 600	305 800	27.59	3.25	11.1	531.2	92.4	8.4	158

TR: Ton of Refrigeration

COP: Coefficient Of Performance

EER: Energy Efficiency Ratio

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

Data given for code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/ODSG

Rating conditions

	SY compressors	SZ compressors
Refrigerant	–	R407C
Frequency	50 Hz	50 Hz
Standard rating conditions	ARI standard conditions	–
Evaporating temperature	7.2 °C	7.2 °C (dew point)
Condensing temperature	54.4 °C	54.4 °C (dew point)
Sub-cooling	8.3 K	8.3 K
Superheat	11.1 K	11.1 K

Subject to modification without prior notification

For full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/odsg

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Technical data and ordering

Compressor model	Nominal Cap. 60 Hz	Nominal cooling capacity		Power input	COP	E.E.R.	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾
	[TR]	[W]	[Btu/h]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm ³ /rev]	[m ³ /h]	[dm ³]	[kg]
SZ084	7	22 500	76 800	7.1	3.19	10.9	114.5	24.1	3.25	64
SZ090	7.5	24 400	83 300	7.6	3.2	10.9	120.5	25.3	3.25	65
SZ100	8	26 500	90 400	8.2	3.24	11.1	127.2	26.7	3.25	65
SZ110	9	30 100	102 700	9.3	3.24	11.1	144.2	30.3	3.25	73
SZ120	10	34 800	118 800	10.7	3.24	11.1	166.6	35	3.25	73
SZ147	12	42 300	144 328	12.03	3.52	12	193.5	40.6	3.3	67
SZ148	12	42 600	145 400	13.3	3.19	10.9	199	41.8	3.6	88
SZ161	13	46 000	157 000	14.3	3.21	11	216.6	45.5	3.6	88
SZ175	14	48 700	166 200	15.3	3.19	10.9	233	48.9	6.2	100
SZ185	15	51 800	176 800	16.4	3.15	10.8	249.9	52.5	6.2	100
SY240	20	71 100	242 700	22.7	3.14	10.7	347.8	73	8	150
SY300	25	87 900	300 000	27.5	3.2	10.9	437.5	91.9	8	157
SY380	30	107 300	366 200	33.5	3.2	10.9	531.2	111.6	8.4	158

TR: Ton of Refrigeration

COP: Coefficient Of Performance

EER: Energy Efficiency Ratio

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

Data given for code 4 compressor, for full data details and capacity tables refer to Online Datasheet Generator: www.danfoss.com/ODSG

Rating conditions

	SY compressors	SZ compressors
Refrigerant	-	R407C
Frequency	60 Hz	60 Hz
Standard rating conditions	ARI standard conditions	-
Evaporating temperature	7.2 °C	7.2 °C (dew point)
Condensing temperature	54.4 °C	54.4 °C (dew point)
Sub-cooling	8.3 K	8.3 K
Superheat	11.1 K	11.1 K

Subject to modification without prior notification

For full data details and capacity tables refer to Online Datasheet Generator : www.danfoss.com/odsg

Technical data and ordering

SZ - Scroll compressors - R407C / R134a

Ordering single pack

Compressor model	Connections	Motor protection	Code no.		
			3	4	9
			200-230 V/3/60 Hz	460 V/3/60 Hz 380-400 V/3/50 Hz	380 V/3/60 Hz
SZ084	Brazed	Internal	–	SZ084-4VI	–
SZ090	Brazed	Internal	SZ090-3VI	SZ090-4VI	SZ090-9VI
SZ100	Brazed	Internal	SZ100-3VI	SZ100-4VI	SZ100-9VI
SZ110	Brazed	Internal	SZ110-3VI	SZ110-4VI	SZ110-9VI
SZ120	Brazed	Internal	SZ120-3VI	SZ120-4VI	SZ120-9VI
SZ147	Brazed	Internal	–	120H1096	–
SZ148	Brazed	Internal	SZ148-3VAI	SZ148-4VAI	SZ148-9VAI
SZ161	Brazed	Internal	SZ161-3VAI	SZ161-4VAI	SZ161-9VAI
SZ175	Brazed	Thermostat	–	SZ175-4CAI	–
	Rotolock	Thermostat	–	SZ175-4RI	–
SZ185	Brazed	Thermostat	SZ185-3CAI	SZ185-4CAI	SZ185-9CAI
	Brazed	Module 24V AC	–	SZ185-4PCI	–
	Rotolock	Thermostat	SZ185-3RI	SZ185-4RI	SZ185-9RI

SZ compressors in industrial pack: use numbers from above table and replace the last digit by "M". Example: SZ240A4CAM, except for voltage codes 6 and 7 available in single pack only

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Nomenclature

Family, lubricant & refrigerant	Normal capacity	Approval	Voltage	Version	Evolution index	
SZ SY	185 300	- A	4 7	R CA	C A	Single compressor Single compressor

Family, refrigerant & lubricant:
SY: Scroll, POE lubricant, R417A (R407C for SY185 to 380, R134a for SY240 to 380)
SZ: Scroll, POE lubricant, R407C - R134a (and R404A, R507A for SZ084 to SZ185)

Nominal capacity: _____
 in thousand Btu/h at 60 Hz
 ARI conditions

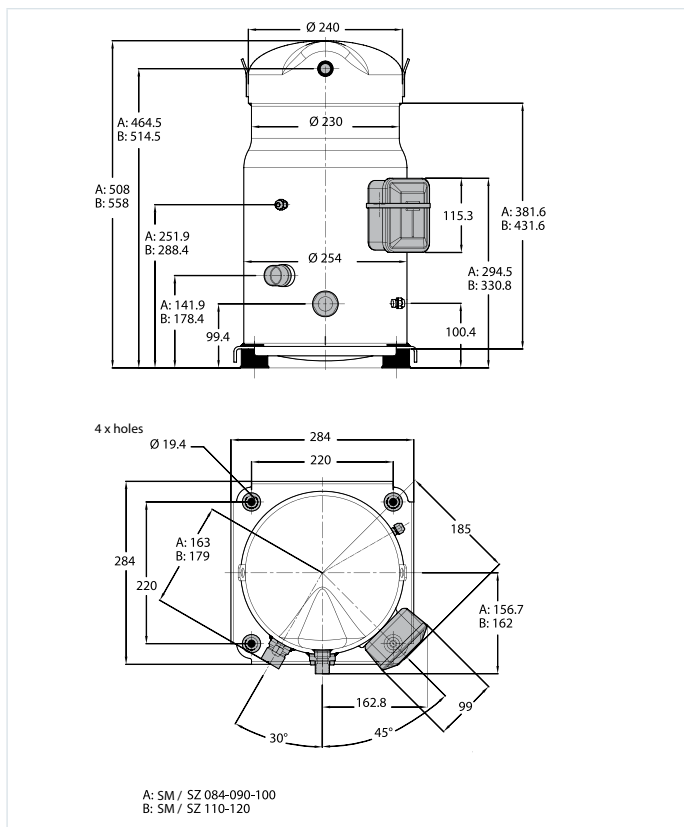
Motor voltage code: _____
3: 200-230 V/3~/60 Hz
4: 380-400 V/3~/50 Hz - 460 V/3~/60 Hz
 SY380: 380-415V/3~/50 Hz - 460 V/3~/60 Hz
6: 230 V/3~/50 Hz
7: 500 V/3~/50 Hz - 575V/3~/60 Hz
9: 380 V/3~/60 Hz
 SY380: 380-400 V/3~/60 Hz

Motor protection type		Connection	Module voltage	Applies to
Internal overload protector	V	: brazed		S 084-090-100-110-120-148-161
	A	: brazed		S 112-124-147
Internal thermostat	C	: brazed		S 185
	R	: rotolock		
Electronic protection module	P	: brazed	24 V AC	S 240 - 300
	X	: brazed	110 - 240 V	
	Y	: rotolock	110 - 240 V	
	CA	C: brazed	A: 24 V AC	S 380
	CB		B: 110 - 240 V	
	PA	P: rotolock	A: 24 V AC	S 240 - 300
PB	B: 110 - 240 V			
CA	C: brazed	A: 24 V AC	S 380	
CB		B: 110 - 240 V		

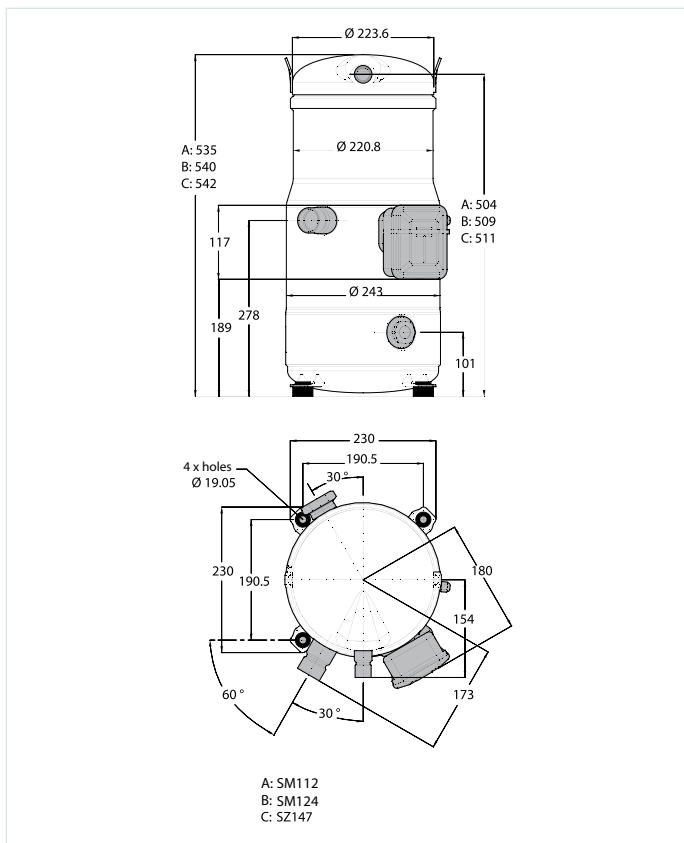
Quick Selection Notes:

Dimensions

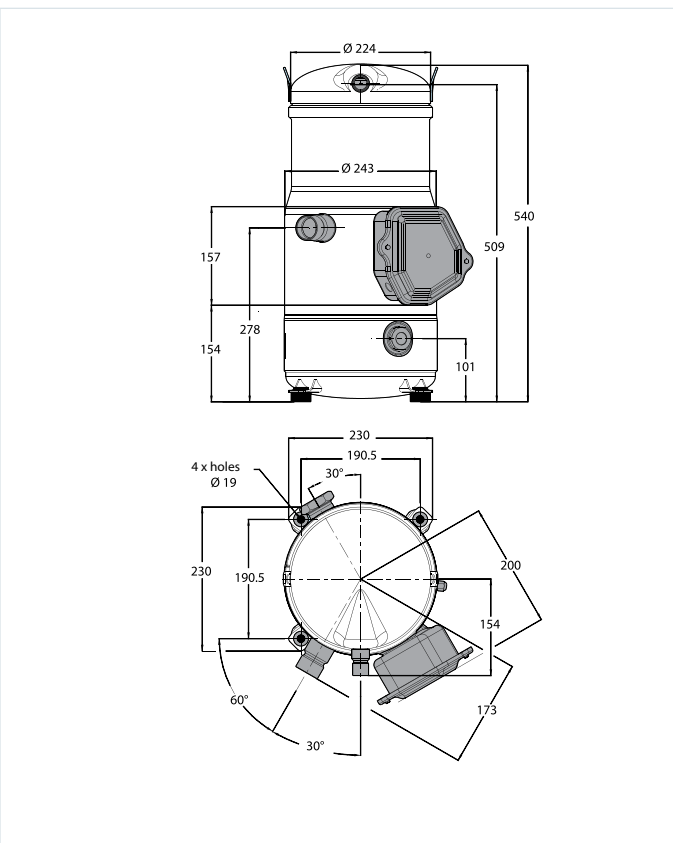
SZ 084-090-100-110-120



SZ 147³⁾



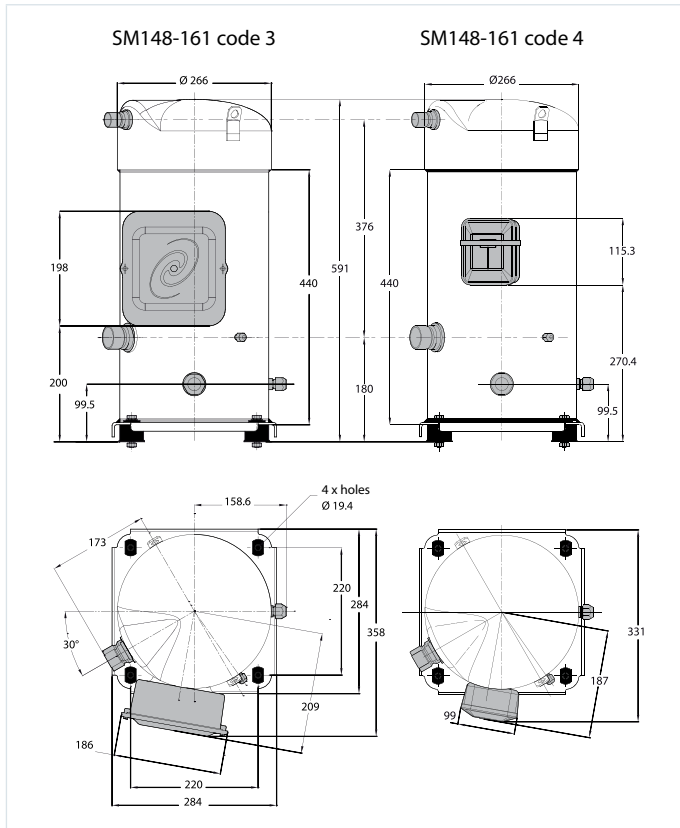
SZ 147 code 3



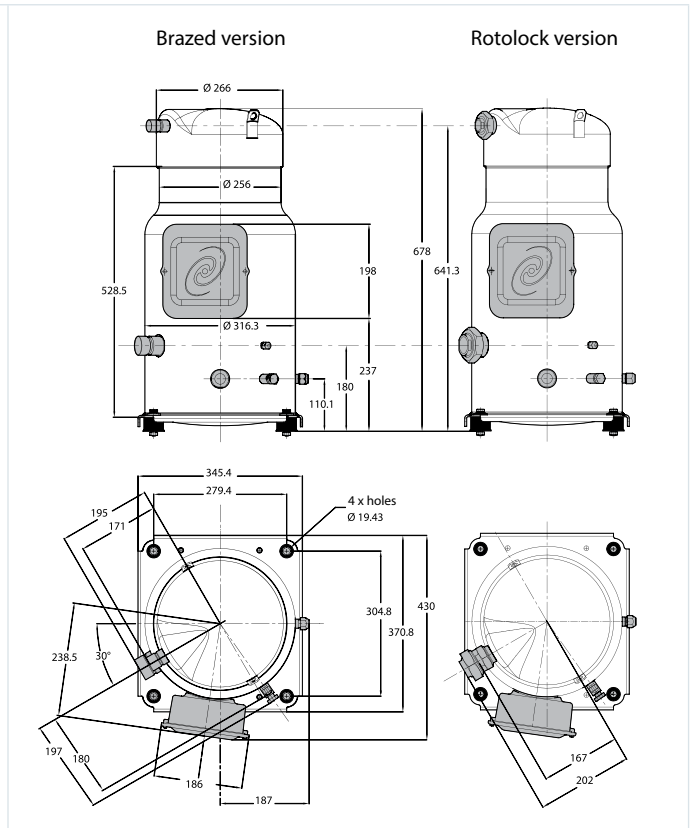
³⁾ except code 3

Dimensions

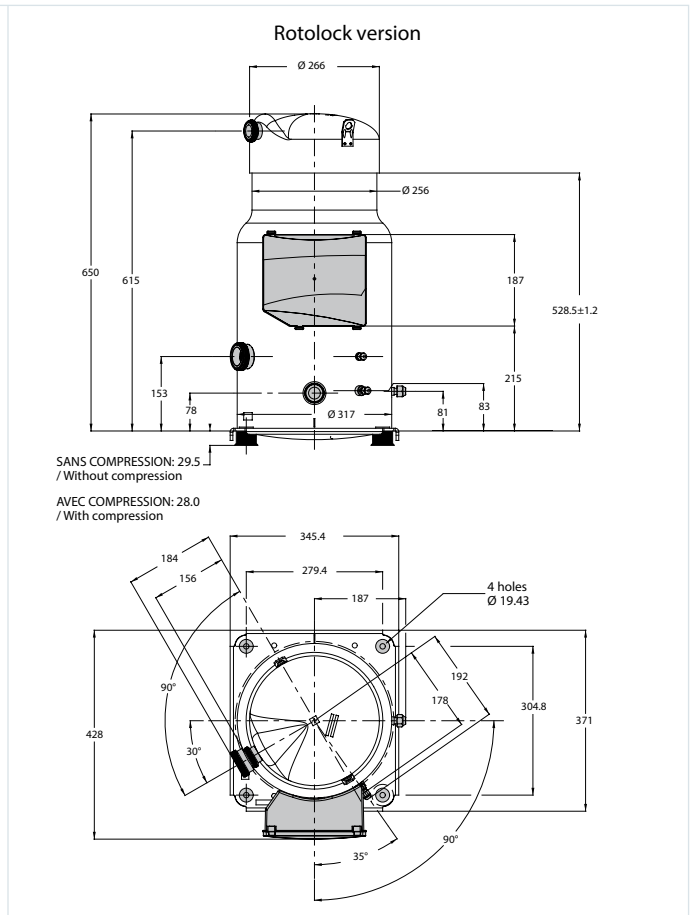
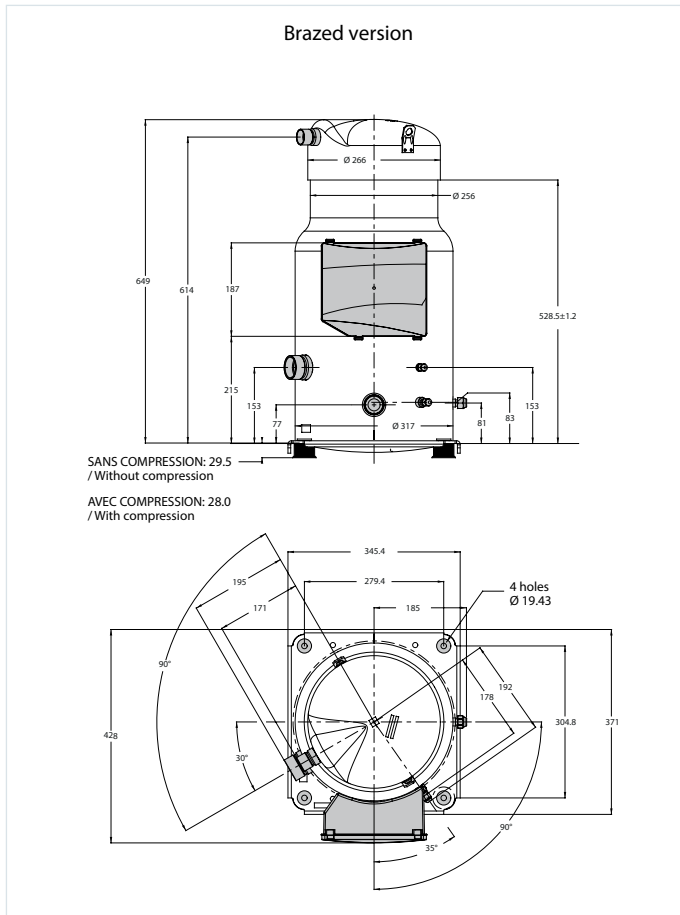
SZ148-161



SZ 175-185 & SY185 - R and C version



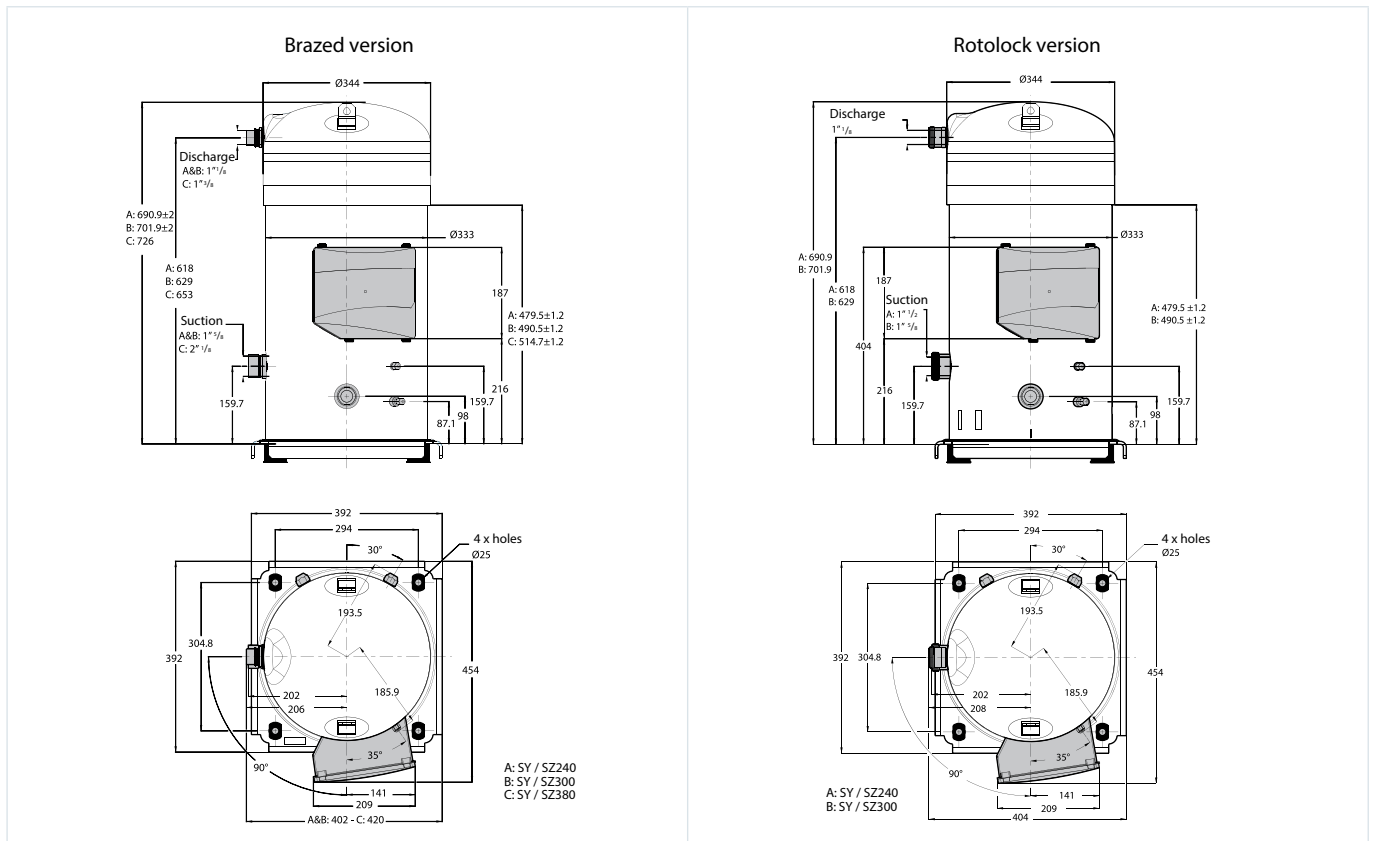
SZ 185 P, X, Y version



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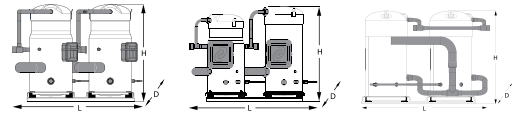
SY / SZ 240-300-380



Technical data

SY / SZ - Scroll compressors - Tandem / Trio

Features



Type	Composition	R404A / R507A	R407C	R134a	Oil management	
Tandem	SZ170	SZ084 + SZ084	o	o	o	Dynamic
	SZ180	SZ090 + SZ090	o	o	o	Dynamic
	SZ200	SZ100 + SZ100	o	o	o	Dynamic
	SZ220	SZ110 + SZ110	o	o	o	Dynamic
	SZ242	SZ120 + SZ120	o	o	o	Dynamic
	SZ268	SZ120 + SZ148	o	o	o	Dynamic
	SZ271	SZ110 + SZ161	o	o	o	Dynamic
	SZ281	SZ120 + SZ161	o	o	o	Dynamic
	SZ296	SZ148 + SZ148	o	o	o	Dynamic
	SZ322	SZ161 + SZ161	o	o	o	Dynamic
	SZ350	SZ175 + SZ175	o	o	o	Dynamic
	SY / SZ370	SY / SZ185 + SY / SZ185	o	o	o	Dynamic
	SY / SZ425	SY / SZ240 + SY / SZ185	-	o	o	Dynamic
	SY / SZ482	SY / SZ240 + SY / SZ240	-	o	o	Static
	SY / SZ485	SY / SZ300 + SY / SZ185	-	o	o	Dynamic
	SY / SZ540	SY / SZ300 + SY / SZ240	-	o	o	Static
	SY / SZ600	SY / SZ300 + SY / SZ300	-	o	o	Static
	SY / SZ620	SY / SZ240 + SY / SZ380	-	o	o	Static
SY / SZ680	SY / SZ300 + SY / SZ380	-	o	o	Static	
SY / SZ760	SY / SZ380 + SY / SZ380	-	o	o	Static	
Trio	SZ444	3 x SZ148	o	o	o	Static
	SZ483	3 x SZ161	o	o	o	Static
	SY / SZ550	3 x SY / SZ185	o	o	o	Dynamic
	SY / SZ720	3 x SY / SZ240	-	o	o	Static
	SY / SZ900	3 x SY / SZ300	-	o	o	Static
	SY / SZ1140	3 x SY / SZ380	-	o	o	Static
Quadro	SZ740	4 x SY / SZ185	o	o	o	Dynamic

o Field assembly
- Not available

SY / SZ - Scroll compressors

Field assembly

Tandem Type	Connection	Configuration example	Oil equalisation fittings	Tandem assembly kit code no.	
				Kit ¹⁾	Kit ²⁾
SZ170	Brazed	SZ084-4VI + SZ084-4VI	2 x 023U801466	7703251	7765012
SZ180	Brazed	SZ090-4VI + SZ090-4VI	2 x 023U801466	7703251	7765012
SZ200	Brazed	SZ100-4VI + SZ100-4VI	2 x 023U801466	7703251	7765012
SZ220	Brazed	SZ110-4VI + SZ110-4VI	2 x 023U801466	7703384	7765025
SZ242	Brazed	SZ120-4VI + SZ120-4VI	2 x 023U801466	7703384	7765025
SZ268	Brazed	SZ148-4VAI + SZ120-4VI	2 x 023U801466	7703390	7765025
SZ271	Brazed	SZ161-4VAI + SZ110-4VI	2 x 023U801466	7703390	7765025
SZ281	Brazed	SZ161-4VAI + SZ120-4VI	2 x 023U801466	7703390	7765025
SZ296	Brazed	SZ148-4VAI + SZ148-4VAI	2 x 023U801466	7703390	7765025
SZ322	Brazed	SZ161-4VAI + SZ161-4VAI	2 x 023U801466	7703390	7765025
SZ350	Rotolock	SZ175-4SCI + SZ175-4SCI	2 x 023U801466	7703371	7765013
SZ350	Brazed	SZ175-4PCI + SZ175-4PCI	2 x 023U801466	-	7765017
SZ370	Rotolock	SZ185-4SCI + SZ185-4SCI	2 x 023U801466	7703371	7765013
SZ370	Brazed	SZ185-4PCI + SZ185-4PCI	2 x 023U801466	-	7765017
SY / SZ425	Brazed	SZ240A4AAI + SZ185-4PCI	023U801666 + 023U801466	-	7765027
SY / SZ485	Rotolock	SZ300A4AAI + SZ185-4PCI	023U801666 + 023U801466	-	7765027

Different tandem assembly kits are available:

¹⁾ Containing the suction and discharge Tees sleeves and the suction oil separator / gas restrictor

²⁾ Containing the suction oil separator / gas restrictor only

Technical data

SY - Scroll compressors

Operation principle

Tandem model	Composition	Suction [in]	Discharge [in]	Oil equalisation line [in]	Outline drawing number
SY/SZ482	S 240 + S 240	2 5/8	1 5/8	1/2	8556013
SY/SZ540	S 300 + S 240	2 5/8	1 5/8	1/2	8556034
SY/SZ600	S 300 + S 300	2 5/8	1 5/8	1/2	8556013
SY/SZ620	S 380 + S 240	2 5/8	2 1/8	1/2	8556036
SY/SZ680 left suction	S 380 + S 300	2 5/8	2 1/8	1/2	8556032
SY/SZ680 right suction	S 380 + S 300	2 5/8	2 1/8	1/2	8556032
SY/SZ760	S 380 + S 380	2 5/8	2 1/8	1/2	8556029

SY - Scroll compressors

Ordering information

Tandem model	Composition		Code number	Washer Ø [mm]	Oil equalisation fitting	Washer in suction of compressor
	Cp1	Cp2				
SY/SZ482	SZ240	SZ240	-	-	2 x 023U801666	-
SY/SZ540	SZ300	SZ240	7777023	29.5	2 x 023U801666	Cp1
SY/SZ600	SZ300	SZ300	-	-	2 x 023U801666	-
SY/SZ620	SZ380	SZ240	-	-	2 x 023U801666	-
SY/SZ680 left suction	SZ380	SZ300	7777036	38	2 x 023U801666	Cp2
SY/SZ680 right suction	SZ380	SZ300	7777036	39	2 x 023U801666	Cp2
SY/SZ760	SZ380	SZ380	-	-	2 x 023U801666	-

Refer to FRCC.PC.003. "Ordering information & packaging" section for other codes or other connections, or other motor protection version or industrial pack version.

SY / SZ - Scroll compressors

Operation principle

Trio model	Composition	Suction [in]	Discharge [in]	Oil equalisation [in]	Trio drawing number
SY/SZ720	3 x S240	2 5/8	1 3/8	1/2	8556018 *) 8556024 **)
SY/SZ900	3 x S300	2 5/8	1 3/8	1/2	8556018 *) 8556024 **)
SY/SZ1140	S x S380	2 5/8	1 3/8	1/2	8556145 *) 8556030 **)

*) Left suction connection **) Right suction connection

SY / SZ - Scroll compressors

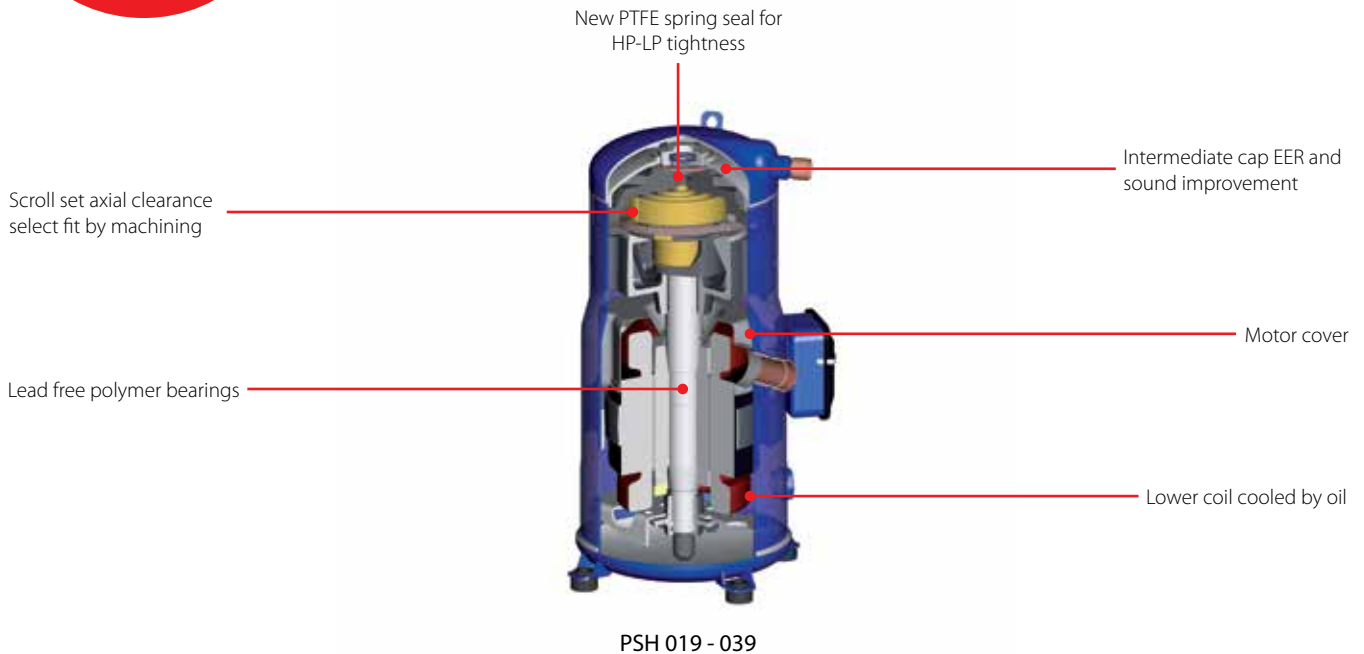
Operation principle

Trio model	Configuration example	Flare adapters	Restrictors
SY/SZ720	3 x SZ240A4CBM	6 x 023U801666	Standard piping and Tee's
SY/SZ900	3 x SZ300A4CBM	6 x 023U801666	Standard piping and Tee's
SY/SZ1140	3 x SZ380A4CBM	6 x 023U801666	Standard piping and Tee's

PSH, Scroll compressor heating optimized - R410A

R410A, single, Danfoss scroll compressors dedicated to heating applications. PSH compressors have an extended operating envelope thanks to a liquid injection system and an integrated electronic module. The product reliability is improved via map monitoring, data storage and bus communication.

PSH compressors are suitable with a patented Surface Sump Heater (SSH) with integrated insulation, which largely contributes to the reduction in sound level.



Facts

- Water heated to 60 °C at -15 °C ambient temperature
- Equipment manufacturers will benefit from the liquid injection system, which offers a wider operating temperature envelope. In comparison with gas or oil furnaces for space heating and Hot Sanitary Water (HSW) production, a heat pump system offers very large energy savings – up to 50%. But until now, most heat pumps have been limited with regard to operating temperatures
- An energy efficient solution that qualifies for the European Ecolabel. The PSH019-039 obtain a compressor COP better than that required for the Ecolabel (3.4W / W). All displacements offer a minimum COP of 3.77, and figures of up 4.11 can be achieved for Air-to-Water heat pumps, depending on the model
- Heat pumps for heating in factories, offices, shopping malls, etc
- A simpler and more efficient solution for OEMs 25% cost reduction. A light PSH compressor requires fewer components in the system. It saves installing a brazed plate heat exchanger, electronic expansion valves and extra piping, thus reducing costs. The new integrated liquid injection valve and controller make it simpler to design and manufacture heat pumps

Technical data and ordering

PSH - Scroll compressors heating optimized

Ordering - Single pack

Compressor	Connections	Code no.		
		Motor code 3	Motor code 4	Motor code 9
PSH019	Full package	120H0963	120H0931	120H0987
PSH023		120H0965	120H0933	120H0989
PSH026		120H0967	120H0935	120H0991
PSH030		120H0969	120H0937	120H0993
PSH034		120H0971	120H0939	120H0995
PSH039		120H0973	120H0941	120H0997
PSH019		Bare compressor	-	120H0951
PSH023	-		120H0953	-
PSH026	-		120H0955	-
PSH030	-		120H0957	-
PSH034	-		120H0959	-
PSH039	-		120H0961	-

PSH - Scroll compressors heating optimized

Compressor specifications

Type	Nominal Heating capacity	Power Input	Heating COP	Swept volume	Displacement ¹⁾	Oil charge	Net weight ²⁾	
								[W]
50 Hz	PSH019	19600	6.62	2.96	88.40	15.40	3.0	58.5
	PSH023	23000	7.47	3.07	103.50	18.00	3.3	64.5
	PSH026	26000	8.65	3.00	116.90	20.30	3.3	64.5
	PSH030	30000	9.60	3.13	133.00	23.12	3.3	67.5
	PSH034	34200	10.95	3.12	151.17	26.40	3.3	69.5
	PSH039	38900	12.19	3.19	170.30	29.60	3.6	72.0
60 Hz	PSH019	23600	7.97	2.96	88.40	18.60	3.0	58.5
	PSH023	28000	8.84	3.17	103.50	21.80	3.3	64.5
	PSH026	31400	10.19	3.08	116.90	24.60	3.3	64.5
	PSH030	35700	11.35	3.15	133.00	27.90	3.3	67.5
	PSH034	40500	12.72	3.18	151.17	31.90	3.3	69.5
	PSH039	46500	14.49	3.21	170.30	35.80	3.6	72.0

Evaporating temperature: -7 °C

Condensing temperature: 50 °C

Superheat: 5 K

Subcooling: 4 K

Refrigerant: R410A

¹⁾ Displacement at nominal speed: 2900 rpm at 50 Hz. 3500 rpm at 60 Hz

²⁾ Net weight with oil charge

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 50 Hz

Cooling performance table - Heating optimized

Type	Te	-30		-20		-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
PSH019-4	20	7040	3.48	11140	3.59	13810	3.66	16930	3.75	20570	3.87	24740	4.03	29510	4.23	-	-	-	-
	30	6170	4.26	10070	4.36	12560	4.41	15470	4.48	18840	4.57	22710	4.68	27130	4.83	32130	5.02	37760	5.27
	40	5230	5.25	8820	5.36	11100	5.40	13750	5.44	16810	5.50	20330	5.58	24340	5.68	28900	5.81	34040	5.99
	50	4230	6.52	7430	6.65	9430	6.68	11770	6.72	14470	6.75	17590	6.79	21160	6.86	25220	6.94	29820	7.06
	60	-	-	5890	8.31	7580	8.35	9550	8.37	11840	8.39	14510	8.41	17580	8.44	21100	8.48	25110	8.55
	68	-	-	-	-	-	-	7600	10.03	9530	10.04	11800	10.04	14440	10.04	17490	10.06	20990	10.09
PSH023-4	20	8570	4.08	13310	4.38	16360	4.52	19940	4.61	24100	4.64	28880	4.58	34340	4.42	-	-	-	-
	30	7470	4.91	11980	5.13	14860	5.29	18220	5.44	22100	5.57	26560	5.66	31650	5.67	37420	5.60	43920	5.41
	40	6310	6.15	10500	6.14	13140	6.25	16220	6.39	19780	6.55	23870	6.70	28540	6.83	33840	6.90	39830	6.90
	50	5080	8.01	8830	7.63	11190	7.61	13940	7.67	17120	7.78	20780	7.93	24990	8.09	29770	8.24	35200	8.36
	60	-	-	6990	9.82	9010	9.60	11370	9.50	14120	9.50	17310	9.57	20980	9.69	25200	9.84	30010	10.00
	68	-	-	-	-	-	-	9100	11.50	11460	11.35	14230	11.31	17450	11.35	21180	11.45	25450	11.59
PSH026-4	20	9490	4.47	15160	4.64	18860	4.76	23220	4.93	28290	5.14	34130	5.41	40800	5.74	-	-	-	-
	30	8350	5.49	13720	5.61	17160	5.69	21200	5.81	25880	5.97	31260	6.17	37410	6.44	44370	6.77	52210	7.18
	40	7140	6.82	12060	6.90	15190	6.95	18840	7.02	23070	7.13	27930	7.28	33490	7.47	39800	7.73	46910	8.05
	50	5840	8.55	10210	8.60	12950	8.63	16160	8.67	19870	8.73	24150	8.82	29050	8.95	34640	9.14	40980	9.38
	60	-	-	8150	10.82	10450	10.82	13140	10.83	16270	10.85	19910	10.90	24100	10.97	28910	11.09	34390	11.26
	68	-	-	-	-	-	-	10490	13.01	13120	13.00	16190	13.01	19770	13.05	23910	13.12	28670	13.23
PSH030-4	20	11280	5.02	17620	5.23	21730	5.34	26560	5.49	32160	5.67	38600	5.90	45950	6.19	-	-	-	-
	30	9960	6.05	15940	6.28	19760	6.38	24220	6.50	29380	6.64	35320	6.81	42080	7.03	49750	7.32	58370	7.69
	40	8580	7.35	14070	7.63	17530	7.74	21570	7.85	26240	7.96	31600	8.10	37720	8.27	44670	8.49	52500	8.77
	50	7130	8.98	12000	9.36	15050	9.50	18590	9.61	22690	9.72	27420	9.84	32840	9.98	39000	10.15	45990	10.37
	60	-	-	9710	11.56	12280	11.74	15270	11.88	18740	12.00	22770	12.12	27420	12.24	32740	12.38	38810	12.56
	68	-	-	-	-	-	-	12350	14.11	15280	14.26	18710	14.39	22690	14.51	27290	14.64	32580	14.80
PSH034-4	20	12690	5.57	20070	5.82	24860	5.97	30460	6.14	36960	6.33	44430	6.52	52940	6.72	-	-	-	-
	30	11140	6.83	18060	6.99	22470	7.12	27620	7.28	33580	7.45	40410	7.65	48200	7.86	57020	8.08	66940	8.30
	40	9560	8.55	15910	8.59	19900	8.67	24530	8.78	29880	8.93	36020	9.10	43030	9.30	50970	9.52	59930	9.76
	50	7930	10.91	13580	10.77	17080	10.78	21140	10.83	25830	10.92	31220	11.05	37380	11.22	44400	11.42	52330	11.64
	60	-	-	11030	13.70	14000	13.61	17430	13.58	21390	13.60	25970	13.66	31230	13.77	37250	13.92	44110	14.11
	68	-	-	-	-	-	-	14190	16.39	17540	16.34	21420	16.33	25920	16.38	31110	16.48	37060	16.62
PSH039-4	20	14480	6.13	22290	6.48	27420	6.70	33450	6.95	40450	7.26	48500	7.63	57660	8.07	-	-	-	-
	30	12950	7.46	20350	7.81	25110	8.01	30690	8.24	37140	8.51	44530	8.83	52930	9.21	62420	9.66	73050	10.20
	40	11290	9.13	18110	9.48	22440	9.67	27480	9.87	33300	10.10	39960	10.38	47530	10.70	56090	11.08	65690	11.54
	50	9450	11.31	15540	11.69	19350	11.86	23780	12.04	28880	12.24	34730	12.47	41400	12.73	48940	13.05	57440	13.43
	60	-	-	12560	14.60	15790	14.77	19520	14.93	23830	15.10	28790	15.28	34470	15.50	40920	15.75	48230	16.05
	68	-	-	-	-	-	-	15680	17.89	19300	18.03	23490	18.19	28320	18.36	33850	18.56	40150	18.80

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Pe: Power input in [kW]

Qo: Cooling capacity in [W]

Subcooling: 4 K

Superheat: 5 K

Frequency: 50 Hz

Subject to modification without prior notification



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 50 Hz

Heating performance table - Heating optimized

Type	T _e	-30			-20		-15		-10		-5		0		5		10		15	
	T _c	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	
PSH019-4	20	10370	3.48	14580	3.59	17310	3.66	20520	3.75	24270	3.87	28600	4.03	33560	4.23	-	-	-	-	
	30	10240	4.26	14240	4.36	16790	4.41	19760	4.48	23210	4.57	27190	4.68	31750	4.83	36940	5.02	42800	5.27	
	40	10250	5.25	13950	5.36	16270	5.40	18960	5.44	22070	5.50	25660	5.58	29780	5.68	34470	5.81	39780	5.99	
	50	10470	6.52	13790	6.65	15830	6.68	18200	6.72	20930	6.75	24090	6.79	27720	6.86	31870	6.94	36580	7.06	
	60	-	-	13840	8.31	15570	8.35	17560	8.37	19880	8.39	22560	8.41	25650	8.44	29220	8.48	33290	8.55	
	68	-	-	-	-	-	-	17200	10.03	19140	10.04	21410	10.04	24050	10.04	27120	10.06	30650	10.09	
PSH023-4	20	12500	4.08	17520	4.38	20710	4.52	24380	4.61	28570	4.64	33300	4.58	38590	4.42	-	-	-	-	
	30	12200	4.91	16920	5.13	19950	5.29	23450	5.44	27460	5.57	32010	5.66	37120	5.67	42810	5.60	49130	5.41	
	40	12230	6.15	16410	6.14	19150	6.25	22370	6.39	26080	6.55	30320	6.70	35110	6.83	40490	6.90	46470	6.90	
	50	12790	8.01	16180	7.63	18520	7.61	21320	7.67	24610	7.78	28420	7.93	32780	8.09	37710	8.24	43250	8.36	
	60	-	-	16440	9.82	18250	9.60	20510	9.50	23260	9.50	26520	9.57	30310	9.69	34680	9.84	39640	10.00	
	68	-	-	-	-	-	-	20170	11.50	22390	11.35	25120	11.31	28380	11.35	32210	11.45	36620	11.59	
PSH026-4	20	13880	4.47	19720	4.64	23540	4.76	28060	4.93	33340	5.14	39450	5.41	46450	5.74	-	-	-	-	
	30	13750	5.49	19230	5.61	22760	5.69	26910	5.81	31740	5.97	37330	6.17	43730	6.44	51020	6.77	59260	7.18	
	40	13840	6.82	18840	6.90	22020	6.95	25750	7.02	30080	7.13	35080	7.28	40830	7.47	47390	7.73	54830	8.05	
	50	14250	8.55	18660	8.60	21430	8.63	24670	8.67	28440	8.73	32810	8.82	37850	8.95	43620	9.14	50190	9.38	
	60	-	-	18780	10.82	21090	10.82	23790	10.83	26940	10.85	30620	10.90	34880	10.97	39810	11.09	45460	11.26	
	68	-	-	-	-	-	-	23280	13.01	25900	13.00	28980	13.01	32590	13.05	36800	13.12	41670	13.23	
PSH030-4	20	16270	5.02	22820	5.23	27050	5.34	32010	5.49	37790	5.67	44460	5.90	52110	6.19	-	-	-	-	
	30	15980	6.05	22190	6.28	26110	6.38	30680	6.50	35980	6.64	42090	6.81	49080	7.03	57030	7.32	66020	7.69	
	40	15890	7.35	21660	7.63	25230	7.74	29370	7.85	34150	7.96	39650	8.10	45940	8.27	53110	8.49	61230	8.77	
	50	16060	8.98	21310	9.36	24490	9.50	28150	9.61	32360	9.72	37210	9.84	42760	9.98	49100	10.15	56300	10.37	
	60	-	-	21200	11.56	23950	11.74	27080	11.88	30680	12.00	34830	12.12	39600	12.24	45060	12.38	51300	12.56	
	68	-	-	-	-	-	-	26380	14.11	29460	14.26	33020	14.39	37120	14.51	41860	14.64	47300	14.80	
PSH034-4	20	17960	5.57	25580	5.82	30500	5.97	36270	6.14	42950	6.33	50600	6.52	59300	6.72	-	-	-	-	
	30	17600	6.83	24670	6.99	29210	7.12	34510	7.28	40630	7.45	47650	7.65	55630	7.86	64660	8.08	74790	8.30	
	40	17660	8.55	24030	8.59	28090	8.67	32840	8.78	38330	8.93	44630	9.10	51830	9.30	59980	9.52	69160	9.76	
	50	18250	10.91	23760	10.77	27280	10.78	31390	10.83	36160	10.92	41680	11.05	48000	11.22	55200	11.42	63340	11.64	
	60	-	-	23990	13.70	26870	13.61	30270	13.58	34250	13.60	38900	13.66	44260	13.77	50430	13.92	57460	14.11	
	68	-	-	-	-	-	-	29700	16.39	32990	16.34	36880	16.33	41420	16.38	46700	16.48	52780	16.62	
PSH039-4	20	20570	6.13	28720	6.48	34060	6.70	40340	6.95	47650	7.26	56060	7.63	65660	8.07	-	-	-	-	
	30	20350	7.46	28090	7.81	33060	8.01	38860	8.24	45570	8.51	53280	8.83	62070	9.21	72000	9.66	83170	10.20	
	40	20340	9.13	27520	9.48	32030	9.67	37280	9.87	43320	10.10	50250	10.38	58150	10.70	67080	11.08	77140	11.54	
	50	20670	11.31	27130	11.69	31120	11.86	35720	12.04	41020	12.24	47100	12.47	54030	12.73	61880	13.05	70750	13.43	
	60	-	-	27040	14.60	30440	14.77	34330	14.93	38810	15.10	43950	15.28	49840	15.50	56540	15.75	64150	16.05	
	68	-	-	-	-	-	-	33420	17.89	37190	18.03	41530	18.19	46520	18.36	52250	18.56	58790	18.80	

T_o: Evaporating temperature in [°C]

T_c: Condensing temperature in [°C]

Pe: Power input in [kW]

H: Heating capacity in [W]

Subcooling: 4 K

Superheat: 5 K

Frequency: 50 Hz

Subject to modification without prior notification



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 60 Hz

Cooling performance table - Heating optimized

Type	T _e	-30			-20			-15			-10			-5			0		5		10		15	
	T _c	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	Q _o	Pe	
PSH019-4	20	8700	4.00	13620	4.35	16810	4.49	20550	4.62	24900	4.74	29910	4.85	35620	4.98	-	-	-	-	-	-	-	-	-
	30	7720	4.89	12350	5.29	15320	5.46	18780	5.61	22790	5.74	27400	5.88	32650	6.02	38610	6.17	45310	6.34	53160	6.59	61330	6.85	69720
	40	6700	5.82	10950	6.26	13640	6.44	16770	6.61	20390	6.76	24550	6.91	29310	7.06	34700	7.22	40780	7.39	48060	7.62	55240	7.89	62160
	50	5620	7.00	9400	7.46	11760	7.65	14510	7.83	17700	7.99	21360	8.14	25560	8.30	30350	8.46	35760	8.63	42350	8.89	49420	51.10	58060
	60	-	-	7670	9.09	9660	9.29	11980	9.47	14680	9.63	17800	9.78	21410	9.94	25530	10.10	30230	10.27	35760	10.52	41420	47.39	48060
	68	-	-	-	-	-	-	9750	11.22	12020	11.38	14680	11.53	17770	11.68	21330	11.83	25430	11.99	30230	12.24	35760	41.83	48060
PSH023-4	20	10290	4.81	16020	5.02	19740	5.16	24110	5.33	29180	5.54	35020	5.79	41670	6.10	-	-	-	-	-	-	-	-	-
	30	9210	5.80	14640	6.00	18110	6.12	22160	6.27	26850	6.45	32230	6.67	38370	6.92	45330	7.23	53160	7.59	61330	7.02	79020	8.62	99240
	40	8080	7.02	13090	7.23	16250	7.35	19930	7.48	24170	7.64	29050	7.82	34620	8.04	40930	8.31	48060	8.62	56240	8.04	99240	11.17	13930
	50	6860	8.54	11340	8.78	14130	8.90	17370	9.03	21120	9.18	25430	9.34	30370	9.54	35990	9.76	42350	10.03	49420	10.27	12160	15.12	19920
	60	-	-	9350	10.72	11720	10.86	14470	11.00	17660	11.14	21350	11.30	25600	11.48	30460	11.68	36000	11.91	42350	12.24	49420	58.06	69720
	68	-	-	-	-	-	-	11880	12.92	14580	13.07	17730	13.23	21390	13.40	25600	13.59	30450	13.81	36000	14.08	42350	51.10	69720
PSH026-4	20	11670	5.40	18260	5.67	22560	5.83	27620	6.03	33510	6.27	40300	6.57	48050	6.94	-	-	-	-	-	-	-	-	-
	30	10400	6.52	16610	6.75	20610	6.88	25290	7.04	30730	7.23	36980	7.47	44120	7.76	52210	8.13	61330	8.57	71420	7.02	99240	12.24	15930
	40	9050	7.95	14750	8.17	18370	8.28	22610	8.40	27510	8.55	33160	8.73	39620	8.95	46960	9.24	55240	9.59	64240	8.04	99240	13.16	17100
	50	7600	9.80	12650	10.02	15830	10.11	19540	10.20	23850	10.31	28830	10.44	34540	10.61	41050	10.82	48420	11.09	57420	10.27	12160	15.12	19920
	60	-	-	10290	12.38	12960	12.46	16090	12.54	19730	12.61	23960	12.70	28850	12.81	34460	12.96	40860	13.16	48060	13.52	56240	62.160	79020
	68	-	-	-	-	-	-	13030	14.84	16090	14.90	19670	14.96	23860	15.03	28700	15.14	34270	15.28	40860	15.64	48060	51.10	69720
PSH030-4	20	13780	5.98	21300	6.25	26190	6.44	31920	6.71	38570	7.06	46210	7.51	54930	8.08	-	-	-	-	-	-	-	-	-
	30	12240	7.26	19280	7.48	23780	7.63	29040	7.83	35130	8.09	42120	8.44	50090	8.89	59120	9.45	69270	10.15	80120	7.02	99240	12.24	15930
	40	10670	8.85	17110	9.06	21170	9.18	25910	9.34	31380	9.54	37670	9.81	44840	10.16	52980	10.61	62160	11.17	72420	8.04	99240	13.16	17100
	50	8990	10.84	14720	11.09	18300	11.21	22460	11.34	27260	11.50	32790	11.71	39120	11.99	46320	12.35	54460	12.80	64240	10.27	12160	15.12	19920
	60	-	-	12070	13.65	15110	13.79	18630	13.92	22710	14.07	27430	14.24	32850	14.47	39050	14.75	46120	15.12	54460	15.52	62160	62.160	79020
	68	-	-	-	-	-	-	15250	16.46	18710	16.61	22740	16.78	27400	16.97	32770	17.22	38930	17.53	46120	17.99	54460	51.10	69720
PSH034-4	20	15400	6.67	23950	6.99	29530	7.24	36080	7.57	43680	7.99	52430	8.53	62400	9.20	-	-	-	-	-	-	-	-	-
	30	13590	8.16	21680	8.39	26860	8.57	32900	8.81	39900	9.14	47920	9.56	57060	10.09	67400	10.76	79020	11.57	92420	7.02	99240	12.24	15930
	40	11800	10.03	19260	10.21	23960	10.34	29420	10.51	35720	10.75	42950	11.07	51180	11.49	60500	12.02	70990	12.68	83420	8.04	99240	13.16	17100
	50	9910	12.43	16590	12.60	20730	12.69	25530	12.81	31060	12.98	37410	13.22	44650	13.54	52870	13.95	62160	14.48	74240	10.27	12160	15.12	19920
	60	-	-	13580	15.70	17090	15.77	21140	15.86	25820	15.98	31210	16.15	37380	16.38	44430	16.69	52440	17.10	64240	17.52	74240	62.160	79020
	68	-	-	-	-	-	-	17220	18.94	21160	19.03	25720	19.15	30980	19.33	37030	19.57	43950	19.90	52440	19.90	64240	51.10	69720
PSH039-4	20	17880	7.41	27450	7.90	33630	8.20	40880	8.54	49280	8.94	58930	9.41	69930	9.97	-	-	-	-	-	-	-	-	-
	30	15910	8.92	24920	9.39	30660	9.66	37350	9.96	45080	10.31	53950	10.71	64060	11.19	75500	11.75	88360	12.41	10420	7.02	99240	12.24	15930
	40	13830	10.84	22120	11.31	27330	11.56	33370	11.84	40350	12.14	48360	12.49	57490	12.90	67840	13.39	79510	13.95	94240	8.04	99240	13.16	17100
	50	11600	13.27	18990	13.78	23580	14.02	28900	14.28	35040	14.56	42100	14.87	50160	15.23	59340	15.64	69720	16.12	83420	10.27	12160	15.12	19920
	60	-	-	15480	16.89	19370	17.15	23880	17.40	29100	17.67	35120	17.95	42040	18.27	49960	18.63	58970	19.04	70990	17.52	74240	62.160	79020
	68	-	-	-	-	-	-	19440	20.47	23850	20.73	28980	21.00	34930	21.29	41780	21.62	49630	21.99	60500	19.90	24240	51.10	69720

T_o: Evaporating temperature in [°C]
T_c: Condensing temperature in [°C]
Pe: Power input in [kW]
Q_o: Cooling capacity in [W]
Subcooling: 4 K
Superheat: 5 K
Frequency: 60 Hz
 Subject to modification without prior notification



For more information and performance with other refrigerants, please refer to Coolselector[®] 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 60 Hz

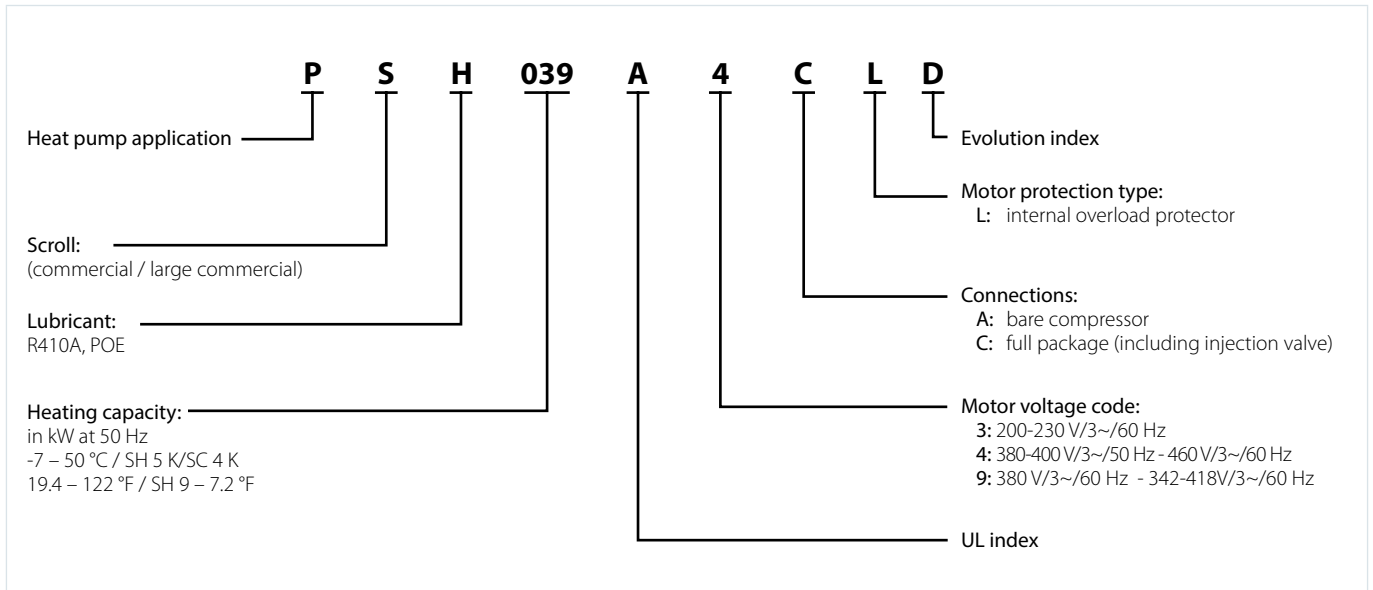
Heating performance table - Heating optimized

Type	Te Tc	-30		-20		-15		-10		-5		0		5		10		15	
		H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe
PSH019-4	20	12490	4.00	17740	4.35	21070	4.49	24930	4.62	29400	4.74	34520	4.85	40340	4.98	-	-	-	-
	30	12360	4.89	17370	5.29	20490	5.46	24100	5.61	28240	5.74	32980	5.88	38360	6.02	44460	6.17	51320	6.34
	40	12230	5.82	16890	6.26	19760	6.44	23040	6.61	26810	6.76	31110	6.91	36000	7.06	41550	7.22	47790	7.39
	50	12260	7.00	16480	7.46	19020	7.65	21940	7.83	25270	7.99	29090	8.14	33430	8.30	38370	8.46	43950	8.63
	60	-	-	16290	9.09	18470	9.29	20960	9.47	23820	9.63	27090	9.78	30830	9.94	35110	10.10	39980	10.27
	68	-	-	-	-	-	-	20390	11.22	22820	11.38	25620	11.53	28850	11.68	32560	11.83	36810	11.99
PSH023-4	20	14880	4.81	20810	5.02	24660	5.16	29190	5.33	34460	5.54	40540	5.79	47480	6.10	-	-	-	-
	30	14740	5.80	20360	6.00	23950	6.12	28140	6.27	33000	6.45	38590	6.67	44970	6.92	52220	7.23	60400	7.59
	40	14770	7.02	19980	7.23	23260	7.35	27060	7.48	31450	7.64	36510	7.82	42290	8.04	48850	8.31	56270	8.62
	50	15000	8.54	19710	8.78	22620	8.90	25980	9.03	29870	9.18	34340	9.34	39460	9.54	45300	9.76	51910	10.03
	60	-	-	19580	10.72	22070	10.86	24960	11.00	28280	11.14	32120	11.30	36540	11.48	41600	11.68	47360	11.91
	68	-	-	-	-	-	-	24190	12.92	27040	13.07	30340	13.23	34160	13.40	38560	13.59	43610	13.81
PSH026-4	20	16920	5.40	23770	5.67	28230	5.83	33480	6.03	39610	6.27	46690	6.57	54810	6.94	-	-	-	-
	30	16730	6.52	23180	6.75	27310	6.88	32140	7.04	37760	7.23	44240	7.47	51670	7.76	60120	8.13	69670	8.57
	40	16780	7.95	22700	8.17	26430	8.28	30780	8.40	35830	8.55	41650	8.73	48330	8.95	55940	9.24	64570	9.59
	50	17130	9.80	22400	10.02	25670	10.11	29470	10.20	33880	10.31	38980	10.44	44850	10.61	51570	10.82	59210	11.09
	60	-	-	22340	12.38	25090	12.46	28280	12.54	32000	12.61	36320	12.70	41310	12.81	47070	12.96	53660	13.16
	68	-	-	-	-	-	-	27460	14.84	30580	14.90	34220	14.96	38480	15.03	43420	15.14	49130	15.28
PSH030-4	20	19410	5.98	27180	6.25	32250	6.44	38240	6.71	45220	7.06	53290	7.51	62540	8.08	-	-	-	-
	30	19080	7.26	26320	7.48	30960	7.63	36410	7.83	42750	8.09	50070	8.44	58460	8.89	68020	9.45	78830	10.15
	40	19000	8.85	25640	9.06	29820	9.18	34700	9.34	40370	9.54	46910	9.81	54410	10.16	62970	10.61	72680	11.17
	50	19190	10.84	25170	11.09	28860	11.21	33140	11.34	38100	11.50	43820	11.71	50410	11.99	57940	12.35	66520	12.80
	60	-	-	24920	13.65	28090	13.79	31740	13.92	35960	14.07	40840	14.24	46470	14.47	52950	14.75	60350	15.12
	68	-	-	-	-	-	-	30750	16.46	34360	16.61	38540	16.78	43390	16.97	48990	17.22	55440	17.53
PSH034-4	20	21570	6.67	30420	6.99	36220	7.24	43070	7.57	51070	7.99	60320	8.53	70910	9.20	-	-	-	-
	30	21140	8.16	29440	8.39	34780	8.57	41050	8.81	48350	9.14	56760	9.56	66400	10.09	77350	10.76	89720	11.57
	40	21070	10.03	28700	10.21	33520	10.34	39140	10.51	45660	10.75	53180	11.07	61800	11.49	71610	12.02	82720	12.68
	50	21410	12.43	28230	12.60	32470	12.69	37380	12.81	43070	12.98	49630	13.22	57170	13.54	65770	13.95	75550	14.48
	60	-	-	28090	15.70	31680	15.77	35810	15.86	40600	15.98	46140	16.15	52530	16.38	59870	16.69	68250	17.10
	68	-	-	-	-	-	-	34730	18.94	38760	19.03	43430	19.15	48860	19.33	55130	19.57	62350	19.90
PSH039-4	20	25070	7.41	35120	7.90	41590	8.20	49160	8.54	57950	8.94	68060	9.41	79600	9.97	-	-	-	-
	30	24560	8.92	34040	9.39	40030	9.66	47010	9.96	55080	10.31	64350	10.71	74920	11.19	86900	11.75	100400	12.41
	40	24340	10.84	33100	11.31	38550	11.56	44850	11.84	52130	12.14	60480	12.49	70010	12.90	80830	13.39	93040	13.95
	50	24470	13.27	32360	13.78	37190	14.02	42750	14.28	49160	14.56	56520	14.87	64940	15.23	74520	15.64	85370	16.12
	60	-	-	31870	16.89	36010	17.15	40770	17.40	46240	17.67	52530	17.95	59760	18.27	68030	18.63	77450	19.04
	68	-	-	-	-	-	-	39290	20.47	43960	20.73	49360	21.00	55580	21.29	62750	21.62	70970	21.99

To: Evaporating temperature in [°C]
 Tc: Condensing temperature in [°C]
 Pe: Power input in [kW]
 H: Heating capacity in [W]
 Subcooling: 4 K
 Superheat: 5 K
 Frequency: 60 Hz
 Subject to modification without prior notification

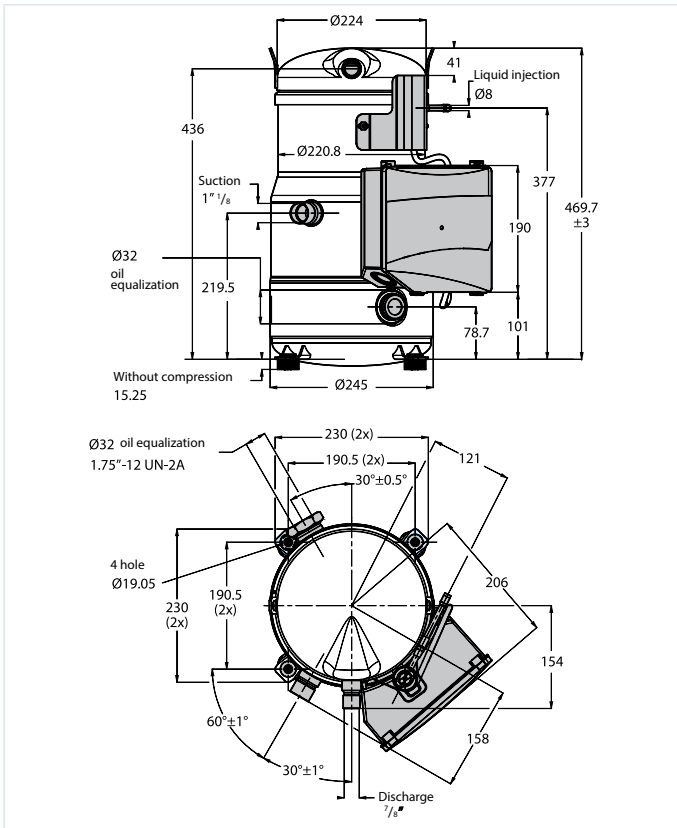


Nomenclature

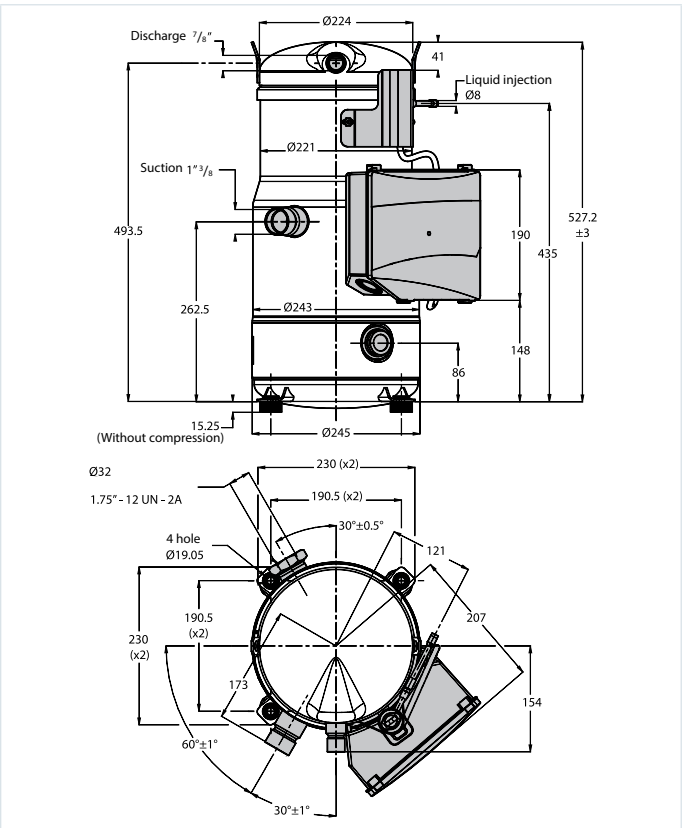


Dimensions

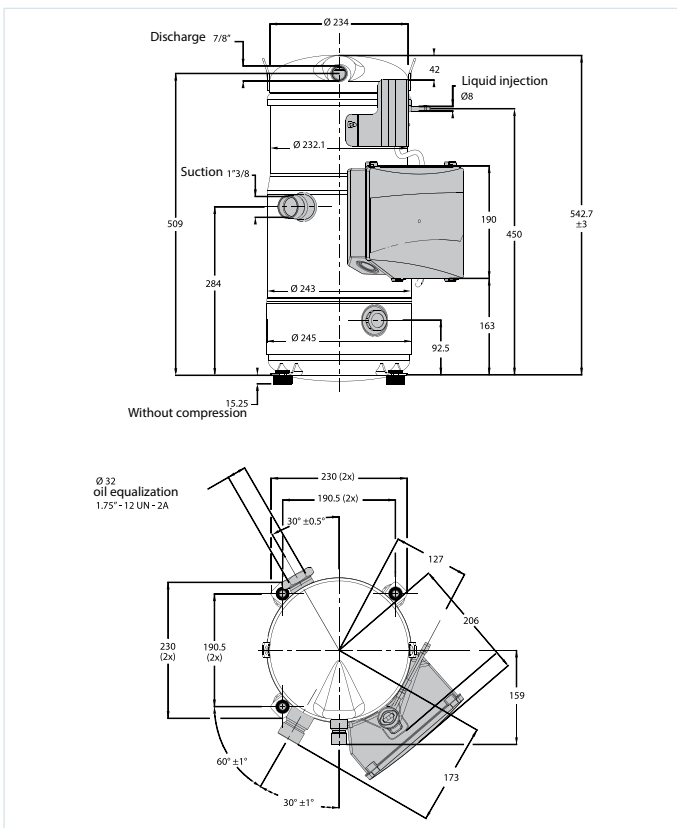
PSH019



PSH023-026-030-034



PSH039



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Technical data and ordering

PSH019 – PSH039 - Scroll compressors heating optimized

Tandem kit - Code numbers

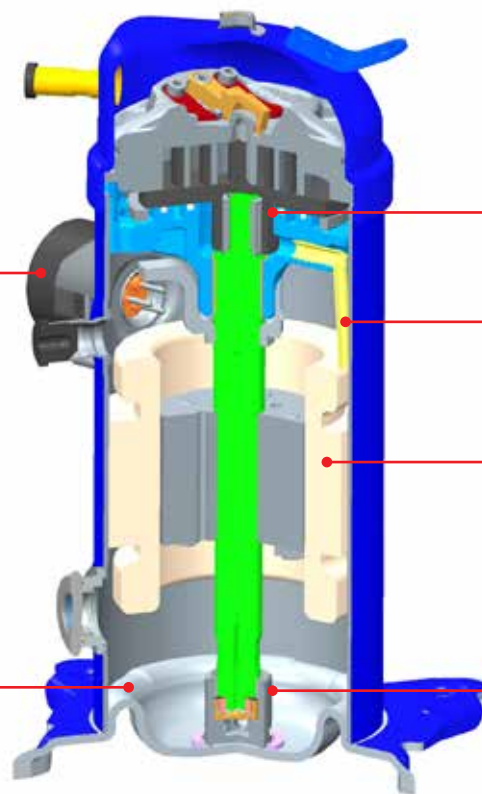
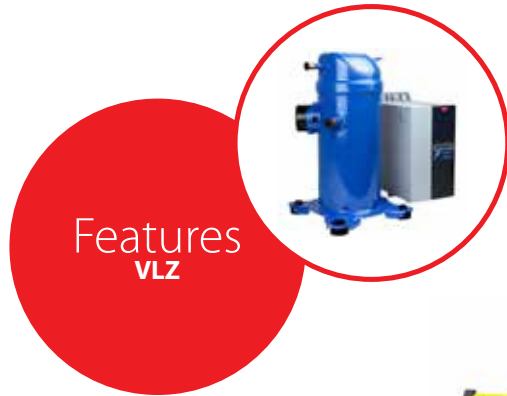
Compressor 1	Compressor 2	Tandem type	Suction from	Washer reference	Washer Ø [mm]	Washer in suction of	Kit code no.
PSH019	PSH019	PSH038	Left Right		Not needed		7777044
PSH023	PSH023	PSH046	Left Right		Not needed		7777044
PSH026	PSH026	PSH052	Left Right		Not needed		7777044
PSH030	PSH030	PSH060	Left Right		Not needed		7777044
PSH034	PSH034	PSH068	Left Right		Not needed		7777044
PSH039	PSH039	PSH078	Left Right		Not needed		7777053

Quick Selection Notes:

VLZ, Inverter scroll compressor - R404A, R448A and R449A

By continuously matching the load fluctuations, Danfoss Inverter Scroll VLZ technology fulfills a major requirement of commercial refrigeration applications.

Temperatures are precisely maintained leading to better food quality and a reduction in the associated energy consumption. VLZ compressor and drive package consist in 3 compressor models ranging from 1.7 to 9.3 kW.



EMC (Electro-Magnetic Compatibility) bracket provided allows for grounding termination of shielded wire-harness, which reduces EMC emissions between drive and compressor

DP31 bearing: Lead free, meet Rohs requirement concerning the restriction of the use of certain hazardous substances

High speed oil circulation minimized by a oil return tube

New distributed IPM motor lead to higher power factor

POE46 lubricant

Linear control oil pump

Facts

Applications:

- Designed for refrigeration applications at medium temperatures, such as cold rooms and mini chillers for process cooling, or milk cooling
- A single compressor and drive can simultaneously handle the load demands of multiple display cabinets or cold rooms running at different temperatures
- **Advanced Efficiency:** The DC permanent magnet motor of the compressor with patented Intermediate Discharge Valves (IDV) enhances

compressor part-load efficiency and reduces components stress, leading to savings on energy usage. Under part-load conditions, the inverter uses up to 30% less energy than mechanically modulated technology as it is able to slow the compressor down to efficiently match requirements

- **Enhanced capacity:** Stepless compressor modulation - able to slow down and speed up from 30 to 100 RPS to save energy and match load fluctuations very accurately. The inverter

drive incorporates smart logic to increase reliability during operation

- **Accurate temperature and humidity control:** For greater storage temperature stability, better food preservation, and longer product shelf life
- **Simplicity to shorten development time:** The pre-qualified compressor and drive package is fully integrated to get your product to market faster and act as a black-box/slave to your application and management controller.

Technical data and ordering

VLZ - Inverter scroll compressor

Compressors specifications

Compressor model	Swept volume [cm ³ /rev]	Displacement				Oil charge [Liters]	Net weight [Kg]
		30 rps	50 rps	60 rps	100 rps		
		[m ³ /h]	[m ³ /h]	[m ³ /h]	[m ³ /h]		
VLZ028	27.8	3	5	6	10	1.1	26
VLZ035	34.9	3.8	6.3	7.5	12.6	1.3	27
VLZ044	44.5	4.8	8	9.6	16	1.3	27

VLZ - Inverter scroll compressor

Frequency converter specifications

Mains supply voltage	CDS803-T2: 200 – 240 V ±10% (3-phase) CDS803-T4: 380 – 480 V ±10% (3-phase)
Supply frequency	50 / 60 Hz
Output voltage	0 – 100% of supply voltage
Standby power	T2: P7K5: 23.17 W T4: P7K5: 11.3 W
Inputs	CDS803: 4 digital (0 – 24 V), 2 analog (0/±10 V or 4 – 20 mA, scalable)
Programmable outputs	CDS803: 2 digital (0 – 24 V), 2 analog (0 – 24 V), 2 relay
Protection functions	Over-current protection, low / high current handling
Compressor functions	Pressostat / thermostat function, short cycle protection, oil return management

VLZ - Inverter scroll compressor

Ordering - Single pack

Compressor model	Equipment version	G		J	
		Compressor Name	Code no	Compressor Name	Code no
VLZ028	Single	VLZ028TGNE9A/M	120G0162	VLZ028TJNE9A/M	120G0171
VLZ035	Single	VLZ035TGNE9A/M	120G0159	VLZ035TJNE9A/M	120G0168
VLZ044	Single	VLZ044TGNE9A/M	120G0156	VLZ044TJNE9A/M	120G0165

Technical data and ordering

VLZ - Single scroll compressor - R404A - 380 – 480 V / 3 / 50 / 60 Hz

Performance table (EN12900)

Type	Rpm	Frequency	Te	-25			-20		-15		-10		-5		0		5		10		
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VLZ028TGA	1800	30	15	1184	0.55	1506	0.56	1891	0.55	2347	0.53	2881	0.5	-	-	-	-	-	-	-	
			25	1030	0.65	1327	0.66	1680	0.66	2097	0.66	2584	0.64	3151	0.61	3803	0.57	-	-	-	-
			35	-	-	1138	0.79	1454	0.79	1826	0.8	2262	0.79	2769	0.78	3354	0.76	4026	0.72	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	60	15	2507	1.11	3168	1.13	3957	1.12	4888	1.09	5977	1.02	-	-	-	-	-	-	-	
			25	2172	1.28	2774	1.32	3488	1.34	4330	1.34	5315	1.31	6457	1.26	7772	1.17	-	-	-	-
			35	1845	1.5	2383	1.54	3018	1.57	3767	1.59	4642	1.6	5660	1.58	6836	1.53	8184	1.45	-	-
			45	1508	1.8	1978	1.83	2530	1.86	3180	1.89	3942	1.91	4831	1.91	5863	1.9	7052	1.85	-	-
	6000	100	15	4127	2.08	5203	2.14	6483	2.16	7991	2.14	9753	2.07	-	-	-	-	-	-	-	
			25	3619	2.35	4615	2.44	5790	2.5	7171	2.54	8781	2.53	10645	2.47	12789	2.35	-	-	-	-
			35	3100	2.67	4001	2.77	5058	2.86	6296	2.93	7739	2.98	9414	2.98	11343	2.93	13553	2.83	-	-
			45	2552	3.1	3344	3.19	4268	3.29	5349	3.38	6612	3.45	8082	3.5	9783	3.51	11740	3.47	-	-
VLZ035TGA	1800	30	15	1531	0.64	1936	0.65	2421	0.64	2996	0.62	3669	0.58	-	-	-	-	-	-		
			25	1328	0.76	1703	0.77	2148	0.78	2674	0.78	3289	0.77	4003	0.74	4826	0.68	-	-	-	-
			35	-	-	1452	0.93	1851	0.94	2321	0.95	2871	0.95	3511	0.94	4251	0.92	5099	0.88	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	3152	1.27	3974	1.29	4964	1.28	6142	1.26	7527	1.2	-	-	-	-	-	-		
			25	2770	1.51	3517	1.54	4411	1.55	5473	1.56	6720	1.54	8174	1.49	9854	1.42	-	-	-	-
			35	2379	1.79	3044	1.82	3836	1.86	4773	1.88	5876	1.89	7163	1.88	8656	1.85	10373	1.78	-	-
			45	1962	2.14	2539	2.18	3221	2.22	4027	2.26	4978	2.29	6092	2.3	7390	2.3	8891	2.27	-	-
	6000	100	15	5131	2.51	6458	2.6	8069	2.65	9999	2.65	12287	2.59	-	-	-	-	-	-		
			25	4538	2.82	5746	2.94	7200	3.03	8939	3.1	10998	3.12	13416	3.08	16229	2.97	-	-	-	-
			35	3932	3.24	5013	3.35	6303	3.47	7841	3.57	9663	3.64	11808	3.68	14312	3.66	17212	3.58	-	-
			45	3278	3.8	4223	3.89	5341	4	6669	4.11	8247	4.22	10109	4.3	12295	4.35	14841	4.35	-	-
VLZ044TGA	1800	30	15	2012	0.76	2526	0.78	3140	0.78	3865	0.76	4714	0.71	-	-	-	-	-	-		
			25	1751	0.9	2230	0.93	2798	0.95	3467	0.95	4248	0.94	5155	0.9	6200	0.83	-	-	-	-
			35	-	-	1903	1.12	2415	1.15	3016	1.17	3720	1.18	4539	1.17	5484	1.13	6569	1.07	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	4085	1.59	5139	1.63	6396	1.64	7878	1.6	9609	1.51	-	-	-	-	-	-		
			25	3574	1.87	4540	1.94	5683	2	7029	2.02	8598	2	10415	1.93	12503	1.79	-	-	-	-
			35	3057	2.19	3924	2.28	4946	2.37	6146	2.43	7546	2.46	9169	2.45	11039	2.4	13178	2.27	-	-
			45	2507	2.61	3268	2.69	4160	2.78	5205	2.87	6426	2.93	7847	2.97	9491	2.98	11380	2.93	-	-
	6000	100	15	6657	2.98	8421	3.09	10532	3.16	13029	3.19	15952	3.15	-	-	-	-	-	-		
			25	5848	3.45	7460	3.61	9376	3.74	11635	3.82	14278	3.86	17342	3.84	20866	3.77	-	-	-	-
			35	5029	3.98	6476	4.17	8186	4.32	10196	4.45	12546	4.54	15275	4.59	18421	4.59	22025	4.52	-	-
			45	4150	4.64	5421	4.82	6912	4.99	8661	5.14	10707	5.27	13089	5.36	15846	5.41	19018	5.41	-	-



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VLZ - Single scroll compressor - R448A - 380 – 480 V / 3 / 50 / 60 Hz

Performance table (EN12900)

Type	Rpm	Frequency	Te	-25			-20		-15		-10		-5		0		5		10		
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VLZ028TGA	1800	30	15	1044	0.48	1342	0.49	1699	0.5	2124	0.5	2625	0.48	-	-	-	-	-	-	-	-
			25	923	0.57	1202	0.58	1535	0.6	1931	0.6	2396	0.6	2938	0.59	3566	0.56	-	-	-	-
			35	-	-	1052	0.71	1357	0.72	1718	0.73	2144	0.73	2642	0.73	3219	0.72	3884	0.7	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	60	15	2178	0.95	2779	0.96	3499	0.96	4356	0.93	5363	0.87	-	-	-	-	-	-	-	-
			25	1951	1.12	2513	1.15	3184	1.17	3977	1.17	4909	1.15	5994	1.1	7248	1.03	-	-	-	-
			35	1706	1.34	2226	1.38	2840	1.4	3564	1.42	4415	1.43	5406	1.42	6554	1.39	7873	1.33	-	-
			45	1443	1.65	1913	1.67	2466	1.7	3116	1.73	3879	1.75	4771	1.76	5806	1.76	7000	1.74	-	-
	6000	100	15	3581	1.79	4539	1.85	5710	1.88	7133	1.87	8843	1.82	-	-	-	-	-	-	-	-
			25	3221	2.04	4100	2.13	5162	2.2	6444	2.23	7982	2.24	9813	2.2	11973	2.12	-	-	-	-
			35	2857	2.36	3668	2.46	4632	2.55	5784	2.62	7161	2.66	8800	2.67	10738	2.65	13011	2.57	-	-
			45	2452	2.78	3208	2.88	4085	2.98	5119	3.06	6347	3.13	7805	3.18	9531	3.19	11562	3.17	-	-
VLZ035TGA	1800	30	15	1320	0.58	1694	0.59	2146	0.59	2686	0.57	3326	0.55	-	-	-	-	-	-	-	
			25	1168	0.68	1518	0.7	1936	0.71	2433	0.71	3021	0.7	3710	0.68	4510	0.64	-	-	-	-
			35	-	-	1327	0.84	1710	0.85	2164	0.86	2699	0.87	3326	0.87	4055	0.85	4897	0.82	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	2751	1.17	3515	1.22	4426	1.26	5501	1.26	6760	1.23	-	-	-	-	-	-	-	
			25	2434	1.36	3151	1.42	4000	1.48	4997	1.51	6162	1.52	7512	1.49	9067	1.43	-	-	-	-
			35	2100	1.63	2765	1.69	3545	1.75	4458	1.8	5522	1.83	6757	1.83	8180	1.81	9810	1.74	-	-
			45	1748	2.03	2354	2.07	3059	2.12	3881	2.17	4840	2.21	5952	2.23	7238	2.22	8714	2.19	-	-
	6000	100	15	4525	2.21	5738	2.29	7226	2.35	9034	2.38	11210	2.38	-	-	-	-	-	-	-	
			25	4058	2.53	5162	2.63	6502	2.71	8123	2.78	10072	2.82	12397	2.84	15144	2.82	-	-	-	-
			35	3602	2.93	4613	3.04	5820	3.14	7269	3.24	9007	3.31	11081	3.37	13538	3.39	16425	3.38	-	-
			45	3113	3.45	4046	3.57	5136	3.68	6429	3.79	7971	3.88	9810	3.97	11992	4.03	14565	4.06	-	-
VLZ044TGA	1800	30	15	1731	0.68	2213	0.69	2786	0.69	3465	0.68	4259	0.65	-	-	-	-	-	-	-	
			25	1523	0.82	1978	0.84	2517	0.86	3152	0.87	3896	0.86	4761	0.83	5758	0.79	-	-	-	-
			35	-	-	1721	1.03	2219	1.06	2804	1.08	3490	1.09	4289	1.09	5212	1.07	6271	1.02	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	3520	1.29	4494	1.34	5657	1.35	7032	1.33	8645	1.26	-	-	-	-	-	-	-	
			25	3117	1.59	4027	1.63	5107	1.68	6382	1.71	7875	1.71	9610	1.68	11612	1.59	-	-	-	-
			35	2704	2	3542	2.01	4531	2.04	5696	2.09	7060	2.13	8648	2.16	10483	2.16	12591	2.11	-	-
			45	2280	2.61	3037	2.54	3926	2.52	4972	2.54	6199	2.58	7631	2.63	9291	2.67	11205	2.7	-	-
	6000	100	15	5876	2.52	7465	2.65	9346	2.75	11557	2.8	14136	2.78	-	-	-	-	-	-	-	
			25	5213	2.93	6731	3.07	8513	3.21	10598	3.34	13024	3.43	15830	3.45	19055	3.39	-	-	-	-
			35	4483	3.48	5912	3.59	7578	3.74	9518	3.9	11772	4.05	14379	4.16	17377	4.23	20805	4.21	-	-
			45	3685	4.25	5007	4.3	6537	4.4	8314	4.55	10378	4.73	12767	4.9	15520	5.04	18676	5.14	-	-



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Technical data and ordering

VLZ - Single scroll compressor - R449A - 380 – 480 V / 3 / 50 / 60 Hz

Performance table (EN12900)

Type	Rpm	Frequency	Te	-25			-20		-15		-10		-5		0		5		10		
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VLZ028TGA	1800	30	15	1044	0.48	1342	0.49	1699	0.5	2124	0.5	2625	0.48	-	-	-	-	-	-	-	-
			25	923	0.57	1202	0.58	1535	0.6	1931	0.6	2396	0.6	2938	0.59	3566	0.56	-	-	-	-
			35	-	-	1052	0.71	1357	0.72	1718	0.73	2144	0.73	2642	0.73	3219	0.72	3884	0.7	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	60	15	2178	0.95	2779	0.96	3499	0.96	4356	0.93	5363	0.87	-	-	-	-	-	-	-	-
			25	1951	1.12	2513	1.15	3184	1.17	3977	1.17	4909	1.15	5994	1.1	7248	1.03	-	-	-	-
			35	1706	1.34	2226	1.38	2840	1.4	3564	1.42	4415	1.43	5406	1.42	6554	1.39	7873	1.33	-	-
			45	1443	1.65	1913	1.67	2466	1.7	3116	1.73	3879	1.75	4771	1.76	5806	1.76	7000	1.74	-	-
	6000	100	15	3581	1.79	4539	1.85	5710	1.88	7133	1.87	8843	1.82	-	-	-	-	-	-	-	-
			25	3221	2.04	4100	2.13	5162	2.2	6444	2.23	7982	2.24	9813	2.2	11973	2.12	-	-	-	-
			35	2857	2.36	3668	2.46	4632	2.55	5784	2.62	7161	2.66	8800	2.67	10738	2.65	13011	2.57	-	-
			45	2452	2.78	3208	2.88	4085	2.98	5119	3.06	6347	3.13	7805	3.18	9531	3.19	11562	3.17	-	-
VLZ035TGA	1800	30	15	1320	0.58	1694	0.59	2146	0.59	2686	0.57	3326	0.55	-	-	-	-	-	-	-	
			25	1168	0.68	1518	0.7	1936	0.71	2433	0.71	3021	0.7	3710	0.68	4510	0.64	-	-	-	-
			35	-	-	1327	0.84	1710	0.85	2164	0.86	2699	0.87	3326	0.87	4055	0.85	4897	0.82	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	2751	1.17	3515	1.22	4426	1.26	5501	1.26	6760	1.23	-	-	-	-	-	-	-	
			25	2434	1.36	3151	1.42	4000	1.48	4997	1.51	6162	1.52	7512	1.49	9067	1.43	-	-	-	-
			35	2100	1.63	2765	1.69	3545	1.75	4458	1.8	5522	1.83	6757	1.83	8180	1.81	9810	1.74	-	-
			45	1748	2.03	2354	2.07	3059	2.12	3881	2.17	4840	2.21	5952	2.23	7238	2.22	8714	2.19	-	-
	6000	100	15	4525	2.21	5738	2.29	7226	2.35	9034	2.38	11210	2.38	-	-	-	-	-	-	-	
			25	4058	2.53	5162	2.63	6502	2.71	8123	2.78	10072	2.82	12397	2.84	15144	2.82	-	-	-	-
			35	3602	2.93	4613	3.04	5820	3.14	7269	3.24	9007	3.31	11081	3.37	13538	3.39	16425	3.38	-	-
			45	3113	3.45	4046	3.57	5136	3.68	6429	3.79	7971	3.88	9810	3.97	11992	4.03	14565	4.06	-	-
VLZ044TGA	1800	30	15	1731	0.68	2213	0.69	2786	0.69	3465	0.68	4259	0.65	-	-	-	-	-	-		
			25	1523	0.82	1978	0.84	2517	0.86	3152	0.87	3896	0.86	4761	0.83	5758	0.79	-	-	-	-
			35	-	-	1721	1.03	2219	1.06	2804	1.08	3490	1.09	4289	1.09	5212	1.07	6271	1.02	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	3520	1.29	4494	1.34	5657	1.35	7032	1.33	8645	1.26	-	-	-	-	-	-		
			25	3117	1.59	4027	1.63	5107	1.68	6382	1.71	7875	1.71	9610	1.68	11612	1.59	-	-	-	-
			35	2704	2	3542	2.01	4531	2.04	5696	2.09	7060	2.13	8648	2.16	10483	2.16	12591	2.11	-	-
			45	2280	2.61	3037	2.54	3926	2.52	4972	2.54	6199	2.58	7631	2.63	9291	2.67	11205	2.7	-	-
	6000	100	15	5876	2.52	7465	2.65	9346	2.75	11557	2.8	14136	2.78	-	-	-	-	-	-		
			25	5213	2.93	6731	3.07	8513	3.21	10598	3.34	13024	3.43	15830	3.45	19055	3.39	-	-	-	-
			35	4483	3.48	5912	3.59	7578	3.74	9518	3.9	11772	4.05	14379	4.16	17377	4.23	20805	4.21	-	-
			45	3685	4.25	5007	4.3	6537	4.4	8314	4.55	10378	4.73	12767	4.9	15520	5.04	18676	5.14	-	-



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VLZ - Single scroll compressor - R404A - 200 – 240 V / 3 / 50 / 60 Hz

Performance table (EN12900)

Type	Rpm	Frequency	Te	-25			-20		-15		-10		-5		0		5		10		
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VLZ028TGA	1800	30	15	1184	0.56	1506	0.57	1891	0.56	2347	0.54	2881	0.51	-	-	-	-	-	-	-	-
			25	1030	0.66	1327	0.67	1680	0.67	2097	0.67	2584	0.65	3151	0.62	3803	0.58	-	-	-	-
			35	-	-	1138	0.8	1454	0.81	1826	0.81	2262	0.81	2769	0.79	3354	0.77	4026	0.73	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	60	15	2507	1.15	3168	1.17	3957	1.17	4888	1.14	5977	1.07	-	-	-	-	-	-	-	-
			25	2172	1.33	2774	1.37	3488	1.39	4330	1.4	5315	1.37	6457	1.31	7772	1.21	-	-	-	-
			35	1845	1.56	2383	1.6	3018	1.64	3767	1.66	4642	1.67	5660	1.65	6836	1.6	8184	1.51	-	-
			45	1508	1.87	1978	1.9	2530	1.94	3180	1.97	3942	1.99	4831	1.99	5863	1.98	7052	1.93	-	-
	6000	100	15	4127	2.14	5203	2.2	6483	2.22	7991	2.2	9753	2.12	-	-	-	-	-	-	-	-
			25	3619	2.41	4615	2.5	5790	2.57	7171	2.61	8781	2.6	10645	2.54	12789	2.41	-	-	-	-
			35	3100	2.75	4001	2.85	5058	2.94	6296	3.02	7739	3.06	9414	3.06	11343	3.01	13553	2.91	-	-
			45	2552	3.18	3344	3.28	4268	3.38	5349	3.47	6612	3.55	8082	3.59	9783	3.6	11740	3.57	-	-
VLZ035TGA	1800	30	15	1531	0.65	1936	0.66	2421	0.65	2996	0.63	3669	0.59	-	-	-	-	-	-	-	
			25	1328	0.77	1703	0.79	2148	0.79	2674	0.79	3289	0.78	4003	0.75	4826	0.69	-	-	-	-
			35	-	-	1452	0.94	1851	0.95	2321	0.96	2871	0.97	3511	0.96	4251	0.93	5099	0.89	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	3152	1.27	3974	1.29	4964	1.28	6142	1.25	7527	1.2	-	-	-	-	-	-	-	
			25	2770	1.5	3517	1.53	4411	1.55	5473	1.55	6720	1.54	8174	1.49	9854	1.42	-	-	-	-
			35	2379	1.78	3044	1.82	3836	1.86	4773	1.88	5876	1.89	7163	1.88	8656	1.84	10373	1.78	-	-
			45	1962	2.13	2539	2.18	3221	2.22	4027	2.25	4978	2.28	6092	2.3	7390	2.29	8891	2.27	-	-
	6000	100	15	5131	2.53	6458	2.62	8069	2.67	9999	2.67	12287	2.61	-	-	-	-	-	-	-	
			25	4538	2.85	5746	2.96	7200	3.06	8939	3.12	10998	3.14	13416	3.1	16229	2.99	-	-	-	-
			35	3932	3.26	5013	3.38	6303	3.49	7841	3.6	9663	3.67	11808	3.71	14312	3.69	17212	3.61	-	-
			45	3278	3.83	4223	3.92	5341	4.03	6669	4.14	8247	4.25	10109	4.33	12295	4.38	14841	4.38	-	-
VLZ044TGA	1800	30	15	2012	0.76	2526	0.78	3140	0.78	3865	0.76	4714	0.71	-	-	-	-	-	-		
			25	1751	0.9	2230	0.92	2798	0.94	3467	0.95	4248	0.93	5155	0.89	6200	0.82	-	-	-	-
			35	-	-	1903	1.12	2415	1.14	3016	1.16	3720	1.17	4539	1.16	5484	1.13	6569	1.07	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	4085	1.61	5139	1.66	6396	1.67	7878	1.63	9609	1.54	-	-	-	-	-	-		
			25	3574	1.9	4540	1.98	5683	2.04	7029	2.06	8598	2.04	10415	1.96	12503	1.82	-	-	-	-
			35	3057	2.23	3924	2.32	4946	2.41	6146	2.47	7546	2.51	9169	2.5	11039	2.44	13178	2.32	-	-
			45	2507	2.65	3268	2.74	4160	2.83	5205	2.92	6426	2.99	7847	3.03	9491	3.03	11380	2.98	-	-
	6000	100	15	6657	2.97	8421	3.08	10532	3.16	13029	3.18	15952	3.14	-	-	-	-	-	-		
			25	5848	3.44	7460	3.6	9376	3.73	11635	3.81	14278	3.85	17342	3.83	20866	3.76	-	-	-	-
			35	5029	3.97	6476	4.15	8186	4.31	10196	4.44	12546	4.53	15275	4.58	18421	4.57	22025	4.51	-	-
			45	4150	4.63	5421	4.81	6912	4.98	8661	5.13	10707	5.25	13089	5.34	15846	5.39	19018	5.4	-	-



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VLZ - Single scroll compressor - R448A - 200-240 V / 3 / 50 / 60 Hz

Performance table (EN12900)

Type	Rpm	Frequency	Te	-25			-20		-15		-10		-5		0		5		10		
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VLZ028TGA	1800	30	15	1044	0.48	1342	0.5	1699	0.5	2124	0.5	2625	0.48	-	-	-	-	-	-	-	-
			25	923	0.57	1202	0.59	1535	0.6	1931	0.6	2396	0.6	2938	0.59	3566	0.57	-	-	-	-
			35	-	-	1052	0.71	1357	0.72	1718	0.73	2144	0.74	2642	0.74	3219	0.73	3884	0.7	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	60	15	2178	0.97	2779	0.99	3499	0.98	4356	0.95	5363	0.89	-	-	-	-	-	-	-	
			25	1951	1.15	2513	1.17	3184	1.19	3977	1.19	4909	1.17	5994	1.13	7248	1.05	-	-	-	
			35	1706	1.37	2226	1.41	2840	1.43	3564	1.45	4415	1.46	5406	1.45	6554	1.42	7873	1.35	-	
			45	1443	1.69	1913	1.71	2466	1.74	3116	1.77	3879	1.79	4771	1.8	5806	1.8	7000	1.77	-	
	6000	100	15	3581	1.82	4539	1.88	5710	1.91	7133	1.9	8843	1.85	-	-	-	-	-	-	-	
			25	3221	2.08	4100	2.17	5162	2.24	6444	2.27	7982	2.28	9813	2.24	11973	2.16	-	-	-	
			35	2857	2.4	3668	2.51	4632	2.6	5784	2.67	7161	2.71	8800	2.72	10738	2.69	13011	2.62	-	
			45	2452	2.83	3208	2.93	4085	3.03	5119	3.12	6347	3.19	7805	3.24	9531	3.25	11562	3.23	-	
VLZ035TGA	1800	30	15	1320	0.59	1694	0.6	2146	0.6	2686	0.59	3326	0.56	-	-	-	-	-	-		
			25	1168	0.7	1518	0.71	1936	0.72	2433	0.73	3021	0.72	3710	0.7	4510	0.66	-	-		
			35	-	-	1327	0.86	1710	0.87	2164	0.88	2699	0.89	3326	0.89	4055	0.87	4897	0.84	-	
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	3600	60	15	2751	1.21	3515	1.27	4426	1.3	5501	1.3	6760	1.27	-	-	-	-	-	-		
			25	2434	1.41	3151	1.48	4000	1.53	4997	1.56	6162	1.57	7512	1.55	9067	1.48	-	-		
			35	2100	1.69	2765	1.75	3545	1.81	4458	1.86	5522	1.89	6757	1.9	8180	1.87	9810	1.81	-	
			45	1748	2.1	2354	2.15	3059	2.2	3881	2.25	4840	2.29	5952	2.31	7238	2.3	8714	2.27	-	
	6000	100	15	4525	2.25	5738	2.33	7226	2.39	9034	2.42	11210	2.43	-	-	-	-	-	-		
			25	4058	2.57	5162	2.67	6502	2.76	8123	2.83	10072	2.87	12397	2.89	15144	2.87	-	-		
			35	3602	2.98	4613	3.09	5820	3.2	7269	3.29	9007	3.37	11081	3.42	13538	3.45	16425	3.44	-	
			45	3113	3.51	4046	3.63	5136	3.74	6429	3.85	7971	3.95	9810	4.04	11992	4.1	14565	4.13	-	
VLZ044TGA	1800	30	15	1731	0.66	2213	0.68	2786	0.68	3465	0.67	4259	0.64	-	-	-	-	-	-		
			25	1523	0.8	1978	0.82	2517	0.84	3152	0.85	3896	0.84	4761	0.82	5758	0.77	-	-		
			35	-	-	1721	1.01	2219	1.04	2804	1.06	3490	1.07	4289	1.06	5212	1.04	6271	1	-	
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	3600	60	15	3520	1.29	4494	1.33	5657	1.35	7032	1.33	8645	1.26	-	-	-	-	-	-		
			25	3117	1.58	4027	1.62	5107	1.67	6382	1.7	7875	1.71	9610	1.67	11612	1.58	-	-		
			35	2704	1.99	3542	2	4531	2.03	5696	2.08	7060	2.12	8648	2.15	10483	2.15	12591	2.1	-	
			45	2280	2.6	3037	2.53	3926	2.51	4972	2.52	6199	2.57	7631	2.62	9291	2.66	11205	2.69	-	
	6000	100	15	5876	2.56	7465	2.68	9346	2.78	11557	2.83	14136	2.82	-	-	-	-	-	-		
			25	5213	2.97	6731	3.11	8513	3.26	10598	3.38	13024	3.47	15830	3.49	19055	3.43	-	-		
			35	4483	3.53	5912	3.64	7578	3.79	9518	3.95	11772	4.1	14379	4.22	17377	4.28	20805	4.26	-	
			45	3685	4.31	5007	4.35	6537	4.46	8314	4.61	10378	4.79	12767	4.96	15520	5.1	18676	5.2	-	



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

VLZ - Single scroll compressor - R449A - 200-240 V / 3 / 50 / 60 Hz

Performance table (EN12900)

Type	Rpm	Frequency	Te	-25			-20		-15		-10		-5		0		5		10		
				Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo
VLZ028TGA	1800	30	15	1044	0.48	1342	0.5	1699	0.5	2124	0.5	2625	0.48	-	-	-	-	-	-	-	-
			25	923	0.57	1202	0.59	1535	0.6	1931	0.6	2396	0.6	2938	0.59	3566	0.57	-	-	-	-
			35	-	-	1052	0.71	1357	0.72	1718	0.73	2144	0.74	2642	0.74	3219	0.73	3884	0.7	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	60	15	2178	0.97	2779	0.99	3499	0.98	4356	0.95	5363	0.89	-	-	-	-	-	-	-	-
			25	1951	1.15	2513	1.17	3184	1.19	3977	1.19	4909	1.17	5994	1.13	7248	1.05	-	-	-	-
			35	1706	1.37	2226	1.41	2840	1.43	3564	1.45	4415	1.46	5406	1.45	6554	1.42	7873	1.35	-	-
			45	1443	1.69	1913	1.71	2466	1.74	3116	1.77	3879	1.79	4771	1.8	5806	1.8	7000	1.77	-	-
	6000	100	15	3581	1.82	4539	1.88	5710	1.91	7133	1.9	8843	1.85	-	-	-	-	-	-	-	-
			25	3221	2.08	4100	2.17	5162	2.24	6444	2.27	7982	2.28	9813	2.24	11973	2.16	-	-	-	-
			35	2857	2.4	3668	2.51	4632	2.6	5784	2.67	7161	2.71	8800	2.72	10738	2.69	13011	2.62	-	-
			45	2452	2.83	3208	2.93	4085	3.03	5119	3.12	6347	3.19	7805	3.24	9531	3.25	11562	3.23	-	-
VLZ035TGA	1800	30	15	1320	0.59	1694	0.6	2146	0.6	2686	0.59	3326	0.56	-	-	-	-	-	-	-	
			25	1168	0.7	1518	0.71	1936	0.72	2433	0.73	3021	0.72	3710	0.7	4510	0.66	-	-	-	
			35	-	-	1327	0.86	1710	0.87	2164	0.88	2699	0.89	3326	0.89	4055	0.87	4897	0.84	-	-
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	15	2751	1.21	3515	1.27	4426	1.3	5501	1.3	6760	1.27	-	-	-	-	-	-	-	
			25	2434	1.41	3151	1.48	4000	1.53	4997	1.56	6162	1.57	7512	1.55	9067	1.48	-	-	-	
			35	2100	1.69	2765	1.75	3545	1.81	4458	1.86	5522	1.89	6757	1.9	8180	1.87	9810	1.81	-	
			45	1748	2.1	2354	2.15	3059	2.2	3881	2.25	4840	2.29	5952	2.31	7238	2.3	8714	2.27	-	
	6000	100	15	4525	2.25	5738	2.33	7226	2.39	9034	2.42	11210	2.43	-	-	-	-	-	-	-	
			25	4058	2.57	5162	2.67	6502	2.76	8123	2.83	10072	2.87	12397	2.89	15144	2.87	-	-	-	
			35	3602	2.98	4613	3.09	5820	3.2	7269	3.29	9007	3.37	11081	3.42	13538	3.45	16425	3.44	-	
			45	3113	3.51	4046	3.63	5136	3.74	6429	3.85	7971	3.95	9810	4.04	11992	4.1	14565	4.13	-	
VLZ044TGA	1800	30	15	1731	0.66	2213	0.68	2786	0.68	3465	0.67	4259	0.64	-	-	-	-	-	-		
			25	1523	0.8	1978	0.82	2517	0.84	3152	0.85	3896	0.84	4761	0.82	5758	0.77	-	-	-	
			35	-	-	1721	1.01	2219	1.04	2804	1.06	3490	1.07	4289	1.06	5212	1.04	6271	1	-	
			45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	3600	60	15	3520	1.29	4494	1.33	5657	1.35	7032	1.33	8645	1.26	-	-	-	-	-	-		
			25	3117	1.58	4027	1.62	5107	1.67	6382	1.7	7875	1.71	9610	1.67	11612	1.58	-	-		
			35	2704	1.99	3542	2	4531	2.03	5696	2.08	7060	2.12	8648	2.15	10483	2.15	12591	2.1	-	
			45	2280	2.6	3037	2.53	3926	2.51	4972	2.52	6199	2.57	7631	2.62	9291	2.66	11205	2.69	-	
	6000	100	15	5876	2.56	7465	2.68	9346	2.78	11557	2.83	14136	2.82	-	-	-	-	-	-		
			25	5213	2.97	6731	3.11	8513	3.26	10598	3.38	13024	3.47	15830	3.49	19055	3.43	-	-		
			35	4483	3.53	5912	3.64	7578	3.79	9518	3.95	11772	4.1	14379	4.22	17377	4.28	20805	4.26	-	
			45	3685	4.31	5007	4.35	6537	4.46	8314	4.61	10378	4.79	12767	4.96	15520	5.1	18676	5.2	-	



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

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Nomenclature and Dimensions

V L Z 044 T G N E 9 A

Variable speed

Family
Scroll (refrigeration)

Lubricant
POE46(RL46HB) lubricant
R404A / R448A / R449A refrigerant

Swept volume
in cm³/rev

Design pressure ratio
T: Design optimized for refrigeration

Evolution index

Other features

	Oil sight glass	Oil equalization	Oil drain
9	Threaded	None	Schrader

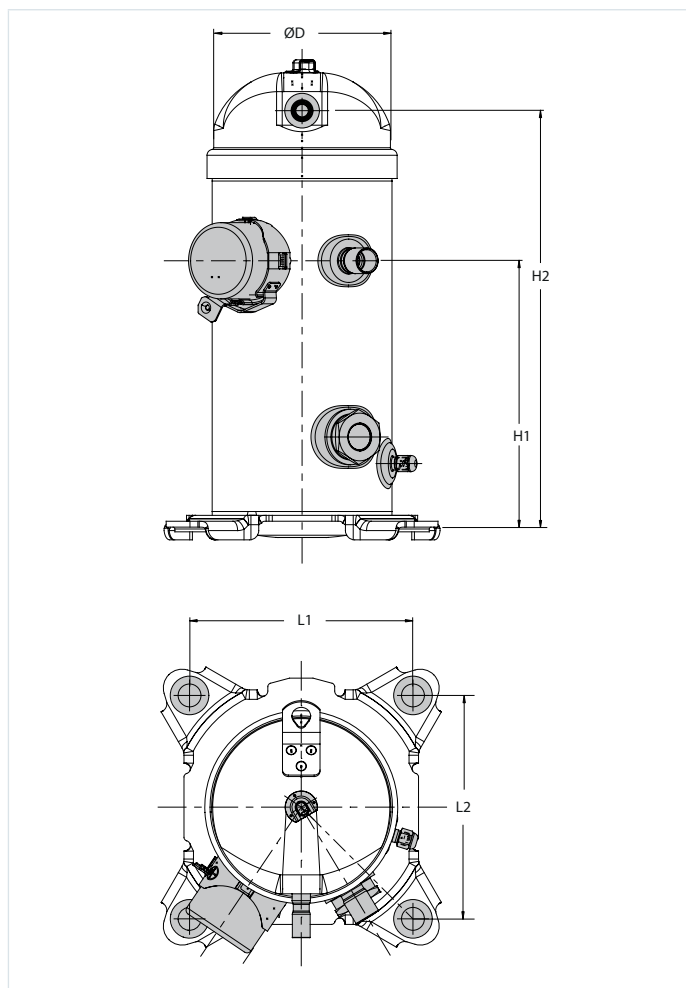
Fittings/connections
Brazed connections,
EMC compatible terminal box

Motor protection type
N: no internal motor protection
(protection by Danfoss drive)

Motor voltage code to CDS303 *)
G: 380-480 V/3~/50 & 60 Hz
J: 200-240 V/3~/50 & 60 Hz

*) main supply voltage to frequency converter

VLZ - Single compressors



Version	Compressor model	D	H	H1	H2	L1	L2	Outline drawing number
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
Single	VLZ028-035-044	164.5	404.4	230.5	360.4	190.5	190.5	0VG8213B

VZH, Inverter scroll compressor - R410A

Danfoss inverter scroll compressor VZH is the second generation of scroll compressors offering variable speed technology for commercial applications in air conditioning. It allows OEMs to stand out in the commercial HVAC and process cooling marketplaces from 4 – 52 TR (15 – 184 kW) and to exceed the upgraded energy level requirements.

It provides a stepless modulation from
 VZH088 / 117 / 170: 25 – 100 rps (1500 – 6000 rpm)
 VZH052 / 065: 16.7 – 110 rps (1000 – 6600 rpm)
 VZH028 / 035 / 044: 15 – 100 rps (900 – 6000 rpm)
 depending on the model.

The compressors comes with a pre-qualified drive for a shorter time to market and increased reliability.



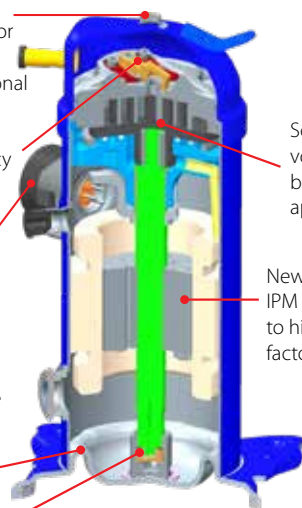
Discharge sensor (dome sensor) for high discharge temperature / reverse rotation / loss of charge monitoring, sensor is fitted into top bracket. Discharge sensor is optional

Intermediate discharge valves for better efficiency at low pressure-ratio

EMC (Electro-Magnetic Compatibility) bracket provided allows for grounding termination of shielded wire-harness, which reduces EMC emissions between drive and compressor

PVE 32 lubricant

Linear control oil pump



VZH 028-044

Lead free polymer bearing with excellent performance under diverse loads and speeds

Oil injection control optimizes the oil circulation

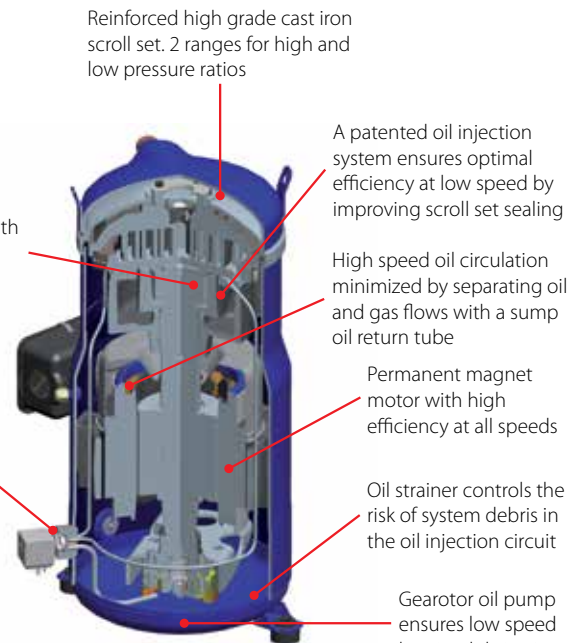
Scrolls with optimized volume ratio lead to better heat pump application

New distributed IPM motor lead to higher power factor

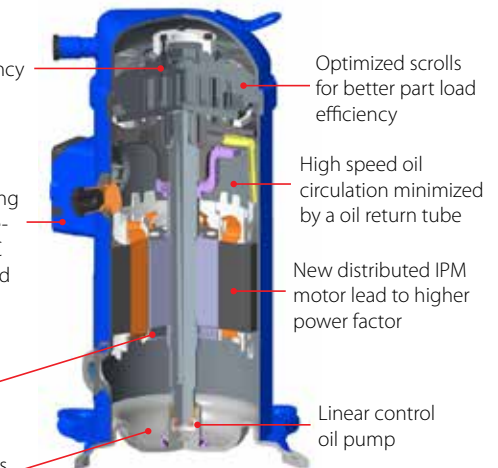
EMC (Electro-Magnetic Compatibility) bracket provided allows for grounding termination of shielded wire-harness, which reduces EMC emissions between drive and compressor

New designed oil cup to minimize oil stirring loss under high liquid level

PVE 32 lubricant ensures better lubrication and efficiency



VZH 088-170



VZH052-065

Facts

Applications:

- Packaged air conditioning
- Rooftops
- Chillers
- Close controls
- Heat pumps
- Data centers

- Capacity modulation: adapts motor speed to varying load continuously, quickly and smoothly for great comfort and reliability
 VZH028-044: 15 – 100 rps (900 – 6000 rpm)
 VZH052-065: 16.7 – 110 rps (1000 – 6600 rpm)
 VZH088-170: 25 – 100 rps (1500 – 6000 rpm)
- Tight temperature control ± 0.3 °C
- Pre-qualified compressor and drive package
- Motor's protection is managed by the driver
- Low in rush current

- Advanced energy efficiency cuts the electric bill and easily meets the energy standards
- Improves comfort and process reliability, greater humidity control
- Lowers noise level during part-load operations
- Faster time to market, saves time on development and enhances overall system reliability
- Reduces the size of power back up systems needed
- Reduces installation costs with elimination of components

Technical data and ordering

VZH028-044 - Inverter scroll compressor

Compressors specifications

Compressor model	Swept volume [cm ³ /rev]	Displacement				Oil charge [l]	Net weight [kg]
		15 rps [m ³ /h]	50 rps [m ³ /h]	60 rps [m ³ /h]	100 rps [m ³ /h]		
VZH028	27.8	1.5	5.0	6.0	10.0	1.1	26
VZH035	34.9	1.9	6.3	7.5	12.6	1.3	27
VZH044	44.5	2.4	8.0	9.6	16.0	1.3	27

VZH052-065 - Inverter scroll compressor

Compressors specifications

Compressor model	Swept volume [cm ³ /rev]	Displacement				Oil charge [l]	Net weight [kg]
		1000 rpm [m ³ /h]	3000 rpm [m ³ /h]	3600 rpm [m ³ /h]	6600 rpm [m ³ /h]		
VZH052	52.1	3.1	9.4	11.3	20.6	1.57	35
VZH065	65.1	3.9	11.7	14.1	25.8	1.57	35

Frequency converter specifications

Mains supply voltage	T2: 200 – 240 V ± 10% (3-phase), T4: 380 – 480 V ± 10% (3-phase), T6: 525 – 600 V ± 10% (3-phase)
Supply frequency	50 / 60 Hz
Output voltage	0 – 100% of supply voltage
Inputs	4 digital (0 – 24 V), 2 analog (0 / ± 10V or 4 – 20 mA, scalable)
Programmable outputs	2 digital (0 – 24 V), 2 analog (0 – 24 V), 2 relay
Protection functions	Over-current protection, low / high current handling
Compressor functions	Pressostat / thermostat function, short cycle protection, oil return management

VZH 028-065 - Single pack

Ordering

Compressor model	Equipment version	G 380-480 V/3ph/50&60 Hz		J 200-240 V/3ph/50&60 Hz		H 525-600 V/3ph/50&60 Hz	
		Compressor Name	Code no.	Compressor name	Code no.	Compressor name	Code no.
		VZH028	OSG	VZH028CGANA	120G0061	VZH028CJANA	120G0064
VZH035	OSG	VZH035CGANA	120G0060	VZH035CJANA	120G0063	VZH035CHANA	120G0124
	OLS	VZH035CGBNA	120G0073	VZH035CJBNA	120G0076	–	–
VZH044	OSG	VZH044CGANA	120G0059	VZH044CJANA	120G0062	VZH044CHANA	120G0125
	OLS	VZH044CGBNA	120G0072	VZH044CJBNA	120G0075	–	–
VZH052	Single	VZH052CGANB/M	120G0149	VZH052CJANB/M	120G0155	VZH052CHANB/M	120G0147
VZH065	Single	VZH065CGANB/M	120G0152	VZH065CJANB/M	120G0153	VZH065CHANB/M	120G0150

Technical data and ordering

VZH 028-044 - Frequency converter - Single pack

Ordering

Compressor model	CDS803 drive		
	Voltage	Description	Code no.
VZH028	T2 200-240 V/3ph/50&60 Hz	CDS803P6K0T2E20H4	134N4260
VZH035		CDS803P7K5T2E20H4	134N4261
VZH044		CDS803P10 KT2E20H4	134L9470
VZH028	T4 380-480 V/3ph/50&60 Hz	CDS803P6K0T4E20H4	134N4262
VZH035		CDS803P7K5T4E20H4	134N4263
VZH044		CDS803P10 KT4E20H4	134L9473

LCP: user interface 120Z0581 (accessory)

VZH 052-065 - Frequency converter

Ordering

Compressor model	CDS803 drive						
	Voltage	Model & power	IP class	RFI class	Drive name	Code no.	
VZH052/ VZH065	T2 200-240 V/3ph/50&60 Hz	CDS303 11kW	IP20	H2	CDS303P11KT2E20H2	135X3360	
			IP20	H3	CDS303P11KT2E20H3	135X3371	
			IP55	H2	CDS303P11KT2P55H2	135X3361	
			IP55	H3	CDS303P11KT2P55H3	135X3372	
VZH052	T4 380-480 V/3ph/50&60 Hz	CDS303 11kW	IP20	H2	CDS303P11KT4E20H2	135X3298	
			IP20	H3	CDS303P11KT4E20H3	135X3373	
			IP55	H2	CDS303P11KT4P55H2	135X3362	
			IP55	H3	CDS303P11KT4P55H3	135X3375	
VZH065		T4 380-480 V/3ph/50&60 Hz	CDS303 15kW	IP20	H2	CDS303P15KT4E20H2	135X1998
				IP20	H3	CDS303P15KT4E20H3	135X3379
				IP55	H2	CDS303P15KT4P55H2	135X3369
				IP55	H3	CDS303P15KT4P55H3	135X3380
VZH052	T6 525-600 V/3ph/50&60 Hz		CDS303 15kW	IP20	HX	CDS303P15KT6E20HX	135X3543
				IP55	HX	CDS303P15KT6P55HX	135X4863
VZH065			CDS303 22kW	IP20	HX	CDS303P22KT6E20HX	135X3560
				IP55	HX	CDS303P22KT6P55HX	135X3559

LCP: user interface 120Z0581 (accessory)

Technical data and ordering

VZH 088-170 - Inverter scroll compressor

Compressor specifications

Type	Swept volume [cm ³ /rev]	Displacement				Oil charge [dm ³]	Net weight [kg]
		25 rps [m ³ /h]	50 rps [m ³ /h]	60 rps [m ³ /h]	100 rps [m ³ /h]		
VZH088	88.4	7.7	15.4	18.6	30.8	3.3	55
VZH117	116.9	10.1	20.3	24.6	40.6	3.6	61
VZH170	170.2	14.8	29.6	35.7	54.2	6.7	112

Frequency converter specifications

Mains supply voltage	T2: 200 – 240 V ± 10% (3-phase), T4: 380 – 480 V ± 10% (3-phase), T6: 525 – 600 V ± 10% (3-phase)
Supply frequency	50 / 60 Hz
Output voltage	0 – 100% of supply voltage
Inputs	6 digital (0 – 24 V), 2 analogue (0 ± 10 V or 4 – 20 mA, scalable)
Programmable outputs	2 digital (0 – 24 V), 1 analogue (0 – 24 V), 2 relay
Protection functions	Over-current protection, low / high current handling
Compressor functions	Discharge gas temperature protection, pressostat/thermostat function, short cycle protection, oil return management

VZH 088-170 - Inverter scroll compressor - Single pack

Ordering

Compressor model	Pressure ratio	Equipment version	Technical name	X= motor code		
				G 380-480 V/3ph/ 50&60 Hz	J 200-240 V/3ph/ 50&60 Hz	H 525-600 V/3ph/ 50&60 Hz
VZH088	High	Single	VZH088AXANA	120G0010	120G0012	120G0047
	Low	Single	VZH088BXANA	120G0011	120G0013	120G0049
	High	Manifold	VZH088AXBNA	120G0022	120G0024	120G0048
	Low	Manifold	VZH088XBNA	120G0023	120G0025	120G0050
VZH117	High	Single	VZH117AXANA	120G0014	120G0016	120G0051
	Low	Single	VZH117BXANA	120G0015	120G0017	120G0053
	High	Manifold	VZH117AXBNA	120G0026	120G0028	120G0052
	Low	Manifold	VZH117XBNA	120G0027	120G0029	120G0054
VZH170	High	Single	VZH170AXANB	120G0018	120G0020	120G0055
	Low	Single	VZH170BXANB	120G0019	120G0021	120G0057
	High	Manifold	VZH170AXBNB	120G0030	120G0032	120G0056
	Low	Manifold	VZH170XBNB	120G0031	120G0033	120G0058

Coils

Ordering

Coil model	Code no.
208V-240 V coil + adaptor	120Z0521
24V coil + adaptor	120Z0522

Technical data and ordering

VZH voltage code G - 380-480 Volt

Ordering

Compressor model	Frequency converter					
	Model & power	IP class	RFI class	Coating	Code no	
VZH088-G	CDS303 15.0 KW	IP20	H3	No	134G3576	
	CDS303 15.0 KW			Yes	134G3577	
	CDS303 15.0 KW		H2	No	134F9366	
	CDS303 15.0 KW	IP55	H2	Yes	134G3578	
	CDS303 15.0 KW			H3	No	134G4008
	CDS303 15.0 KW		Yes	134G4010		
	CDS303 15.0 KW		H2	No	134G4012	
	CDS303 15.0 KW		Yes	134G4013		
	CDS303 15.0 KW		H3	No	134G3579	
VZH117-G	CDS303 18.5kW	IP20	H3	Yes	134G3580	
	CDS303 18.5kW			No	134F9368	
	CDS303 18.5kW		H2	Yes	134G3581	
	CDS303 18.5kW	IP55	H3	No	134G4015	
	CDS303 18.5kW			Yes	134G4016	
	CDS303 18.5kW		H2	No	134G4018	
	CDS303 18.5kW		Yes	134G4019		
	CDS303 18.5kW		IP20	H3	No	134G3582
	CDS303 18.5kW				Yes	134G3583
VZH170-G	CDS303 22.0 KW	IP20	H2	No	134F9371	
	CDS303 22.0 KW			Yes	134G3584	
	CDS303 22.0 KW		IP55	H3	No	134G4020
	CDS303 22.0 KW	Yes			134G4021	
	CDS303 22.0 KW	H2		No	134G4022	
	CDS303 22.0 KW		Yes	134G4023		

LCP: user interface 120Z0326 (accessory)

VZH voltage code H - 525-600 Volt

Ordering

Compressor model	Frequency converter			
	Model & power	IP class	RFI class	Code no
VZH088-H	CDS303 18.5kW	IP20	HX	134L7237
VZH117-H	CDS303 30 KW	IP20	HX	134L7239
VZH170-H	CDS303 30 KW	IP20	HX	134L7239

Technical data and ordering

VZH - Inverter scroll compressor - VZH028CG-VZH035CG-VZH044CG-VZH052CG-VZH065CG

ARI

Type	[rpm]	[rps]	Te		-30		-25		-20		-15		-10		-5		0		5		10		15		20					
			[°C]	[°C]	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe		
VZH028CG	1800	30	5	-	-	1894	0.535	2380	0.514	2954	0.494	3626	0.474	4405	0.456	5298	0.438	-	-	-	-	-	-	-	-	-	-	-	-	
			25	-	-	1568	0.804	2009	0.796	2521	0.783	3111	0.763	3790	0.739	4565	0.71	5445	0.676	6440	0.636	7557	0.593	8805	0.544	-	-	-	-	-
			45	-	-	-	-	-	-	-	1990	1.186	2484	1.206	3048	1.215	3690	1.212	4418	1.198	5242	1.173	6171	1.138	7212	1.092	-	-	-	-
			65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3600	60	5	3183	1.03	4004	1.045	4992	1.032	6167	0.975	7546	0.86	9150	0.673	10999	0.399	-	-	-	-	-	-	-	-	-	-	-	-	
			25	2550	1.478	3280	1.512	4145	1.557	5164	1.597	6356	1.618	7740	1.605	9336	1.545	11162	1.422	13237	1.222	15582	0.931	18215	0.533	-	-	-	-	
			45	-	-	2526	2.273	3244	2.269	4082	2.3	5062	2.351	6200	2.407	7518	2.454	9034	2.478	10767	2.463	12737	2.395	14963	2.261	-	-	-	-	
			65	-	-	-	-	-	-	-	-	-	-	-	4505	3.531	5520	3.58	6701	3.643	8067	3.707	9637	3.758	11431	3.78	-	-		
	6000	100	5	5317	1.941	6663	1.986	8277	1.976	10191	1.898	12435	1.739	15043	1.484	18044	1.12	-	-	-	-	-	-	-	-	-	-	-		
			25	4305	2.614	5528	2.745	6969	2.859	8657	2.942	10625	2.982	12905	2.964	15527	2.876	18525	2.703	21928	2.431	25770	2.048	30082	1.539	-	-	-		
			45	-	-	4269	3.807	5497	3.929	6922	4.059	8576	4.183	10491	4.288	12697	4.36	15226	4.385	18111	4.349	21383	4.24	25074	4.044	-	-	-		
			65	-	-	-	-	-	-	-	-	-	-	-	7698	6.009	9450	6.126	11474	6.234	13802	6.32	16466	6.37	19498	6.37	-	-		
VZH035CG	1800	30	5	-	-	2398	0.652	3012	0.627	3740	0.602	4590	0.578	5576	0.555	6707	0.534	-	-	-	-	-	-	-	-	-	-	-		
			25	-	-	1985	0.981	2543	0.971	3191	0.954	3939	0.931	4797	0.901	5778	0.866	6893	0.824	8151	0.776	9565	0.723	11146	0.664	-	-	-		
			45	-	-	-	-	-	-	2519	1.447	3145	1.471	3858	1.481	4670	1.478	5593	1.461	6636	1.431	7811	1.388	9129	1.331	-	-	-		
			65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	3600	60	5	4029	1.256	5069	1.274	6319	1.258	7806	1.188	9552	1.049	11583	0.82	13922	0.486	-	-	-	-	-	-	-	-	-	-	-		
			25	3227	1.802	4152	1.844	5247	1.898	6537	1.947	8046	1.973	9798	1.958	11817	1.884	14129	1.734	16756	1.49	19724	1.135	23057	0.65	-	-	-		
			45	-	-	3198	2.771	4106	2.767	5168	2.805	6407	2.867	7849	2.935	9517	2.993	11436	3.021	13630	3.003	16123	2.921	18941	2.757	-	-	-		
			65	-	-	-	-	-	-	-	-	-	-	-	5703	4.306	6988	4.365	8483	4.442	10212	4.52	12199	4.582	14469	4.609	-	-		
	6000	100	5	6730	2.321	8434	2.374	10478	2.363	12900	2.27	15741	2.079	19041	1.774	22841	1.339	-	-	-	-	-	-	-	-	-	-			
			25	5449	3.126	6998	3.282	8821	3.418	10958	3.518	13449	3.565	16335	3.544	19655	3.438	23449	3.231	27758	2.907	32621	2.449	38079	1.841	-	-			
			45	-	-	5403	4.551	6958	4.698	8763	4.853	10856	5.002	13279	5.127	16072	5.213	19274	5.243	22926	5.2	27067	5.07	31739	4.835	-	-			
			65	-	-	-	-	-	-	-	-	-	-	-	9744	7.184	11962	7.324	14524	7.454	17471	7.556	20844	7.616	24681	7.617	-	-		
VZH044CG	1800	30	5	-	-	3083	0.815	3874	0.784	4809	0.753	5903	0.723	7171	0.695	8625	0.668	-	-	-	-	-	-	-	-	-	-			
			25	-	-	2553	1.227	3271	1.214	4104	1.194	5065	1.165	6169	1.128	7431	1.083	8864	1.03	10483	0.971	12301	0.904	14333	0.83	-	-			
			45	-	-	-	-	-	-	3239	1.81	4044	1.84	4961	1.853	6006	1.849	7192	1.828	8533	1.79	10045	1.736	11740	1.666	-	-			
			65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	3600	60	5	5182	1.543	6518	1.565	8127	1.545	10038	1.46	12284	1.288	14896	1.008	17904	0.598	-	-	-	-	-	-	-	-	-	-			
			25	4150	2.213	5340	2.265	6748	2.332	8407	2.392	10347	2.423	12600	2.405	15197	2.314	18169	2.13	21548	1.831	25365	1.394	29652	0.799	-	-			
			45	-	-	4113	3.405	5280	3.399	6646	3.446	8239	3.522	10093	3.606	12238	3.676	14706	3.711	17528	3.689	20734	3.588	24357	3.386	-	-			
			65	-	-	-	-	-	-	-	-	-	-	-	7334	5.29	8986	5.362	10909	5.457	13132	5.553	15688	5.629	18607	5.662	-	-		
	6000	100	5	8654	2.903	10846	2.97	13474	2.956	16589	2.84	20243	2.601	24487	2.22	29373	1.675	-	-	-	-	-	-	-	-	-				
			25	7008	3.91	9000	4.105	11344	4.276	14092	4.401	17296	4.46	21007	4.434	25276	4.302	30155	4.042	35696	3.637	41950	3.063	48969	2.303	-	-			
			45	-	-	6949	5.694	8949	5.877	11269	6.071	13961	6.257	17077	6.414	20668	6.521	24786	6.559	29483	6.506	34809	6.343	40816	6.049	-	-			
			65	-	-	-	-	-	-	-	-	-	-	-	12531	8.988	15383	9.162	18678	9.324	22468	9.453	26805	9.528	31740	9.528	-	-		
VZH052CG	1800	30	5	3002	0.86	3889	0.84	4856	0.82	5913	0.77	7072	0.68	8345	0.54	9744	0.33	-	-	-	-	-	-	-	-	-				
			25	1118	1.44	2223	1.4	3396	1.37	4647	1.36	5989	1.35	7434	1.32	8992	1.27	10677	1.17	12500	1.02	14472	0.8	16606	0.49	-	-			
			45	-	-	-	-	-	-	2024	2.27	3438	2.23	4943	2.2	6550	2.19	8272	2.17	10121	2.13	12107	2.06	14243	1.95	-	-			
			65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	3600	60	5	6227	1.79	7917	1.82	9820	1.82	11964	1.74	14376	1.55	17082	1.22	20109	0.72	-	-	-	-	-	-	-	-	-				
			25	3466	2.8	5330	2.75	7386	2.76	9662	2.8	12183	2.82	14977	2.81	18071	2.72	21491	2.52	25264	2.19	29418	1.69	33978	0.99	-	-			
			45	-	-	-	-	3527	4.63	5716	4.46	8129	4.37	10793	4.34	13735	4.33	16982	4.32	20560	4.27	24497	4.15	28820	3.92	-	-			
			65	-	-	-	-	-	-	-	-	-	-	-	-	-	7750	6.94	10605	6.78	13771	6.68	17273	6.61	21139	6.54	-	-		
	6000	100	5	10065	3.37	12748	3.4	15880	3.38	19512	3.27	23693	3.05	28473	2.68	33901	2.14	40028	1.39	-	-	-	-	-	-					
			25	6959	5.08	9692	5.08	12803	5.11	16344	5.15	20363	5.17	24910	5.14	30035	5.03	35788	4.8	42219	4.42	49378	3.87	57313	3.1	-	-			
			45	-	-	5560	8.04	8412	7.83	11624	7.71	15243	7.67	19320	7.68	23905	7.69	29047	7.68	34796	7.62	41202	7.47	48316	7.21	-	-			
			65	-	-	-	-	-	-	-	-	8675	11.91	12044	11.64	15851	11.47	20144	11.38	24974	11.33	30391	11.28	36444	11.22	-	-			
VZH065CG	1800	30	5	3819	1.02	4924	1.03	6134	1.03	7463	0.98	8928	0.88	10543	0.69	12325	0.4	-												

Technical data and ordering

Inverter scroll compressor - VZH 088-170BG - R410A

Low pressure ratio - ARI

Type	[rpm]	Te		-25		-20		-15		-10		-5		0		5		10		15		
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VZH088BG	1500	20	--	--	6500	1.795	7900	1.699	9400	1.613	11200	1.541	13300	1.488	15700	1.457	--	--	--	--	--	--
	1500	30	--	--	5600	2.335	6900	2.256	8300	2.176	10000	2.098	12000	2.025	14200	1.963	16700	1.914	19600	1.882	--	--
	1500	40	--	--	4700	2.925	5900	2.886	7300	2.833	8900	2.77	10700	2.701	12700	2.628	15100	2.558	17700	2.492	--	--
	1500	50	--	--	--	--	--	--	6200	3.651	7600	3.624	9300	3.579	11200	3.52	13400	3.449	15800	3.371	--	--
	1500	60	--	--	--	--	--	--	--	--	--	--	7900	4.727	9600	4.702	11600	4.653	13900	4.585	--	--
	1500	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3600	20	11900	4.447	14600	4.419	17800	4.338	21700	4.232	26200	4.133	31400	4.071	37400	4.074	--	--	--	--	--	--
	3600	30	10500	5.484	13100	5.537	16200	5.5	19800	5.405	24100	5.281	28900	5.157	34400	5.064	40700	5.032	47700	5.091	--	--
	3600	40	--	--	11700	6.799	14600	6.856	18000	6.818	21900	6.715	26300	6.579	31400	6.438	37100	6.322	43500	6.262	--	--
	3600	50	--	--	--	--	--	--	15900	8.502	19500	8.47	23500	8.368	28100	8.226	33200	8.074	39100	7.943	--	--
	3600	60	--	--	--	--	--	--	--	--	--	--	20200	10.556	24300	10.461	29000	10.321	34200	10.166	--	--
	3600	63	--	--	--	--	--	--	--	--	--	--	--	--	23200	11.223	27600	11.096	32700	10.943	--	--
	6000	20	--	--	23900	7.6	28900	7.596	34900	7.554	42000	7.54	50200	7.618	59600	7.857	--	--	--	--	--	--
	6000	30	--	--	22000	9.669	26900	9.74	32700	9.694	39500	9.598	47300	9.517	56200	9.517	66400	9.666	77900	10.029	--	--
	6000	40	--	--	19800	11.778	24500	12.018	29900	12.063	36200	11.98	43400	11.835	51700	11.693	61100	11.621	71800	11.685	--	--
	6000	50	--	--	--	--	--	--	26400	14.579	32000	14.605	38500	14.489	45900	14.3	54400	14.103	64100	13.964	--	--
	6000	60	--	--	--	--	--	--	--	--	--	--	32600	17.398	39100	17.256	46500	17.029	55100	16.781	--	--
	6000	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VZH117BG	1500	20	--	--	8700	2.357	10500	2.231	12700	2.118	15100	2.024	17900	1.954	21100	1.913	--	--	--	--	--	--
	1500	30	--	--	7500	3.066	9200	2.963	11200	2.858	13500	2.755	16100	2.66	19100	2.578	22500	2.513	26300	2.472	--	--
	1500	40	--	--	6300	3.842	7900	3.791	9800	3.721	11900	3.638	14300	3.547	17100	3.452	20200	3.359	23800	3.273	--	--
	1500	50	--	--	--	--	--	--	8300	4.795	10200	4.76	12500	4.701	15000	4.623	18000	4.53	21300	4.428	--	--
	1500	60	--	--	--	--	--	--	--	--	--	--	10600	6.209	12900	6.175	15600	6.111	18700	6.021	--	--
	1500	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3600	20	15900	5.84	19600	5.804	23900	5.697	29100	5.559	35200	5.429	42200	5.347	50200	5.351	--	--	--	--	--	--
	3600	30	14100	7.203	17600	7.272	21800	7.224	26600	7.099	32300	6.935	38800	6.773	46200	6.651	54600	6.61	64000	6.687	--	--
	3600	40	--	--	15700	8.93	19600	9.004	24200	8.954	29400	8.82	35300	8.64	42100	8.455	49800	8.303	58500	8.224	--	--
	3600	50	--	--	--	--	--	--	21400	11.167	26100	11.124	31500	10.99	37700	10.804	44600	10.605	52400	10.432	--	--
	3600	60	--	--	--	--	--	--	--	--	--	--	27200	13.864	32700	13.739	38900	13.555	45900	13.352	--	--
	3600	63	--	--	--	--	--	--	--	--	--	--	--	--	31100	14.74	37100	14.573	43900	14.373	--	--
	6000	20	--	--	32000	9.981	38800	9.977	46900	9.922	56300	9.902	67300	10.006	80000	10.319	--	--	--	--	--	--
	6000	30	--	--	29500	12.699	36100	12.792	43900	12.732	53000	12.605	63500	12.499	75500	12.5	89200	12.695	104600	13.171	--	--
	6000	40	--	--	26600	15.469	32900	15.784	40100	15.844	48500	15.735	58300	15.544	69400	15.357	82000	15.263	96300	15.347	--	--
	6000	50	--	--	--	--	--	--	35400	19.148	43000	19.182	51700	19.03	61600	18.782	73100	18.522	86000	18.34	--	--
	6000	60	--	--	--	--	--	--	--	--	--	--	43800	22.851	52500	22.664	62500	22.365	73900	22.04	--	--
	6000	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VZH170BG	1500	20	--	--	12400	3.172	14900	3.041	17900	2.907	21400	2.762	25400	2.597	30000	2.405	--	--	--	--	--	--
	1500	30	--	--	10800	4.297	13300	4.157	16100	4.026	19400	3.895	23200	3.755	27600	3.599	32500	3.418	38100	3.204	--	--
	1500	40	--	--	9300	5.546	11600	5.397	14300	5.268	17300	5.15	20900	5.035	24900	4.915	29600	4.781	34800	4.625	--	--
	1500	50	--	--	--	--	--	--	12200	6.784	15100	6.679	18300	6.589	22000	6.504	26300	6.416	31200	6.318	--	--
	1500	60	--	--	--	--	--	--	--	--	--	--	15500	8.566	18900	8.516	22800	8.475	27300	8.434	--	--
	1500	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3600	20	22900	8.352	28200	8.195	34600	8.029	42200	7.839	51100	7.608	61400	7.321	73300	6.961	--	--	--	--	--	--
	3600	30	20500	10.392	25600	10.262	31600	10.137	38700	10.004	47000	9.845	56600	9.646	67700	9.389	80400	9.06	94800	8.642	--	--
	3600	40	--	--	22900	12.728	28400	12.623	34900	12.524	42500	12.416	51300	12.282	61500	12.106	73100	11.873	86400	11.566	--	--
	3600	50	--	--	--	--	--	--	30900	15.652	37600	15.572	45500	15.481	54600	15.363	65200	15.204	77200	14.986	--	--
	3600	60	--	--	--	--	--	--	--	--	--	--	39300	19.495	47300	19.414	56600	19.306	67400	19.156	--	--
	3600	63	--	--	--	--	--	--	--	--	--	--	--	--	45100	20.821	54100	20.725	64500	20.59	--	--
	6000	20	--	--	47100	14.689	57600	14.8	70000	14.747	84500	14.48	101400	13.947	120800	13.097	--	--	--	--	--	--
	6000	30	--	--	42800	17.702	52900	17.949	64700	18.102	78500	18.111	94400	17.924	112700	17.488	133500	16.754	157200	15.669	--	--
	6000	40	--	--	38300	21.481	47700	21.744	58700	21.983	71500	22.147	86300	22.185	103200	22.046	122600	21.676	144700	21.026	--	--
	6000	50	--	--	--	--	--	--	52000	26.837	63500	27.037	76900	27.18	92400	27.216	110100	27.091	130400	26.756	--	--
	6000	60	--	--	--	--	--	--	--	--	--	--	66600	33.356	80400	33.446	96400	33.447	114700	33.306	--	--
	6000	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Pe: Power input in [kW]

Qo: Cooling capacity in [W]

Subcooling: 8.3 K

Superheat: 11.1 K

Voltage code: G: 380 – 480 V / 3 / 50 and 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Inverter scroll compressor - VZH088-VZH170BG - R410A

Low pressure ratio - EN12900

Type	[rpm]	Te		-25		-20		-15		-10		-5		0		5		10		15	
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo
VZH088BG	1500	20	--	--	6100	1.795	7400	1.699	8800	1.613	10600	1.541	12500	1.488	14700	1.457	--	--	--	--	
	1500	30	--	--	5200	2.335	6400	2.256	7800	2.176	9300	2.098	11200	2.025	13200	1.963	15600	1.914	18300	1.882	
	1500	40	--	--	4300	2.925	5400	2.886	6700	2.833	8100	2.77	9800	2.701	11700	2.628	13900	2.558	16300	2.492	
	1500	50	--	--	--	--	--	--	5500	3.651	6900	3.624	8400	3.579	10100	3.52	12100	3.449	14300	3.371	
	1500	60	--	--	--	--	--	--	--	--	--	--	6800	4.727	8400	4.702	10100	4.653	12200	4.585	
	1500	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	3600	20	11100	4.447	13600	4.419	16700	4.338	20400	4.232	24600	4.133	29500	4.071	35100	4.074	--	--	--	--	
	3600	30	9700	5.484	12200	5.537	15000	5.5	18400	5.405	22400	5.281	26900	5.157	32000	5.064	37900	5.032	44500	5.091	
	3600	40	--	--	10700	6.799	13400	6.856	16500	6.818	20100	6.715	24200	6.579	28800	6.438	34100	6.322	40100	6.262	
	3600	50	--	--	--	--	--	--	14300	8.502	17500	8.47	21100	8.368	25300	8.226	30000	8.074	35300	7.943	
	3600	60	--	--	--	--	--	--	--	--	--	--	17600	10.556	21200	10.461	25200	10.321	29800	10.166	
	3600	63	--	--	--	--	--	--	--	--	--	--	--	--	19800	11.223	23700	11.096	28100	10.943	
	6000	20	--	--	22300	7.6	27100	7.596	32700	7.554	39400	7.54	47100	7.618	56000	7.857	--	--	--	--	
	6000	30	--	--	20400	9.669	25000	9.74	30400	9.694	36700	9.598	44000	9.517	52400	9.517	61900	9.666	72700	10.029	
	6000	40	--	--	18100	11.778	22400	12.018	27400	12.063	33200	11.98	39900	11.835	47500	11.693	56200	11.621	66100	11.685	
	6000	50	--	--	--	--	--	--	23700	14.579	28800	14.605	34700	14.489	41400	14.3	49100	14.103	57900	13.964	
	6000	60	--	--	--	--	--	--	--	--	--	--	28300	17.398	34000	17.256	40600	17.029	48100	16.781	
	6000	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	VZH117BG	1500	20	--	--	8200	2.357	9900	2.231	11900	2.118	14200	2.024	16800	1.954	19800	1.913	--	--	--	--
1500		30	--	--	6900	3.066	8500	2.963	10400	2.858	12500	2.755	15000	2.66	17800	2.578	20900	2.513	24500	2.472	
1500		40	--	--	5700	3.842	7200	3.791	8900	3.721	10900	3.638	13200	3.547	15700	3.452	18600	3.359	21900	3.273	
1500		50	--	--	--	--	--	--	7400	4.795	9200	4.76	11200	4.701	13600	4.623	16200	4.53	19200	4.428	
1500		60	--	--	--	--	--	--	--	--	--	--	9200	6.209	11200	6.175	13600	6.111	16300	6.021	
1500		63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
3600		20	14900	5.84	18300	5.804	22400	5.697	27300	5.559	33000	5.429	39600	5.347	47200	5.351	--	--	--	--	
3600		30	13100	7.203	16300	7.272	20200	7.224	24700	7.099	30000	6.935	36100	6.773	43000	6.651	50900	6.61	59700	6.687	
3600		40	--	--	14400	8.93	18000	9.004	22100	8.954	26900	8.82	32400	8.64	38700	8.455	45800	8.303	53800	8.224	
3600		50	--	--	--	--	--	--	19200	11.167	23500	11.124	28400	10.99	34000	10.804	40300	10.605	47400	10.432	
3600		60	--	--	--	--	--	--	--	--	--	--	23600	13.864	28400	13.739	33900	13.555	40100	13.352	
3600		63	--	--	--	--	--	--	--	--	--	--	--	--	26500	14.74	31800	14.573	37700	14.373	
6000		20	--	--	30000	9.981	36400	9.977	43900	9.922	52900	9.902	63200	10.006	75200	10.319	--	--	--	--	
6000		30	--	--	27400	12.699	33500	12.792	40800	12.732	49300	12.605	59100	12.499	70300	12.5	83100	12.695	97500	13.171	
6000		40	--	--	24400	15.469	30100	15.784	36800	15.844	44500	15.735	53500	15.544	63800	15.357	75500	15.263	88700	15.347	
6000		50	--	--	--	--	--	--	31800	19.148	38600	19.182	46500	19.03	55600	18.782	66000	18.522	77700	18.34	
6000		60	--	--	--	--	--	--	--	--	--	--	38000	22.851	45600	22.664	54400	22.365	64500	22.04	
6000		63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
VZH170BG		1500	20	--	--	11600	3.172	14000	3.041	16800	2.907	20100	2.762	23800	2.597	28200	2.405	--	--	--	--
	1500	30	--	--	10000	4.297	12300	4.157	15000	4.026	18100	3.895	21600	3.755	25700	3.599	30300	3.418	35500	3.204	
	1500	40	--	--	8500	5.546	10600	5.397	13100	5.268	15900	5.15	19200	5.035	22900	4.915	27200	4.781	32000	4.625	
	1500	50	--	--	--	--	--	--	11000	6.784	13500	6.679	16500	6.589	19900	6.504	23800	6.416	28200	6.318	
	1500	60	--	--	--	--	--	--	--	--	--	--	13500	8.566	16500	8.516	19900	8.475	23800	8.434	
	1500	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	3600	20	21400	8.352	26400	8.195	32400	8.029	39600	7.839	47900	7.608	57700	7.321	68900	6.961	--	--	--	--	
	3600	30	19000	10.392	23700	10.262	29300	10.137	35900	10.004	43700	9.845	52700	9.646	63000	9.389	74900	9.06	88400	8.642	
	3600	40	--	--	20900	12.728	26000	12.623	32000	12.524	39000	12.416	47100	12.282	56500	12.106	67300	11.873	79600	11.566	
	3600	50	--	--	--	--	--	--	27700	15.652	33800	15.572	41000	15.481	49300	15.363	58800	15.204	69800	14.986	
	3600	60	--	--	--	--	--	--	--	--	--	--	34100	19.495	41100	19.414	49300	19.306	58800	19.156	
	3600	63	--	--	--	--	--	--	--	--	--	--	--	--	38500	20.821	46300	20.725	55300	20.59	
	6000	20	--	--	44100	14.689	54000	14.8	65700	14.747	79300	14.48	95200	13.947	113500	13.097	--	--	--	--	
	6000	30	--	--	39700	17.702	49100	17.949	60100	18.102	72900	18.111	87800	17.924	104900	17.488	124500	16.754	146600	15.669	
	6000	40	--	--	35000	21.481	43700	21.744	53800	21.983	65600	22.147	79200	22.185	94900	22.046	112900	21.676	133300	21.026	
	6000	50	--	--	--	--	--	--	46700	26.837	57100	27.037	69300	27.18	83300	27.216	99400	27.091	117800	26.756	
	6000	60	--	--	--	--	--	--	--	--	--	--	57800	33.356	69900	33.446	84000	33.447	100100	33.306	
6000	63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Pe: Power input in [kW]

Qo: Cooling capacity in [W]

Subcooling: 0 K

Superheat: 10 K

Voltage code: G: 380 - 480 V / 3 / 50 and 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Inverter scroll compressor - VZH088-VZH170AG - R410A

High pressure ratio - ARI

Type	[rpm]	Te	-25		-20		-15		-10		-5		0		5		10		15	
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo
VZH088AG	1500	20	-	-	5700	1.472	7100	1.542	8600	1.623	10400	1.677	12500	1.665	14900	1.549	-	-	-	-
	1500	30	-	-	5200	2.043	6500	2.008	7900	2.032	9700	2.076	11600	2.103	13900	2.073	16400	1.949	19200	1.692
	1500	40	-	-	4600	2.917	5800	2.735	7200	2.659	8800	2.651	10700	2.673	12700	2.687	15000	2.654	17600	2.537
	1500	50	-	-	-	-	5100	3.786	6400	3.568	7800	3.466	9500	3.441	11300	3.457	13400	3.473	15800	3.453
	1500	60	-	-	-	-	-	-	-	-	6600	4.587	8100	4.473	9700	4.447	11600	4.47	13600	4.504
	1500	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	20	12000	4.19	14700	4.258	17900	4.335	21700	4.424	26100	4.529	31200	4.652	37100	4.798	-	-	-	-
	3600	30	10600	5.044	13100	5.11	16200	5.181	19700	5.262	23900	5.357	28600	5.467	34100	5.596	40300	5.748	47300	5.926
	3600	40	-	-	11700	6.214	14600	6.274	17800	6.34	21600	6.417	26000	6.507	31000	6.613	36800	6.74	43200	6.889
	3600	50	-	-	-	-	12900	7.746	15800	7.79	19300	7.843	23200	7.906	27700	7.982	32900	8.076	38800	8.191
	3600	60	-	-	-	-	-	-	-	-	16600	9.767	20100	9.796	24100	9.836	28700	9.891	34000	9.963
	3600	68	-	-	-	-	-	-	-	-	-	-	-	-	21300	11.759	25600	11.777	30400	11.81
	6000	20	-	-	24000	7.654	29200	7.958	35400	8.307	42700	8.709	51100	9.176	60700	9.716	-	-	-	-
	6000	30	-	-	21800	9.043	26800	9.284	32700	9.558	39500	9.875	47400	10.245	56400	10.677	66700	11.18	78300	11.765
	6000	40	-	-	19800	10.85	24400	11.021	29800	11.213	36100	11.439	43300	11.705	51600	12.023	61000	12.401	71700	12.849
	6000	50	-	-	-	-	21800	13.353	26600	13.458	32200	13.585	38700	13.741	46100	13.938	54600	14.184	64200	14.49
6000	60	-	-	-	-	-	-	-	-	27900	16.498	33500	16.538	40000	16.607	47400	16.715	55900	16.87	
6000	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VZH117AG	1500	20	-	-	7700	1.933	9500	2.025	11600	2.132	14000	2.203	16800	2.187	20000	2.035	-	-	-	-
	1500	30	-	-	6900	2.683	8700	2.638	10700	2.669	13000	2.727	15600	2.762	18600	2.723	22000	2.56	25800	2.223
	1500	40	-	-	6100	3.831	7800	3.592	9700	3.492	11900	3.482	14300	3.511	17100	3.529	20200	3.486	23700	3.332
	1500	50	-	-	-	-	6800	4.973	8500	4.686	10500	4.552	12700	4.52	15200	4.54	18000	4.561	21200	4.535
	1500	60	-	-	-	-	-	-	-	-	8900	6.024	10800	5.875	13100	5.841	15500	5.871	18300	5.916
	1500	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	20	16200	5.503	19800	5.592	24000	5.693	29100	5.811	35000	5.948	41900	6.11	49700	6.301	-	-	-	-
	3600	30	14200	6.625	17600	6.711	21700	6.805	26500	6.912	32000	7.035	38500	7.18	45800	7.35	54100	7.55	63600	7.783
	3600	40	-	-	15700	8.162	19500	8.24	23900	8.327	29100	8.428	34900	8.546	41700	8.686	49300	8.852	58000	9.048
	3600	50	-	-	-	-	17300	10.173	21300	10.232	25800	10.3	31100	10.383	37200	10.484	44100	10.607	52000	10.757
	3600	60	-	-	-	-	-	-	-	-	22300	12.828	27000	12.866	32400	12.919	38500	12.991	45600	13.086
	3600	68	-	-	-	-	-	-	-	-	-	-	-	-	28700	15.444	34300	15.467	40800	15.512
	6000	20	-	-	32300	10.053	39200	10.452	47500	10.91	57300	11.439	68500	12.052	81500	12.761	-	-	-	-
	6000	30	-	-	29300	11.877	36000	12.193	43900	12.553	53000	12.97	63600	13.455	75700	14.023	89500	14.684	105100	15.452
	6000	40	-	-	26500	14.25	32800	14.474	40000	14.728	48500	15.023	58200	15.373	69300	15.791	81900	16.287	96200	16.876
	6000	50	-	-	-	-	29200	17.538	35800	17.676	43300	17.842	52000	18.048	61900	18.306	73300	18.63	86200	19.03
6000	60	-	-	-	-	-	-	-	-	37400	21.668	45000	21.721	53600	21.812	63600	21.953	75000	22.157	
6000	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VZH170AG	1500	20	-	-	11900	3.095	14500	3.074	17500	3.047	21100	2.982	25200	2.844	29900	2.601	-	-	-	-
	1500	30	-	-	10700	4.019	13100	3.962	16000	3.949	19400	3.948	23300	3.925	27700	3.847	32700	3.68	38400	3.391
	1500	40	-	-	9300	5.287	11600	5.112	14300	5.032	17400	5.013	21000	5.023	25000	5.029	29700	4.996	34900	4.891
	1500	50	-	-	-	-	9900	6.724	12300	6.495	15100	6.378	18300	6.339	21900	6.346	26100	6.366	30800	6.363
	1500	60	-	-	-	-	-	-	-	-	12500	8.242	15200	8.074	18400	8.001	22100	7.99	26300	8.009
	1500	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	20	24500	7.456	29300	7.626	35200	7.808	42400	7.979	50800	8.115	60700	8.191	72100	8.184	-	-	-	-
	3600	30	21800	9.377	26500	9.47	32200	9.611	39000	9.775	46900	9.94	56200	10.081	66900	10.174	79100	10.196	93100	10.122
	3600	40	-	-	24000	11.86	29300	11.904	35500	12.007	42800	12.146	51300	12.297	61100	12.435	72400	12.538	85200	12.581
	3600	50	-	-	-	-	26200	14.819	31700	14.806	38200	14.865	45800	14.97	54500	15.1	64600	15.229	76200	15.333
	3600	60	-	-	-	-	-	-	-	-	32900	18.228	39400	18.234	47000	18.299	55900	18.399	66100	18.511
	3600	68	-	-	-	-	-	-	-	-	-	-	-	-	41000	21.332	49000	21.369	58200	21.447
	6000	20	-	-	48200	13.279	58500	13.868	70800	14.517	85300	15.273	102100	16.184	121500	17.296	-	-	-	-
	6000	30	-	-	43000	16.274	52900	16.84	64400	17.388	77900	17.965	93500	18.618	111400	19.394	131800	20.341	154900	21.505
	6000	40	-	-	38900	19.827	48100	20.446	58800	20.967	71200	21.439	85400	21.909	101800	22.423	120400	23.03	141400	23.776
	6000	50	-	-	-	-	43400	24.851	53100	25.421	64200	25.863	77000	26.224	91700	26.551	108400	26.892	127300	27.294
6000	60	-	-	-	-	-	-	-	-	56400	31.402	67700	31.729	80600	31.943	95400	32.094	112200	32.226	
6000	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

To: Evaporating temperature in [°C]

Tc: Condensing temperature in [°C]

Pe: Power input in [kW]

Qo: Cooling capacity in [W]

Subcooling: 8.3 K

Superheat: 11.1 K

Voltage code: G: 380 - 480 V / 3 / 50 and 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector ® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Inverter scroll compressor - VZH088-VZH170AG - R410A

High pressure ratio - EN12900

Type	[rpm]	Te	-25		-20		-15		-10		-5		0		5		10		15	
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo
VZH088AG	1500	20	-	-	5400	1.472	6600	1.542	8100	1.623	9800	1.677	11800	1.665	14000	1.549	-	-	-	-
	1500	30	-	-	4800	2.043	6000	2.008	7400	2.032	9000	2.076	10800	2.103	12900	2.073	15300	1.949	17900	1.692
	1500	40	-	-	4200	2.917	5300	2.735	6600	2.659	8100	2.651	9800	2.673	11700	2.687	13800	2.654	16200	2.537
	1500	50	-	-	-	-	4500	3.786	5700	3.568	7000	3.466	8500	3.441	10200	3.457	12100	3.473	14300	3.453
	1500	60	-	-	-	-	-	-	-	-	5700	4.587	7000	4.473	8500	4.447	10100	4.47	11900	4.504
	1500	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	20	11300	4.19	13800	4.258	16800	4.335	20300	4.424	24500	4.529	29300	4.652	34800	4.798	-	-	-	-
	3600	30	9800	5.044	12200	5.11	15000	5.181	18300	5.262	22200	5.357	26700	5.467	31800	5.596	37600	5.748	44200	5.926
	3600	40	-	-	10700	6.214	13300	6.274	16300	6.34	19900	6.417	23900	6.507	28500	6.613	33800	6.74	39800	6.889
	3600	50	-	-	-	-	11500	7.746	14200	7.79	17300	7.843	20900	7.906	25000	7.982	29700	8.076	35000	8.191
	3600	60	-	-	-	-	-	-	-	-	14400	9.767	17500	9.796	21000	9.836	25000	9.891	29600	9.963
	3600	68	-	-	-	-	-	-	-	-	-	-	-	-	17300	11.759	20800	11.777	24800	11.81
	6000	20	-	-	22500	7.654	27400	7.958	33200	8.307	40000	8.709	48000	9.176	57100	9.716	-	-	-	-
	6000	30	-	-	20200	9.043	24900	9.284	30400	9.558	36700	9.875	44100	10.245	52500	10.677	62100	11.18	73000	11.765
	6000	40	-	-	18100	10.85	22300	11.021	27300	11.213	33100	11.439	39800	11.705	47400	12.023	56200	12.401	66000	12.849
	6000	50	-	-	-	-	19500	13.353	23900	13.458	29000	13.585	34900	13.741	41600	13.938	49300	14.184	58000	14.49
6000	60	-	-	-	-	-	-	-	-	24200	16.498	29100	16.538	34800	16.607	41300	16.715	48800	16.87	
6000	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VZH117AG	1500	20	-	-	7200	1.933	8900	2.025	10800	2.132	13100	2.203	15800	2.187	18800	2.035	-	-	-	-
	1500	30	-	-	6400	2.683	8000	2.638	9900	2.669	12100	2.727	14500	2.762	17300	2.723	20500	2.56	24100	2.223
	1500	40	-	-	5600	3.831	7100	3.592	8900	3.492	10900	3.482	13100	3.511	15700	3.529	18600	3.486	21800	3.332
	1500	50	-	-	-	-	6100	4.973	7700	4.686	9400	4.552	11500	4.52	13700	4.54	16300	4.561	19100	4.535
	1500	60	-	-	-	-	-	-	-	-	7700	6.024	9400	5.875	11400	5.841	13500	5.871	16000	5.916
	1500	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	20	15100	5.503	18500	5.592	22500	5.693	27300	5.811	32900	5.948	39300	6.11	46700	6.301	-	-	-	-
	3600	30	13100	6.625	16400	6.711	20200	6.805	24600	6.912	29800	7.035	35800	7.18	42600	7.35	50400	7.55	59300	7.783
	3600	40	-	-	14400	8.162	17900	8.24	21900	8.327	26700	8.428	32100	8.546	38300	8.686	45400	8.852	53400	9.048
	3600	50	-	-	-	-	15500	10.173	19100	10.232	23200	10.3	28000	10.383	33600	10.484	39900	10.607	47000	10.757
	3600	60	-	-	-	-	-	-	-	-	19300	12.828	23400	12.866	28100	12.919	33600	12.991	39800	13.086
	3600	68	-	-	-	-	-	-	-	-	-	-	-	-	23200	15.444	27900	15.467	33300	15.512
	6000	20	-	-	30200	10.053	36800	10.452	44600	10.91	53700	11.439	64400	12.052	76600	12.761	-	-	-	-
	6000	30	-	-	27200	11.877	33400	12.193	40700	12.553	49300	12.97	59200	13.455	70500	14.023	83400	14.684	98000	15.452
	6000	40	-	-	24200	14.25	30000	14.474	36700	14.728	44500	15.023	53400	15.373	63700	15.791	75400	16.287	88600	16.876
	6000	50	-	-	-	-	26200	17.538	32100	17.676	38900	17.842	46800	18.048	55800	18.306	66100	18.63	77900	19.03
6000	60	-	-	-	-	-	-	-	-	32400	21.668	39000	21.721	46700	21.812	55400	21.953	65500	22.157	
6000	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
VZH170AG	1500	20	-	-	11200	3.095	13600	3.074	16400	3.047	19800	2.982	23600	2.844	28100	2.601	-	-	-	-
	1500	30	-	-	9900	4.019	12200	3.962	14900	3.949	18000	3.948	21600	3.925	25800	3.847	30500	3.68	35800	3.391
	1500	40	-	-	8500	5.287	10600	5.112	13100	5.032	16000	5.013	19200	5.023	23000	5.029	27300	4.996	32200	4.891
	1500	50	-	-	-	-	8900	6.724	11000	6.495	13600	6.378	16400	6.339	19800	6.346	23600	6.366	27900	6.363
	1500	60	-	-	-	-	-	-	-	-	10800	8.242	13200	8.074	16000	8.001	19200	7.99	22900	8.009
	1500	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3600	20	22900	7.456	27500	7.626	33000	7.808	39700	7.979	47700	8.115	57000	8.191	67700	8.184	-	-	-	-
	3600	30	20200	9.377	24600	9.47	29900	9.611	36200	9.775	43600	9.94	52300	10.081	62300	10.174	73800	10.196	86800	10.122
	3600	40	-	-	21900	11.86	26800	11.904	32500	12.007	39300	12.146	47100	12.297	56200	12.435	66600	12.538	78500	12.581
	3600	50	-	-	-	-	23400	14.819	28500	14.806	34300	14.865	41200	14.97	49200	15.1	58400	15.229	68900	15.333
	3600	60	-	-	-	-	-	-	-	-	28500	18.228	34200	18.234	40900	18.299	48700	18.399	57700	18.511
	3600	68	-	-	-	-	-	-	-	-	-	-	-	-	33200	21.332	39800	21.369	47400	21.447
	6000	20	-	-	45100	13.279	54800	13.868	66400	14.517	80100	15.273	95900	16.184	114200	17.296	-	-	-	-
	6000	30	-	-	39900	16.274	49000	16.84	59800	17.388	72400	17.965	87000	18.618	103700	19.394	122800	20.341	144500	21.505
	6000	40	-	-	35600	19.827	44100	20.446	53900	20.967	65300	21.439	78500	21.909	93500	22.423	110800	23.03	130300	23.776
	6000	50	-	-	-	-	38900	24.851	47700	25.421	57800	25.863	69400	26.224	82700	26.551	97800	26.892	115000	27.294
6000	60	-	-	-	-	-	-	-	-	48900	31.402	58800	31.729	70100	31.943	83100	32.094	97900	32.226	
6000	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

To: Evaporating temperature in [°C]
Tc: Condensing temperature in [°C]
Pe: Power input in [kW]
Qo: Cooling capacity in [W]
Subcooling: 0 K
Superheat: 10 K
Voltage code: G: 380 - 480 V / 3 / 50 and 60 Hz



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Nomenclature and Dimensions

V Variable speed
Z Family: VZH scroll
H Lubricant: PVE 32 (160 HV) lubricant, R410A refrigerant
044 Swept volume: in [cm³/rev]
C Design pressure ratio: C: IDV and IEER optimized

G Evolution index
A Motor protection: N: no internal motor protection (protection by drive)
N Equipement version: A: brazed connections, OSG version
A B: brazed connections, OLS version

	Oil sight glass	Oil level switch
OSG (oil sight glass) version	Threaded	None
OLS (oil level sensor) version	None	Threaded

Motor voltage code to CDS803: *)
G: 380-480 V/3~/50 & 60 Hz
H: 525-600 V/3~/50&60 Hz
J: 200-240 V/3~/50 & 60 Hz
 *) main supply voltage to frequency converter

VZH028-035-044G / J - Single version

VZH028-035-044G / J - Manifold version

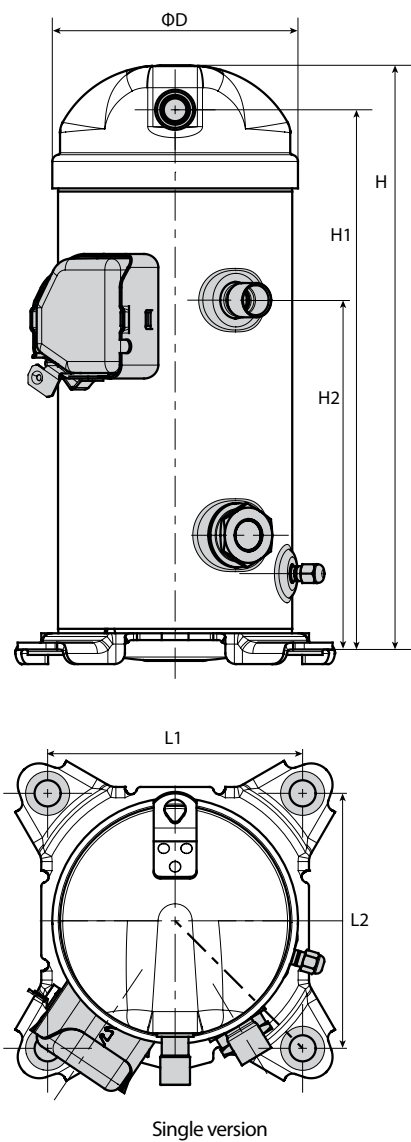
Single version dimensions:
 Discharge line 1/2"
 Suction 3/4"
 Oil Sight Glass 1 1/4"
 Schrader valve and cover
 Top of sensor bracket
 Overall height: 404.4
 Discharge line height: 360.4
 Schrader valve height: 230.5
 Base height: 78.0
 Base offset: 55.0
 Base width: 11

Manifold version dimensions:
 Discharge line 1/2"
 Suction line 3/4"
 Organ pipe fitting
 Schrader valve and cover
 Oil level sensor prism 42.5
 Top of sensor bracket
 Overall height: 404.4
 Discharge line height: 360.4
 Schrader valve height: 230.5
 Base height: 78.0
 Base offset: 55.0
 Base width: 11

Top View Dimensions:
 Overall width: 239
 Suction line offset: 190.5
 Discharge line offset: 111.3
 Mounting hole diameter: Ø19.5 4X
 Mounting hole offset: 95.25
 Mounting hole diameter: 129.5
 Mounting hole diameter: 109.7
 Mounting hole diameter: 111.3
 Mounting hole diameter: 14±2°
 Mounting hole diameter: 31°
 Mounting hole diameter: 34°
 Mounting hole diameter: 45±2°
 Mounting hole diameter: 60°

Note: Manifolding drawing is a preliminary version

Dimensions



Version	Compressor model	D	H	H1	H2	L1	L2	Outline drawing number
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
Single	VZH052-065	183.5	436	403	261	190.5	190.5	8590007

Nomenclature and Dimensions

Variable speed: V

Family: VZH scroll Z

Lubricant: POE lubricant R410A refrigerant H

Swept volume: in [cm³/rev] 117

Design pressure ratio: A: high PR A
B: low PR

Evolution index: A

Motor protection: N: no internal motor protection (protection by drive)

Equipment version: A: brazed connections, single version
B: brazed connections, manifold version

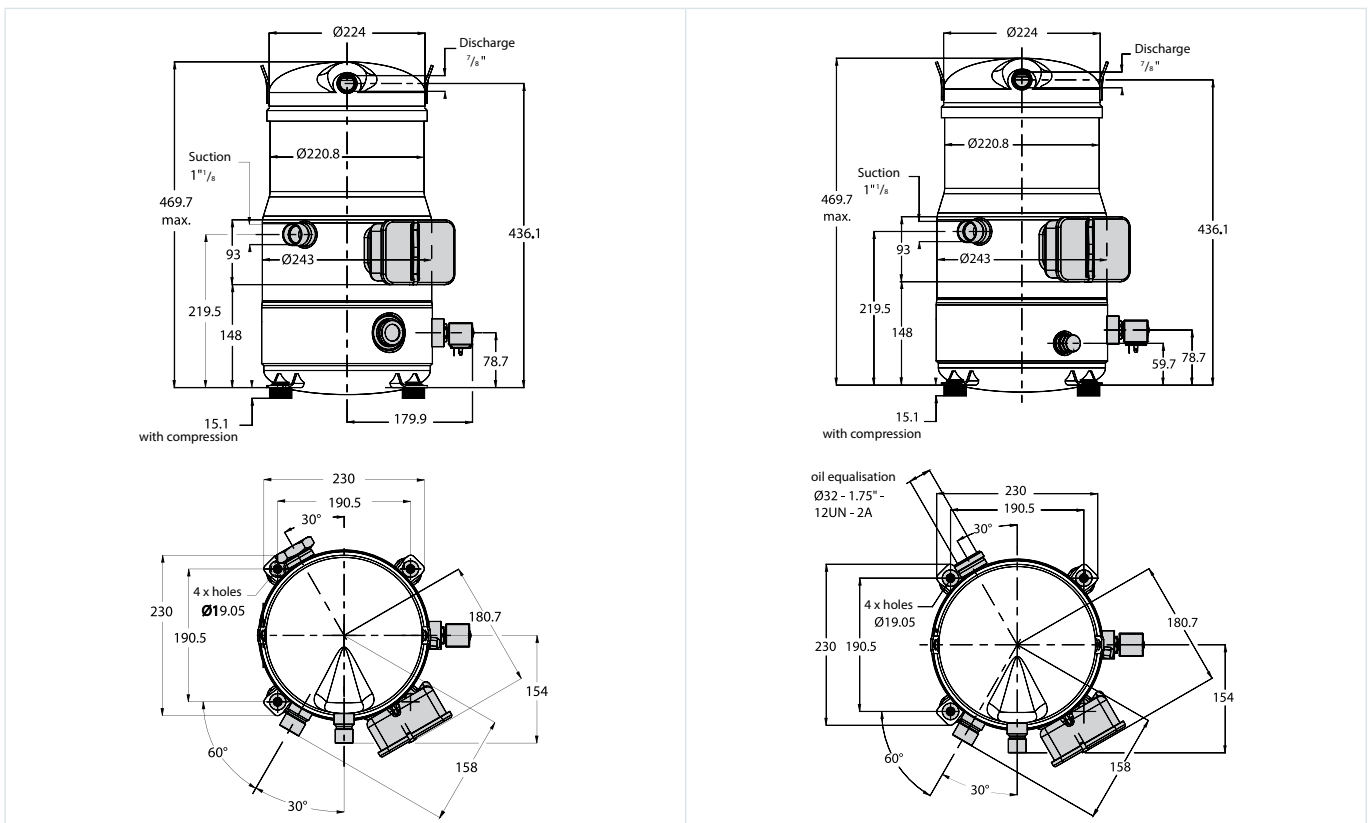
	Oil sight glass	Oil level switch
Single version	Threaded	None
Manifold version	None	Threaded

Motor voltage code to CDS303: *)
G: 380 – 480 V / 3 ~ / 50 / 60 Hz
H: 252 – 600 V / 3 ~ / 50 / 60 Hz
J: 200 – 240 V / 3 ~ / 50 / 60 Hz

*) main supply voltage to frequency converter

VZH088-G-H - Single version

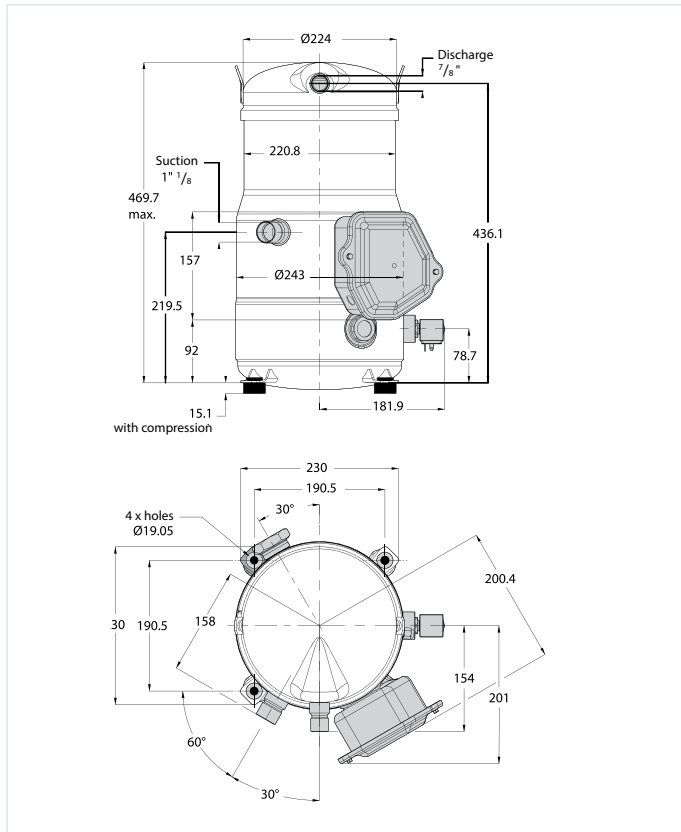
VZH088-G-H - Manifold version



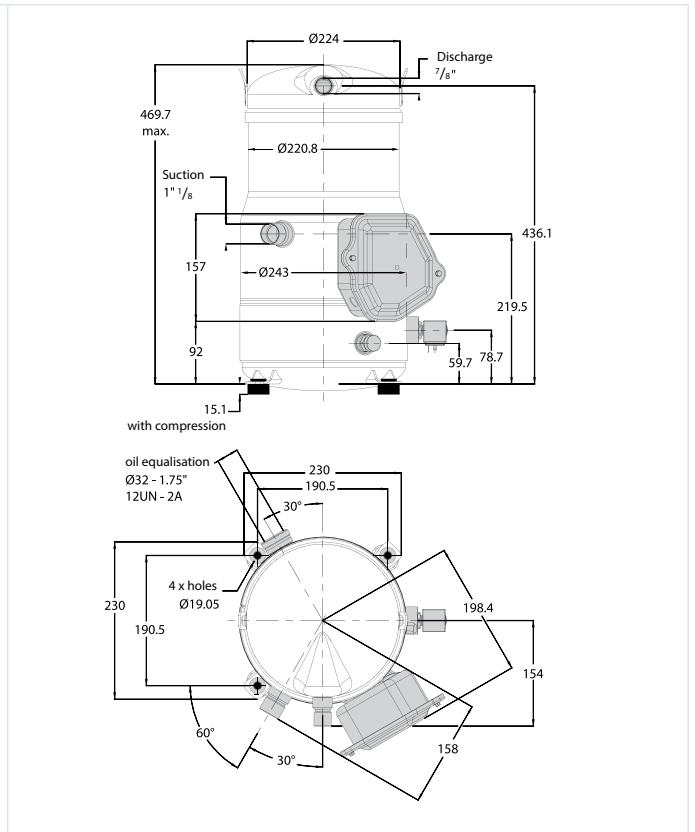
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Dimensions

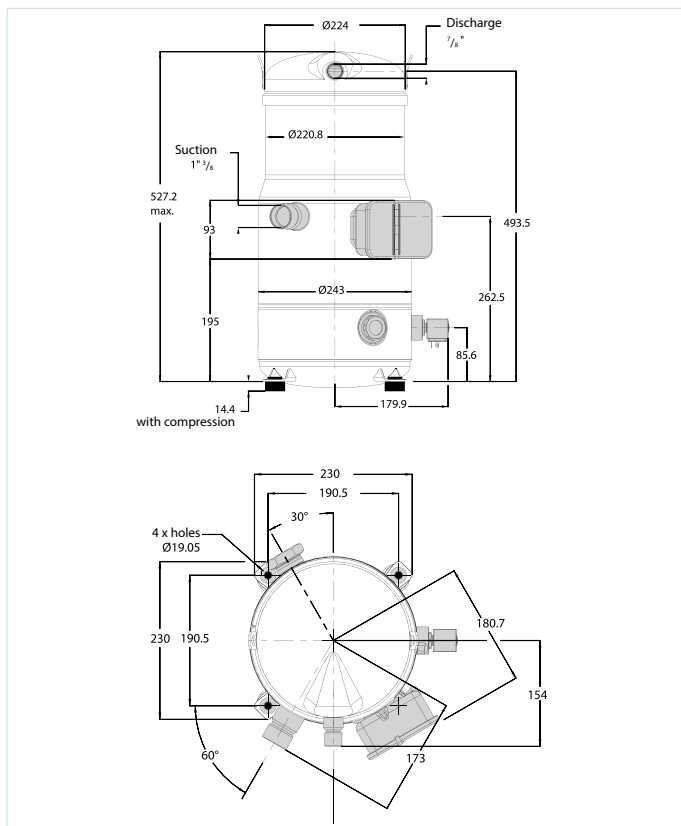
VZH088-J - Single version



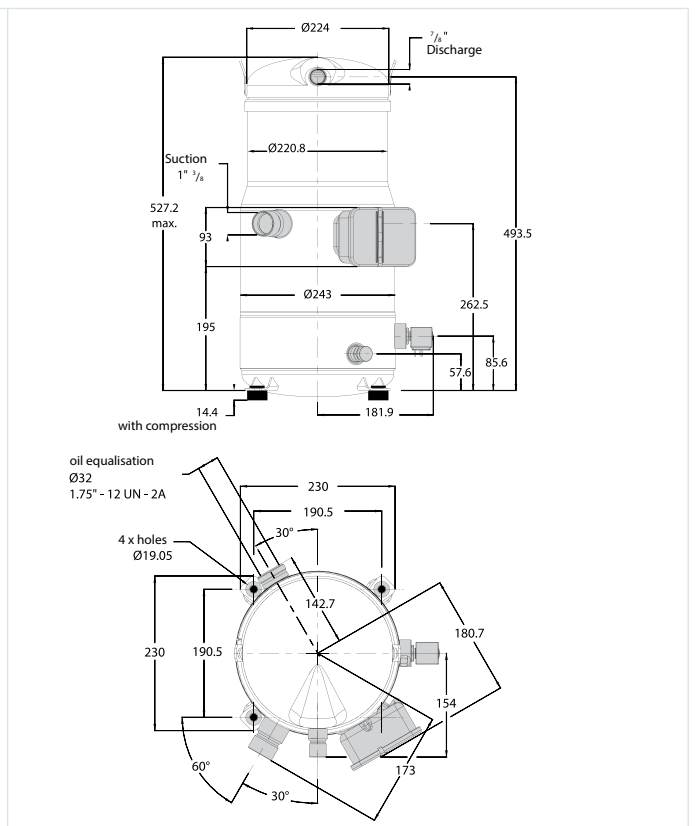
VZH088-J - Manifolded version



VZH117-G-H - Single version

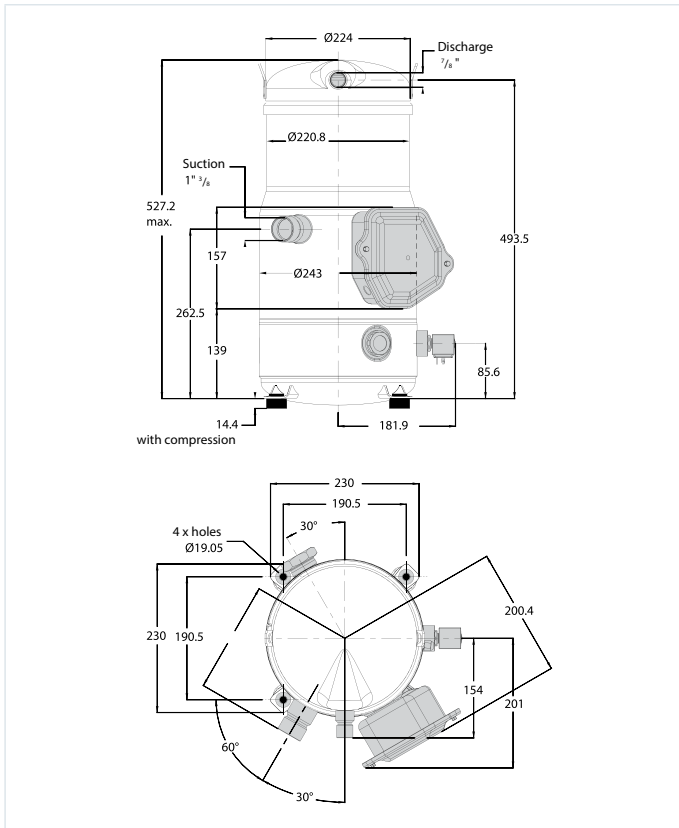


VZH117-G-H - Manifolded version

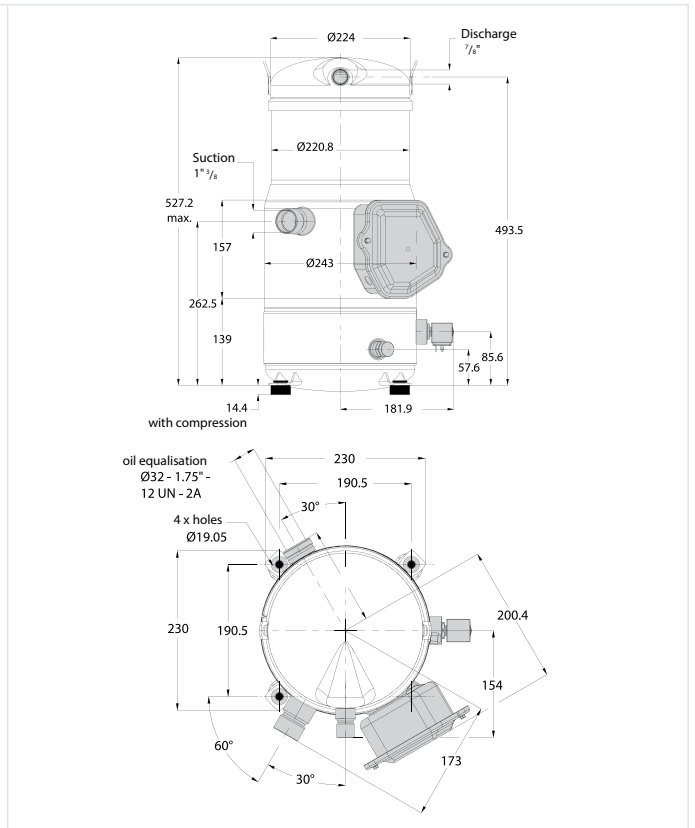


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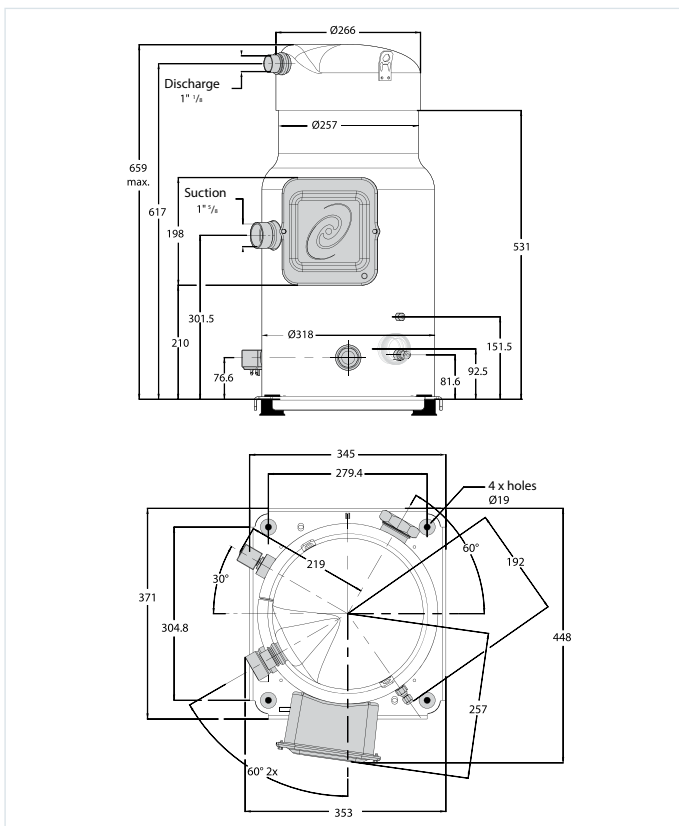
VZH117-J - Single version



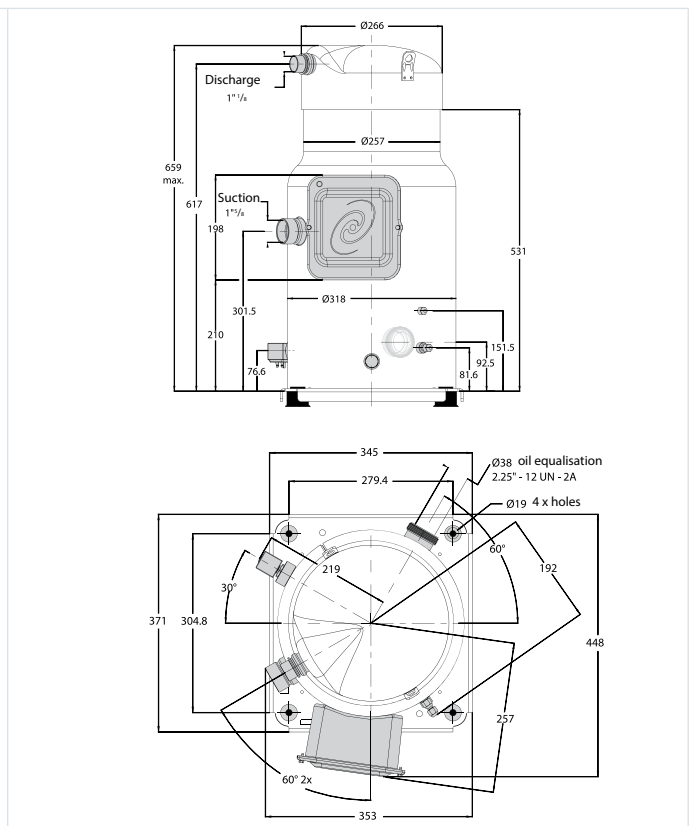
VZH117-J - Manifolded version



VZH170-G-H - Single version



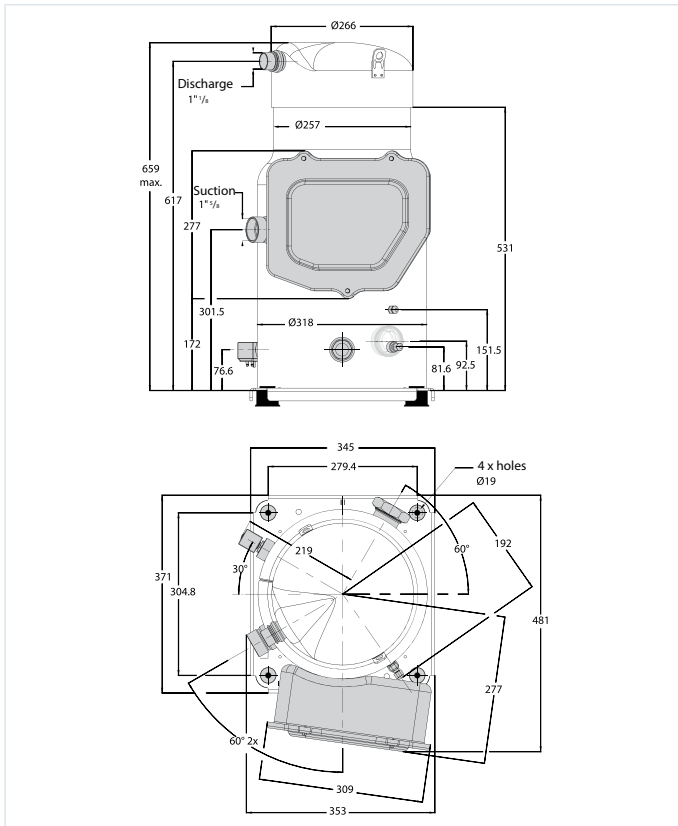
VZH170-G-H - Manifolded version



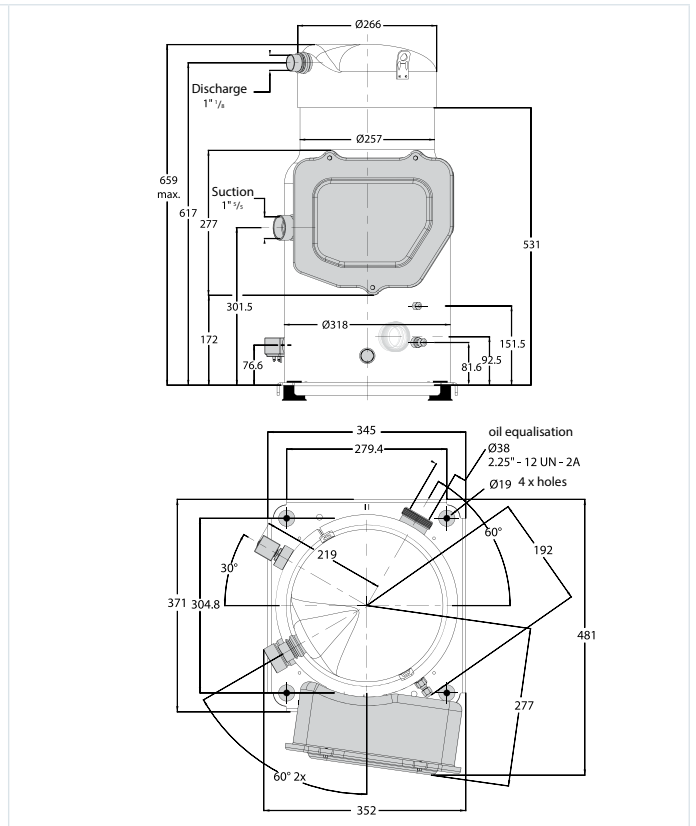
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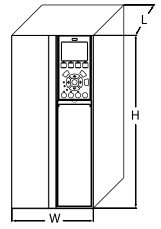
VZH170-J - Single version



VZH170-J - Manifolded version



Technical data



Inverter scroll compressor - VZH 028-065 converter

Frequency converter dimensions

Compressor model	Drive supply voltage	Drive power [kW]	Compressor voltage code	IP20				IP55			
				Drive enclosure	Overall drive size (H x W x L) [mm]	Overall drive size incl. decoupling plate (H x W x L) [mm]	Clearance above / below [mm/inch.]	Drive enclosure	Overall drive size (H x W x L) [mm]	Overall drive size incl. decoupling plate (H x W x L) [mm]	Clearance above / below [mm/inch.]
VZH028	T2: 200-240/3/50-60	6	J	H4	296x135x241	359x135x241	100/4	-	-	-	-
VZH035		7.5		H4	296x135x241	359x135x241	100/4	-	-	-	-
VZH044		10		H5	334x150x255	402x150x255	100/4	-	-	-	-
VZH052-065		11		B4	520x230x242	595x230x242	200/8	B2	650x242x260	-	200/8
VZH028	T4: 380-480/3/50-60	6	G	H3	255x100x206	329x100x206	100/4	-	-	-	-
VZH035		7.5		H3	255x100x206	329x100x206	100/4	-	-	-	-
VZH044		10		H4	296x135x241	359x135x241	100/4	-	-	-	-
VZH052		11		B3	399x165x249	420x165x249	100/4	B1	480x242x260	-	100/4
VZH065		15		B3	399x165x249	420x165x249	100/4	B1	480x242x260	-	100/4
VZH028	T6: 525-600/3/50-60	7.5	H	A3	268x130x205	374x130x205	100/4	-	-	-	-
VZH035		11		B3	399x165x249	420x165x249	100/4	-	-	-	-
VZH044		11		B3	399x165x249	420x165x249	100/4	-	-	-	-
VZH052		11		B3	399x165x249	420x165x249	100/4	B1	480x242x260	-	100/4
VZH065		11		B4	520x230x242	595x230x242	200/8	B2	650x242x260	-	200/8

Frequency converter dimensions depend on supply voltage, IP rating and power
 The table gives an overview of the overall dimensions and different drive enclosures (H3 - H5)
 Details for each drive enclosure are on the following pages

Inverter scroll compressor - VZH 088-170 converter

Frequency converter dimensions

Compressor model	Drive supply voltage	Drive power [kW]	Compressor voltage code	IP20			IP55		
				Drive enclosure	Overall drive size (H x W x L) [mm]	bracket supplied [mm ²]	Overall drive size incl. decoupling plate (H x W x L) [mm]	Clearance above / below [mm/inch.]	bracket supplied [mm ²]
VZH088	T2: 200-240/3/50-60	15	J	B4	595x230x242	2pcs, ø24-28k28b 1pcs, ø32-36 k36b	C1	680x308x310	1pcs, ø32-36 k36b 1pcs, ø36-40 k40b
VZH117		18.5		C3	630x308x333	1pcs, ø32-36 k36b 1pcs, ø36-40 k40b	C1	680x308x310	1pcs, ø32-36 k36b 1pcs, ø36-40 k40b
VZH170		22		C3	630x308x333	1pcs, ø32-36 k36b 1pcs, ø36-40 k40b	C1	680x308x310	1pcs, ø32-36 k36b 1pcs, ø36-40 k40b
VZH088	T4: 380-480/3/50-60	15	G	B3	420x165x249	3pcs, Ø13-22	B1	480x242x260	3pcs, ø3-32
VZH117		18.5		B4	595x230x242	2pcs, ø24-28 k28b	B2	650x242x260	3pcs, ø3-32
VZH170		22		B4	595x230x242	2pcs, ø24-28 k28b	B2	650x242x260	3pcs, ø14-40
VZH088	T6: 525-600/3/50-60	18	H	B4	595x230x242	2pcs, ø24-28 k28b	-	-	-
VZH117		30		B4	595x230x242	2pcs, ø24-28 k28b	-	-	-
VZH170		30		B4	595x230x242	2pcs, ø24-28 k28b	-	-	-

Frequency converter dimensions depend on supply voltage, IP rating and power
 The table gives an overview of the overall dimensions and different drive enclosures (H3 - H5)
 Details for each drive enclosure are on the following pages
 For customers who need other size brackets, please refer to accessories for ordering.

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Optyma™ - Condensing Units

4 ranges to fit the different market needs of LBP, MBP refrigeration:

- Broad choice for various climates
- Fast installation and maintenance
- Low noise to fit in residential areas
- F-Gas: ready for refrigerants with lower GWP
- Eco Design compliance

Designed by Danfoss with 40 years of know-how in condensing units

Various options:



Optyma™

The widest range of hermetic condensing units with reliable reciprocating compressors and Micro Channel Heat Exchanger on the bigger sizes



Optyma™ Slim Pack

The compact, cost effective and low sound levels packaged unit with Micro Channel Heat Exchanger technology



Optyma™ Plus

Top performer condensing unit: energy optimized, low noise levels and quick installation / maintenance



Optyma™ Plus INVERTER

The premium unit combines ease of use and energy efficiency with the latest Danfoss inverter scroll technology

Range span by refrigerant

Minimum / Maximum Cooling capacity in [kW]	Optyma™		Optyma™ Slim Pack	Optyma™ Plus	Optyma™ Plus INVERTER
	Light Commercial	Commercial			
Medium temperature (MBP)					
R290	0.2 – 1.4	–	–	–	–
R448A	–	2 – 20.5	3.3 – 10.2	3.3 – 14.9	1.7 – 8.3
R449A	–	2 – 20.5	0.8 – 10.2	0.7 – 14.9	1.7 – 8.3
R134a	0.1 – 1.6	1.3 – 13.1	0.6 – 6.6	1.7 – 10.2	–
R452A	–	2.2 – 20.6	1.5 – 10.8	1.5 – 16.2	–
R407A	–	1.9 – 19.1	3.3 – 9.9	3.3 – 14.6	1.7 – 8.4
R407C	–	1.8 – 19.1	–	–	–
R407F	–	2 – 20.1	3.5 – 10.2	3.5 – 15.5	1.8 – 9
R404A / 507	0.3 – 17	2.2 – 21.7	0.9 – 10.3	0.7 – 16	1.8 – 9
Low temperature (LBP)					
R290	0.1 – 0.7	–	–	–	–
R452A	0.1 – 0.3	0.8 – 6.1	0.4 – 3.3	0.4 – 6.1	–
R404A / 507	0.1 – 0.9	0.9 – 6.6	0.4 – 3.6	0.5 – 6.2	–

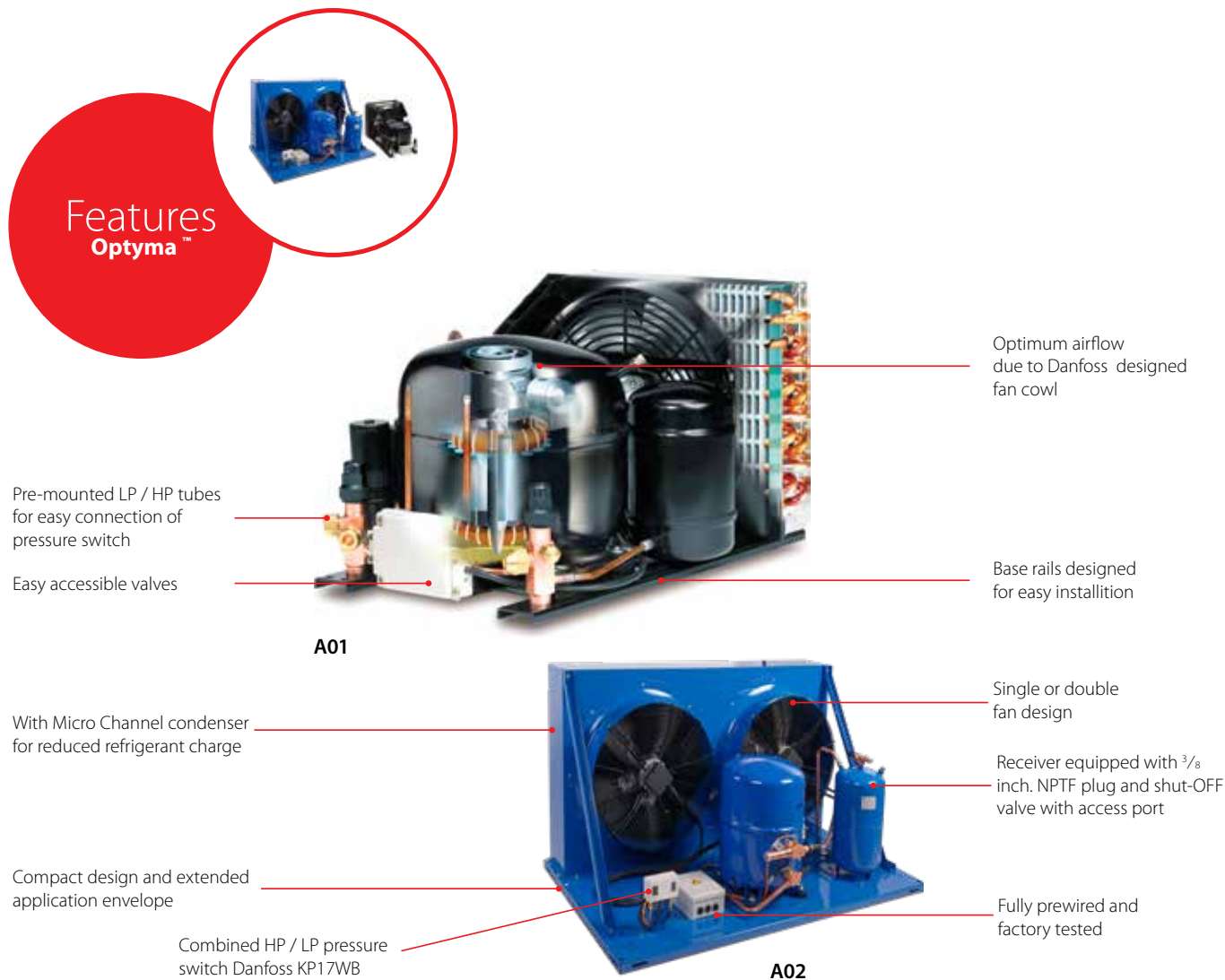
Rating conditions EN 13215 (dew point):

MBP: Ambient temp = 32 °C; Evap temp = -10 °C; Superheat = 10 K; Subcooling = 0 K / LBP: Ambient temp = 32 °C; Evap temp = -35 °C; Superheat = 10 K; Subcooling = 0 K

Optyma™ - Condensing Units

Optyma™ is the widest range of hermetic condensing units on the market. Optyma™ condensing unit is available with reciprocating compressors to cover a large range of commercial refrigeration applications, reducing costs and complexity of the systems. All Optyma™ condensing units are extremely efficient and reliable.

That means less energy consumption and less running costs, less cost for service and maintenance. In addition to the wide Optyma™ range, we also offer local support and guidance if needed. A network of partner wholesalers and local Danfoss teams can offer you help and will do their utmost to fulfil your needs. At Danfoss we simply believe it is important to offer an "Optimum service".



Facts

- Danfoss Optyma™ condensing units perfectly suit applications like:
 - Cold stores and freezer rooms
 - Milk cooling
 - Beer and wine cellars
 - Small food retail and mini markets
 - Garage forecourt shops
 - Display cabinets
 - Ice cream freezers
 - Bottle coolers
- Refrigerants R134a, R404A, R407A, R407C, R407F, R448A, R449A, R452A and R290
- Capacity: from 0.2 to 21.7 kW for MBP applications and from 0.1 to 6.6 kW for LBP
- High COP, low energy consumption, low running costs
- 100% factory tested for leakage
- Wide application range
- Powder coated steel parts
- High-efficiency condensers allowing an extended application envelope in high ambient conditions
- Reliable components for longer life and less warranty call out costs
- Easy access to all components for higher serviceability and simplified maintenance
- Compact dimensions and minimum foot print for easy handling, shipping and installation

Technical data and ordering

Feature overview

	Light Commercial			Light Commercial R290			Commercial
	A00	A01	A04	A09	A10	A11	A02
Ambient temperature	Up to 43 °C			Up to 43 °C			Up to 46 °C
Hermetic reciprocating compressor	MPT, MLY, NL, SC, GS, FR, TL, NF			NLY, NBC, NPT, NS, NX			MTZ, NTZ
Unit base	Rails or base plate						Base plate
Condenser type	Fin & Tube (painted)						Microchannel
Fan	AC/EC	AC/EC	AC/EC	EC	EC	EC	AC 6 pole
Bracket & tube for pressostat mounting	–	yes	yes	yes	–	–	–
Dual KP pressure switch	–	–	yes	–	–	–	yes
Schrader valve	–	–	–	yes	yes	yes	–
Wired electrical box	yes	yes	yes	yes	yes	yes	yes
Mini HP / LP pressostat	–	–	–	–	yes	–	–
Power cord	–	–	yes	–	yes	–	–
Receiver	–	yes	yes	–	Combo drier + receiver	–	yes
Net weight in kg	14 chassis: Lighter: 14 Bigger: 42			4 chassis: Lighter: 14 Bigger: 41			5 chassis: Lighter single fan: 62 Bigger single fan: 158 Lighter dual fan: 134 Bigger dual fan: 212
Dimensions in mm (height x width x depth)	14 chassis: Smaller: 205 x 289 x 424 Larger: 350 x 445 x 613			4 chassis: Smaller: 226 x 286 x 513 Larger: 350 x 442 x 480			5 chassis: Smaller single fan: 545 x 630 x 650 Larger single fan: 836.5 x 1200 x 800 Smaller dual fan: 693.5 x 1500 x 870 Larger dual fan: 836.5 x 1500 x 870

Technical data and ordering

Optyma™ Light Commercial - Performance data - R290 LBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR				
				-40	-35	-30	-25	-20							-15	-10
OP-LCNC004	NLY45LAb	G	27	0.095	0.128	0.166	0.209	0.256	0.307	0.363					A09 A10 A11	114F0202 114F0203 114F0201
			32	0.086	0.116	0.152	0.192	0.236	0.284	0.337	0.124	0.119	1.04			
			38	0.075	0.103	0.134	0.171	0.212	0.257	0.307						
			43	0.067	0.091	0.120	0.154	0.192	0.235	0.282						
OP-LCNC006	NLY60LAb	G	27	0.120	0.163	0.211	0.265	0.323	0.386	0.453					A09 A10 A11	114F0205 114F0206 114F0204
			32	0.110	0.148	0.193	0.242	0.296	0.356	0.419	0.158	0.149	1.06			
			38	0.097	0.131	0.170	0.215	0.265	0.320	0.379						
			43	0.087	0.116	0.152	0.193	0.239	0.290	0.346						
OP-LCNC008	NLY80LAb	G	27	0.162	0.219	0.284	0.356	0.436	0.523	0.616					A09 A10 A11	114F0308 114F0309 114F0307
			32	0.148	0.199	0.258	0.325	0.400	0.482	0.571	0.212	0.196	1.08			
			38	0.131	0.175	0.228	0.289	0.357	0.433	0.517						
			43	0.117	0.156	0.203	0.259	0.322	0.393	0.472						
OP-LCNC011	NPY12LAb	G	27	0.258	0.342	0.440	0.550	0.671	0.805	0.950					A09 A10 A11	114F0411 114F0412 114F0410
			32	0.235	0.312	0.402	0.505	0.619	0.746	0.884	0.332	0.289	1.15			
			38	0.208	0.276	0.357	0.451	0.557	0.675	0.805						
			43	0.185	0.246	0.320	0.406	0.505	0.616	0.740						
OP-LCNC016	NPT16LA	G	27	0.344	0.460	0.590	0.731	0.883	1.045	1.218					A09 A10 A11	114F0414 114F0415 114F0413
			32	0.315	0.421	0.539	0.670	0.812	0.965	1.129	0.450	0.391	1.15			
			38	0.282	0.374	0.480	0.598	0.728	0.869	1.022						
			43	0.254	0.335	0.430	0.538	0.658	0.790	0.933						
OP-LCNC023	NX23FBa	G	27	0.421	0.570	0.731	0.903	1.086	1.280	1.484					A09 A10 A11	114F0417 114F0418 114F0416
			32	0.382	0.518	0.667	0.827	0.999	1.182	1.375	0.556	0.537	1.03			
			38	0.335	0.456	0.590	0.737	0.895	1.065	1.245						
			43	0.296	0.405	0.527	0.662	0.809	0.967	1.137						
OP-LCNC034	NS34FB	G	27	0.557	0.784	1.042	1.326	1.636	1.967	2.317					A09 A10 A11	114F0620 114F0621 114F0619
			32	0.484	0.692	0.931	1.197	1.488	1.801	2.135	0.739	0.625	1.18			
			38	0.399	0.584	0.800	1.043	1.312	1.604	1.916						
			43	0.329	0.495	0.691	0.916	1.166	1.440	1.734						

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A09: Tube for KP pressostat + Wired Ebox + Schrader valve

A10: Mini pressure switch + Wired Ebox + Combo Filter drier + Schrader valve

A11: Wired Ebox + Schrader valve



For regular updates and detailed capacities, please refer to **Coolselector[®]2** software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R452A LBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR		
				-40	-35	-30	-25	-20	-15	-10						
OP-LCQC004	MLY45LAb	G	27	0.140	0.142	0.157	0.187	0.235	0.304					A01	114X1221	
			32	0.121	0.127	0.146	0.182	0.235	0.310	0.134	0.165	0.81				
			38	0.099	0.109	0.134	0.175	0.234	0.316							
			43	0.080	0.094	0.123	0.168	0.233	0.320							
OP-LCQC006	MLY60LAb	G	27	0.140	0.164	0.205	0.264	0.340	0.436					A01	114X1337	
			32	0.126	0.152	0.194	0.253	0.331	0.428	0.140	0.167	0.84				
			38	0.110	0.136	0.180	0.240	0.319	0.417							
			43	0.096	0.124	0.167	0.228	0.308	0.406							
OP-LCQC008	MYL80LAb	G	27	0.210	0.276	0.346	0.418	0.493	0.571					A01	114X1341	
			32	0.186	0.246	0.309	0.375	0.444	0.516	0.208	0.235	0.88				
			38	0.158	0.210	0.265	0.323	0.385	0.450							
			43	0.135	0.180	0.228	0.280	0.336	0.395							
OP-LCQC012	MLY12LAb	G	27	0.309	0.400	0.500	0.607	0.721	0.843					A01	114X1449	
			32	0.276	0.359	0.450	0.549	0.656	0.771	0.307	0.321	0.96				
			38	0.237	0.309	0.391	0.480	0.578	0.684							
			43	0.204	0.269	0.342	0.423	0.513	0.611							
OP-LCQC012	MPT12LA	G	27	0.368	0.470	0.581	0.698	0.823	0.955					A01	114X1569	
			32	0.328	0.421	0.521	0.630	0.746	0.869	0.365	0.371	0.98				
			38	0.281	0.361	0.450	0.548	0.653								
			43	0.242	0.312	0.392	0.480									
OP-LCQC014	MPT14LA	G	27	0.415	0.525	0.642	0.765	0.894	1.028					A01	114X1573	
			32	0.372	0.472	0.578	0.692	0.811	0.936	0.415	0.436	0.95				
			38	0.322	0.409	0.503	0.604	0.712								
			43	0.280	0.357	0.441	0.532									

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A00: Without valves and receiver for capillary tubes

A01: With receiver, 2stop valves, brackets and copper pipes for KP

A04: A01 + KP17 WB + FSA-kit + power cord



For regular updates and detailed capacities, please refer to Coolselector®2 software



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Technical data and ordering

Optyma™ Commercial - Performance data - R452A LBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]						Q [kW]	P [kW]	COP	SEPR				
				-35	-30	-25	-20	-15	-10								
OP-LCQN048	NTZ048	E	27	0.990	1.299	1.648	2.031	2.439	2.864							A02	114X5758
			32	0.873	1.152	1.467	1.814	2.185	2.571	0.977	0.944	1.03		73	42		
			38	0.742	0.985	1.261	1.564	1.889	2.228								
			43		0.854	1.097	1.364	1.649									
			46		0.779	1.001	1.246	1.508									
OP-LCQN048	NTZ048	G	27	0.996	1.331	1.709	2.123	2.563	3.019							A02	114X5759
			32	0.867	1.174	1.520	1.898	2.300	2.716	0.969	0.909	1.07		73	42		
			38	0.723	0.995	1.302	1.637	1.992	2.359								
			43		0.854	1.128	1.426	1.741	2.065								
			46		0.773	1.027	1.302	1.592	1.889								
OP-LCQN068	NTZ068	E	27	1.673	2.185	2.752	3.358	3.981	4.597							A02	114X5761
			32	1.476	1.944	2.460	3.008	3.570	4.123	1.650	1.446	1.14		71	40		
			38	1.239	1.652	2.106	2.586	3.074	3.548								
			43		1.410	1.811	2.233	2.658									
			46		1.266	1.635	2.022	2.409									
OP-LCQN068	NTZ068	G	27	1.689	2.182	2.732	3.333	3.977	4.656							A02	114X5762
			32	1.467	1.924	2.433	2.988	3.583	4.209	1.640	1.674	0.98		71	40		
			38	1.209	1.622	2.081	2.581	3.116	3.678								
			43		1.378	1.794	2.247	2.731									
			46		1.234	1.625	2.049	2.502									
OP-LCQN096	NTZ096	E	27	1.977	2.582	3.260	3.994	4.766	5.560							A02	114X5764
			32	1.733	2.280	2.895	3.561	4.263	4.983	1.942	1.859	1.04		82	51		
			38	1.450	1.927	2.464	3.048	3.664	4.295								
			43		1.641	2.114	2.628	3.170									
			46		1.475	1.907	2.379	2.875									
OP-LGQN096	NTZ096	E	27	2.427	3.297	4.352	5.600	7.046	8.697							A02	114X5766
			32	2.141	2.938	3.908	5.061	6.404	7.942	2.366	1.820	1.30	1.70	82	51		
			38	1.803	2.509	3.376	4.413	5.628	7.029								
			43		2.158	2.936	3.873	4.981									
			46		1.952	2.675	3.552	4.593									

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector[®]2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R452A LBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]					Q [kW]	P [kW]	COP	SEPR					
				-35	-30	-25	-20	-15									-10
OP-LCQN108	NTZ108	E	27	2.973	3.943	5.099	6.444	7.979	9.701							A02	114X5768
			32	2.636	3.514	4.565	5.795	7.205	8.795	2.920	2.231	1.31	1.85	78	47		
			38	2.258	3.028	3.956	5.047	6.308	7.738								
			43		2.646	3.471	4.449	5.584									
			46		2.426	3.191	4.099	5.16									
OP-LGQN108	NTZ108	E	27	3.003	3.991	5.173	6.554	8.138	9.923							A02	114X5769
			32	2.662	3.556	4.631	5.894	7.349	8.997	2.946	2.158	1.37	1.95	78	47		
			38	2.280	3.065	4.013	5.134	6.435	7.919								
			43		2.679	3.523	4.527	5.700									
			46		2.456	3.238	4.173	5.269									
OP-LGQN136	NTZ136	E	27	3.703	4.896	6.312	7.953	9.818	11.898							A02	114X5771
			32	3.284	4.364	5.650	7.149	8.859	10.777	3.643	2.902	1.26	1.69	78	47		
			38	2.814	3.760	4.893	6.221	7.745	9.467								
			43		3.284	4.291	5.477	6.847									
			46		3.010	3.941	5.043	6.320									
OP-LCQN136	NTZ136	E	27	3.657	4.822	6.198	7.785	9.578	11.566							A02	114X5772
			32	3.243	4.298	5.548	6.997	8.64	10.472	3.602	2.975	1.21	1.63	78	47		
			38	2.779	3.703	4.804	6.086	7.55	9.193								
			43		3.234	4.211	5.355	6.669									
			46		2.963	3.867	4.928	6.153									
OP-LGQN215	NTZ215	E	27	5.347	7.107	9.183	11.588	14.329	17.407							A02	114X5774
			32	4.725	6.349	8.266	10.491	13.032	15.895	5.238	4.722	1.11	1.63	86	55		
			38	4.001	5.456	7.176	9.179	11.476	14.077								
			43		4.730	6.281	8.094	10.183	12.560								
			46		4.303	5.752	7.448	9.410	11.651								
OP-LGQN271	NTZ271	E	27	7.015	9.190	11.708	14.576	17.793	21.352							A02	114X5776
			32	6.136	8.154	10.487	13.146	16.132	19.444	6.812	5.818	1.17	1.66	86	55		
			38	5.112	6.940	9.052	11.459	14.169	17.182								
			43		5.955	7.881	10.079	12.557	15.320								
			46		5.376	7.191	9.261	11.599	14.210								

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R404A / R507 LBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Version	Code
				Te [°C]								Q [kW]	P [kW]	COP	SEPR		
				-45	-40	-35	-30	-25	-20	-15	-10						
OP-LCHC004	TL4CL	G	27	0.051	0.074	0.101	0.133	0.169	0.211	0.259	0.312					A00	114X1208
			32	0.052	0.070	0.093	0.120	0.152	0.190	0.233	0.283	0.105	0.131	0.80		A01	114X1209
			38	0.047	0.061	0.079	0.101	0.129	0.162	0.202	0.248					A04	114X1211
			43	0.040	0.050	0.065	0.084	0.109	0.139	0.175	0.219						
OP-LCQC004	MLY45LAb	G	27			0.136	0.182	0.233	0.288	0.347	0.409					A01	114X1221
			32			0.120	0.163	0.209	0.259	0.313	0.372	0.136	0.153	0.89			
			38			0.071	0.139	0.180	0.224	0.273	0.326						
			43			0.061	0.119	0.155	0.196	0.240	0.289						
OP-LCHC006	FR6CL	G	27	0.080	0.118	0.163	0.216	0.277	0.347	0.427	0.515					A00	114X1216
			32	0.076	0.109	0.149	0.196	0.250	0.313	0.384	0.463	0.168	0.212	0.80		A01	114X1217
			38	0.068	0.096	0.129	0.169	0.215	0.269	0.330	0.400					A04	114X1219
			43	0.059	0.083	0.112	0.146	0.186	0.232								
OP-LCQC006	MLY60LAb	G	27			0.196	0.256	0.320	0.387	0.458	0.532					A01	114X1337
			32			0.173	0.227	0.285	0.347	0.412	0.481	0.196	0.217	0.90			
			38			0.146	0.193	0.244	0.298	0.357	0.420						
			43			0.124	0.165	0.209	0.259	0.312	0.370						
OP-LCHC007	NL7CLX	G	27	0.112	0.157	0.211	0.274	0.345	0.425	0.513	0.607					A00	114X1328
			32	0.101	0.142	0.191	0.247	0.312	0.385	0.464	0.550	0.217	0.244	0.89		A01	114X1329
			38	0.087	0.122	0.165	0.214	0.271	0.335	0.405	0.481					A04	114X1331
			43	0.074	0.105	0.142	0.185	0.236	0.292	0.354	0.422						
OP-LCQC008	MYL80LAb	G	27			0.226	0.299	0.376	0.458	0.543	0.632					A01	114X1341
			32			0.200	0.265	0.335	0.410	0.488	0.571	0.228	0.257	0.89			
			38			0.169	0.225	0.286	0.352	0.423	0.497						
			43			0.144	0.193	0.246	0.305	0.368	0.436						
OP-LCHC008	NL8.4CLX	G	27	0.121	0.169	0.227	0.293	0.369	0.452	0.543	0.64					A00	114X1304
			32	0.109	0.153	0.204	0.265	0.333	0.408	0.491	0.579	0.233	0.268	0.87		A01	114X1301
			38	0.094	0.131	0.176	0.229	0.288	0.354	0.427	0.504					A04	114X1302
			43	0.079	0.112	0.151	0.197	0.249	0.308	0.372	0.441						
OP-LCHC012	SC12CLX	G	27		0.243	0.333	0.439	0.563	0.704	0.862	1.037					A00	114X1440
			32		0.198	0.282	0.381	0.496	0.626	0.773	0.936	0.318	0.380	0.84		A01	114X1441
			38		0.146	0.221	0.311	0.414	0.533	0.666	0.814					A04	114X1443
			43			0.172	0.253	0.347	0.454	0.576	0.711						
OP-LCHC012	SC12CLX.2	G	27	0.190	0.260	0.346	0.446	0.563	0.695	0.844	1.009					A00	114X1444
			32	0.160	0.226	0.305	0.398	0.506	0.628	0.766	0.919	0.345	0.417	0.83			
			38		0.184	0.256	0.339	0.436	0.547	0.672	0.810						
			43			0.215	0.290	0.378	0.478	0.591	0.718						

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A00: Without valves and receiver for capillary tubes

A01: With receiver, 2stop valves, brackets and copper pipes for KP

A04: A01 + KP17 WB + FSA-kit + power cord



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R404A / R507 LBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Version	Code		
				Te [°C]						Q [kW]	P [kW]	COP	SEPR				
				-45	-40	-35	-30	-25	-20							-15	-10
OP-LCQC012	MLY12LAb	G	27			0.334	0.436	0.548	0.670	0.802	0.943					A01	114X1449
			32			0.297	0.390	0.493	0.606	0.729	0.862	0.336	0.351	0.96			
			38			0.254	0.335	0.427	0.529	0.642	0.765						
			43			0.219	0.290	0.372	0.465	0.569	0.683						
OP-LCHC015	SC15CL	G	27	0.285	0.389	0.507	0.639	0.788	0.951	1.130					A00 A01 A04	114X1548 114X1549 114X1551	
			32	0.233	0.335	0.449	0.576	0.716	0.870	1.038	0.379	0.468	0.81				
			38		0.265	0.375	0.496	0.627	0.771	0.926							
			43			0.311	0.426	0.551	0.686	0.832							
OP-LCQC012	MPT12LA	G	27		0.398	0.512	0.635	0.769	0.912	1.065					A01	114X1569	
			32		0.354	0.456	0.569	0.692	0.825	0.968	0.401	0.405	0.99				
			38		0.302	0.390	0.490	0.600	0.722								
			43		0.258	0.336	0.425	0.525									
OP-LCQC014	MPT14LA	G	27		0.448	0.569	0.700	0.840	0.988	1.144					A01	114X1573	
			32		0.401	0.511	0.630	0.758	0.896	1.041	0.456	0.478	0.95				
			38		0.345	0.441	0.546	0.661	0.785								
			43		0.299	0.383	0.477	0.580									
OP-LCHC018	SC18CLX	G	27	0.260	0.362	0.486	0.632	0.801	0.991	1.203	1.435				A00 A01 A04	114X1556 114X1557 114X1559	
			32	0.215	0.310	0.423	0.557	0.712	0.886	1.082	1.296	0.478	0.501	0.95			
			38		0.250	0.351	0.470	0.608	0.764	0.939	1.132						
			43		0.294	0.400	0.524	0.664	0.822	0.998							
OP-LCHC021	SC21CL	G	27		0.397	0.537	0.695	0.868	1.057	1.262	1.484				A00 A01 A04	114X1600 114X1601 114X1602	
			32		0.347	0.469	0.608	0.764	0.937	1.127	1.336	0.531	0.548	0.97			
			38		0.282	0.383	0.503	0.641	0.797	0.972	1.168						
			43		0.230	0.316	0.422	0.546	0.690	0.854	1.040						
OP-LCHC026	GS26CLX	G	27	0.390	0.542	0.724	0.934	1.172	1.436	1.725	2.035				A01	114X1673	
			32	0.324	0.464	0.631	0.824	1.043	1.286	1.553	1.840	0.716	0.754	0.95			
			38	0.249	0.375	0.524	0.697	0.892	1.110	1.350	1.609						
			43	0.192	0.306	0.440	0.594	0.770	0.967	1.184	1.420						
OP-LCHC034	GS34CLX	G	27		0.756	0.998	1.278	1.598	1.956	2.349	2.773				A01 A04	114X1781 114X1783	
			32		0.663	0.886	1.146	1.441	1.772	2.136	2.531	1.008	1.009	1.00			
			38		0.553	0.754	0.987	1.253	1.551	1.880	2.238						
			43		0.464	0.645	0.856	1.096	1.366	1.665	1.992						

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A00: Without valves and receiver for capillary tubes

A01: With receiver, 2stop valves, brackets and copper pipes for KP

A04: A01 + KP17 WB + FSA-kit + power cord



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R404A / R507 LBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-40	-35	-30	-25	-20									-15	-10
OP-LCQN048	NTZ048	E	27	0.732	1.054	1.425	1.841	2.298	2.791	3.314								
			32	0.625	0.920	1.258	1.636	2.051	2.497	2.972	1.040	0.951	1.09		73	42		
			38	0.498	0.761	1.060	1.393	1.757	2.148	2.565								
			43		0.632	0.899	1.194	1.516	1.862									
			46		0.557	0.804	1.076	1.373	1.692									
OP-LCQN048	NTZ048	G	27	0.717	1.036	1.413	1.844	2.323	2.842	3.393								
			32	0.598	0.892	1.237	1.631	2.068	2.543	3.047	1.008	1.06	0.96		73	42		
			38	0.457	0.720	1.027	1.377	1.764	2.184	2.631								
			43		0.580	0.855	1.167	1.512	1.887									
			46		0.499	0.754	1.042	1.362	1.709									
OP-LCQN068	NTZ068	E	27	1.289	1.749	2.273	2.857	3.496	4.180	4.902								
			32	1.113	1.535	2.015	2.549	3.134	3.761	4.423	1.745	1.671	1.04		71	40		
			38	0.921	1.296	1.722	2.196	2.714	3.271	3.859								
			43		1.110	1.491	1.914	2.376	2.872									
			46		1.004	1.358	1.750	2.177	2.636									
OP-LCQN068	NTZ068	G	27	1.278	1.705	2.207	2.776	3.405	4.081	4.791								
			32	1.139	1.527	1.980	2.494	3.060	3.668	4.307	1.743	1.79	0.97		71	40		
			38	0.971	1.314	1.711	2.157	2.649	3.176	3.731								
			43		1.136	1.486	1.879	2.309	2.769									
			46		1.029	1.352	1.712	2.105	2.525									
OP-LCQN068	NTZ068	G	27	1.458	1.984	2.613	3.337	4.144	5.017	5.937								
			32	1.242	1.720	2.290	2.947	3.680	4.475	5.313	1.954	1.946	1.00		82	51		
			38	0.986	1.404	1.904	2.481	3.126	3.827	4.567								
			43		1.148	1.588	2.098	2.669	3.292									
			46		0.998	1.402	1.871	2.398	2.973									
OP-LGQN096	NTZ096	E	27	1.692	2.360	3.203	4.240	5.486	6.955	8.656								
			32	1.458	2.073	2.850	3.809	4.964	6.330	7.918	2.328	1.924	1.21	1.60	82	51		
			38	1.171	1.717	2.411	3.270	4.312	5.552	7.001								
			43		1.419	2.039	2.812	3.757	4.888									
			46		1.243	1.817	2.537	3.421	4.485									

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector²** software



Technical data and ordering

Optyma™ Commercial - Performance data - R404A / R507 LBP (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-40	-35	-30	-25	-20									-15	-10
OP-LCQN108	NTZ108	E	27	2.012	2.814	3.792	4.951	6.295	7.823	9.531								
			32	1.729	2.471	3.37	4.434	5.669	7.074	8.648	2.779	2.316	1.20	1.66	78	47		
			38	1.394	2.061	2.865	3.814	4.916	6.173	7.587							A02	114X5768
			43		1.725	2.448	3.301	4.291	5.424									
			46		1.527	2.2	2.995	3.918	4.976									
OP-LGQN108	NTZ108	E	27	2.029	2.841	3.834	5.016	6.391	7.961	9.725								
			32	1.744	2.495	3.409	4.495	5.759	7.204	8.832	2.805	2.247	1.25	1.74	78	47		
			38	1.407	2.082	2.900	3.869	4.999	6.294	7.757							A02	114X5769
			43		1.744	2.479	3.351	4.367	5.535									
			46		1.544	2.230	3.042	3.990	5.081									
OP-LGQN136	NTZ136	E	27	2.601	3.556	4.713	6.081	7.671	9.486	11.528								
			32	2.263	3.144	4.208	5.469	6.935	8.613	10.506	3.544	3.060	1.16	1.70	78	47		
			38	1.865	2.655	3.607	4.736	6.053	7.564	9.277							A02	114X5771
			43		2.254	3.112	4.129	5.319	6.690									
			46		2.019	2.817	3.767	4.880	6.166									
OP-LCQN136	NTZ136	E	27	2.575	3.515	4.649	5.986	7.531	9.288	11.253								
			32	2.239	3.106	4.149	5.379	6.803	8.425	10.245	3.504	3.129	1.12	1.62	78	47		
			38	1.845	2.62	3.553	4.654	5.931	7.389	9.032							A02	114X5772
			43		2.224	3.062	4.053	5.205	6.526									
			46		1.99	2.771	3.695	4.771	6.008									
OP-LGQN215	NTZ215	E	27	4.127	5.649	7.453	9.558	11.979	14.727	17.809								
			32	3.551	4.984	6.675	8.643	10.904	13.471	16.350	5.521	4.910	1.12	1.62	86	55		
			38	2.845	4.156	5.698	7.490	9.549	11.887	14.515							A02	114X5774
			43		3.456	4.863	6.497	8.377	10.517									
			46		3.037	4.357	5.893	7.661	9.677									
OP-LGQN271	NTZ271	E	27	5.495	7.459	9.769	12.430	15.440	18.793	22.476								
			32	4.839	6.659	8.793	11.248	14.027	17.125	20.534	7.403	6.344	1.17	1.62	86	55		
			38	4.047	5.684	7.598	9.799	12.294	15.081	18.158							A02	114X5776
			43		4.867	6.591	8.575	10.827	13.350									
			46		4.378	5.985	7.836	9.939	12.301									

LBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R290 MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Version	Code				
				Te [°C]							Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0	5							10			
OP-MCNC003	NBC30RA	G	27	0.141	0.177	0.218	0.264	0.316	0.372	0.433	0.498	0.250	0.133	1.88		A09 A10 A11	114F1202 114F1203 114F1201			
			32	0.129	0.162	0.200	0.244	0.292	0.346	0.404	0.467									
			38	0.116	0.145	0.180	0.220	0.265	0.315	0.370										
			43	0.105	0.131	0.163	0.199	0.242	0.289											
OP-MCNC004	NLY45RAb	G	27	0.203	0.254	0.311	0.373	0.439	0.510	0.586	0.666	0.354	0.187	1.88		A09 A10 A11	114F1205 114F1206 114F1204			
			32	0.186	0.233	0.286	0.343	0.406	0.474	0.546	0.623									
			38	0.166	0.208	0.256	0.309	0.367	0.430	0.498										
			43	0.149	0.187	0.231	0.280	0.334	0.394											
OP-MCNC006	NLY60RAb	G	27	0.274	0.341	0.416	0.500	0.590	0.689	0.794	0.906	0.476	0.245	1.94		A09 A10 A11	114F1308 114F1309 114F1307			
			32	0.254	0.315	0.385	0.463	0.549	0.642	0.743	0.852									
			38	0.23	0.284	0.347	0.419	0.499	0.586	0.682										
			43	0.21	0.258	0.316	0.382	0.457	0.540											
OP-MCNC008	NLY80RAb	G	27	0.354	0.454	0.566	0.691	0.828	0.977	1.138	1.310	0.656	0.324	2.03		A09 A10 A11	114F1411 114F1412 114F1410			
			32	0.328	0.418	0.522	0.639	0.768	0.910	1.063	1.228									
			38	0.296	0.376	0.469	0.576	0.696	0.829	0.974										
			43	0.269	0.341	0.426	0.524	0.636	0.761											
OP-MCNC009	NLY90RAb	G	27	0.408	0.518	0.641	0.776	0.924	1.084	1.255	1.437	0.739	0.365	2.02		A09 A10 A11	114F1414 114F1415 114F1413			
			32	0.378	0.478	0.592	0.719	0.858	1.009	1.173	1.348									
			38	0.342	0.431	0.533	0.649	0.778	0.920	1.075										
			43	0.312	0.391	0.485	0.592	0.712	0.846											
OP-MCNC011	NLY12RAb	G	27	0.474	0.603	0.743	0.894	1.056	1.228	1.409	1.601	0.858	0.445	1.93		A09 A10 A11	114F1417 114F1418 114F1416			
			32	0.442	0.561	0.691	0.833	0.986	1.149	1.324	1.508									
			38	0.404	0.511	0.630	0.760	0.902	1.056	1.221										
			43	0.372	0.469	0.578	0.699	0.833	0.978											
OP-MCNC014	NPT14RA	G	27	0.687	0.746	0.851	1.003	1.200	1.441	1.728	2.061	0.982	0.590	1.66		A09 A10 A11	114F1420 114F1421 114F1419			
			32	0.652	0.705	0.805	0.950	1.141	1.378	1.660	1.990									
			38	0.609	0.656	0.748	0.887	1.071	1.302	1.579										
			43	0.573	0.614	0.701	0.834	1.013	1.238											
OP-MCNC016	NPT16RA	G	27	0.786	0.859	0.987	1.168	1.402	1.688	2.027	2.418	1.141	0.636	1.79		A09 A10 A11	114F1623 114F1624 114F1622			
			32	0.746	0.813	0.934	1.108	1.335	1.615	1.948	2.335									
			38	0.698	0.757	0.870	1.036	1.255	1.527	1.854										
			43	0.658	0.710	0.816	0.975	1.188	1.454											
OP-MCNC018	NX18TBa	G	27	0.74	0.936	1.160	1.410	1.686	1.985	2.308	2.653	1.334	0.726	1.84		A09 A10 A11	114F1626 114F1627 114F1625			
			32	0.675	0.854	1.062	1.296	1.556	1.841	2.150	2.483									
			38	0.597	0.756	0.944	1.159	1.401	1.669	1.961										
			43	0.533	0.675	0.847	1.046	1.272	1.525											
OP-MCNC020	NX21TBa	G	27	0.85	1.068	1.312	1.581	1.872	2.184	2.517	2.869	1.489	0.829	1.79		A09 A10 A11	114F1629 114F1630 114F1628			
			32	0.775	0.972	1.196	1.445	1.718	2.013	2.330	2.668									
			38	0.684	0.857	1.057	1.283	1.534	1.809	2.107										
				0.61	0.761	0.942	1.149	1.382	1.639											

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A09: Tube for KP pressostat + Wired Ebox + Schrader valve

A10: Mini pressure switch + Wired Ebox + Combo Filter drier + Schrader valve

A11: Wired Ebox + Schrader valve



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R134a/R513A* MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)										EcoDesign 3)				Version	Code	
				Te [°C]										Q [kW]	P [kW]	COP	SEPR			
				-30	-25	-20	-15	-10	-5	0	5	10								
OP-MCGC003	TL3G	G	27	0.050	0.066	0.086	0.110	0.137	0.167	0.200	0.236	0.273							A00 A01 A04	114X0104 114X0105 114X0107
			32	0.045	0.060	0.079	0.101	0.126	0.154	0.184	0.217	0.251	0.130	0.120	1.08					
			38	0.038	0.052	0.070	0.090	0.112	0.138	0.165	0.194	0.225								
			43	0.032	0.045	0.061	0.080	0.101	0.123	0.148	0.175	0.202								
OP-MCGC004	TL4G	G	27	0.050	0.077	0.106	0.137	0.170	0.205	0.242	0.284	0.329							A00 A01 A04	114X0108 114X0109 114X0111
			32	0.048	0.071	0.096	0.124	0.154	0.187	0.224	0.264	0.310	0.159	0.159	1.00					
			38	0.042	0.062	0.084	0.109	0.136	0.168	0.204	0.245									
			43	0.037	0.054	0.074	0.097	0.124	0.155	0.190										
OP-MCGC005	TL5G	G	27	0.079	0.102	0.130	0.162	0.198	0.238	0.281	0.328	0.376							A00 A01 A04	114X0112 114X0113 114X0115
			32	0.071	0.094	0.120	0.150	0.184	0.222	0.263	0.306	0.352	0.190	0.171	1.11					
			38	0.063	0.084	0.108	0.136	0.168	0.203	0.241	0.281	0.323								
			43	0.056	0.076	0.099	0.125	0.155	0.187	0.222	0.260	0.321								
OP-MCGC006	FR6G	G	27	0.110	0.146	0.188	0.238	0.296	0.364	0.441	0.527	0.623							A00 A01 A04	114X0200 114X0201 114X0203
			32	0.097	0.131	0.172	0.219	0.275	0.340	0.413	0.496	0.588	0.283	0.187	1.51					
			38	0.080	0.113	0.152	0.197	0.250	0.311	0.380	0.458	0.544								
			43	0.067	0.099	0.136	0.179	0.229	0.287	0.352	0.426	0.508								
OP-MCGC006	NL6.1MF	G	27			0.197	0.252	0.316	0.388	0.470	0.560	0.657						A00	114X0228	
			32			0.181	0.233	0.293	0.361	0.438	0.522	0.614	0.301	0.202	1.49					
			38			0.162	0.210	0.265	0.328	0.399	0.477	0.562								
			43			0.146	0.191	0.242	0.301	0.366	0.439	0.519								
OP-MCGC007	FR7.5G	G	27	0.118	0.156	0.202	0.256	0.319	0.392	0.474	0.567	0.669						A00 A01 A04	114X0216 114X0217 114X0219	
			32	0.103	0.140	0.184	0.236	0.296	0.366	0.444	0.532	0.630	0.305	0.213	1.43					
			38	0.087	0.122	0.164	0.213	0.269	0.335	0.408	0.491	0.583								
			43	0.074	0.108	0.148	0.194	0.248	0.309	0.379	0.457	0.543								
OP-MCGC008	FR8.5G	G	27	0.139	0.184	0.239	0.302	0.376	0.458	0.551	0.653	0.765						A00 A01 A04	114X0224 114X0225 114X0227	
			32	0.129	0.171	0.222	0.281	0.350	0.428	0.516	0.613	0.720	0.360	0.248	1.45					
			38	0.112	0.151	0.198	0.253	0.317	0.389	0.472	0.564	0.666								
			43	0.097	0.133	0.177	0.229	0.289	0.358	0.436	0.525	0.623								
OP-MCGC007	NL7.3MF	G	27			0.237	0.301	0.374	0.457	0.548	0.648	0.757						A00	114X0244	
			32			0.218	0.278	0.347	0.424	0.511	0.605	0.708	0.357	0.241	1.48					
			38			0.196	0.251	0.314	0.386	0.466	0.554	0.649								
			43			0.178	0.229	0.288	0.355	0.429	0.511	0.600								
OP-MCGC008	NL8.4MF	G	27		0.210	0.269	0.339	0.418	0.508	0.606	0.714	0.828						A00 A01	114X0204 114X0205	
			32		0.193	0.248	0.314	0.388	0.472	0.565	0.666	0.775	0.400	0.256	1.56					
			38		0.173	0.224	0.284	0.353	0.431	0.516	0.610	0.711								
			43		0.158	0.205	0.261	0.325	0.397	0.477	0.564	0.659								

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A00: Without valves and receiver for capillary tubes

A01: With receiver, 2stop valves, brackets and copper pipes for KP

A04: A01 + KP17 WB + FSA-kit + power cord

*R513A is preliminary



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R134a/R513A* MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Version	Code	
				Te [°C]								Q [kW]	P [kW]	COP	SEPR			
				-30	-25	-20	-15	-10	-5	0	5							10
OP-MCGC010	SC10G	G	27	0.148	0.212	0.284	0.365	0.454	0.551	0.656	0.771	0.896	0.426	0.303	1.41		A04	114X0223
			32	0.128	0.186	0.252	0.328	0.413	0.507	0.611	0.725	0.853						
			38	0.102	0.153	0.214	0.286	0.367	0.459	0.563	0.679	0.811						
OP-MCGC008	NL8.4MF	G	27			0.278	0.352	0.437	0.533	0.641	0.76	0.889	0.417	0.282	1.48		A00	114X0352
			32			0.256	0.325	0.405	0.496	0.598	0.71	0.832						
			38			0.232	0.295	0.369	0.453	0.547	0.651	0.765						
OP-MCGC011	FR11G	G	27	0.163	0.241	0.322	0.406	0.499	0.600	0.715	0.844	0.473	0.337	1.41		A00	114X0336	
			32	0.153	0.223	0.296	0.374	0.460	0.557	0.666	0.793							
			38	0.136	0.198	0.263	0.334	0.414	0.505	0.611	0.734							
OP-MCGC012	SC12G	G	27	0.213	0.281	0.362	0.457	0.566	0.688	0.824	0.972	1.133	0.535	0.378	1.41		A00	114X0340
			32	0.185	0.249	0.326	0.416	0.519	0.635	0.764	0.906	1.060						
			38	0.153	0.213	0.284	0.368	0.464	0.572	0.694	0.828	0.974						
OP-MCGC015	SC15G	G	27		0.323	0.427	0.552	0.694	0.854	1.029	1.218	1.418	0.670	0.463	1.45		A00	114X0448
			32		0.294	0.397	0.515	0.650	0.800	0.963	1.138	1.323						
			38		0.252	0.353	0.466	0.592	0.730	0.879	1.039	1.207						
OP-MCGC018	SC18G	G	27		0.400	0.515	0.649	0.803	0.978	1.173	1.389	1.624	0.770	0.552	1.40		A00	114X0556
			32		0.351	0.465	0.596	0.746	0.915	1.104	1.310	1.532						
			38		0.307	0.417	0.543	0.685	0.844	1.019	1.211	1.415						
OP-MCGC021	SC21MF	G	27			0.623	0.773	0.945	1.137	1.350	1.583	1.833	0.910	0.647	1.410		A00	114X0568
			32			0.578	0.720	0.881	1.063	1.264	1.483	1.720						
			38			0.524	0.655	0.804	0.972	1.159	1.364	1.585						
OP-MCGC021	SC21G	G	27		0.463	0.601	0.758	0.933	1.125	1.331	1.551	1.783	0.890	0.631	1.410		A00	114X0564
			32		0.421	0.550	0.698	0.862	1.042	1.235	1.441	1.658						
			38		0.375	0.491	0.624	0.773	0.936	1.112	1.300	1.499						
OP-MCGC026	GS26MFX	G	27			0.873	1.125	1.416	1.745	2.113	2.519	1.352	0.766	1.77		A01	114X0773	
			32			0.809	1.045	1.317	1.625	1.970	2.350							
			38			0.736	0.953	1.202	1.485	1.801	2.151							
OP-MCGC034	GS34MFX	G	27			1.138	1.432	1.772	2.158	2.592	3.072	1.699	0.982	1.73		A01	114X0781	
			32			1.051	1.330	1.652	2.018	2.429	2.886							
			38			0.946	1.207	1.507	1.848	2.232	2.660							
			43			0.858	1.103	1.385	1.706	2.067	2.470							

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A00: Without valves and receiver for capillary tubes

A01: With receiver, 2stop valves, brackets and copper pipes for KP

A04: A01 + KP17 WB + FSA-kit + power cord



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R134a MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code					
				Te [°C]							Q [kW]	P [kW]	COP	SEPR									
				-20	-15	-10	-5	0	5	10									15				
OP-MCRN030	MTZ018	E	27	0.739	1.058	1.445	1.902	2.433	3.036	3.710	4.453												
			32	0.616	0.923	1.292	1.726	2.226	2.793	3.426	4.123	1.322	0.727	1.82		76	45						
			38	0.490	0.779	1.122	1.523	1.984	2.504	3.085										A02	114X5721		
			43	0.405	0.675	0.993	1.363	1.787	2.267	2.800													
			46	0.363	0.620	0.921	1.272	1.673	2.126	2.630													
OP-MCRN030	MTZ018	G	27	0.739	1.058	1.445	1.902	2.433	3.036	3.710	4.453												
			32	0.616	0.923	1.292	1.726	2.226	2.793	3.426	4.123	1.322	0.727	1.82		76	45						
			38	0.490	0.779	1.122	1.523	1.984	2.504	3.085												A02	114X5722
			43	0.405	0.675	0.993	1.363	1.787	2.267	2.800													
			46	0.363	0.620	0.921	1.272	1.673	2.126	2.630													
OP-MCRN038	MTZ022	E	27	0.947	1.325	1.789	2.343	2.989	3.726	4.552	5.460												
			32	0.815	1.179	1.620	2.145	2.754	3.447	4.223	5.076	1.659	0.856	1.94		74	43						
			38	0.676	1.017	1.427	1.912	2.473	3.111	3.824												A02	114X5724
			43	0.578	0.896	1.277	1.725	2.243	2.832	3.491													
			46	0.528	0.830	1.192	1.616	2.108	2.666	3.292													
OP-MCRN038	MTZ022	G	27	0.947	1.325	1.789	2.343	2.989	3.726	4.552	5.460												
			32	0.815	1.179	1.620	2.145	2.754	3.447	4.223	5.076	1.659	0.856	1.94		74	43						
			38	0.676	1.017	1.427	1.912	2.473	3.111	3.824												A02	114X5723
			43	0.578	0.896	1.277	1.725	2.243	2.832	3.491													
			46	0.528	0.830	1.192	1.616	2.108	2.666	3.292													
OP-MCRN048	MTZ028	E	27	1.226	1.653	2.200	2.879	3.697	4.660	5.767	7.016												
			32	1.085	1.494	2.014	2.656	3.429	4.337	5.382	6.559	2.062	1.114	1.85		74	43						
			38	0.942	1.323	1.804	2.397	3.110	3.948	4.913												A02	114X5726
			43	0.848	1.199	1.643	2.190	2.848	3.623	4.518													
			46	0.802	1.134	1.552	2.069	2.693	3.429	4.279													
OP-MCRN048	MTZ028	G	27	1.226	1.653	2.200	2.879	3.697	4.660	5.767	7.016												
			32	1.085	1.494	2.014	2.656	3.429	4.337	5.382	6.559	2.062	1.114	1.85		74	43						
			38	0.942	1.323	1.804	2.397	3.110	3.948	4.913												A02	114X5728
			43	0.848	1.199	1.643	2.190	2.848	3.623	4.518													
			46	0.802	1.134	1.552	2.069	2.693	3.429	4.279													
OP-MCRN054	MTZ032	E	27	1.409	1.919	2.558	3.337	4.261	5.334	6.554	7.916												
			32	1.243	1.732	2.341	3.079	3.952	4.965	6.116	7.400	2.398	1.353	1.77		74	43						
			38	1.064	1.523	2.088	2.772	3.580	4.516	5.581												A02	114X5729
			43	0.935	1.362	1.887	2.521	3.270	4.139	5.128													
			46	0.867	1.273	1.772	2.373	3.086	3.913	4.855													
OP-MCRN054	MTZ032	G	27	1.409	1.919	2.558	3.337	4.261	5.334	6.554	7.916												
			32	1.243	1.732	2.341	3.079	3.952	4.965	6.116	7.400	2.398	1.353	1.77		74	43						
			38	1.064	1.523	2.088	2.772	3.580	4.516	5.581												A02	114X5731
			43	0.935	1.362	1.887	2.521	3.270	4.139	5.128													
			46	0.867	1.273	1.772	2.373	3.086	3.913	4.855													

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



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Technical data and ordering

Optyma™ Commercial - Performance data - R134a MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]								Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5	10	15								
OP-MCRN060	MTZ036	E	27	1.929	2.522	3.237	4.079	5.052	6.154	7.382	8.729								
			32	1.758	2.330	3.014	3.815	4.736	5.778	6.937	8.207	3.092	1.607	1.92		74	43	A02	114X5732
			38	1.564	2.105	2.745	3.491	4.347	5.312	6.385									
			43	1.413	1.921	2.521	3.217	4.014	4.913	5.911									
46	1.326	1.814	2.387	3.051	3.811	4.668	5.620												
OP-MCRN060	MTZ036	G	27	1.929	2.522	3.237	4.079	5.052	6.154	7.382	8.729								
			32	1.758	2.330	3.014	3.815	4.736	5.778	6.937	8.207	3.092	1.607	1.92		74	43	A02	114X5734
			38	1.564	2.105	2.745	3.491	4.347	5.312	6.385									
			43	1.413	1.921	2.521	3.217	4.014	4.913	5.911									
46	1.326	1.814	2.387	3.051	3.811	4.668	5.620												
OP-MCRN068	MTZ040	E	27	2.276	2.905	3.641	4.489	5.451	6.528	7.718	9.016								
			32	2.115	2.724	3.432	4.244	5.161	6.185	7.313	8.542	3.522	1.739	2.03		76	45	A02	114X5735
			38	1.921	2.501	3.170	3.933	4.792	5.747	6.798									
			43	1.757	2.308	2.941	3.659	4.466	5.362	6.345									
46	1.657	2.189	2.798	3.488	4.262	5.120	6.063												
OP-MCRN086	MTZ050	E	27	2.419	3.336	4.466	5.826	7.427	9.275	11.373	13.719								
			32	2.133	2.991	4.047	5.317	6.815	8.549	10.524	12.740	4.141	1.946	2.13		84	53	A02	114X5737
			38	1.811	2.606	3.578	4.745	6.124	7.725	9.555									
			43	1.554	2.303	3.211	4.298	5.582	7.075	8.786									
46	1.403	2.128	3.000	4.041	5.270	6.700	8.341												
OP-MCRN096	MTZ056	E	27	2.290	3.285	4.514	5.997	7.744	9.765	12.065	14.643								
			32	1.999	2.935	4.093	5.492	7.145	9.063	11.249	13.706	4.188	2.052	2.04		83	52	A02	114X5739
			38	1.680	2.541	3.611	4.908	6.447	8.237	10.286									
			43	1.442	2.240	3.234	4.444	5.885	7.567	9.499									
46	1.313	2.072	3.020	4.176	5.557	7.174	9.036												
OP-MCRN108	MTZ064	E	27	2.591	3.749	5.162	6.842	8.796	11.023	13.518	16.273								
			32	2.278	3.385	4.727	6.319	8.167	10.273	12.635	15.245	4.840	2.312	2.09		83	52	A02	114X5740
			38	1.910	2.956	4.214	5.700	7.422	9.385	11.587									
			43	1.611	2.607	3.796	5.194	6.812	8.654	10.724									
46	1.435	2.402	3.550	4.895	6.450	8.221	10.211												
OP-MGRN108	MTZ064	E	27	2.591	3.749	5.162	6.842	8.796	11.023	13.518	16.273								
			32	2.278	3.385	4.727	6.319	8.167	10.273	12.635	15.245	4.840	2.242	2.16		83	52	A02	114X5743
			38	1.910	2.956	4.214	5.700	7.422	9.385	11.587									
			43	1.611	2.607	3.796	5.194	6.812	8.654	10.724									
46	1.435	2.402	3.550	4.895	6.450	8.221	10.211												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

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Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector[®]2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R134a MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]								Q [kW]	P [kW]	COP	SEPR					
				-20	-15	-10	-5	0	5	10	15									
OP-MCRN121	MTZ072	E	27	2.984	4.234	5.762	7.582	9.704	12.130	14.854	17.865									
			32	2.667	3.873	5.334	7.069	9.087	11.390	13.976	16.835	5.466	2.625	2.08	2.71	82	51			
			38	2.280	3.427	4.805	6.434	8.323	10.477	12.896									A02	114X5744
			43	1.958	3.052	4.357	5.894	7.673	9.701	11.978										
			46	1.768	2.828	4.088	5.567	7.279	9.230	11.422										
OP-MGRN121	MTZ072	E	27	2.984	4.234	5.762	7.582	9.704	12.130	14.854	17.865									
			32	2.667	3.873	5.334	7.069	9.087	11.390	13.976	16.835	5.466	2.555	2.14	2.80	82	51			
			38	2.280	3.427	4.805	6.434	8.323	10.477	12.896									A02	114X5746
			43	1.958	3.052	4.357	5.894	7.673	9.701	11.978										
			46	1.768	2.828	4.088	5.567	7.279	9.230	11.422										
OP-MCRN136	MTZ080	E	27	4.068	5.496	7.259	9.393	11.929	14.891	18.299	22.163									
			32	3.693	5.062	6.742	8.770	11.178	13.990	17.227	20.903	6.897	2.991	2.31	2.55	82	51			
			38	3.238	4.533	6.111	8.008	10.259	12.890	15.921									A02	114X5747
			43	2.858	4.089	5.579	7.366	9.484	11.961	14.820										
			46	2.632	3.823	5.259	6.979	9.016	11.401	14.155										
OP-MGRN136	MTZ080	E	27	3.895	5.241	6.877	8.822	11.086	13.670	16.567	19.764									
			32	3.530	4.817	6.373	8.216	10.359	12.805	15.548	18.578	6.535	2.976	2.20	2.55	82	51			
			38	3.087	4.303	5.760	7.480	9.476	11.755	14.314									A02	114X5749
			43	2.720	3.873	5.246	6.862	8.736	10.875	13.281										
			46	2.501	3.616	4.939	6.491	8.291	10.346	12.659										
OP-MGRN171	MTZ100	E	27	4.814	6.493	8.569	11.082	14.059	17.523	21.488	25.959									
			32	4.209	5.830	7.821	10.219	13.054	16.346	20.112	24.356	8.004	4.202	1.90	2.68	87	56			
			38	3.572	5.105	6.974	9.217	11.862	14.933	18.444									A02	114X5750
			43	3.124	4.566	6.317	8.414	10.887	13.759	17.045										
			46	2.893	4.273	5.946	7.949	10.312	13.059	16.205										
OP-MGRN215	MTZ125	E	27	6.141	8.185	10.674	13.642	17.113	21.104	25.620	30.657									
			32	5.365	7.344	9.736	12.574	15.884	19.681	23.972	28.754	9.969	4.796	2.08	2.91	86	55			
			38	4.513	6.393	8.648	11.311	14.409	17.957	21.962									A02	114X5753
			43	3.872	5.651	7.775	10.277	13.183	16.509	20.265										
			46	3.520	5.231	7.269	9.667	12.450	15.638	19.238										
OP-MGRN242	MTZ144	E	27	7.721	10.141	13.051	16.481	20.447	24.955	29.996	35.552									
			32	6.930	9.267	12.058	15.330	19.102	23.380	28.156	33.416	12.360	5.939	2.08	2.76	85	54			
			38	6.038	8.254	10.879	13.943	17.464	21.449	25.895									A02	114X5754
			43	5.352	7.446	9.916	12.789	16.086	19.814	23.973										
			46	4.968	6.981	9.349	12.101	15.256	18.825	22.807										
OP-MGRN271	MTZ160	E	27	8.459	11.058	14.200	17.910	22.199	27.060	32.471	38.394									
			32	7.616	10.124	13.129	16.658	20.720	25.311	30.411	35.988	13.465	6.393	2.11	2.79	84	53			
			38	6.709	9.074	11.884	15.165	18.928	23.171	27.879									A02	114X5757
			43	6.033	8.253	10.874	13.924	17.416	21.351	25.716										
			46	5.661	7.781	10.278	13.180	16.500	20.242	24.394										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 20 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R448A MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]							Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0	5									10	
OP-MCRN030	MTZ018	E	27	0.918	1.309	1.764	2.282	2.863	3.506	4.206	4.962									
			32	0.786	1.151	1.575	2.060	2.603	3.205	3.862	4.573	2.094	1.084	1.93		76	45			
			38	0.639	0.973	1.361	1.804	2.302	2.855	3.461	4.117									
			43		0.834	1.192	1.601	2.061	2.573											
			46		0.755	1.095	1.483	1.921	2.408											
OP-MCRN030	MTZ018	G	27	0.921	1.338	1.826	2.386	3.018	3.719	4.488	5.318									
			32	0.790	1.185	1.646	2.174	2.768	3.428	4.151	4.933	2.212	1.139	1.94		76	45			
			38	0.626	0.994	1.422	1.910	2.460	3.071	3.740	4.464									
			43		0.831	1.230	1.686	2.198	2.767											
			46		0.732	1.114	1.549	2.039	2.584											
OP-MCRN038	MTZ022	E	27	1.403	1.824	2.328	2.918	3.593	4.349	5.179	6.074									
			32	1.284	1.673	2.137	2.680	3.302	4.001	4.771	5.606	2.733	1.418	1.93		74	43			
			38	1.142	1.495	1.913	2.401	2.961	3.592	4.291	5.051									
			43		1.348	1.729	2.172	2.681	3.257	3.896										
			46		1.260	1.619	2.036	2.515	3.057											
OP-MCRN038	MTZ022	G	27	1.223	1.772	2.406	3.120	3.909	4.767	5.684	6.653									
			32	1.046	1.565	2.162	2.832	3.573	4.377	5.238	6.148	2.888	1.479	1.95		74	43			
			38	0.826	1.309	1.862	2.481	3.163	3.905	4.699	5.539									
			43		1.092	1.608	2.184	2.819	3.509											
			46		0.961	1.455	2.006	2.612	3.271											
OP-MCRN048	MTZ028	E	27	1.808	2.372	3.062	3.890	4.861	5.979	7.242	8.648									
			32	1.656	2.177	2.812	3.574	4.471	5.506	6.680	7.992	3.632	1.737	2.09		74	43			
			38	1.478	1.950	2.522	3.208	4.016	4.953	6.022	7.221									
			43		1.764	2.286	2.910	3.647	4.504	5.485										
			46		1.653	2.146	2.735	3.429	4.239											
OP-MCRN048	MTZ028	G	27	1.911	2.590	3.382	4.291	5.319	6.465	7.727	9.100									
			32	1.724	2.366	3.113	3.969	4.936	6.014	7.201	8.494	4.036	1.871	2.16		74	43			
			38	1.500	2.097	2.788	3.579	4.471	5.466	6.564	7.761									
			43		1.873	2.517	3.252	4.081	5.007											
			46		1.738	2.354	3.055	3.847	4.730											
OP-MCRN054	MTZ032	E	27	2.119	2.753	3.517	4.419	5.467	6.663	8.004	9.486									
			32	1.923	2.515	3.224	4.062	5.035	6.147	7.397	8.780	4.130	1.938	2.13		74	43			
			38	1.681	2.222	2.866	3.626	4.509	5.521	6.662	7.929									
			43		1.974	2.564	3.259	4.067	4.996											
			46		1.825	2.382	3.037	3.801	4.679											
OP-MCRN054	MTZ032	G	27	1.998	2.664	3.432	4.308	5.296	6.397	7.611	8.935									
			32	1.796	2.435	3.166	3.996	4.930	5.968	7.113	8.363	4.065	2.042	1.99		74	43			
			38	1.543	2.147	2.832	3.606	4.474	5.438	6.500	7.660									
			43		1.898	2.545	3.271	4.083	4.985											
			46		1.746	2.369	3.066	3.845	4.709											

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector²** software



Technical data and ordering

Optyma™ Commercial - Performance data - R448A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]								Q [kW]	P [kW]	COP	SEPR				
				-25	-20	-15	-10	-5	0	5	10								
OP-MCRN060	MTZ036	E	27	2.268	3.025	3.923	4.960	4.655	7.448	8.885	10.438								
			32	2.067	2.774	3.609	4.575	5.671	6.893	8.235	9.687	4.657	2.375	1.96		74	43		
			38	1.831	2.475	3.234	4.113	5.111	6.226	7.453	8.785								
			43		2.227	2.923	3.729	4.645	5.670										
			46		2.080	2.738	3.499	4.365	5.337										
OP-MCRN060	MTZ036	G	27	2.281	3.038	3.909	4.896	6.002	7.225	8.564	10.013								
			32	2.047	2.771	3.599	4.533	5.578	6.732	7.995	9.361	4.615	2.417	1.91		74	43		
			38	1.756	2.439	3.213	4.083	5.054	6.125	7.295	8.563								
			43		2.153	2.882	3.698	4.606	5.607										
			46		1.980	2.681	3.464	4.334	5.292										
OP-MCRN068	MTZ040	E	27	2.599	3.482	4.523	5.725	7.083	8.594	10.248	12.035								
			32	2.362	3.185	4.155	5.274	6.540	7.951	9.497	11.170	5.368	2.740	1.96	2.79	76	45		
			38	2.087	2.834	3.716	4.734	5.888	7.176	8.592	10.126								
			43		2.548	3.354	4.286	5.346	6.530										
			46		2.380	3.139	4.019	5.020	6.143										
OP-MCRN086	MTZ050	E	27	2.909	4.000	5.313	6.858	8.638	10.652	12.894	15.353								
			32	2.623	3.647	4.874	6.315	7.977	9.860	11.958	14.265	6.422	2.970	2.16	3.19	84	53		
			38	2.271	3.212	4.336	5.653	7.173	8.898	10.826	12.951								
			43		2.843	3.880	5.095	6.497	8.091										
			46		2.619	3.604	4.757	6.088	7.604										
OP-MCRN096	MTZ056	E	27	3.205	4.401	5.835	7.515	9.442	11.611	14.012	16.628								
			32	2.891	4.012	5.350	6.916	8.712	10.736	12.979	15.429	7.037	3.270	2.15	3.16	83	52		
			38	2.502	3.534	4.758	6.187	7.827	9.678	11.734	13.986								
			43		3.127	4.257	5.573	7.084	8.791										
			46		2.880	3.953	5.202	6.635	8.257										
OP-MCRN108	MTZ064	E	27	3.849	5.190	6.762	8.566	10.599	12.851	15.312	17.964								
			32	3.427	4.679	6.147	7.834	9.737	11.850	14.162	16.659	7.978	3.754	2.13	3.01	83	52		
			38	2.941	4.084	5.425	6.970	8.716	10.660	12.793	15.101								
			43		3.605	4.839	6.263	7.877	9.678										
			46		3.326	4.494	5.845	7.379	9.094										
OP-MGRN108	MTZ064	E	27	3.849	5.190	6.762	8.566	10.599	12.851	15.312	17.964								
			32	3.427	4.679	6.147	7.834	9.737	11.850	14.162	16.659	7.978	3.684	2.17	3.08	83	52		
			38	2.941	4.084	5.425	6.970	8.716	10.660	12.793	15.101								
			43		3.605	4.839	6.263	7.877	9.678										
			46		3.326	4.494	5.845	7.379	9.094										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R448A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]								Q [kW]	P [kW]	COP	SEPR					
				-25	-20	-15	-10	-5	0	5	10									
OP-MCRN121	MTZ072	E	27	4.353	5.852	7.600	9.594	11.823	14.275	16.932	19.771									
			32	3.875	5.274	6.906	8.768	10.855	13.153	15.647	18.317	8.939	4.364	2.05	2.89	82	51			
			38	3.324	4.602	6.092	7.795	9.708	11.820	14.117	16.583									
			43		4.061	5.431	7.000	8.766	10.721											
			46		3.745	5.042	6.530	8.207	10.067											
OP-MGRN121	MTZ072	E	27	4.353	5.852	7.600	9.594	11.823	14.275	16.932	19.771									
			32	3.875	5.274	6.906	8.768	10.855	13.153	15.647	18.317	8.939	4.294	2.08	2.95	82	51			
			38	3.324	4.602	6.092	7.795	9.708	11.820	14.117	16.583									
			43		4.061	5.431	7.000	8.766	10.721											
			46		3.745	5.042	6.530	8.207	10.067											
OP-MCRN136	MTZ080	E	27	5.265	6.880	8.748	10.863	13.211	15.773	18.522	21.432									
			32	4.779	6.290	8.034	10.007	12.198	14.589	17.159	19.882	10.221	5.194	1.97	2.74	82	51			
			38	4.198	5.580	7.173	8.974	10.974	13.161	15.515	18.013									
			43		4.991	6.454	8.109	9.950	11.965											
			46		4.639	6.024	7.590	9.334	11.246											
OP-MGRN136	MTZ080	E	27	5.265	6.880	8.748	10.863	13.211	15.773	18.522	21.432									
			32	4.779	6.290	8.034	10.007	12.198	14.589	17.159	19.882	10.221	5.124	1.99	2.78	82	51			
			38	4.198	5.580	7.173	8.974	10.974	13.161	15.515	18.013									
			43		4.991	6.454	8.109	9.950	11.965											
			46		4.639	6.024	7.590	9.334	11.246											
OP-MGRN171	MTZ100	E	27	6.111	8.292	10.912	13.990	17.536	21.552	26.030	30.956									
			32	5.463	7.486	9.918	12.781	16.087	19.841	24.039	28.670	12.988	6.306	2.06	3.01	87	56			
			38	4.717	6.555	8.764	11.370	14.390	17.831	21.693	25.970									
			43		5.806	7.832	10.226	13.008	16.189											
			46		5.369	7.285	9.553	12.193	15.218											
OP-MGRN215	MTZ125	E	27	8.003	10.804	14.133	17.999	22.397	27.312	32.717	38.581									
			32	7.154	9.756	12.850	16.450	20.555	25.153	30.224	35.738	16.745	8.020	2.09	2.99	86	55			
			38	6.176	8.538	11.351	14.630	18.382	22.600	27.268	32.362									
			43		7.557	10.134	13.147	16.604	20.504											
			46		6.983	9.419	12.271	15.551	19.261											
OP-MGRN242	MTZ144	E	27	9.911	12.849	16.247	20.108	24.420	29.164	34.312	39.831									
			32	8.913	11.656	14.827	18.433	22.467	26.914	31.751	36.945	18.785	9.244	2.03	2.86	85	54			
			38	7.769	10.282	13.183	16.484	20.185	24.275	28.734	33.538									
			43		9.180	11.859	14.908	18.331	22.123											
			46		8.535	11.083	13.982	17.239	20.851											
OP-MGRN271	MTZ160	E	27	11.163	14.432	18.191	22.434	27.139	32.278	37.811	43.693									
			32	10.041	13.095	16.602	20.563	24.962	29.774	34.965	40.493	20.980	10.582	1.98	2.74	84	53			
			38	8.751	11.551	14.762	18.387	22.418	26.837	31.615	36.716									
			43		10.309	13.277	16.625	20.352	24.443											
			46		9.581	12.405	15.589	19.133	23.028											

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector*2** software



Technical data and ordering

Opty™ Commercial - Performance data - R449A MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code			
				Te [°C]							Q [kW]	P [kW]	COP	SEPR							
				-25	-20	-15	-10	-5	0	5									10		
OP-MCRN030	MTZ018	E	27	0.918	1.309	1.764	2.282	2.863	3.506	4.206	4.962										
			32	0.786	1.151	1.575	2.060	2.603	3.205	3.862	4.573	2.097	1.084	1.93		76	45				
			38	0.639	0.973	1.361	1.804	2.302	2.855	3.461	4.117									A02	114X5721
			43		0.834	1.192	1.601	2.061	2.573												
			46		0.755	1.095	1.483	1.921	2.408												
OP-MCRN030	MTZ018	G	27	0.921	1.338	1.826	2.386	3.018	3.719	4.488	5.318										
			32	0.790	1.185	1.646	2.174	2.768	3.428	4.151	4.933	2.215	1.139	1.95		76	45				
			38	0.626	0.994	1.422	1.910	2.460	3.071	3.740	4.464									A02	114X5722
			43		0.831	1.230	1.686	2.198	2.767												
			46		0.732	1.114	1.549	2.039	2.584												
OP-MCRN038	MTZ022	E	27	1.403	1.824	2.328	2.918	3.593	4.349	5.178	6.074										
			32	1.284	1.673	2.137	2.680	3.302	4.001	4.771	5.606	2.737	1.418	1.93		74	43				
			38	1.142	1.495	1.913	2.401	2.961	3.592	4.291	5.050									A02	114X5724
			43		1.348	1.729	2.172	2.681	3.257	3.896											
			46		1.260	1.619	2.036	2.515	3.057												
OP-MCRN038	MTZ022	G	27	1.223	1.772	2.406	3.120	3.909	4.767	5.684	6.653										
			32	1.046	1.565	2.162	2.832	3.573	4.377	5.238	6.148	2.892	1.479	1.96		74	43				
			38	0.826	1.309	1.862	2.481	3.163	3.905	4.699	5.539									A02	114X5723
			43		1.092	1.608	2.184	2.819	3.509												
			46		0.961	1.455	2.006	2.612	3.271												
OP-MCRN048	MTZ028	E	27	1.808	2.372	3.062	3.890	4.861	5.979	7.242	8.648										
			32	1.656	2.177	2.812	3.574	4.471	5.506	6.680	7.992	3.637	1.737	2.094		74	43				
			38	1.478	1.950	2.522	3.208	4.016	4.953	6.022	7.221									A02	114X5726
			43		1.764	2.286	2.910	3.647	4.504												
			46		1.653	2.146	2.734	3.429	4.238												
OP-MCRN048	MTZ028	G	27	1.911	2.590	3.382	4.291	5.319	6.465	7.727	9.100										
			32	1.724	2.366	3.113	3.969	4.936	6.014	7.201	8.494	4.042	1.871	2.16		74	43				
			38	1.500	2.097	2.788	3.579	4.471	5.466	6.564	7.761									A02	114X5728
			43		1.873	2.517	3.252	4.081	5.007												
			46		1.738	2.354	3.055	3.847	4.730												
OP-MCRN054	MTZ032	E	27	2.119	2.753	3.517	4.419	5.467	6.663	8.004	9.486										
			32	1.923	2.515	3.224	4.062	5.035	6.147	7.397	8.780	4.136	1.938	2.13		74	43				
			38	1.681	2.222	2.866	3.626	4.509	5.521	6.662	7.929									A02	114X5729
			43		1.974	2.564	3.259	4.067	4.996												
			46		1.825	2.382	3.037	3.801	4.679												
OP-MCRN054	MTZ032	G	27	1.998	2.664	3.432	4.308	5.296	6.397	7.611	8.935										
			32	1.796	2.435	3.166	3.996	4.930	5.968	7.113	8.363	4.071	2.042	1.99		74	43				
			38	1.543	2.147	2.832	3.606	4.474	5.438	6.500	7.660									A02	114X5731
			43		1.898	2.545	3.271	4.083	4.985												
			46		1.746	2.369	3.066	3.845	4.709												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Opty™ Commercial - Performance data - R449A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]							Q [kW]	P [kW]	COP	SEPR					
				-25	-20	-15	-10	-5	0	5									10
OP-MCRN060	MTZ036	E	27	2.268	3.025	3.923	4.960	6.137	7.448	8.885	10.438								
			32	2.067	2.774	3.609	4.575	5.671	6.893	8.235	9.687	4.664	2.375	1.96		74	43		
			38	1.831	2.475	3.234	4.113	5.111	6.226	7.453	8.785								
			43		2.227	2.923	3.729	4.645	5.670										
			46		2.080	2.738	3.499	4.365	5.337										
OP-MCRN060	MTZ036	G	27	2.281	3.038	3.909	4.896	6.002	7.225	8.564	10.013								
			32	2.047	2.771	3.598	4.533	5.578	6.732	7.994	9.361	4.622	2.418	1.91		74	43		
			38	1.756	2.439	3.213	4.083	5.054	6.125	7.295	8.563								
			43		2.153	2.882	3.698	4.606	5.607										
			46		1.980	2.680	3.464	4.334	5.292										
OP-MCRN068	MTZ040	E	27	2.599	3.482	4.523	5.725	7.083	8.594	10.248	12.035								
			32	2.362	3.185	4.155	5.274	6.540	7.951	9.497	11.170	5.376	2.740	1.96	2.79	76	45		
			38	2.087	2.834	3.716	4.734	5.888	7.176	8.592	10.126								
			43		2.548	3.354	4.286	5.346	6.530										
			46		2.380	3.139	4.019	5.020	6.143										
OP-MCRN086	MTZ050	E	27	2.909	4.000	5.313	6.858	8.638	10.652	12.894	15.353								
			32	2.623	3.647	4.874	6.315	7.977	9.860	11.958	14.265	6.431	2.971	2.17	3.20	84	53		
			38	2.271	3.212	4.336	5.653	7.173	8.898	10.826	12.951								
			43		2.843	3.880	5.095	6.497	8.091										
			46		2.619	3.604	4.757	6.088	7.604										
OP-MCRN096	MTZ056	E	27	3.205	4.401	5.835	7.515	9.442	11.611	14.012	16.628								
			32	2.891	4.012	5.350	6.916	8.712	10.736	12.979	15.429	7.037	3.270	2.15	3.16	83	52		
			38	2.502	3.534	4.758	6.187	7.827	9.678	11.734	13.986								
			43		3.127	4.257	5.573	7.084	8.791										
			46		2.880	3.953	5.202	6.635	8.257										
OP-MCRN108	MTZ064	E	27	3.849	5.190	6.762	8.566	10.599	12.851	15.312	17.964								
			32	3.427	4.679	6.147	7.834	9.737	11.850	14.162	16.659	7.978	3.754	2.13	3.01	83	52		
			38	2.941	4.084	5.425	6.970	8.716	10.660	12.793	15.101								
			43		3.605	4.839	6.263	7.877	9.678										
			46		3.326	4.494	5.845	7.379	9.094										
OP-MGRN108	MTZ064	E	27	3.849	5.190	6.762	8.566	10.599	12.851	15.312	17.964								
			32	3.427	4.679	6.147	7.834	9.737	11.850	14.162	16.659	7.978	3.684	2.17	3.08	83	52		
			38	2.941	4.084	5.425	6.970	8.716	10.660	12.793	15.101								
			43		3.605	4.839	6.263	7.877	9.678										
			46		3.326	4.494	5.845	7.379	9.094										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

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Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector[®]2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R449A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]						Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0									5	10
OP-MCRN121	MTZ072	E	27	4.353	5.852	7.600	9.594	11.823	14.275	16.932	19.771								
			32	3.875	5.274	6.906	8.768	10.855	13.153	15.647	18.317	8.939	4.364	2.05	2.89	82	51		
			38	3.324	4.602	6.092	7.795	9.708	11.820	14.117	16.583							A02	114X5744
			43		4.061	5.431	7.000	8.766	10.721										
			46		3.745	5.042	6.530	8.207	10.067										
OP-MGRN121	MTZ072	E	27	4.353	5.852	7.600	9.594	11.823	14.275	16.932	19.771								
			32	3.875	5.274	6.906	8.768	10.855	13.153	15.647	18.317	8.952	4.294	2.08	2.95	82	51		
			38	3.324	4.602	6.092	7.795	9.708	11.820	14.117	16.583							A02	114X5746
			43		4.061	5.431	7.000	8.766	10.721										
			46		3.745	5.042	6.530	8.207	10.067										
OP-MCRN136	MTZ080	E	27	5.265	6.880	8.748	10.863	13.211	15.773	18.522	21.432								
			32	4.779	6.290	8.034	10.007	12.198	14.589	17.159	19.882	10.236	5.194	1.97	2.74	82	51		
			38	4.198	5.580	7.173	8.974	10.974	13.161	15.515	18.013							A02	114X5747
			43		4.991	6.454	8.109	9.950	11.965										
			46		4.639	6.024	7.590	9.334	11.246										
OP-MGRN136	MTZ080	E	27	5.265	6.880	8.748	10.863	13.211	15.773	18.522	21.432								
			32	4.779	6.290	8.034	10.007	12.198	14.589	17.159	19.882	10.236	5.124	2.00	2.79	82	51		
			38	4.198	5.580	7.173	8.974	10.974	13.161	15.515	18.013							A02	114X5749
			43		4.991	6.454	8.109	9.950	11.965										
			46		4.639	6.024	7.590	9.334	11.246										
OP-MGRN171	MTZ100	E	27	6.111	8.292	10.912	13.990	17.536	21.552	26.030	30.956								
			32	5.463	7.486	9.918	12.781	16.087	19.841	24.039	28.670	13.007	6.306	2.06	3.01	87	56		
			38	4.717	6.555	8.764	11.370	14.390	17.831	21.693	25.970							A02	114X5750
			43		5.806	7.832	10.226	13.008	16.189										
			46		5.369	7.285	9.553	12.193	15.218										
OP-MGRN215	MTZ125	E	27	8.003	10.804	14.133	17.999	22.397	27.312	32.717	38.581								
			32	7.154	9.756	12.850	16.450	20.555	25.153	30.224	35.738	16.770	8.021	2.09	2.99	86	55		
			38	6.176	8.538	11.351	14.630	18.382	22.600	27.268	32.362							A02	114X5753
			43		7.557	10.134	13.147	16.604	20.504										
			46		6.983	9.419	12.271	15.551	19.261										
OP-MGRN242	MTZ144	E	27	9.911	12.849	16.247	20.108	24.420	29.164	34.312	39.831								
			32	8.913	11.656	14.827	18.433	22.467	26.914	31.751	36.945	18.813	9.244	2.04	2.86	85	54		
			38	7.769	10.282	13.183	16.484	20.185	24.275	28.734	33.538							A02	114X5754
			43		9.180	11.859	14.908	18.331	22.123										
			46		8.535	11.083	13.982	17.239	20.851										
OP-MGRN271	MTZ160	E	27	11.163	14.432	18.191	22.434	27.139	32.278	37.811	43.693								
			32	10.041	13.095	16.602	20.563	24.962	29.774	34.965	40.493	21.012	10.583	1.99	2.74	84	53		
			38	8.751	11.551	14.762	18.387	22.418	26.837	31.615	36.716							A02	114X5757
			43		10.309	13.277	16.625	20.352	24.443										
			46		9.581	12.405	15.589	19.133	23.028										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

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Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R452A MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]						Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0									5	10
OP-MCRN030	MTZ018	E	27	1.122	1.519	1.987	2.526	3.139	3.821	4.572	5.387								
			32	0.977	1.346	1.778	2.278	2.844	3.477	4.174	4.932	2.377	1.188	2.00		76	45		
			38	0.806	1.140	1.531	1.981	2.493	3.066	3.699	4.390								A02
			43	0.666	0.972	1.327	1.737	2.203	2.726										
			46	0.584	0.872	1.207	1.592	2.031	2.523										
OP-MCRN030	MTZ018	G	27	1.038	1.467	1.967	2.538	3.179	3.888	4.659	5.488								
			32	0.900	1.303	1.771	2.303	2.900	3.559	4.277	5.050	2.404	1.166	2.06		76	45		
			38	0.730	1.101	1.528	2.013	2.555	3.155	3.809	4.514								A02
			43	0.588	0.929	1.321	1.766	2.263	2.812										
			46	0.503	0.827	1.197	1.616	2.086	2.605										
OP-MCRN038	MTZ022	E	27	1.616	2.100	2.659	3.292	3.996	4.767	5.602	6.492								
			32	1.434	1.882	2.399	2.984	3.636	4.351	5.125	5.953	3.124	1.554	2.01		74	43		
			38	1.226	1.631	2.097	2.624	3.212	3.858	4.559	5.311								A02
			43	1.060	1.429	1.852	2.330	2.864	3.452	4.092									
			46	0.963	1.310	1.707	2.156	2.657	3.210										
OP-MCRN038	MTZ022	G	27	1.278	1.797	2.396	3.074	3.826	4.646	5.529	6.466								
			32	1.104	1.591	2.150	2.781	3.480	4.242	5.063	5.935	2.908	1.464	1.99		74	43		
			38	0.892	1.339	1.848	2.422	3.056	3.749	4.495	5.290								A02
			43	0.715	1.126	1.594	2.118	2.698	3.332										
			46	0.610	1.000	1.441	1.936	2.483	3.081										
OP-MCRN048	MTZ028	E	27	2.058	2.586	3.241	4.035	4.980	6.080	7.338	8.751								
			32	1.891	2.377	2.978	3.706	4.574	5.587	6.750	8.060	3.867	1.900	2.04		74	43		
			38	1.683	2.117	2.650	3.297	4.071	4.980	6.027	7.214								A02
			43	1.504	1.892	2.368	2.947	3.641	4.462										
			46	1.396	1.755	2.195	2.732	3.379	4.146										
OP-MCRN048	MTZ028	G	27	1.720	2.398	3.198	4.125	5.181	6.362	7.666	9.085								
			32	1.477	2.123	2.878	3.748	4.735	5.838	7.054	8.377	3.909	1.874	2.09		74	43		
			38	1.185	1.788	2.485	3.283	4.185	5.190	6.298	7.505								A02
			43	0.946	1.509	2.154	2.888	3.715	4.637										
			46	0.805	1.342	1.954	2.648	3.430	4.300										
OP-MCRN054	MTZ032	E	27	2.274	2.951	3.751	4.680	5.739	6.927	8.240	9.671								
			32	2.040	2.669	3.411	4.270	5.250	6.349	7.565	8.893	4.459	2.118	2.10		74	43		
			38	1.752	2.323	2.992	3.766	4.648	5.640	6.740	7.944								A02
			43	1.510	2.029	2.636	3.337	4.138	5.039										
			46	1.365	1.852	2.420	3.077	3.828	4.675										
OP-MCRN054	MTZ032	G	27	1.973	2.720	3.589	4.587	5.715	6.974	8.361	9.872								
			32	1.680	2.381	3.196	4.132	5.190	6.373	7.678	9.101	4.310	2.085	2.07		74	43		
			38	1.339	1.983	2.731	3.590	4.563	5.651	6.856	8.172								A02
			43	1.067	1.661	2.351	3.143	4.043	5.052										
			46	0.910	1.473	2.127	2.879	3.734	4.694										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

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Tamb [°C]: Ambient Temperature

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Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R452A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]						Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0									5	10
OP-MCRN060	MTZ036	E	27	2.574	3.277	4.116	5.099	4.784	7.502	8.917	10.462					74	43	A02	114X5732
			32	2.355	3.008	3.785	4.692	5.734	6.911	8.218	9.649	4.908	2.603	1.89					
			38	2.076	2.666	3.364	4.178	5.113	6.170	7.348	8.641								
			43	1.835	2.368	2.996	3.730	4.573	5.530										
			46	1.687	2.184	2.770	3.453	4.242	5.138										
OP-MCRN060	MTZ036	G	27	2.261	3.178	4.242	5.450	6.798	8.275	9.871	11.572							A02	114X5734
			32	1.957	2.818	3.811	4.936	6.189	7.563	9.048	10.633	5.158	2.596	1.99	2.72	74	43		
			38	1.585	2.374	3.281	4.304	5.443	6.692	8.044	9.489								
			43	1.274	2.001	2.833	3.770	4.812	5.957										
			46	1.088	1.778	2.563	3.448	4.432	5.513										
OP-MCRN068	MTZ040	E	27	2.989	3.839	4.857	6.051	7.422	8.968	10.681	12.549							A02	114X5735
			32	2.751	3.542	4.484	5.584	6.847	8.270	9.848	11.571	5.839	2.995	1.95	2.75	76	45		
			38	2.440	3.155	4.001	4.986	6.115	7.390	8.806	10.356								
			43	2.163	2.811	3.573	4.459	5.475	6.625										
			46	1.992	2.597	3.307	4.132	5.080	6.153										
OP-MCRN086	MTZ050	E	27	3.376	4.530	5.901	7.497	9.320	11.367	13.629	16.095							A02	114X5737
			32	3.043	4.123	5.401	6.886	8.581	10.483	12.588	14.886	7.190	3.238	2.22	2.88	84	53		
			38	2.625	3.612	4.774	6.120	7.656	9.384	11.299	13.394								
			43	2.267	3.171	4.231	5.458	6.860	8.439										
			46	2.050	2.901	3.898	5.052	6.372	7.860										
OP-MCRN096	MTZ056	E	27	3.718	4.984	6.484	8.223	10.199	12.405	14.830	17.458							A02	114X5739
			32	3.351	4.535	5.930	7.544	9.377	11.424	13.675	16.119	7.883	3.562	2.21	2.90	83	52		
			38	2.891	3.971	5.237	6.697	8.355	10.208	12.250	14.471								
			43	2.495	3.484	4.638	5.967	7.476	9.165										
			46	2.254	3.186	4.271	5.519	6.938	8.528										
OP-MCRN108	MTZ064	E	27	4.474	5.874	7.501	9.357	11.436	13.731	16.227	18.907							A02	114X5740
			32	3.988	5.295	6.809	8.533	10.466	12.601	14.926	17.426	8.923	4.082	2.19	2.84	83	52		
			38	3.415	4.603	5.975	7.537	9.289	11.227	13.343	15.624								
			43	2.946	4.029	5.279	6.701	8.298	10.069										
			46	2.669	3.687	4.861	6.197	7.700	9.369										
OP-MGRN108	MTZ064	E	27	4.474	5.874	7.501	9.357	11.436	13.731	16.227	18.907							A02	114X5743
			32	3.988	5.295	6.809	8.533	10.466	12.601	14.926	17.426	8.923	4.012	2.22	2.90	83	52		
			38	3.415	4.603	5.975	7.537	9.289	11.227	13.343	15.624								
			43	2.946	4.029	5.279	6.701	8.298	10.069										
			46	2.669	3.687	4.861	6.197	7.700	9.369										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



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Technical data and ordering

Optyma™ Commercial - Performance data - R452A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]								Q [kW]	P [kW]	COP	SEPR				
				-25	-20	-15	-10	-5	0	5	10								
OP-MCRN121	MTZ072	E	27	5.061	6.629	8.441	10.492	12.775	15.274	17.970	20.840								
			32	4.507	9.740	7.653	9.557	11.676	13.996	16.503	19.175	10.006	4.746	2.11	2.77	82	51	A02	114X5744
			38	3.855	5.182	6.705	8.426	10.343	12.445	14.720	17.151								
			43	3.323	4.531	5.915	7.479	9.221	11.138										
			46	3.009	4.143	5.441	6.908	8.545	10.347										
27	5.061	6.629	8.441	10.492	12.775	15.274	17.970	20.840											
OP-MGRN121	MTZ072	E	27	5.061	6.629	8.441	10.492	12.775	15.274	17.970	20.840								
			32	4.507	5.969	7.653	9.557	11.676	13.996	16.503	19.175	10.006	4.676	2.14	2.81	82	51	A02	114X5746
			38	3.855	5.182	6.705	8.426	10.343	12.445	14.720	17.151								
			43	3.323	4.531	5.915	7.479	9.221	11.138										
			46	3.009	4.143	5.441	6.908	8.545	10.347										
27	5.061	6.629	8.441	10.492	12.775	15.274	17.970	20.840											
OP-MCRN136	MTZ080	E	27	5.656	7.221	9.034	11.094	13.396	15.927	18.670	21.602								
			32	5.133	6.596	8.282	10.195	12.330	14.677	17.221	19.943	10.683	5.378	1.99	2.58	82	51	A02	114X5747
			38	4.492	5.823	7.350	9.078	11.006	13.127	15.430	17.899								
			43	3.947	5.161	6.549	8.118	9.869	11.798										
			46	3.617	4.757	6.059	7.529	9.172	10.984										
27	5.599	7.138	8.913	10.923	13.157	15.601	18.235	21.033											
OP-MGRN136	MTZ080	E	27	5.599	7.138	8.913	10.923	13.157	15.601	18.235	21.033								
			32	5.078	6.515	8.165	10.027	12.095	14.358	16.796	19.390	10.516	5.348	1.97	2.57	82	51	A02	114X5749
			38	4.439	5.745	7.236	8.915	10.779	12.819	15.021	17.368								
			43	3.898	5.086	6.439	7.960	9.649	11.501										
			46	3.569	4.685	5.952	7.376	8.958	10.694										
27	7.193	9.480	12.193	15.348	18.949	22.995	27.472	32.361											
OP-MGRN171	MTZ100	E	27	7.193	9.480	12.193	15.348	18.949	22.995	27.472	32.361								
			32	6.450	8.580	11.096	14.016	17.351	21.100	25.257	29.806	14.626	6.795	2.15	3.10	87	56	A02	114X5750
			38	5.553	7.494	9.773	12.412	15.425	18.818	22.590	26.730								
			43	4.797	6.582	8.663	11.067	13.812	16.908										
			46	4.340	6.030	7.992	10.255	12.840	15.759										
27	9.170	12.040	15.402	19.263	23.908	28.437	33.704	39.377											
OP-MGRN215	MTZ125	E	27	9.170	12.040	15.402	19.263	23.908	28.437	33.704	39.377								
			32	8.199	10.872	13.992	17.570	21.603	26.077	30.970	36.252	18.369	8.683	2.12	3.10	86	55	A02	114X5753
			38	7.035	9.464	12.287	15.520	19.166	23.218	27.661	32.470								
			43	6.066	8.286	10.856	13.797	17.117	20.814										
			46	5.486	7.578	9.994	12.758	15.880	19.364										
27	11.122	13.934	17.174	20.852	24.963	29.495	34.425	39.723											
OP-MGRN242	MTZ144	E	27	11.122	13.934	17.174	20.852	24.963	29.495	34.425	39.723								
			32	9.989	12.605	15.615	19.032	22.856	27.079	31.684	36.646	19.922	10.070	1.98	3.01	85	54	A02	114X5754
			38	8.658	11.029	13.754	16.848	20.319	24.165	28.373	32.924								
			43	7.570	9.730	12.209	15.028	18.199	21.723										
			46	6.926	8.956	11.285	13.936	16.924	20.253										
27	12.150	15.195	18.675	22.594	26.941	31.696	36.826	42.289											
OP-MGRN271	MTZ160	E	27	12.150	15.195	18.675	22.594	26.941	31.696	36.826	42.289								
			32	10.903	13.738	16.969	20.603	24.637	29.053	33.823	38.914	21.600	11.452	1.89	2.71	84	53	A02	114X5757
			38	9.430	12.004	14.928	18.213	21.862	25.864	30.198	34.835								
			43	8.218	10.569	13.230	16.218	19.541	23.192										
			46	7.497	9.711	12.211	15.019	18.143	21.582										
27	12.150	15.195	18.675	22.594	26.941	31.696	36.826	42.289											

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector**®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R407A MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)								EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]								Q [kW]	P [kW]	COP	SEPR					
				-25	-20	-15	-10	-5	0	5	10									
OP-MCRN030	MTZ018	E	27	0.780	1.152	1.600	2.127	2.729	3.405	4.149	4.956									
			32	0.691	1.036	1.453	1.941	2.501	3.130	3.823	4.577	1.976	1.073	1.84		76	45			
			38	0.584	0.898	1.275	1.718	2.226	2.799	3.433	4.123									
			43			1.128	1.533	1.998	2.524											
			46			1.041	1.422	1.862												
OP-MCRN030	MTZ018	G	27	0.779	1.150	1.598	2.123	2.725	3.399	4.141	4.946									
			32	0.690	1.035	1.450	1.938	2.496	3.123	3.815	4.567	1.973	1.113	1.77		76	45			
			38	0.583	0.896	1.273	1.714	2.221	2.792	3.424	4.112									
			43			1.125	1.529	1.993	2.517											
			46			1.038	1.419	1.857												
OP-MCRN038	MTZ022	E	27	1.151	1.616	2.169	2.806	3.525	4.320	5.184	6.106									
			32	1.008	1.441	1.955	2.549	3.219	3.962	4.769	5.633	2.599	1.315	1.98		74	43			
			38	0.840	1.232	1.698	2.238	2.850	3.529	4.269	5.063									
			43			1.486	1.981	2.543	3.169	3.853										
			46			1.362	1.828	2.360												
OP-MCRN038	MTZ022	G	27	1.149	1.613	2.164	2.800	3.518	4.310	5.171	6.090									
			32	1.006	1.438	1.951	2.543	3.211	3.951	4.755	5.616	2.593	1.365	1.90		74	43			
			38	0.838	1.229	1.693	2.232	2.841	3.518	4.255	5.045									
			43			1.482	1.974	2.534	3.157											
			46			1.357	1.822	2.351												
OP-MCRN048	MTZ028	E	27	1.568	2.218	2.988	3.883	4.905	6.055	7.330	8.725									
			32	1.379	1.991	2.715	3.556	4.517	5.598	6.798	8.114	3.617	1.755	2.06		74	43			
			38	1.154	1.720	2.389	3.164	4.051	5.050	6.161	7.381									
			43			2.118	2.839	3.663	4.594	5.630										
			46			1.958	2.645	3.432												
OP-MCRN048	MTZ028	G	27	1.566	2.215	2.984	3.878	4.899	6.047	7.320	8.712									
			32	1.377	1.989	2.712	3.551	4.510	5.590	6.788	8.101	3.613	1.820	1.99		74	43			
			38	1.152	1.718	2.385	3.159	4.044	5.041	6.149	7.367									
			43			2.115	2.834	3.656	4.584											
			46			1.954	2.640	3.425												
OP-MCRN054	MTZ032	E	27	1.873	2.589	3.434	4.409	5.516	6.752	8.112	9.589									
			32	1.664	2.340	3.133	4.048	5.087	6.246	7.523	8.910	4.121	1.934	2.13		74	43			
			38	1.408	2.032	2.763	3.605	4.560	5.627	6.803	8.084									
			43			2.451	3.230	4.114	5.103											
			46			2.263	3.004	3.846												
OP-MCRN054	MTZ032	G	27	1.871	2.586	3.429	4.403	5.508	6.742	8.099	9.573									
			32	1.662	2.336	3.129	4.042	5.078	6.235	7.509	8.893	4.116	2.006	2.05		74	43			
			38	1.405	2.029	2.758	3.598	4.551	5.615	6.788	8.065									
			43			2.446	3.223	4.105	5.092											
			46			2.258	2.997	3.836												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R407A MBP (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)							EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]							Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0	5									10	
OP-MCRN060	MTZ036	E	27	2.189	2.997	3.937	5.009	6.210	7.535	8.975	10.520									
			32	1.957	2.721	3.605	4.609	5.732	6.970	8.316	9.760	4.697	2.345	2.00		74	43			
			38	1.669	2.379	3.193	4.116	5.145	6.279	7.512	8.836									
			43			2.845	3.698	4.649	5.696	6.834										
			46			2.634	3.445	4.349												
OP-MCRN060	MTZ036	G	27	2.186	2.993	3.932	5.001	6.200	7.521	8.958	10.498									
			32	1.954	2.717	3.599	4.601	5.722	6.956	8.298	9.737	4.689	2.432	1.93		74	43			
			38	1.666	2.374	3.187	4.107	5.134	6.264	7.492	8.811									
			43			2.838	3.689	4.637	5.680											
			46			2.628	3.436	4.337												
OP-MCRN068	MTZ040	E	27	2.555	3.467	4.515	5.702	7.026	8.483	10.066	11.765									
			32	2.307	3.174	4.163	5.278	6.517	7.879	9.357	10.942	5.379	2.649	2.03	2.57	76	45			
			38	1.996	2.808	3.725	4.751	5.888	7.134	8.485	9.934									
			43			3.349	4.300	5.351	6.499											
			46			3.121	4.027	5.024												
OP-MCRN086	MTZ050	E	27	2.969	4.106	5.454	7.017	8.798	10.791	12.990	15.384									
			32	2.617	3.678	4.937	6.399	8.066	9.936	12.003	14.259	6.513	2.866	2.27	3.08	84	53			
			38	2.204	3.174	4.324	5.663	7.193	8.915	10.824	12.913									
			43			3.825	5.060	6.475	8.072											
			46			3.531	4.703	6.049												
OP-MCRN096	MTZ056	E	27	3.077	4.284	5.719	7.390	9.297	11.438	13.804	16.382									
			32	2.713	3.844	5.188	6.755	8.547	10.561	12.792	15.229	6.879	3.120	2.20	2.94	83	52			
			38	2.290	3.328	4.563	6.004	7.656	9.519	11.587	13.852									
			43			4.054	5.390	6.925	8.660											
			46			3.754	5.027	6.492												
OP-MCRN108	MTZ064	E	27	3.662	5.024	6.637	8.507	10.633	13.005	15.611	18.432									
			32	3.246	4.525	6.038	7.791	9.785	12.013	14.465	17.123	7.943	3.730	2.13	2.81	83	52			
			38	2.741	3.918	5.308	6.920	8.755	10.810	13.076	15.540									
			43			4.698	6.190	7.891	9.802											
			46			4.334	5.753	7.374												
OP-MGRN108	MTZ064	E	27	3.662	5.024	6.637	8.507	10.633	13.005	15.611	18.432									
			32	3.246	4.525	6.038	7.791	9.785	12.013	14.465	17.123	7.943	3.660	2.17	2.87	83	52			
			38	2.741	3.918	5.308	6.920	8.755	10.810	13.076	15.540									
			43			4.698	6.190	7.891	9.802											
			46			4.334	5.753	7.374												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R407A MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]								Q [kW]	P [kW]	COP	SEPR					
				-25	-20	-15	-10	-5	0	5	10									
OP-MCRN121	MTZ072	E	27	4.129	5.614	7.350	9.336	11.567	14.033	16.717	19.600									
			32	3.642	5.035	6.663	8.528	10.628	12.951	15.484	18.209	8.702	4.156	2.09	2.76	82	51			
			38	3.076	4.355	5.852	7.571	9.509	11.660	14.011	16.546								A02	114X5744
			43			5.193	6.787	8.589	10.595											
			46			4.805	6.324	8.044												
OP-MGRN121	MTZ072	E	27	4.129	5.614	7.350	9.336	11.567	14.033	16.717	19.600									
			32	3.642	5.035	6.663	8.528	10.628	12.951	15.484	18.209	8.702	4.086	2.13	2.82	82	51			
			38	3.076	4.355	5.852	7.571	9.509	11.660	14.011	16.546								A02	114X5746
			43			5.193	6.787	8.589	10.595											
			46			4.805	6.324	8.044												
OP-MCRN136	MTZ080	E	27	4.838	6.488	8.377	10.501	12.846	15.396	18.128	21.018									
			32	4.313	5.872	7.649	9.643	11.844	14.238	16.804	19.520	9.855	4.902	2.01	2.64	82	51			
			38	3.685	5.132	6.774	8.611	10.638	12.843	15.208	17.716								A02	114X5747
			43			6.047	7.753	9.634	11.680											
			46			5.615	7.241	9.033												
OP-MGRN136	MTZ080	E	27	4.838	6.488	8.377	10.501	12.846	15.396	18.128	21.018									
			32	4.313	5.872	7.649	9.643	11.844	14.238	16.804	19.520	9.855	4.902	2.01	2.64	82	51			
			38	3.685	5.132	6.774	8.611	10.638	12.843	15.208	17.716								A02	114X5749
			43			6.047	7.753	9.634	11.680											
			46			5.615	7.241	9.033												
OP-MGRN171	MTZ100	E	27	5.722	7.951	10.592	13.658	17.151	21.065	25.388	30.098									
			32	5.134	7.239	9.720	12.592	15.859	19.521	23.567	27.981	12.812	6.257	2.05	2.83	87	56			
			38	4.389	6.343	8.631	11.270	14.268	17.628	21.343	25.403								A02	114X5750
			43			7.696	10.140	12.913	16.022											
			46			7.126	9.452	12.091												
OP-MGRN215	MTZ125	E	27	7.559	10.266	13.446	17.108	21.251	25.867	30.937	36.433									
			32	6.687	9.225	12.205	15.641	19.533	23.876	28.654	33.844	15.935	7.758	2.05	2.83	86	55			
			38	5.669	7.999	10.737	13.897	17.486	21.500	25.926	30.745								A02	114X5753
			43			9.539	12.467	15.799	19.536											
			46			8.834	11.621	14.798												
OP-MGRN242	MTZ144	E	27	8.818	11.861	15.388	19.399	23.882	28.814	34.160	39.879									
			32	7.889	10.760	14.074	17.836	22.036	26.656	31.666	37.030	18.193	8.951	2.03	2.74	85	54			
			38	6.751	9.410	12.465	15.923	19.782	24.027	28.635	33.574								A02	114X5754
			43			11.109	14.312	17.883	21.814											
			46			10.295	13.342	16.740												
OP-MGRN271	MTZ160	E	27	9.535	12.804	16.576	20.846	25.595	30.788	36.383	42.325									
			32	8.538	11.627	15.177	19.185	23.637	28.505	33.750	39.325	19.587	10.096	1.94	2.58	84	53			
			38	7.319	10.186	13.463	17.154	21.249	25.726	30.552	35.686								A02	114X5757
			43			12.020	15.443	19.238	23.386											
			46			11.153	14.413	18.025												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R407F MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code						
				Te [°C]						Q [kW]	P [kW]	COP	SEPR										
				-25	-20	-15	-10	-5	0									5	10				
OP-MCRN030	MTZ018	E	27	0.827	1.228	1.705	2.257	2.882	3.579	4.343	5.170												
			32	0.715	1.086	1.529	2.043	2.628	3.282	4.000	4.780	2.060	1.132	1.82		76	45						
			38		0.939	1.342	1.812	2.349	2.951	3.615	4.339									A02	114X5721		
			43			1.206	1.640	2.137	2.696														
			46			1.132	1.545	2.018															
OP-MCRN030	MTZ018	G	27	0.826	1.226	1.701	2.252	2.877	3.572	4.334	5.159												
			32	0.713	1.084	1.526	2.039	2.623	3.275	3.992	4.769	2.056	1.175	1.75		76	45						
			38		0.937	1.339	1.808	2.344	2.944	3.606	4.327										A02	114X5722	
			43			1.204	1.637	2.132	2.689														
			46			1.130	1.542	2.014															
OP-MCRN038	MTZ022	E	27	1.217	1.710	2.287	2.948	3.689	4.507	5.398	6.355												
			32	1.049	1.508	2.047	2.667	3.367	4.142	4.988	5.900	2.694	1.389	1.94		74	43						
			38		1.297	1.794	2.367	3.016	3.740	4.533	5.391											A02	114X5724
			43			1.608	2.144	2.754	3.435														
			46			1.508	2.022	2.608	3.264														
OP-MCRN038	MTZ022	G	27	1.214	1.706	2.282	2.941	3.680	4.496	5.384	6.338												
			32	1.047	1.505	2.043	2.661	3.358	4.131	4.974	5.883	2.688	1.442	1.86		74	43						
			38		1.294	1.789	2.361	3.008	3.729	4.519	5.374											A02	114X5723
			43			1.604	2.139	2.746	3.424														
			46			1.504	2.017	2.601															
OP-MCRN048	MTZ028	E	27	1.723	2.426	3.243	4.179	5.238	6.420	7.727	9.157												
			32	1.463	2.118	2.883	3.763	4.763	5.883	7.126	8.492	3.791	1.850	2.05		74	43						
			38		1.803	2.512	3.330	4.262	5.312	6.482	7.772											A02	114X5726
			43			2.247	3.018	3.899	4.894														
			46			2.105	2.851	3.704															
OP-MCRN048	MTZ028	G	27	1.670	2.268	3.000	3.875	4.899	6.074	7.396	8.861												
			32	1.525	2.084	2.763	3.574	4.523	5.614	6.845	8.213	3.600	1.810	1.99		74	43						
			38		1.868	2.487	3.223	4.085	5.076	6.200	7.452											A02	114X5728
			43			2.260	2.936	3.727	4.638														
			46			2.123	2.765	3.514															
OP-MCRN054	MTZ032	E	27	2.029	2.798	3.689	4.706	5.850	7.120	8.515	10.031												
			32	1.755	2.474	3.309	4.265	5.343	6.546	7.870	9.315	4.299	2.037	2.11		74	43						
			38		2.135	2.909	3.796	4.801	5.925	7.168	8.528											A02	114X5729
			43			2.618	3.453	4.400	5.461														
			46			2.460	3.266	4.180															
OP-MCRN054	MTZ032	G	27	2.026	2.794	3.683	4.698	5.840	7.108	8.500	10.012												
			32	1.752	2.470	3.303	4.257	5.334	6.534	7.855	9.297	4.292	2.114	2.03		74	43						
			38		2.132	2.904	3.790	4.792	5.913	7.153	8.510											A02	114X5731
			43			2.614	3.447	4.392	5.451														
			46			2.456	3.260	4.172															

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R407F MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]							Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0	5									10	
OP-MCRN060	MTZ036	E	27	2.327	3.190	4.181	5.299	4.917	7.902	9.378	10.961									
			32	2.042	2.854	3.785	4.837	6.007	7.294	8.691	10.193	4.881	2.473	1.97		74	43			
			38		2.503	3.371	4.350	5.440	6.640	7.946	9.353									
			43			3.067	3.993	5.021	6.153											
			46			2.900	3.796	4.791												
OP-MCRN060	MTZ036	G	27	2.323	3.185	4.174	5.289	6.528	7.886	9.358	10.937									
			32	2.039	2.849	3.779	4.828	5.995	7.278	8.672	10.169	4.872	2.565	1.90		74	43			
			38		2.498	3.365	4.342	5.429	6.625	7.927	9.330									
			43			3.062	3.985	5.011	6.140											
			46			2.894	3.789	4.781												
OP-MCRN068	MTZ040	E	27	2.726	3.692	4.795	6.035	7.411	8.919	10.552	12.305									
			32	2.413	3.324	4.363	5.531	6.827	8.251	9.796	11.457	5.580	2.789	2.00	2.80	76	45			
			38		2.937	3.908	4.996	6.204	7.530	8.972	10.524									
			43			3.572	4.602	5.742	6.992											
			46			3.385	4.384	5.486												
OP-MCRN086	MTZ050	E	27	3.174	4.390	5.814	7.451	9.299	11.357	13.619	16.078									
			32	2.745	3.870	5.194	6.723	8.459	10.402	12.547	14.890	6.776	3.016	2.25	3.27	84	53			
			38		3.344	4.559	5.967	7.576	9.384	11.393	13.597									
			43			4.111	5.429	6.938	8.641											
			46			3.874	5.142	6.595												
OP-MCRN096	MTZ056	E	27	3.077	4.576	6.089	7.831	9.805	12.010	14.441	17.094									
			32	2.713	4.043	5.456	7.093	8.958	11.051	13.370	15.911	7.153	3.289	2.17	3.16	83	52			
			38	2.290	3.507	4.814	6.335	8.076	10.040	12.229	14.638									
			43			4.365	5.799	7.445	9.310											
			46			4.126	5.515	7.109												
OP-MCRN108	MTZ064	E	27	3.662	5.351	7.036	8.972	11.159	13.597	16.280	19.200									
			32	3.246	4.761	6.344	8.171	10.245	12.566	15.132	17.936	8.250	3.937	2.10	2.99	83	52			
			38	2.741	4.144	5.616	7.321	9.265	11.452	13.879	16.544									
			43			5.083	6.695	8.538	10.617											
			46			4.790	6.351	8.137												
OP-MGRN108	MTZ064	E	27	3.662	5.351	7.036	8.972	11.159	13.597	16.280	19.200									
			32	3.246	4.761	6.344	8.171	10.245	12.566	15.132	17.936	8.250	3.867	2.13	3.05	83	52			
			38	2.741	4.144	5.616	7.321	9.265	11.452	13.879	16.544									
			43			5.083	6.695	8.538	10.617											
			46			4.790	6.351	8.137												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



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Technical data and ordering

Optyma™ Commercial - Performance data - R407F MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]								Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0	5	10										
OP-MCRN121	MTZ072	E	27	4.129	5.932	7.743	9.797	12.096	14.636	17.413	20.420										
			32	3.642	5.275	6.981	8.929	11.120	13.554	16.226	19.132	9.024	4.391	2.06	2.87	82	51				
			38	3.076	4.608	6.202	8.030	10.099	12.409	14.960	17.747									A02	114X5744
			43			5.652	7.392	9.366	11.580												
			46			5.361	7.052	8.975													
OP-MGRN121	MTZ072	E	27	4.362	5.932	7.743	9.797	12.096	14.636	17.413	20.420										
			32	3.804	5.275	6.981	8.929	11.120	13.554	16.226	19.132	9.024	4.321	2.09	2.92	82	51				
			38		4.608	6.202	8.030	10.099	12.409	14.960	17.747									A02	114X5746
			43			5.652	7.392	9.366	11.580												
			46			5.361	7.052	8.975													
OP-MCRN136	MTZ080	E	27	5.095	6.828	8.793	10.988	13.410	16.051	18.904	21.958										
			32	4.502	6.146	8.014	10.108	12.426	14.963	17.713	20.666	10.232	5.269	1.94	2.67	82	51				
			38		5.443	7.209	9.193	11.395	13.814	16.445	19.280									A02	114X5747
			43			6.630	8.534	10.650	12.978												
			46			6.314	8.178	10.248													
OP-MGRN136	MTZ080	E	27	5.095	6.828	8.793	10.988	13.410	16.051	18.904	21.958										
			32	4.502	6.146	8.014	10.108	12.426	14.963	17.713	20.666	10.232	5.199	1.97	2.71	82	51				
			38		5.443	7.209	9.193	11.395	13.814	16.445	19.280									A02	114X5749
			43			6.630	8.534	10.650	12.978												
			46			6.314	8.178	10.248													
OP-MGRN171	MTZ100	E	27	6.109	8.512	11.331	14.571	18.228	22.294	26.754	31.591										
			32	5.361	7.605	10.233	13.255	16.673	20.484	24.678	29.239	13.354	6.576	2.03	3.13	87	56				
			38		6.661	9.091	11.878	15.031	18.551	22.436	26.674									A02	114X5750
			43			8.253	10.869	13.822	17.118												
			46			7.785	10.312	13.156													
OP-MGRN215	MTZ125	E	27	8.048	10.935	14.279	18.089	22.711	27.118	32.326	37.984										
			32	7.006	9.693	12.821	16.405	20.453	24.966	29.940	35.365	16.552	8.164	2.03	2.99	86	55				
			38		8.442	11.338	14.672	18.457	22.700	27.401	32.554									A02	114X5753
			43			10.302	13.449	17.033	21.065												
			46			9.758	12.804	16.276													
OP-MGRN242	MTZ144	E	27	9.395	12.618	16.301	20.448	25.056	30.115	35.609	41.521										
			32	8.274	11.307	14.779	18.699	23.069	27.884	33.130	38.793	18.889	9.430	2.00	2.86	85	54				
			38		9.947	13.191	16.861	20.962	25.495	30.453	35.821									A02	114X5754
			43			12.043	15.525	19.420	23.732												
			46			11.420	14.800	18.579													
OP-MGRN271	MTZ160	E	27	10.130	13.582	17.510	21.916	26.794	32.131	37.908	44.101										
			32	8.945	12.206	15.925	20.109	24.757	29.859	35.401	41.360	20.332	10.650	1.91	2.67	84	53				
			38		10.781	14.276	18.215	22.603	27.436	32.702	38.385									A02	114X5757
			43			13.085	16.842	21.030	25.652												
			46			12.437	16.096	20.175													

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector²** software



Technical data and ordering

Optyma™ Commercial - Performance data - R407C MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-15	-10	-5	0	5									10	15
OP-MCRN030	MTZ018	E	27	1.512	2.049	2.663	3.350	4.104	4.918	5.785						A02	114X5721	
			32	1.337	1.843	2.421	3.066	3.774	4.539	5.353	1.863	0.984	1.89		76			45
			38		1.608	2.143	2.738	3.391	4.097									
			43		1.422	1.921	2.476	3.083	3.738									
			46			1.793	2.323	2.902	3.528									
OP-MCRN030	MTZ018	G	27	1.434	1.970	2.595	3.305	4.088	4.937	5.839						A02	114X5722	
			32	1.320	1.821	2.402	3.058	3.784	4.569	5.407	1.841	0.996	1.85	2.77	76			45
			38		1.645	2.179	2.776	3.435	4.148									
			43		1.494	1.993	2.547	3.153	3.807									
			46			1.879	2.409	2.985	3.606									
OP-MCRN038	MTZ022	E	27	2.064	2.688	3.388	4.157	4.987	5.868	6.790						A02	114X5724	
			32	1.855	2.444	3.101	3.821	4.597	5.420	6.281	2.475	1.300	1.90		74			43
			38		2.154	2.760	3.422	4.133	4.886									
			43		1.919	2.482	3.094	3.751	4.445									
			46			2.318	2.900	3.524	4.183									
OP-MCRN038	MTZ022	G	27	1.985	2.618	3.338	4.136	5.004	5.931	6.907						A02	114X5723	
			32	1.786	2.380	3.053	3.800	4.612	5.479	6.392	2.410	1.301	1.85		74			43
			38		2.101	2.720	3.404	4.148	4.943									
			43		1.877	2.449	3.081	3.767	4.501									
			46			2.290	2.890	3.542	4.239									
OP-MCRN048	MTZ028	E	27	2.691	3.594	4.632	5.805	7.110	8.538	10.081						A02	114X5726	
			32	2.432	3.289	4.270	5.375	6.601	7.942	9.391	3.323	1.619	2.05		74			43
			38		2.918	3.830	4.852	5.984	7.220									
			43		2.606	3.460	4.414	5.467	6.617									
			46			3.239	4.151	5.156	6.254									
OP-MCRN048	MTZ028	G	27	2.628	3.553	4.612	5.796	7.097	8.501	9.993						A02	114X5728	
			32	2.380	3.256	4.251	5.359	6.573	7.882	9.272	3.289	1.655	1.99		74			43
			38		2.896	3.819	4.840	5.953	7.149									
			43		2.591	3.458	4.409	5.440	6.545									
			46			3.239	4.149	5.133	6.184									
OP-MCRN054	MTZ032	E	27	3.242	4.203	5.297	6.520	7.864	9.321	10.877						A02	114X5729	
			32	2.942	3.851	4.881	6.028	7.287	8.650	10.106	3.894	1.839	2.12		74			43
			38		3.428	4.381	5.438	6.594	7.845									
			43		3.077	3.966	4.948	6.019	7.176									
			46			3.718	4.655	5.675	6.776									
OP-MCRN054	MTZ032	G	27	3.171	4.164	5.291	6.549	7.929	9.424	11.020						A02	114X5731	
			32	2.862	3.806	4.871	6.055	7.351	8.753	10.250	3.848	1.877	2.05		74			43
			38		3.373	4.365	5.461	6.658	7.950									
			43		3.011	3.943	4.967	6.081	7.281									
			46			3.689	4.670	5.736	6.880									

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R407C MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-15	-10	-5	0	5									10	15
OP-MCRN060	MTZ036	E	27	3.729	4.757	5.914	7.190	8.574	10.052	11.610					74	43	A02	114X5732
			32	3.415	4.387	5.474	6.669	7.961	9.339	10.792	4.440	2.258	1.97					
			38		3.939	4.946	6.046	7.231	8.491	9.817								
			43		3.560	4.503	5.526	6.623	7.787	9.008								
			46			4.235	5.213	6.259	7.365	8.524								
OP-MCRN060	MTZ036	G	27	3.599	4.677	5.894	7.243	8.711	10.287	11.954					74	43	A02	114X5734
			32	3.256	4.280	5.431	6.702	8.083	9.563	11.128	4.330	2.219	1.95					
			38		3.794	4.867	6.047	7.325	8.692									
			43		3.378	4.389	5.495	6.688	7.962									
			46			4.098	5.160	6.303	7.521									
OP-MCRN068	MTZ040	E	27	4.329	5.488	6.800	8.258	9.849	11.559	13.371					76	45	A02	114X5735
			32	3.999	5.097	6.332	7.698	9.185	10.781	12.471	5.158	2.609	1.98	2.71				
			38		4.616	5.761	7.020	8.384	9.844									
			43		4.203	5.276	6.447	7.711	9.060									
			46			4.979	6.099	7.303	8.586									
OP-MCRN086	MTZ050	E	27	5.009	6.504	8.229	10.181	12.351	14.725	17.285					84	53	A02	114X5737
			32	4.553	5.959	7.576	9.404	11.435	13.660	16.061	6.025	2.810	2.14	2.89				
			38		5.305	6.795	8.475	10.341	12.385									
			43		4.761	6.146	7.704	9.433	11.329									
			46			5.759	7.244	8.891	10.698									
OP-MCRN096	MTZ056	E	27	5.360	7.008	8.912	11.068	13.461	16.074	18.884					83	52	A02	114X5739
			32	4.868	6.424	8.216	10.241	12.489	14.944	17.586	6.497	3.026	2.15	3.00				
			38		5.723	7.380	9.248	11.319	13.584									
			43		5.142	6.685	8.421	10.346	12.451									
			46			6.271	7.927	9.763	11.772									
OP-MCRN108	MTZ064	E	27	6.307	8.073	10.102	12.388	14.916	17.666	20.613					83	52	A02	114X5740
			32	5.745	7.402	9.307	11.453	13.828	16.416	19.193	7.494	3.488	2.15	3.01				
			38		6.614	8.364	10.338	12.527	14.916									
			43		5.977	7.594	9.421	11.451	13.672									
			46			7.142	8.879	10.812	12.930									
OP-MGRN108	MTZ064	E	27	6.307	8.073	10.102	12.388	14.916	17.666	20.613					83	52	A02	114X5743
			32	5.745	7.402	9.307	11.453	13.828	16.416	19.193	7.494	3.418	2.19	3.08				
			38		6.614	8.364	10.338	12.527	14.916									
			43		5.977	7.594	9.421	11.451	13.672									
			46			7.142	8.879	10.812	12.930									

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector²** software



Technical data and ordering

Optyma™ Commercial - Performance data - R407C MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	T _{amb} [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code			
				T _e [°C]					Q [kW]	P [kW]	COP	SEPR							
				-15	-10	-5	0	5									10	15	
OP-MCRN121	MTZ072	E	27	6.985	8.954	11.199	13.702	16.439	19.380	22.492									
			32	6.375	8.232	10.341	12.689	15.256	18.013	20.932	8.342	4.120	2.02	2.79	82	51			
			38		7.367	9.309	11.468	13.826	16.362									A02	114X5744
			43		6.657	8.454	10.452	12.634	14.982										
			46			7.947	9.845	11.920	14.155										
OP-MGRN121	MTZ072	E	27	6.985	8.954	11.199	13.702	16.439	19.380	22.492									
			32	6.375	8.232	10.341	12.689	15.256	18.013	20.932	8.342	4.050	2.06	2.84	82	51			
			38		7.367	9.309	11.468	13.826	16.362									A02	114X5746
			43		6.657	8.454	10.452	12.634	14.982										
			46			7.947	9.845	11.920	14.155										
OP-MCRN136	MTZ080	E	27	7.817	9.984	12.410	15.067	17.922	20.935	24.064									
			32	7.164	9.213	11.495	13.985	16.653	19.466	22.386	9.348	4.827	1.94	2.67	82	51			
			38		8.281	10.387	12.675	15.120	17.692									A02	114X5747
			43		7.503	9.462	11.579	13.836	16.208										
			46			8.907	10.922	13.065	15.316										
OP-MGRN136	MTZ080	E	27	7.817	9.984	12.410	15.067	17.922	20.935	24.064									
			32	7.164	9.213	11.495	13.985	16.653	19.466	22.386	9.348	4.757	1.97	2.72	82	51			
			38		8.281	10.387	12.675	15.120	17.692									A02	114X5749
			43		7.503	9.462	11.579	13.836	16.208										
			46			8.907	10.922	13.065	15.316										
OP-MGRN171	MTZ100	E	27	9.666	12.729	16.283	20.326	24.844	29.813	35.202									
			32	8.732	11.621	14.965	18.763	23.008	27.680	32.752	11.741	6.002	1.96	2.81	87	56			
			38		10.297	13.381	16.882	20.795	25.106									A02	114X5750
			43		9.211	12.073	15.321	18.952	22.959										
			46			11.299	14.392	17.852	21.674										
OP-MGRN215	MTZ125	E	27	13.147	16.747	20.846	25.435	30.489	35.972	41.839									
			32	12.015	15.424	19.289	23.605	28.353	33.502	39.015	15.610	7.511	2.08	2.90	86	55			
			38		13.814	17.398	21.386	25.766	30.515									A02	114X5753
			43		12.463	15.810	19.524	23.597	28.013										
			46			14.856	18.405	22.294	26.508										
OP-MGRN242	MTZ144	E	27	14.195	18.105	22.542	27.487	32.910	38.768	45.009									
			32	12.972	16.673	20.856	25.507	30.603	36.106	41.971	16.885	8.499	1.99	2.76	85	54			
			38		14.953	18.826	23.122	27.822	32.898									A02	114X5754
			43		13.529	17.139	21.134	25.502	30.219										
			46			16.133	19.946	24.112	28.613										
OP-MGRN271	MTZ160	E	27	16.529	20.700	25.412	30.631	36.310	42.387	48.793									
			32	15.200	19.138	23.567	28.462	33.781	39.472	45.474	19.406	9.849	1.97	2.71	84	53			
			38		17.256	21.345	25.848	30.735	35.962									A02	114X5757
			43		15.686	19.489	23.665	28.190	33.028										
			46			18.376	22.355	26.662	31.267										

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

T_{amb} [°C]: Ambient Temperature

T_e [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Light Commercial - Performance data - R404A / R507 MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Version	Code	
				Te [°C]					Q [kW]	P [kW]	COP	SEPR			
				-20	-15	-10	-5	0							5
OP-MCHC004	TL4DL	G	27	0.262	0.294	0.348	0.422	0.515	0.622					A00	114X0301
			32	0.230	0.262	0.315	0.386	0.474	0.574	0.330	0.206	1.60		A01	114X0302
			38	0.195	0.226	0.276	0.342	0.422	0.513					A04	114X0303
			43	0.167	0.196	0.243	0.303	0.376	0.458						
OP-MCHC006	FR6DL	G	27	0.376	0.455	0.552	0.666	0.796	0.941					A00	114X2316
			32	0.337	0.409	0.499	0.603	0.723	0.856	0.524	0.372	1.41		A01	114X2317
			38	0.293	0.357	0.435	0.528	0.633	0.751					A04	114X2319
			43	0.259	0.314	0.383	0.464	0.557							
OP-MCHC007	NF7MLX	G	27		0.588	0.720	0.869	1.037	1.223					A00	114X2424
			32		0.535	0.657	0.796	0.952	1.127	0.690	0.444	1.55		A01	114X2425
			38		0.470	0.581	0.708	0.850	1.010					A04	114X2427
			43		0.417	0.518	0.634	0.764	0.911						
OP-MCHC010	SC10MLX	G	27	0.620	0.767	0.938	1.132	1.348	1.583					A00	114X0403
			32	0.560	0.696	0.853	1.031	1.229	1.445	0.898	0.515	1.74		A01	114X0404
			38	0.487	0.609	0.749	0.908	1.085	1.279					A04	114X0405
			43	0.426	0.535	0.661	0.804	0.963	1.138						
OP-MCHC013	SC12MLX	G	27	0.737	0.905	1.098	1.316	1.555	1.813					A00	114X0406
			32	0.666	0.820	0.997	1.196	1.416	1.653	1.053	0.620	1.70		A01	114X0407
			38	0.579	0.717	0.875	1.052	1.247	1.458					A04	114X0408
			43	0.506	0.630	0.771	0.930	1.104	1.294						
OP-MCHC015	SC15MLX	G	27	0.934	1.148	1.396	1.677	1.991	2.337					A01	114X2649
			32	0.844	1.043	1.273	1.534	1.826	2.150	1.341	0.836	1.60		A04	114X2651
			38	0.738	0.916	1.124	1.360	1.625	1.919						
			43	0.651	0.811	0.998	1.212	1.453	1.722						
OP-MCHC018	SC18MLX	G	27	1.073	1.315	1.594	1.909	2.259	2.642					A01	114X0702
			32	0.970	1.195	1.453	1.745	2.070	2.428	1.533	0.873	1.76		A04	114X0703
			38	0.848	1.050	1.282	1.545	1.840	2.164						
			43	0.748	0.929	1.139	1.377	1.644	1.939						
OP-MCHC021	GS21MLX	G	27	1.259	1.557	1.898	2.278	2.694	3.141					A01	114X2765
			32	1.128	1.402	1.715	2.064	2.446	2.859	1.810	1.039	1.74		A04	114X2767
			38	0.978	1.222	1.500	1.811	2.152	2.523						
			43	0.858	1.076	1.325	1.603	1.910	2.244						

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A00: Without valves and receiver for capillary tubes

A01: With receiver, 2stop valves, brackets and copper pipes for KP

A04: A01 + KP17 WB + FSA-kit + power cord



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R404A / R507 MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code			
				Te [°C]							Q [kW]	P [kW]	COP	SEPR							
				-25	-20	-15	-10	-5	0	5									10		
OP-MCRN030	MTZ018	E	27	0.980	1.391	1.884	2.457	3.109	3.837	4.636	5.500										
			32	0.867	1.243	1.692	2.217	2.814	3.482	4.218	5.016	2.329	1.241	1.88		76	45				
			38	0.737	1.070	1.469	1.934	2.465	3.062	3.721	4.439									A02	114X5721
			43		0.931	1.287	1.702	2.179	2.715												
OP-MCRN030	MTZ018	G	27	0.980	1.391	1.884	2.457	3.109	3.837	4.636	5.500										
			32	0.867	1.243	1.692	2.217	2.814	3.482	4.218	5.016	2.329	1.241	1.88		76	45			A02	114X5722
			38	0.737	1.070	1.469	1.934	2.465	3.062	3.721	4.439										
			43		0.931	1.287	1.702	2.179	2.715												
OP-MCRN038	MTZ022	E	27	1.455	1.959	2.556	3.243	4.017	4.873	5.802	6.798										
			32	1.279	1.741	2.287	2.917	3.630	4.418	5.278	6.200	3.071	1.519	2.02		74	43			A02	114X5724
			38	1.076	1.484	1.969	2.531	3.167	3.874	4.648	5.481										
			43		1.277	1.710	2.212	2.784	3.423												
OP-MCRN038	MTZ022	G	27	2.979	1.959	2.556	3.243	4.017	4.873	5.802	6.798										
			32	1.279	1.741	2.287	2.917	3.630	4.418	5.278	6.200	3.071	1.519	2.02		74	43			A02	114X5723
			38	1.076	1.484	1.969	2.531	3.167	3.874	4.648	5.481										
			43		1.277	1.710	2.212	2.784	3.423												
OP-MCRN048	MTZ028	E	27	2.012	2.709	3.524	4.461	5.522	6.706	8.012	9.436										
			32	1.750	2.397	3.154	4.024	5.010	6.112	7.330	8.661	4.225	2.028	2.08		74	43			A02	114X5726
			38	1.451	2.038	2.722	3.510	4.405	5.407	6.518	7.735										
			43		1.750	2.373	3.091	3.908	4.826												
OP-MCRN048	MTZ028	G	27	2.012	2.709	3.524	4.461	5.522	6.706	8.012	9.436										
			32	4.109	2.397	3.154	4.024	5.010	6.112	7.330	8.661	4.225	2.028	2.08		74	43			A02	114X5728
			38	1.451	2.038	2.722	3.510	4.405	5.407	6.518	7.735										
			43		1.750	2.373	3.091	3.908	4.826												
OP-MCRN054	MTZ032	E	27	2.378	3.136	4.021	5.037	6.182	7.453	8.847	10.356										
			32	2.100	2.803	3.623	4.562	5.623	6.802	8.096	9.499	4.796	2.234	2.15		74	43			A02	114X5729
			38	1.776	2.410	3.148	3.994	4.950	6.016	7.189	8.464										
			43		2.088	2.755	3.522	4.390	5.360	6.430											
OP-MCRN054	MTZ032	G	27	2.378	3.136	4.021	5.037	6.182	7.453	8.847	10.356										
			32	2.100	2.803	3.623	4.562	5.623	6.802	8.096	9.499	4.796	2.234	2.15		74	43			A02	114X5731
			38	1.776	2.410	3.148	3.994	4.950	6.016	7.189	8.464										
			43		2.088	2.755	3.522	4.390	5.360												
OP-MCRN054	MTZ032	G	27	2.378	3.136	4.021	5.037	6.182	7.453	8.847	10.356										
			32	2.100	2.803	3.623	4.562	5.623	6.802	8.096	9.499	4.796	2.234	2.15		74	43			A02	114X5731
			38	1.776	2.410	3.148	3.994	4.950	6.016	7.189	8.464										
			43		2.088	2.755	3.522	4.390	5.360												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
 G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Commercial - Performance data - R404A / R507 MBP (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)								EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]								Q [kW]	P [kW]	COP	SEPR					
				-25	-20	-15	-10	-5	0	5	10									
OP-MCRN060	MTZ036	E	27	2.738	3.588	4.572	5.687	6.929	8.290	9.762	11.333									
			32	2.450	3.238	4.146	5.174	6.317	7.570	8.926	10.376	5.448	2.707	2.01	2.85	74	43			
			38	2.104	2.817	3.634	4.555	5.579	6.702	7.919	9.222									
			43		2.465	3.205	4.037	4.961	5.975											
			46		2.254	2.947	3.725	4.589	5.537											
OP-MCRN060	MTZ036	G	27	2.738	3.588	4.572	5.687	6.929	8.290	9.762	11.333									
			32	2.450	3.238	4.146	5.174	6.317	7.570	8.926	10.376	5.448	2.707	2.01	2.85	74	43			
			38	2.104	2.817	3.634	4.555	5.579	6.702	7.919	9.222									
			43		2.465	3.205	4.037	4.961	5.975											
			46		2.254	2.947	3.725	4.589	5.537											
OP-MCRN068	MTZ040	E	27	3.282	4.266	5.409	6.717	8.190	9.826	11.623	13.572									
			32	2.964	3.880	4.942	6.152	7.514	9.027	10.689	12.494	6.463	3.005	2.15	2.77	76	45			
			38	2.575	3.409	4.368	5.459	6.686	8.048	9.547	11.177									
			43		3.009	3.881	4.871	5.982	7.217											
			46		2.767	3.585	4.512	5.554	6.712											
OP-MCRN086	MTZ050	E	27	3.782	5.021	6.492	8.200	10.149	12.335	14.754	17.396									
			32	3.338	4.474	5.823	7.393	9.189	11.211	13.453	15.911	7.759	3.283	2.36	3.34	84	53			
			38	2.837	3.849	5.051	6.456	8.067	9.889	11.919	14.153									
			43		3.352	4.432	5.697	7.154	8.808											
			46		3.063	4.070	5.251	6.615	8.168											
OP-MCRN096	MTZ056	E	27	3.925	5.245	6.814	8.640	10.727	13.071	15.668	18.506									
			32	3.465	4.680	6.125	7.809	9.738	11.912	14.326	16.972	8.201	3.578	2.29	3.14	83	52			
			38	2.947	4.037	5.332	6.845	8.583	10.550	12.743	15.156									
			43		3.526	4.696	6.065	7.644	9.436											
			46		3.228	4.323	5.606	7.089	8.776											
OP-MCRN108	MTZ064	E	27	4.700	6.176	7.927	9.961	12.280	14.880	17.750	20.876									
			32	4.171	5.537	7.154	9.033	11.178	13.588	16.254	19.166	9.500	4.287	2.22	3.07	83	52			
			38	3.551	4.780	6.233	7.923	9.856	12.035	14.456	17.108									
			43		4.159	5.472	7.002	8.757	10.742											
			46		3.791	5.019	6.451	8.098	9.966											
OP-MGRN108	MTZ064	E	27	4.700	6.176	7.927	9.961	12.280	14.880	17.750	20.876									
			32	4.171	5.537	7.154	9.033	11.178	13.588	16.254	19.166	9.500	4.217	2.25	3.13	83	52			
			38	3.551	4.780	6.233	7.923	9.856	12.035	14.456	17.108									
			43		4.159	5.472	7.002	8.757	10.742											
			46		3.791	5.019	6.451	8.098	9.966											

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Commercial - Performance data - R404A / R507 MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾								EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]								Q [kW]	P [kW]	COP	SEPR						
				-25	-20	-15	-10	-5	0	5	10										
OP-MCRN121	MTZ072	E	27	5.284	6.897	8.788	10.957	13.401	16.109	19.069	22.261										
			32	4.675	6.160	7.903	9.907	12.170	14.685	17.440	20.419	10.428	4.787	2.18	3.03	82	51				
			38	3.993	5.320	6.881	8.682	10.723	13.001	15.507	18.228									A02	114X5744
			43		4.652	6.058	7.686	9.540	11.618												
			46		4.264	5.576	7.099	8.839	10.795												
OP-MGRN121	MTZ072	E	27	5.284	6.897	8.788	10.957	13.401	16.109	19.069	22.261										
			32	4.675	6.160	7.903	9.907	12.170	14.685	17.440	20.419	10.428	4.717	2.21	3.08	82	51				
			38	3.993	5.320	6.881	8.682	10.723	13.001	15.507	18.228									A02	114X5746
			43		4.652	6.058	7.686	9.540	11.618												
			46		4.264	5.576	7.099	8.839	10.795												
OP-MCRN136	MTZ080	E	27	6.204	7.979	10.021	12.327	14.886	17.685	20.702	23.917										
			32	5.548	7.192	9.079	11.209	13.574	16.164	18.961	21.948	11.824	5.719	2.07	2.83	82	51				
			38	4.789	6.272	7.969	9.884	12.012	14.347	16.877	19.586									A02	114X5747
			43		5.522	7.058	8.789	10.717	12.838												
			46		5.077	6.515	8.136	9.942	11.933												
OP-MGRN136	MTZ080	E	27	6.204	7.979	10.021	12.327	14.886	17.685	20.702	23.917										
			32	5.548	7.192	9.079	11.209	13.574	16.164	18.961	21.948	11.824	5.649	2.09	2.87	82	51				
			38	4.789	6.272	7.969	9.884	12.012	14.347	16.877	19.586									A02	114X5749
			43		5.522	7.058	8.789	10.717	12.838												
			46		5.077	6.515	8.136	9.942	11.933												
OP-MGRN171	MTZ100	E	27	7.159	9.542	12.363	15.630	19.338	23.478	28.030	32.971										
			32	6.441	8.648	11.249	14.253	17.662	21.470	25.665	30.227	14.969	7.150	2.09	3.02	87	56				
			38	5.553	7.554	9.894	12.587	15.641	19.055	22.823	26.932									A02	114X5750
			43		6.622	8.749	11.186	13.947	17.036												
			46		6.053	8.053	10.340	12.926	15.821												
OP-MGRN215	MTZ125	E	27	9.526	12.393	15.755	19.618	23.976	28.816	34.117	39.850										
			32	8.441	11.075	14.168	17.730	21.759	26.245	31.173	36.516	18.648	8.915	2.09	3.03	86	55				
			38	7.227	9.575	12.339	15.533	19.160	23.216	27.688	32.556									A02	114X5753
			43		8.385	10.870	13.752	17.039	20.730												
			46		7.694	10.010	12.703	15.783	19.254												
OP-MGRN242	MTZ144	E	27	11.170	14.359	18.047	22.232	26.901	32.033	37.594	43.548										
			32	9.988	12.938	16.342	20.204	24.515	29.259	34.407	39.929	21.288	10.307	2.07	2.91	85	54				
			38	8.608	11.260	14.314	17.779	21.653	25.923	30.571	35.570									A02	114X5754
			43		9.883	12.637	15.764	19.266	23.138												
			46		9.066	11.636	14.557	17.834	21.464												
OP-MGRN271	MTZ160	E	27	12.084	15.502	19.434	23.875	28.803	34.187	39.984	46.143										
			32	10.816	13.982	17.616	21.717	26.270	31.249	36.617	42.330	22.911	11.650	1.97	2.74	84	53				
			38	9.337	12.187	15.452	19.135	23.229	27.713	32.560	37.731									A02	114X5757
			43		10.714	13.661	16.987	20.690	24.756												
			46		9.838	12.590	15.698	19.163	22.975												

MBP

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

COP: Coefficient Of Performance link to EN13215 and ErP (Energy related Products) 2009/125/CE

SEPR: Seasonal Energy Performance Ratio link to EN13215 and ErP (Energy Related Products) 2009/125/CE

Tamb [°C]: Ambient Temperature

Te [°C]: Evaporating Temperature

Q [kW]: Cooling Capacity in Kilo Watt

P [kW]: Power Input in Kilo Watt

Version

A02: Receiver + Stop valves + KP17WB pressure switch + Electrical box



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Light Commercial - R290

Technical data

Model number	Compressor Model	Application	Electrical code ⁽¹⁾	Refrigerant ⁽²⁾	Condenser Coil			Fan		Receiver	Dimensions						Weight		Code no.		
					Type	Airflow	Internal Volume	Number	Blade ø	Volume	Chassis	Height	Width	Depth	Suction line	Liquid line	Gross	Net			
						[m³/h]	[dm³]												[mm]	[L]	[mm]
OP-LCNC004NY	NLY45LAb	LBP	G	N	BG2	231	0.25	1	200	0.114	1	226	286	513	6	6	21	19	114F0202	114F0203	114F0201
OP-LCNC006NY	NLY60LAb	LBP	G	N	BG2	231	0.25	1	200	0.114	1	226	286	513	6	6	19	17	114F0205	114F0206	114F0204
OP-LCNC008NY	NLY80LAb	LBP	G	N	BG3	518	0.31	1	230	0.114	2	256	304	513	6	6	20	18	114F0308	114F0309	114F0307
OP-LCNC011NY	NPY12LAb	LBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	8	6	25	22	114F0411	114F0412	114F0410
OP-LCNC016NP	NPT16LA	LBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	8	6	26	23	114F0414	114F0415	114F0413
OP-LCNC023NX	NX23FBa	LBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	10	6	31	28	114F0417	114F0418	114F0416
OP-LCNC034NS	NS34FB	LBP	G	N	BG6	1132	0.63	1	300	0.32	4	350	442	480	12	6	47	41	114F0620	114F0621	114F0619
OP-MCNC003NB	NBC30RA	MBP	G	N	BG2	231	0.25	1	200	0.114	1	226	286	513	6	6	16	14	114F1202	114F1203	114F1201
OP-MCNC004NY	NLY45RAb	MBP	G	N	BG2	231	0.25	1	200	0.114	1	226	286	513	6	6	21	19	114F1205	114F1206	114F1204
OP-MCNC006NY	NLY60RAb	MBP	G	N	BG3	518	0.31	1	230	0.114	2	256	304	513	6	6	20	18	114F1308	114F1309	114F1307
OP-MCNC008NY	NLY80RAb	MBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	6	6	25	22	114F1411	114F1412	114F1410
OP-MCNC009NY	NLY90RAb	MBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	6	6	25	22	114F1414	114F1415	114F1413
OP-MCNC011NY	NLY12RAb	MBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	8	6	26	23	114F1417	114F1418	114F1416
OP-MCNC014NP	NPT14RA	MBP	G	N	BG4/5	631	0.4	1	254	0.165	3	296	319	513	8	6	27	24	114F1420	114F1421	114F1419
OP-MCNC016NP	NPT16RA	MBP	G	N	BG6	1132	0.63	1	300	0.32	4	350	442	480	8	6	36	32	114F1623	114F1624	114F1622
OP-MCNC018NX	NX18TBa	MBP	G	N	BG6	1132	0.63	1	300	0.32	4	350	442	480	10	6	29	26	114F1626	114F1627	114F1625
OP-MCNC020NX	NX21TBa	MBP	G	N	BG6	1132	0.63	1	300	0.32	4	350	442	480	10	6	39	35	114F1629	114F1630	114F1628

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
 G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

(2) N - R290

Technical data and ordering

Optyma™ Light Commercial - R134a / R513A - R452A - R404A/

Technical data

Model number	Compressor Model	Application	Electrical code (1)	Refrigerant (2)		Condenser Coil			Fan	Receiver	Dimensions						Weight		Code no.					
						Type	Airflow	Internal Volume			Number	Blade ø	Volume	Chassis	Height	Width	Depth	Suction line				Liquid line	Gross	Net
OP-LCHC004TL	TL4CL	LBP	G	H	BG2	231	0.25	1	200	0.8	2	226	312	446	1/4	1/4	19	17	114X1208	114X1209	114X1211			
OP-LCHC006FR	FR6CL	LBP	G	H	BG2	231	0.25	1	200	0.8	2	226	312	446	3/8	1/4	19	17	114X1216	114X1217	114X1219			
OP-LCHC007NL	NL7CLX	LBP	G	H	BG3	518	0.31	1	230	1.1	9	256	321	471	3/8	1/4	20	18	114X1328	114X1329	114X1331			
OP-LCHC008FR	FR8.5CL	LBP	G	H	BG3	518	0.31	1	230	1.1	9	256	321	471	3/8	1/4	20	18	114X1324	114X1325	114X1327			
OP-LCHC008NL	NL8.4CLX	LBP	G	H	BG3	518	0.31	1	230	1.1	7	256	318	513	3/8	1/4	22	20	114X1304	114X1301	114X1302			
OP-LCHC0125C	SC12CL	LBP	G	H	BG4/5	631	0.4	1	254	1.1	10	296	331	487	3/8	1/4	25	22	114X1440	114X1441	114X1443			
OP-LCHC0125C	SC12CLX.2	LBP	G	H	BG4/5	631	0.4	1	254	1.1	10	296	331	487	3/8	1/4	23	20	114X1444					
OP-LCHC0155C	SC15CLX	LBP	G	H	BG4/5	631	0.4	1	254	1.1	10	296	331	487	3/8	1/4	26	23	114X1548	114X1549	114X1551			
OP-LCHC0185C	SC18CL	LBP	G	H	BG4/5	631	0.4	1	254	1.1	11	296	331	513	1/2	1/4	26	23	114X1556	114X1557	114X1559			
OP-LCHC0215C	SC21CL	LBP	G	H	BG6	1150	0.63	1	300	1.1	12	350	445	613	1/2	1/4	47	41	114X1600	114X1601	114X1602			
OP-LCHC026G5	GS26CLX	LBP	G	H	BG6	1150	0.63	1	300	2.4	13	340	430	480	1/2	3/8	45	39		114X1673				
OP-LCHC034G5	GS34CLX	LBP	G	H	BG7	990	0.84	1	300	2.4	13	340	430	480	1/2	3/8	48	42		114X1781	114X1783			
OP-LCQC004ML	MLY45Lab	LBP	G	Q	BG2	231	0.25	1	200	0.8	5	226	302	513	3/8	1/4	19	17		114X1221				
OP-LCQC006ML	MLY60Lab	LBP	G	Q	BG3	518	0.31	1	230	1.1	7	256	318	513	3/8	1/4	20	18		114X1337				
OP-LCQC008ML	MLY80Lab	LBP	G	Q	BG3	518	0.31	1	230	1.1	7	256	318	513	3/8	1/4	20	18		114X1341				
OP-LCQC012ML	MLY12Lab	LBP	G	Q	BG4/5	631	0.4	1	254	1.1	11	296	331	513	3/8	1/4	25	22		114X1449				
OP-LCQC012MP	MPT12LA	LBP	G	Q	BG4/5	631	0.4	1	254	1.1	11	296	331	513	3/8	1/4	26	23		114X1569				
OP-LCQC014MP	MPT14LA	LBP	G	Q	BG4/5	631	0.4	1	254	1.1	11	296	331	513	1/2	1/4	26	23		114X1573				
OP-MCGC003TL	TL3GX	MBP	G	G	BG1	243	0.13	1	172	0.8	1	205	289	424	1/4	1/4	16	14	114X0104	114X0105	114X0107			
OP-MCGC004TL	TL4GX	MBP	G	G	BG1	243	0.13	1	172	0.8	1	205	289	424	1/4	1/4	16	14	114X0108	114X0109	114X0111			
OP-MCGC005TL	TL5GX	MBP	G	G	BG1	243	0.13	1	172	0.8	1	205	289	424	1/4	1/4	16	14	114X0112	114X0113	114X0115			
OP-MCGC006FR	FR6GX	MBP	G	G	BG2	231	0.25	1	200	0.8	2	226	312	446	3/8	1/4	19	17	114X0200	114X0201	114X0203			
OP-MCGC006NL	NL6.1MF	MBP	G	G	BG2	231	0.25	1	200	0.8	3	226	304	432	3/8	1/4	19	17	114X0228					
OP-MCGC007FR	FR7.5GX	MBP	G	G	BG2	231	0.25	1	200	0.8	2	226	312	446	3/8	1/4	19	17	114X0216	114X0217	114X0219			
OP-MCGC007NL	NL7.3MF	MBP	G	G	BG2	231	0.25	1	200	0.8	3	226	304	432	3/8	1/4	19	17	114X0244					
OP-MCGC008FR	FR8.5GX	MBP	G	G	BG2	231	0.25	1	200	0.8	2	226	312	446	3/8	1/4	19	17	114X0224	114X0225	114X0227			
OP-MCGC008NL	NL8.4MF	MBP	G	G	BG2	231	0.25	1	200	0.8	4	225	313	470	3/8	1/4	25	22	114X0204	114X0205				
OP-MCGC008NL	NL8.4MF	MBP	G	G	BG3	518	0.31	1	230	-	6	256	310	444	3/8	1/4	20	18	114X0352					
OP-MCGC0105C	SC10GX	MBP	G	G	BG2	231	0.25	1	200	0.8	2	226	312	446	3/8	1/4	21	19			114X0223			
OP-MCGC011FR	FR11GX	MBP	G	G	BG3	518	0.31	1	230	1.1	8	256	321	458	3/8	1/4	20	18	114X0336	114X0337	114X0339			
OP-MCGC0125C	SC12GX	MBP	G	G	BG3	518	0.31	1	230	1.1	8	256	321	458	3/8	1/4	22	20	114X0340	114X0341	114X0343			
OP-MCGC0155C	SC15GX	MBP	G	G	BG4/5	631	0.4	1	254	1.1	10	296	331	478	3/8	1/4	25	22	114X0448	114X0449	114X0451			
OP-MCGC0185C	SC18G	MBP	G	G	BG4/5	631	0.4	1	254	1.1	10	296	331	478	3/8	1/4	27	24	114X0556	114X0557	114X0559			
OP-MCGC0215C	SC21MF	MBP	G	G	BG4/5	631	0.4	1	254	1.1	10	296	331	478	3/8	1/4	26	23	114X0568					
OP-MCGC0215C	SC21GX	MBP	G	G	BG4/5	631	0.4	1	254	1.1	11	296	331	513	3/8	1/4	26	23	114X0564	114X0565	114X0567			
OP-MCGC026G5	GS26MFX	MBP	G	G	BG7	990	0.84	1	300	2.4	13	340	430	480	3/8	1/4	39	33		114X0773				
OP-MCGC034G5	GS34MFX	MBP	G	G	BG7	990	0.84	1	300	2.4	13	340	430	480	1/2	3/8	40	34		114X0781				
OP-MCHB007NF	NF7MLX	MBP	G	H	BG4/5	631	0.4	1	254	1.1	10	296	331	478	3/8	1/4	25	22	114X2424	114X2425	114X2427			
OP-MCHC004TL	TL4DL	MBP	G	H	BG3	518	0.31	1	230	1.1	6	256	310	444	3/8	1/4	18	16	114X0301	114X0302	114X0303			
OP-MCHC006FR	FR6DLX	MBP	G	H	BG3	518	0.31	1	230	1.1	8	256	321	458	3/8	1/4	20	18	114X2316	114X2317	114X2319			
OP-MCHC0105C	SC10MLX	MBP	G	H	BG4/5	631	0.4	1	254	1.1	10	296	331	478	3/8	1/4	26	23	114X0403	114X0404	114X0405			
OP-MCHC0135C	SC12MLX	MBP	G	H	BG4/5	631	0.4	1	254	1.1	10	296	331	478	3/8	1/4	27	24	114X0406	114X0407	114X0408			
OP-MCHC0155C	SC15MLX	MBP	G	H	BG6	1132	1.1	1	300	1.1	14	350	445	613	1/2	1/4	48	42		114X2649	114X2651			
OP-MCHC0185C	SC18MLX	MBP	G	H	BG7	990	0.84	1	300	1.1	14	350	445	613	1/2	1/4	39	33	114X0702	114X0703				
OP-MCHC021G5	GS21MLX	MBP	G	H	BG7	990	0.84	1	300	1.6	13	340	430	480	5/8	3/8	48	42	114X2765		114X2767			

(1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
 G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan
 (2) G - R134a
 H - R404A / R507
 Q - R452A/R404A / R507

Technical data and ordering

Optyma™ Commercial

Technical data

Model number	Compressor Model	Application	Electrical code ⁽¹⁾	Refrigerant (2)	Condenser Coil		Fan		Receiver	Dimensions						Weight		Code no.	
					Type	Airflow	Internal Volume	Number	Blade ø	Volume	Chassis	Height	Width	Depth	Suction line	Liquid line	Gross		Net
						[m ³ /h]													
OP-LCQN048NTA02E	NTZ048	LBP	E	Q	A7	1550	0.6	1	350	3	A	545	630	650	5/8	3/8	72	62	114X5758
OP-LCQN048NTA02G	NTZ048	LBP	G	Q	A7	1550	0.6	1	350	3	A	545	630	650	5/8	3/8	73	63	114X5759
OP-LCQN068NTA02E	NTZ068	LBP	E	Q	D7	3550	0.6	1	450	5.2	C	705	900	900	5/8	1/2	96	81	114X5761
OP-LCQN068NTA02G	NTZ068	LBP	G	Q	D7	3550	0.6	1	450	5.2	C	705	900	900	5/8	1/2	96	82	114X5762
OP-LCQN096NTA02E	NTZ096	LBP	E	Q	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	7/8	1/2	143	123	114X5764
OP-LCQN108NTA02E	NTZ108	LBP	E	Q	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	7/8	1/2	143	123	114X5768
OP-LCQN136NTA02E	NTZ136	LBP	E	Q	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	7/8	1/2	143	123	114X5772
OP-LGQN096NTA02E	NTZ096	LBP	E	Q	N8	3450	1.54	2	350	7.3	B	693.5	1500	870	7/8	1/2	155	131	114X5766
OP-LGQN108NTA02E	NTZ108	LBP	E	Q	N8	3450	1.54	2	350	7.3	B	693.5	1500	870	7/8	1/2	157	134	114X5769
OP-LGQN136NTA02E	NTZ136	LBP	E	Q	N8	3450	1.54	2	350	7.3	B	693.5	1500	870	7/8	1/2	157	134	114X5771
OP-LGQN215NTA02E	NTZ215	LBP	E	Q	J7	10700	1.97	2	560	14	E	836.5	1500	870	11/8	5/8	228	205	114X5774
OP-LGQN271NTA02E	NTZ271	LBP	E	Q	J7	10700	1.97	2	560	14	E	836.5	1500	870	11/8	5/8	230	207	114X5776
OP-MCRN030MTA02E	MTZ018	MBP	E	R	A7	1550	0.4	1	350	3	A	545	630	650	1/2	3/8	72	62	114X5721
OP-MCRN030MTA02G	MTZ018	MBP	G	R	A7	1550	0.4	1	350	3	A	545	630	650	1/2	3/8	72	62	114X5722
OP-MCRN038MTA02E	MTZ022	MBP	E	R	A7	1550	0.4	1	350	3	A	545	630	650	1/2	3/8	72	62	114X5724
OP-MCRN038MTA02G	MTZ022	MBP	G	R	A7	1550	0.4	1	350	3	A	545	630	650	1/2	3/8	72	62	114X5723
OP-MCRN048MTA02E	MTZ028	MBP	E	R	D7	3550	0.6	1	450	5.2	C	705	900	900	1/2	1/2	99	85	114X5726
OP-MCRN048MTA02G	MTZ028	MBP	G	R	D7	3550	0.6	1	450	5.2	C	705	900	900	1/2	1/2	100	85	114X5728
OP-MCRN054MTA02E	MTZ032	MBP	E	R	D7	3550	0.6	1	450	5.2	C	705	900	900	5/8	1/2	100	86	114X5729
OP-MCRN054MTA02G	MTZ032	MBP	G	R	D7	3550	0.6	1	450	5.2	C	705	900	900	5/8	1/2	101	86	114X5731
OP-MCRN060MTA02E	MTZ036	MBP	E	R	D7	4180	0.6	1	500	5.2	C	705	900	900	5/8	1/2	101	87	114X5732
OP-MCRN060MTA02G	MTZ036	MBP	G	R	D7	4180	0.6	1	500	5.2	C	705	900	900	5/8	1/2	102	87	114X5734
OP-MCRN068MTA02E	MTZ040	MBP	E	R	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	5/8	1/2	145	125	114X5735
OP-MCRN086MTA02E	MTZ050	MBP	E	R	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	7/8	1/2	145	125	114X5737
OP-MCRN096MTA02E	MTZ056	MBP	E	R	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	7/8	1/2	158	138	114X5739
OP-MCRN108MTA02E	MTZ064	MBP	E	R	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	7/8	1/2	178	158	114X5740
OP-MCRN121MTA02E	MTZ072	MBP	E	R	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	11/8	1/2	148	128	114X5744
OP-MCRN136MTA02E	MTZ080	MBP	E	R	G7	4300	1.62	1	500	7.3	D	836.5	1200	800	11/8	1/2	148	128	114X5747
OP-MGRN108MTA02E	MTZ064	MBP	E	R	N8	3450	1.54	2	350	7.3	B	693.5	1500	870	7/8	1/2	185	161	114X5743
OP-MGRN121MTA02E	MTZ072	MBP	E	R	N8	3450	1.54	2	350	7.3	B	693.5	1500	870	11/8	1/2	163	139	114X5746
OP-MGRN136MTA02E	MTZ080	MBP	E	R	N8	3450	1.54	2	350	7.3	B	693.5	1500	870	11/8	1/2	182	158	114X5749
OP-MGRN171MTA02E	MTZ100	MBP	E	R	J7	10700	1.97	2	560	14	E	836.5	1500	870	11/8	5/8	208	184	114X5750
OP-MGRN215MTA02E	MTZ125	MBP	E	R	J7	10700	1.97	2	560	14	E	836.5	1500	870	11/8	5/8	231	207	114X5753
OP-MGRN242MTA02E	MTZ144		E	R	J7	10700	1.97	2	560	14	E	836.5	1500	870	11/8	5/8	234	210	114X5754
OP-MGRN271MTA02E	MTZ160		E	R	J7	10700	1.97	2	560	14	E	836.5	1500	870	11/8	5/8	236	212	114X5757

- (1) E - 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan
 G - 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan
 (2) R - R134a, R404A / R507, R407A, R407C, R407F, R448A/R449A, R452A
 Q - R404A / R507, R452A

Technical data and ordering

Optyma™ Light Commercial - LBP - R290

Spare parts & accessories

Designation	OP-LCNC004	OP-LCNC006	OP-LCNC008	OP-LCNC011	OP-LCNC016	OP-LCNC023	OP-LCNC034
Compressor Description	NLY45LAb	NLY60LAb	NLY80LAb	NPY12LAb	NPT16LA	NX23FBa	NS34FB
A09	114F0202	114F0205	114F0308	114F0411	114F0414	114F0417	114F0620
A10	114F0203	114F0206	114F0309	114F0412	114F0415	114F0418	114F0621
A11	114F0201	114F0204	114F0307	114F0410	114F0413	114F0416	114F0619
Condenser coil type	BG2	BG2	BG3	BG4/5	BG4/5	BG4/5	BG6
Electrical code	G	G	G	G	G	G	G
Refrigerant	N	N	N	N	N	N	N
Spare Parts							
Compressor single pack	123B3103	123B3107	123B3115	123B3121	123B3124	123B3128	123B3167
Compressor Industrial pack	123F3103	123F3107	123F3115	123F3121	123F3124	123F3128	123F3167
Condenser	118U0029	118U0029	118U0030	118U0031	118U0031	118U0031	118U0054
HP switch	061F6701	061F6701	061F6701	061F6701	061F6701	061F6701	061F6701
LP switch	061F7959	061F7959	061F7959	061F7959	061F7959	061F7959	061F7959
Fan motor	118U1008	118U1008	118U1008	118U1009	118U1009	118U1009	118U1010
Fan guard	118U0042	118U0042	118U0043	118U0044	118U0044	118U0044	118U0066
Combo filter drier receiver	023Z7012	023Z7012	023Z7012	023Z7013	023Z7013	023Z7013	023Z7007
Electrical Characteristics							
MCC Fan (A)	0.25	0.25	0.25	0.39	0.39	0.39	0.19
LRA Compressor (A)	6.7	10	10.5	14.2	19	30	34.5

MCC - Max Continuous Current

LRA - Locked Rotor Amps

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

Technical data and ordering

Optyma™ Light Commercial - LBP - R452A - R404A / R507

Spare parts & accessories

Designation	OP-LCHC008	OP-LCHC021	OP-LCHC006	OP-LCHC026	OP-LCHC004	OP-LCHC007	OP-LCHC012	OP-LCHC012
Compressor Description	NL8.4CLX	SC21CL	FR6CLX	GS26CLX	TL4CLX	NL7CLX	SC12CLX	SC12CLX.2
A00	114X1304	114X1600	114X1216		114X1208	114X1328	114X1440	114X1444
A01	114X1301	114X1601	114X1217	114X1673	114X1209	114X1329	114X1441	
A04	114X1302	114X1602	114X1219		114X1211	114X1331	114X1443	
Condenser coil type	BG3	BG6	BG2	BG6	BG2	BG3	BG4	BG4
Electrical code	G	G	G	G	G	G	G	G
Refrigerant	H	H	H	H	H	H	H	H

Spare Parts

Compressor single pack	195B0481	195B0640	195B0032	195B0501	102U2071	105F3710	104L2697	104L2697
Condenser	118U0030	118U0054	118U0029	118U0054	118U0029	118U0030	118U0031	118U0031
Dual pressure switch	060-5393	060-5393	060-5393	-	060-5393	060-5393	060-5393	-
Fan motor	118U0033	118U1010	118U0032	118U0058	118U0032	118U0033	118U0034	118U0034
Fan guard	118U0043	118U0066	118U0042	-	118U0042	118U0043	118U0044	118U0044
Receiver	118U0523	118U0523	118U0517	-	118U0517	118U0523	118U0523	-
Suction valve	118U0079	118U0047	118U0079	118U0047	118U0485	118U0079	118U0079	-
Liquid valve	118U0045	118U0045	118U0045	118U0079	118U0045	118U0045	118U0045	-

Electrical Characteristics

LRA Compressor (A)	2.5	8.2	8.2	25.7	5.7	10.4	14.8	19.6
MCC Fan (A)	0.25	0.19	0.19	0.75	0.19	0.25	0.39	0.39

Designation	OP-LCHC015	OP-LCHC034	OP-LCHC018	OP-LCQC004	OP-LCQC006	OP-LCQC008	OP-LCQC012	OP-LCQC012	OP-LCQC014
Compressor Description	SC15CLX	GS34CLX	SC18CLX	MLY45Lab	MLY60Lab	MLY80Lab	MPT12LA	MLY12Lab	MPT14LA
A00	114X1548		114X1556						
A01	114X1549	114X1781	114X1557	114X1221	114X1337	114X1341	114X1449	114X1569	114X1573
A04	114X1551	114X1783	114X1559						
Condenser coil type	BG4	BG7		BG2	BG3	BG3	BG4	BG4	BG4
Electrical code	G	G	G	G	G	G	G	G	G
Refrigerant	H	H	H	H	H	H	H	H	H

Spare Parts

Compressor single pack	104L2854	107B0501	104L2123	123B2106	123B2110	123G2114	123B2120	123B2123	123B2126
Condenser	118U0031	118U0069	118U0031	118U0029	118U0030	118U0030	118U0031	118U0031	118U0031
Dual pressure switch	060-5393	060-5393	060-5393	-	-	-	-	-	-
Fan motor	118U0034	118U0058	118U0034	118U0032	118U0033	118U0033	118U0034	118U0034	118U0034
Fan guard	118U0044	-	118U0044	118U0042	118U0043	118U0043	118U0044	118U0044	118U0044
Receiver	118U0523	-	118U0523	118U0517	118U0523	118U0523	118U0523	118U0523	118U0523
Suction valve	118U0047	118U0047	118U0047	118U0079	118U0079	118U0079	118U0079	118U0047	118U0047
Liquid valve	118U0045	118U0079	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045

Electrical Characteristics

LRA Compressor (A)	18.6	40	20	8.1	10	14	13.9	20	16
MCC Fan (A)	0.39	0.75	0.39	0.19	0.25	0.25	0.39	0.39	0.39

MCC - Max Continuous Current

LRA - Locked Rotor Amps

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

Technical data and ordering

Optyma™ Light Commercial - MBP - R290

Spare parts & accessories

Designation	OP-MCNC003	OP-MCNC004	OP-MCNC006	OP-MCNC008	OP-MCNC009
Compressor Description	NBC30RA	NLY45RAb	NLY60RAb	NLY80RAb	NLY90RAb
A09	114F1202	114F1205	114F1308	114F1411	114F1414
A10	114F1203	114F1206	114F1309	114F1412	114F1415
A11	114F1201	114F1204	114F1307	114F1410	114F1413
Condenser coil type	BG2	BG2	BG3	BG4/5	BG4/5
Electrical code	G	G	G	G	G
Refrigerant	N	N	N	N	N

Spare Parts

Compressor single pack	123B8310	123B3505	123B3507	123B3511	123B3513
Compressor Industrial pack	123F8310	123F3505	123F3507	123F3511	123F3513
Condenser	118U0029	118U0029	118U0030	118U0031	118U0031
HP switch	061F6701	061F6701	061F6701	061F6701	061F6701
LP switch	061F7958	061F7958	061F7958	061F7958	061F7958
Fan motor	118U1008	118U1008	118U1008	118U1009	118U1009
Fan guard	118U0042	118U0042	118U0043	118U0044	118U0044
Receiver	023Z7012	023Z7012	023Z7012	023Z7013	023Z7013

Electrical Characteristics

MCC Fan (A)	0.25	0.25	0.25	0.39	0.39
LRA Compressor (A)	8.2	8.2	10	13.5	14

Designation	OP-MCNC011	OP-MCNC014	OP-MCNC016	OP-MCNC018	OP-MCNC020
Compressor Description	NLY12RAb	NPT14RA	NPT16RA	NX18TBa	NX21TBa
A09	114F1417	114F1420	114F1623	114F1626	114F1629
A10	114F1418	114F1421	114F1624	114F1627	114F1630
A11	114F1416	114F1419	114F1622	114F1625	114F1628
Condenser coil type	BG4/5	BG4/5	BG6	BG6	BG6
Electrical code	G	G	G	G	G
Refrigerant	N	N	N	N	N

Spare Parts

Compressor single pack	123B3530	123B3703	123B3712	123B3514	123B3515
Compressor Industrial pack	123F3530	123F3703	123F3712	123F3514	123F3515
Condenser	118U0031	118U0031	118U0054	118U0054	118U0054
HP switch	061F6701	061F6701	061F6701	061F6701	061F6701
LP switch	061F7958	061F7958	061F7958	061F7958	061F7958
Fan motor	118U1009	118U1009	118U1010	118U1010	118U1010
Fan guard	118U0044	118U0044	118U0066	118U0066	118U0066
Receiver	023Z7013	023Z7013	023Z7007	023Z7007	023Z7007

Electrical Characteristics

MCC Fan (A)	0.39	0.39	0.19	0.19	0.19
LRA Compressor (A)	18.5	21	21	31.5	34.5

MCC - Max Continuous Current

LRA - Locked Rotor Amps

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

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Technical data and ordering

Optyma™ Light Commercial - MBP - R134a - R404A / 507

Spare parts & accessories

Designation	OP-MCGC008	OP-MCGC003	OP-MCGC004	OP-MCHC004	OP-MCHC010	OP-MCHC013	OP-MCHC018	OP-MCGC010	OP-MCGC021
Compressor Description	NL8.4MF	TL3G	TL4G	TL4DL	SC10MLX	SC12MLX	SC18MLX	SC10GX	SC21MF
A00	114X0204	114X0104	114X0108	114X0301	114X0403	114X0406			114X0568
A01	114X0205	114X0105	114X0109	114X0302	114X0404	114X0407	114X0702		
A04		114X0107	114X0111	114X0303	114X0405	114X0408	114X0703	114X0223	
Condenser coil type	BG2	BG1	BG1	BG3	BG4	BG4	BG7	BG2	BG4
Electrical code	G	G	G	G	G	G	G	G	G
Refrigerant	G	G	G	H	H	H	H	G	G

Spare Parts

Compressor single pack	195B0371	195B0340	195B0570	195B0166	195B0345	195B0351	104L2139	103G6880	104G8120
Condenser	118U0029	118U0028	118U0028	118U0030	118U0031	118U0031	118U0055	118U0029	118U0031
Dual pressure switch	-	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393
Fan motor	118U0032	118U0032	118U0032	118U0033	118U1009	118U1009	118U1010	118U0032	118U0034
Fan guard	118U0042	118U0041	118U0041	118U0042	118U0044	118U0044	118U0407	-	118U0044
Receiver	118U0517	118U0517	118U0517	118U0523	118U0523	118U0523	118U0523	118U0517	-
Suction valve	118U0079	118U0485	118U0485	118U0485	118U0079	118U0079	118U0047	118U0079	-
Liquid valve	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	-

Electrical Characteristics

LRA Compressor (A)	11.7	5.7	5.7	7.5	19.5	23.6	23.6	11.1	23.6
MCC Fan (A)	0.19	0.19	0.19	0.25	0.39	0.39	0.75	0.19	0.39

Designation	OP-MCGC021	OP-MCGC005	OP-MCGC006	OP-MCGC006	OP-MCGC007	OP-MCGC008	OP-MCGC007	OP-MCGC008	OP-MCGC011
Compressor Description	SC21G	TL5G	FR6G	NL6.1MF	FR7.5G	FR8.5G	NL7.3MF	NL8.4MF	FR11GX
A00	114X0564	114X0112	114X0200	114X0228	114X0216	114X0224	114X0244	114X0352	114X0336
A01	114X0565	114X0113	114X0201		114X0217	114X0225			114X0337
A04	114X0567	114X0115	114X0203		114X0219	114X0227			114X0339
Condenser coil type	BG4	BG1	BG2	BG2	BG2	BG2	BG2	BG2	BG3
Electrical code	G	G	G	G	G	G	G	G	G
Refrigerant	G	G	G	G	G	G	G	G	G

Spare Parts

Compressor single pack	104G8140	102G4550	103G6660	105G6660	103G6681	103G6780	105G6772	105G6877	103G6980
Condenser	118U0031	118U0028	118U0029	118U0029	118U0029	118U0029	118U0029	118U0030	118U0030
Dual pressure switch	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393
Fan motor	118U0034	118U0032	118U0032	118U0032	118U0032	118U0032	118U0032	118U0033	118U0033
Fan guard	118U0044	118U0041	118U0042	118U0042	118U0042	-	118U0042	118U0043	118U0043
Receiver	118U0523	118U0517	118U0517	-	118U0517	118U0517	-	-	118U0523
Suction valve	118U0047	118U0485	118U0079	-	118U0079	118U0079	-	-	118U0079
Liquid valve	118U0045	118U0045	118U0045	-	118U0045	118U0045	-	-	118U0045

Electrical Characteristics

LRA Compressor (A)	21.8	5.7	7.5	9.2	8.1	8.2	11.3	11.7	10
MCC Fan (A)	0.39	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.25

Designation	OP-MCGC012	OP-MCGC015	OP-MCGC018	OP-MCGC026	OP-MCGC034	OP-MCHC006	OP-MCHC015	OP-MCHC007	OP-MCHC021
Compressor Description	SC12GX	SC15GX	SC18G	GS26MFX	GS34MFX	FR6DLX	SC15MLX	NF7MLX	GS21MLX
A00	114X0340	114X0448	114X0556			114X2316		114X2424	114X2765
A01	114X0341	114X0449	114X0557	114X0773	114X0781	114X2317	114X2649	114X2425	
A04	114X0343	114X0451	114X0559			114X2319	114X2651	114X2427	114X2767
Condenser coil type	BG3	BG4	BG4/5	BG7	BG7	BG3	BG6	BG4	BG7
Electrical code	G	G	G	G	G	G	G	G	G
Refrigerant	G	G	G	G	G	H	H	H	H

Spare Parts

Compressor single pack	104G8240	104G8525	195B0548	107B0700	107B0701	103U2680	104L2869	105F3721	107B0502
Condenser	118U0030	118U0031	118U0031	118U0069	118U0069	118U0030	118U0068	118U0031	118U0069
Dual pressure switch	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393	060-5393
Fan motor	118U0033	118U0034	118U0034	118U0058	118U0058	118U0033	118U0035	118U0034	118U0058
Fan guard	-	-	-	-	-	118U0043	118U0066	118U0044	-
Receiver	118U0523	118U0523	118U0523	-	-	118U0523	118U0523	118U0523	-
Suction valve	118U0079	118U0079	118U0079	118U0079	118U0047	118U0079	118U0047	118U0079	118U0079
Liquid valve	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	118U0045	118U0079

Electrical Characteristics

LRA Compressor (A)	12.6	14.8	20.4	20.2	25.7	10	23.5	20	24.4
MCC Fan (A)	0.25	0.39	0.39	0.75	0.75	0.25	0.48	0.39	0.75

MCC - Max Continuous Current

LRA - Locked Rotor Amps

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

Technical data and ordering

Optyma™ Commercial - LBP

Spare parts & accessories

Designation	OP-LCQN048	OP-LCQN048	OP-LCQN068	OP-LCQN068	OP-LCQN096	OP-LGQN096
Compressor Description	NTZ048-4B	NTZ048-5B	NTZ068-4B	NTZ068-5B	NTZ096-4B	NTZ096-4B
Code Number	114X5758	114X5759	114X5761	114X5762	114X5764	114X5766
Version	A02	A02	A02	A02	A02	A02
Condenser coil type	A7	A7	D7	D7	G7	N8
Electrical Code	E	G	E	G	E	E
Refrigerant	Q	Q	Q	Q	Q	Q
Oil	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE

Spare Parts

Compressor single pack	120F0226	120F0228	120F0230	120F0232	120F0234	120F0234
Condenser	118U3492	118U3492	118U3493	118U3493	118U3494	118U1004
Crankcase heater	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459
Dual pressure switch	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly	118U0390	118U0390	118U0391	118U0391	118U0392	118U0390
Filter drier type	023Z4562	023Z4562	023Z4562	023Z4562	023Z4562	023Z4562
Receiver	8168179	8168179	8168180	8168180	8168181	8168181
Rotalock valve discharge	7968012	7968012	7968013	7968013	7968013	7968013
Rotalock valve suction	7968014	7968014	7968014	7968014	7968016	7968016
Sight glass	014-0182	014-0182	014-0183	014-0183	014-0183	014-0183
Discharge gas thermostat	7750009	7750009	7750009	7750009	7750009	7750009
Fan speed controller	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144

Electrical Characteristics

MCC Compressor (A)	4.8	11	8.4	17	10.1	10.1
LRA compressor (A)	16	37	25	53	32	32
MCC Fan (A)	0.43	0.43	0.82	0.82	1.22	2 X 0.43
Fan power (W)	75	75	155	155	220	2 X 75

Designation	OP-LGQN108	OP-LGQN108	OP-LGQN136	OP-LCQN136	OP-LGQN215	OP-LGQN271
Compressor Description	NTZ108-4B	NTZ108-4B	NTZ136-4B	NTZ136-4B	NTZ215-4B	NTZ271-4B
Code Number	114X5768	114X5769	114X5771	114X5772	114X5774	114X5776
Version	A02	A02	A02	A02	A02	A02
Condenser coil type	G7	N8	N8	G7	J7	J7
Electrical Code	E	E	E	E	E	E
Refrigerant	Q	Q	Q	Q	Q	Q
Oil	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE

Spare Parts

Compressor single pack	120F0238	120F0238	120F0236	120F0236	120F0240	120F0242
Condenser	118U3494	118U1004	118U1004	118U3494	118U3717	118U3717
Crankcase heater	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459
Dual pressure switch	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly	118U0392	118U0390	118U0390	118U0392	118U0393	118U0393
Filter drier type	023Z4562	023Z4562	023Z4562	023Z4562	023Z4581	023Z4581
Receiver	8168181	8168181	8168181	8168181	8168183	8168183
Rotalock valve discharge	7968013	7968013	7968013	7968013	7968014	7968014
Rotalock valve suction	7968016	7968016	7968016	7968016	7968018	7968018
Sight glass	014-0183	014-0183	014-0183	014-0183	014-0184	014-0184
Discharge gas thermostat	7750009	7750009	7750009	7750009	7750009	7750009
Fan speed controller	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144

Electrical Characteristics

MCC Compressor (A)	12.1	12.1	14.3	14.3	22.3	27
LRA compressor (A)	45	45	51	51	74	96
MCC Fan (A)	1.22	2 X 0.43	2 X 0.43	1.22	2 X 2.23	2 X 2.23
Fan power (W)	220	2 X 75	2 X 75	220	2 X 390	2 X 390

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

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Technical data and ordering

Opty™ Commercial - MBP

Spare parts & accessories

Designation	OP-MCRN030	OP-MCRN030	OP-MCRN038	OP-MCRN038	OP-MCRN048	OP-MCRN048	OP-MCRN054	OP-MCRN054	OP-MCRN060
Compressor Description	MTZ018-4	MTZ018-5	MTZ022-5	MTZ022-4	MTZ028-4	MTZ028-5	MTZ032-4	MTZ032-5	MTZ036-4
Code Number	114X5721	114X5722	114X5723	114X5724	114X5726	114X5728	114X5729	114X5731	114X5732
Version	A02	A02	A02	A02	A02	A02	A02	A02	A02
Condenser coil type	A7	A7	A7	A7	D7	D7	D7	D7	D7
Electrical Code	E	G	G	E	E	G	E	G	E
Refrigerant	R	R	R	R	R	R	R	R	R
Oil	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE

Spare Parts

Compressor single pack	MTZ18-4VI	MTZ18-5VI	MTZ22-5VI	MTZ22-4VI	MTZ28-4VI	MTZ28-5VI	MTZ32-4VI	MTZ32-5VI	MTZ36-4VI
Condenser	118U3492	118U3492	118U3492	118U3492	118U3493	118U3493	118U3493	118U3493	118U3493
Crankcase heater	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459
Dual pressure switch	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly	118U0390	118U0390	118U0390	118U0390	118U0391	118U0391	118U0391	118U0391	118U0392
Filter drier type	023Z4562	023Z4562	023Z4562	023Z4562	023Z4572	023Z4572	023Z4572	023Z4572	023Z4572
Receiver	8168179	8168179	8168179	8168179	8168180	8168180	8168180	8168180	8168180
Rotalock valve discharge	7968012	7968012	7968012	7968012	7968013	7968013	7968013	7968013	7968013
Rotalock valve suction	7968013	7968013	7968013	7968013	7968013	7968013	7968014	7968014	7968014
Sight glass	014-0182	014-0182	014-0182	014-0182	014-0183	014-0183	014-0183	014-0183	014-0183
Discharge gas thermostat	7750009	7750009	7750009	7750009	7750009	7750009	7750009	7750009	7750009
Fan speed controller	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144

Electrical Characteristics

MCC Compressor (A)	5	10	15	6	7.5	20	8	20	9
LRA compressor (A)	20	40	41	20	29	51	25	70	38
MCC Fan (A)	0.43	0.43	0.43	0.43	0.82	0.82	0.82	0.82	1.22
Fan power (W)	75	75	75	75	155	155	155	155	220

Designation	OP-MCRN060	OP-MCRN068	OP-MCRN086	OP-MCRN096	OP-MCRN108	OP-MGRN108	OP-MCRN121	OP-MGRN121	OP-MCRN136M
Compressor Description	MTZ036-5	MTZ040-4	MTZ050-4	MTZ056-4	MTZ064-4	MTZ064-4	MTZ072-4	MTZ072-4	MTZ080-4
Code Number	114X5734	114X5735	114X5737	114X5739	114X5740	114X5743	114X5744	114X5746	114X5747
Version	A02	A02	A02	A02	A02	A02	A02	A02	A02
Condenser coil type	D7	G7	G7	G7	G7	N8	G7	N8	G7
Electrical Code	G	E	E	E	E	E	E	E	E
Refrigerant	R	R	R	R	R	R	R	R	R
Oil	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE

Spare Parts

Compressor single pack	MTZ36-5VI	MTZ40-4VI	MTZ50-4VI	MTZ56-4VI	MTZ64-4VI	MTZ64-4VI	MTZ72-4VI	MTZ72-4VI	MTZ80-4VI
Condenser	118U3493	118U3494	118U3494	118U3494	118U3494	118U1004	118U3494	118U1004	118U3494
Crankcase heater	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459
Dual pressure switch	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly	118U0392	118U0392	118U0392	118U0392	118U0392	118U0390	118U0392	118U0390	118U0392
Filter drier type	023Z4572	023Z4572	023Z4572	023Z4572	023Z4572	023Z4572	023Z4572	023Z4572	023Z4572
Receiver	8168180	8168181	8168181	8168181	8168181	8168181	8168181	8168181	8168181
Rotalock valve discharge	7968013	7968013	7968013	7968013	7968013	7968013	7968013	7968013	7968013
Rotalock valve suction	7968014	7968014	7968017	7968017	7968017	7968017	7968018	7968018	7968018
Sight glass	014-0183	014-0183	014-0183	014-0183	014-0183	014-0183	014-0183	014-0183	014-0183
Discharge gas thermostat	7750009	7750009	7750009	7750009	7750009	7750009	7750009	7750009	7750009
Fan speed controller	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144

Electrical Characteristics

MCC Compressor (A)	22	10	12	12.5	13.5	13.5	17.5	17.5	18.5
LRA compressor (A)	60	38	47	64	64	64	80	80	80
MCC Fan (A)	1.22	1.22	1.22	1.22	1.22	2 X 0.43	1.22	2 X 0.43	1.22
Fan power (W)	220	220	220	220	220	2 X 75	220	2 X 75	220

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

Technical data and ordering

Optyma™ Commercial - MBP

Spare parts & accessories

Designation	OP-MGRN136M	OP-MGRN171	OP-MGRN215	OP-MGRN242	OP-MGRN271
Compressor Description	MTZ080-4	MTZ100-4	MTZ125-4	MTZ144-4	MTZ160-4
Code Number	114X5749	114X5750	114X5753	114X5754	114X5757
Version	A02	A02	A02	A02	A02
Condenser coil type	N8	J7	J7	J7	J7
Electrical Code	E	E	E	E	E
Refrigerant	R	R	R	R	R
Oil	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE	175PZ - POE
Spare Parts					
Compressor single pack	MTZ80-4VI	MTZ100-4VI	MTZ125-4VI	MTZ144-4VI	MTZ160-4VI
Condenser	118U1004	118U3717	118U3717	118U3717	118U3717
Crankcase heater	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459
Dual pressure switch	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly	118U0390	118U0393	118U0393	118U0393	118U0393
Filter drier type	023Z4572	023Z4581	023Z4581	023Z4581	023Z4581
Receiver	8168181	8168183	8168183	8168183	8168183
Rotalock valve discharge	7968013	7968014	7968014	7968014	7968014
Rotalock valve suction	7968018	7968018	7968018	7968018	7968018
Sight glass	014-0183	014-0184	014-0184	014-0184	014-0184
Discharge gas thermostat	7750009	7750009	7750009	7750009	7750009
Fan speed controller	061H3144	061H3144	061H3144	061H3144	061H3144
Electrical Characteristics					
MCC Compressor (A)	18.5	22	27	36	36
LRA compressor (A)	80	90	105	130	130
MCC Fan (A)	2 X 0.43	2 X 2.23	2 X 2.23	2 X 2.23	2 X 2.23
Fan power (W)	2 X 75	2 X 390	2 X 390	2 X 390	2 X 390

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Electrical code

E : 400V-3ph-50Hz Compressor & 230V-1ph-50Hz Fan

G : 230V-1ph-50Hz Compressor & 230V-1ph-50Hz Fan

Technical data and ordering

Optyma™ Light Commercial

Spare parts & accessories list

Component type	Component code	Component description	Additional informations
Compressor single pack	195B0481	SERVICE-Kit NL8.4CLX	
Compressor single pack	195B0640	Service-KIT SC21CL COMPRESSOR	
Compressor single pack	195B0032	KIT FR6DLX COMPRESSOR	
Compressor single pack	195B0038	KIT FR8,5CLX COMPRESSOR	
Compressor single pack	195B0501	SERVICE-Kit GS 26CLX	
Compressor single pack	102U2071	TL4CL COMPRESSOREN	
Compressor single pack	105F3710	NL7CLX COM	
Compressor single pack	104L2697	SC12CLX.2 LBP	
Compressor single pack	104L2854	SC15CLX LBP	
Compressor single pack	107B0501	GS34CLX COMPRESSOR	
Compressor single pack	104L2123	SC18CL LBP/MBP	
Compressor single pack	123B2106	Spare part, MLY45LAb	
Compressor single pack	123B2110	Sparw part, MLY60LAb	
Compressor single pack	123G2114	MLY80LAB SINGLE PACK	
Compressor single pack	123B2120	MLY12LAb SINGLE PACK	
Compressor single pack	123B2123	Sparw part, MPT12LA	
Compressor single pack	123B2126	Compresseur MPT14LA pour LSQM014G	
Compressor single pack	195B0371	Kit NL 8.4MF	
Compressor single pack	195B0166	KIT TL4DLX COMPRESSOR	
Compressor single pack	195B0345	Kit SC10MLX	
Compressor single pack	195B0351	SERVICE-Kit SC12MLX	
Compressor single pack	104L2139	Spare part, SC18MLX	
Compressor single pack	103G6880	Spare part, FR10G	
Compressor single pack	104G8120	Spare part, SC21MFX	
Compressor single pack	104G8140	Spare part, SC21G	
Compressor single pack	102G4550	Spare part, TL5G	
Compressor single pack	103G6660	FR6G Universal R134a	
Compressor single pack	105G6660	NL6.1MF Std. R134A	
Compressor single pack	103G6681	FR7,5G COMPRESSOR	
Compressor single pack	103G6780	FR8,5G COMPRESSOR	
Compressor single pack	105G6772	NL7,3 MF COMPRESSOR	
Compressor single pack	105G6877	COMPRESSOR NL8.4MF	
Compressor single pack	103G6980	FR11G COMPRESSOR	
Compressor single pack	104G8240	SC12G Universal R134A	
Compressor single pack	104G8525	Spare part, SC15G	
Compressor single pack	107B0700	Spare part, GS26MFX	
Compressor single pack	107B0701	Spare part, GS34MFX	
Compressor single pack	103U2680	FR6DL COMPRESSOR 404A	
Compressor single pack	104L2869	Spare part, SC15MLX	
Compressor single pack	105F3721	Spare part, NF7MLX	
Compressor single pack	107B0502	GS21MLX Compressor	
Compressor single pack	195B0548	Spare part, SC18G 220V 50HZ R 134A	
Compressor single pack	195B0340	Spare part, TL3G	
Compressor single pack	195B0570	Spare part, TL4G	
Compressor single pack	123F8310	NBC30RA; 220-240V 50Hz	
Compressor single pack	123B3505	NLY45RAB/ 220-240V 50Hz	
Compressor single pack	123B3507	NLY60RAB/ 220-240V 50Hz	
Compressor single pack	123B3511	NLY80RAB/ 220-240V 50HZ	
Compressor single pack	123B3513	NLY90RAB/ 220-240V 50Hz	
Compressor single pack	123F3530	NLY12RAB; 220-240V 50Hz	
Compressor single pack	123F3703	NPT14RA/ 220-240V 50Hz	
Compressor single pack	123F3712	NPT16RA; 220-240V 50Hz	
Compressor single pack	123F3514	NX18TBa / 220-240V 50Hz	
Compressor single pack	123B3515	NX21TBa/ 220-240V 50Hz	
Compressor single pack	123B3103	NLY45LAb/ 220-240V 50Hz	
Compressor single pack	123B3107	NLY60LAb/ 220-240V 50Hz	
Compressor single pack	123B3115	NLY80LAB/ 220-240V 50HZ	
Compressor single pack	123B3121	NPY12LAb/ 220-240V 50Hz	
Compressor single pack	123B3124	NPT16LA/ 220-240V 50Hz	
Compressor single pack	123B3128	NX23FBa/ 220-240V 50Hz	
Compressor single pack	123F3167	NS34FB; 220-240V 50Hz	
Condenser	118U0030	CONDENSER COIL BG3	

Technical data and ordering

Optyma™ Light Commercial (Count.)

Spare parts & accessories list

Component type	Component code	Component description	Additional informations
Condenser	118U0054	CONDENSER COIL BG6	
Condenser	118U0029	CONDENSER COIL BG2	
Condenser	118U0031	CONDENSER COIL BG4/5	
Condenser	118U0069	CONDENSER COIL BG7 GS	
Condenser	118U0028	CONDENSER COIL BG1	
Condenser	118U0029	CONDENSER COIL BG2	
Condenser	118U0055	CONDENSER COIL BG7	
Condenser	118U0030	CONDENSER COIL BG3	
Condenser	118U0031	CONDENSER COIL BG4/5	
Condenser	118U0054	CONDENSER COIL BG6	
Fan motor	118U1010	Spare part, Fan motor EC 25-25	
Fan motor	118U0032	FAN MOTOR 5 WATT	
Fan motor	118U0033	FAN MOTOR 11 WATT	
Fan motor	118U0058	FAN MOTOR 25 WATT	
Fan motor	118U0034	FAN MOTOR 16 WATT	
Fan motor	118U1009	Spare part, Fan motor EC 20-25	
Fan motor	118U0035	FAN MOTOR 18 WATT	
Fan motor	118U1008	Spare part, Fan motor EC 12-10	
Fan motor	118U1009	Spare part, Fan motor EC 20-25	
Fan motor	118U1010	Spare part, Fan motor EC 25-25	
Fan guard	118U0043	FAN COWL BG3	
Fan guard	118U0066	FAN COWL BG6	
Fan guard	118U0042	FAN COWL BG2	
Fan guard	118U0044	FAN COWL BG4/5	
Fan guard	118U0042	FAN COWL BG2	
Fan guard	118U0043	FAN COWL BG3	
Fan guard	118U0407	FAN COWL BG7	
Fan guard	118U0067	FAN COWL BG7	
Fan guard	118U0042	FAN COWL BG2	
Fan guard	118U0043	FAN COWL BG3	
Fan guard	118U0044	FAN COWL BG4/5	
Fan guard	118U0066	FAN COWL BG6	
Receiver	118U0523	LIQUID RECEIVER 1100 CCM (TUEV)	
Receiver	118U0517	LIQUID RECEIVER 800 CCM (TUEV)	
Receiver	023Z7012	Receiver filter drier DMC 0432S/6mm I/16	
Receiver	023Z7013	Receiver filter drier DMC 0732S I/16	
Receiver	023Z7007	Receiver filter drier DMC 2033S I/10	
Suction valve	118U0079	Spare part, Valve	
Suction valve	118U0047	S-VALVE 10/10	
Suction valve	118U0485	SAUGVENTIL 6/6MM + KP-ANSCHLUSS (Stahl)	
Liquid valve	118U0045	L-VALVE 6/6	
Liquid valve	118U0079	Spare part, Valve	
Pressure switch - HP	061F6701	ACB Pressure switch - HP	
Pressure switch - LP	061F7958	ACB Pressure switch - LP	
Pressure switch - LP	061F7959	ACB Pressure switch - LP	

Technical data and ordering

Optyma™ Commercial - Spare parts & accessories list

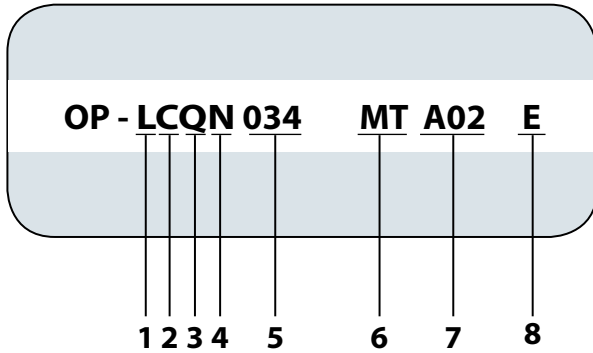
Spare parts & accessories list

Component type	Component code	Component description	Additional informations
Compressor single pack	MTZ18-4VI	MTZ18-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ18-5VI	MTZ18-5VI, COMPRESSOR VERSION EGALISATION	
Compressor single pack	MTZ22-5VI	MTZ22-5VI, COMPRESSOR VERSION EGALISATION	
Compressor single pack	MTZ22-4VI	MTZ22-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ28-4VI	MTZ28-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ28-5VI	MTZ28-5VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ32-4VI	MTZ32-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ32-5VI	MTZ32-5VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ36-4VI	Compressor MTZ36-5VI	
Compressor single pack	MTZ36-5VI	MTZ36-5VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ40-4VI	MTZ40-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ50-4VI	MTZ50-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ56-4VI	MTZ56-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ64-4VI	MTZ64-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ72-4VI	MTZ72-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ80-4VI	MTZ80-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ100-4VI	MTZ100-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ125-4VI	MTZ125-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ144-4VI	MTZ144-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	MTZ160-4VI	MTZ160-4VI, COMP OSG-EQUAL MULTIREF	
Compressor single pack	120F0226	NTZ048-4LR1-SINGLE	
Compressor single pack	120F0228	NTZ048-5LR1-SINGLE	
Compressor single pack	120F0230	NTZ068-4LR1-SINGLE	
Compressor single pack	120F0232	NTZ068-5LR1-SINGLE	
Compressor single pack	120F0234	NTZ096-4LR1-SINGLE	
Compressor single pack	120F0238	NTZ108-4LR1-SINGLE	
Compressor single pack	120F0236	NTZ136-4LR1- RECIP	
Compressor single pack	120F0240	NTZ215-4LR1-SINGLE RECIP COMP	
Compressor single pack	120F0242	NTZ271-4LR1-SINGLE RECIP COMP	
Condenser	118U3492	CONDENSER COIL MCHX A7	
Condenser	118U3493	CONDENSER COIL MCHX D7	
Condenser	118U3494	CONDENSER COIL MCHX G7	
Condenser	118U1004	CONDENSER COIL MCHX N8	
Condenser	118U3717	Spare Part H4 MCHX	
Crankcase heater	120Z0459	PTC Crankcase heater	
Dual pressure switch	060-127466	KP17B Switch	
Dual pressure switch	060-539766	KP17WB Switch	
Fan assembly	118U0390	Fan assembly Ø350- 6 Pole, 230/1/50-60	
Fan assembly	118U0391	Fan assembly Ø450-6 Pole, 230/1/50-60	
Fan assembly	118U0392	Fan assembly Ø500-6 Pole, 230/1/50-60	
Fan assembly	118U0393	Fan assembly Ø560-6 Pole, 230/1/50-60	
Discharge gas thermostat	7750009	DISCHARGE THERMOSTAT KIT	
Fan speed controller	061H3144	XGE-2C	
Filter drier (Multipack)	023Z4562	DML053S	
Filter drier (Multipack)	023Z4572	DML084S	
Filter drier (Multipack)	023Z4581	DML165S	
Oil	120Z0638	LUBRICANT 175PZ-1L CAN	
Oil	120Z0639	LUBRICANT 175PZ-2.5L CAN	
Receiver	8168179	LIQUID RECEIVER 3L R032	
Receiver	8168180	LIQUID RECEIVER 6L R061	
Receiver	8168181	LIQUID RECEIVER 8L R076	
Receiver	8168183	LIQUID RECEIVER 14L R141	
Rotalock valve discharge	7968012	ROTALOCK valve 1" - 3/8"	
Rotalock valve discharge	7968013	ROTALOCK VALVE 1" - 1/2"	
Rotalock valve discharge	7968014	ROTALOCK VALVE 1 1/4" - 5/8"	
Rotalock valve suction	7968017	ROTALOCK VALVE 1 3/4" - 7/8"	
Rotalock valve suction	7968018	ROTALOCK valve 1+3/4" - 1+1/8"	
Sight glass (Multipack)	014-0182	SGN10s	
Sight glass (Multipack)	014-0183	SGN12s	
Sight glass (Multipack)	014-0184	SGN16s	

Nomenclature

Designation system for the Optyma™ standard programm

(additional programm voltage, frequency etc.: please contact your local wholesaler)



No.	Title	Description	No.	Title	Description
1	Application	M = Medium Back Pressure (MBP), L = Low Back Pressure (LBP)	5	Compressor displacement	Example 048 = 48 cm ³
2	Platform	C: Air cooled condensing unit with single fan G: Air cooled condensing unit with dual fan	6	Reciprocating compressor platform	FR = FR SC = SC NX = NX NS = NS NP = NPT MY = MLY NT = NTZ TL = TL NF = NF GS = GS NB = NBC NY = NLY MP = MPT MX = MX MT = MTZ NL = NL
3	Refrigerant	R: R134a, R404A / R507, R407C, R407A, R407F, R448A, R449A, R452A G: R134a, R513A H: R404A / R507 Q: R452A, R404A / R507 N: R290	7	Version	A00, A01, A02, A04, A09, A10, A11.
4	Condenser design	C: Fin & Tube condenser, ambient temperature up to 43 °C N: Microchannel condenser, ambient temperature up to 46 °C	8	Electrical code	G: Compressor 230V/1P/50Hz, fan 230V/1P/50Hz E: Compressor 400V/3P/50Hz, fan 230V/1P/50Hz

Cooling capacity range [kW]

Range span by refrigerant

Minimum / Maximum Cooling capacity in [kW]	Optyma™	
	Light Commercial	Commercial
Medium temperature (MBP)		
R290	0.2 – 1.4	–
R448A	–	2 – 20.5
R449A	–	2 – 20.5
R134a / R513A *)	0.1 – 1.6	1.3 – 13.1
R452A	–	2.2 – 20.6
R407A	–	1.9 – 19.1
R407C	–	1.8 – 19.1
R407F	–	2 – 20.1
R404A / 507	0.3 – 17	2.2 – 21.7
Low temperature (LBP)		
R290	0.1 – 0.7	–
R452A	0.1 – 0.3	0.8 – 6.1
R404A / 507	0.1 – 0.9	0.9 – 6.6

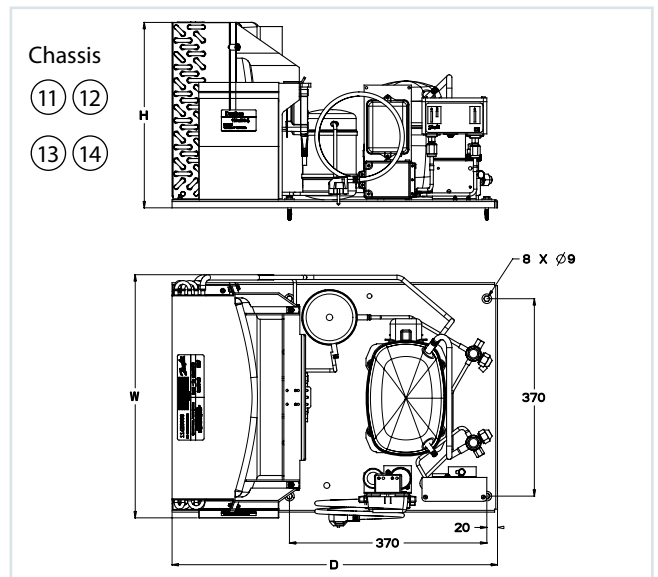
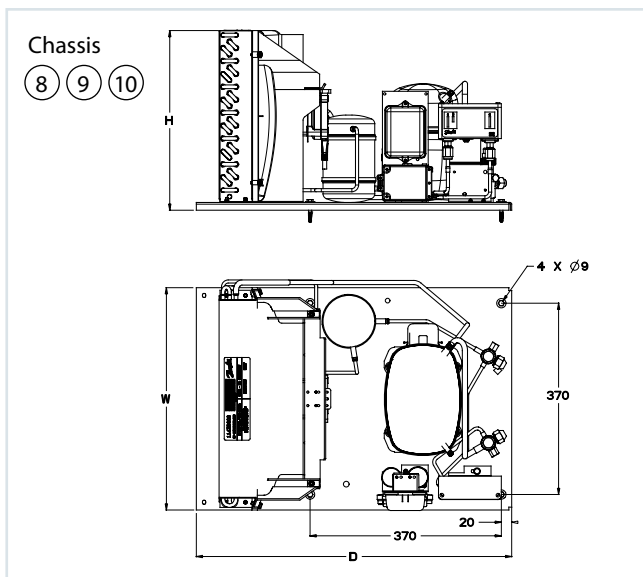
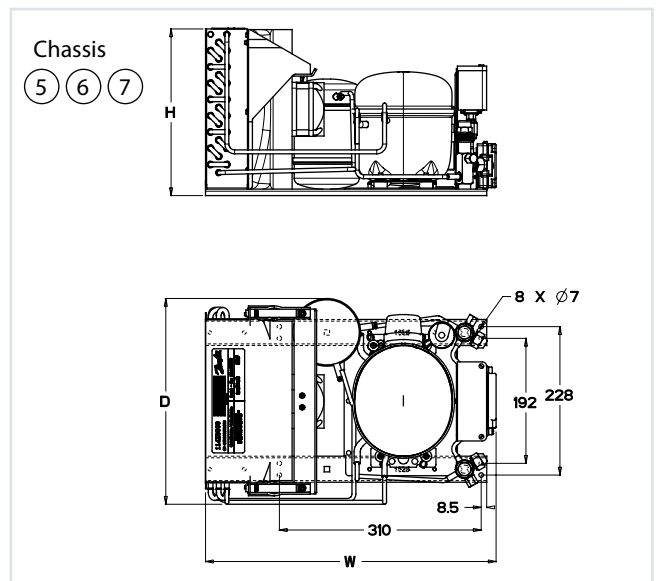
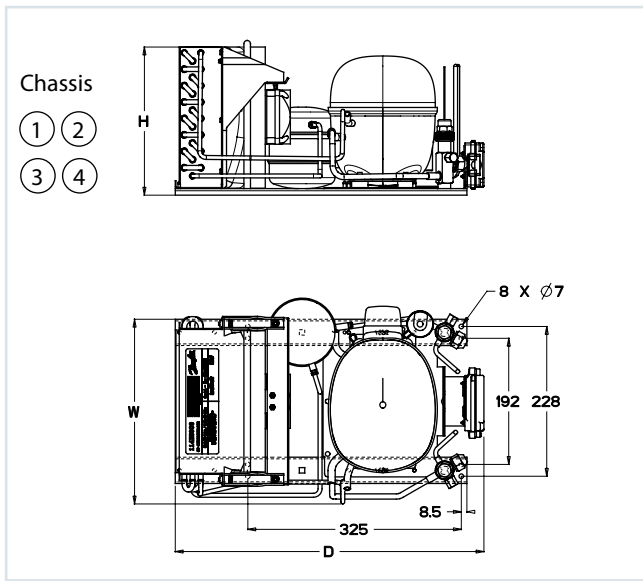
Rating conditions EN 13215 (dew point):

MBP: Ambient temp = 32 °C; Evap temp = -10 °C; Superheat = 10 K; Subcooling = 0 K / LBP: Ambient temp = 32 °C; Evap temp = -35 °C; Superheat = 10 K; Subcooling = 0 K

*) R513A is preliminary (available only for light commercial)

Dimensions

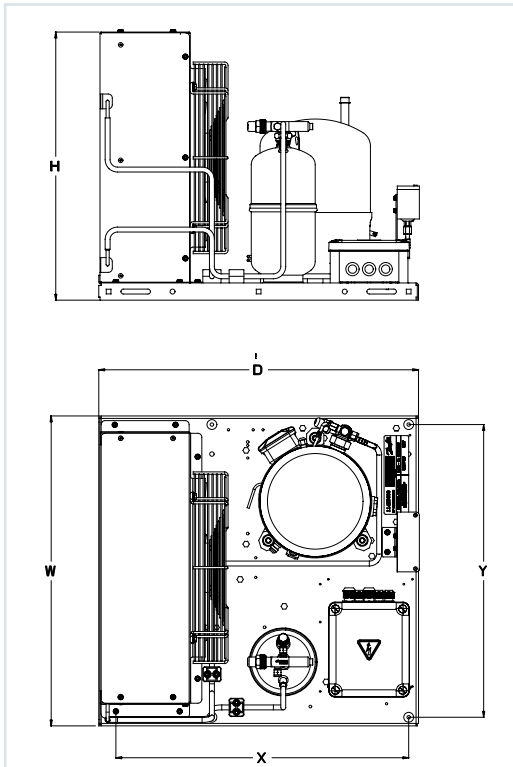
Optyma™ Light Commercial - Dimensions



Dimensions

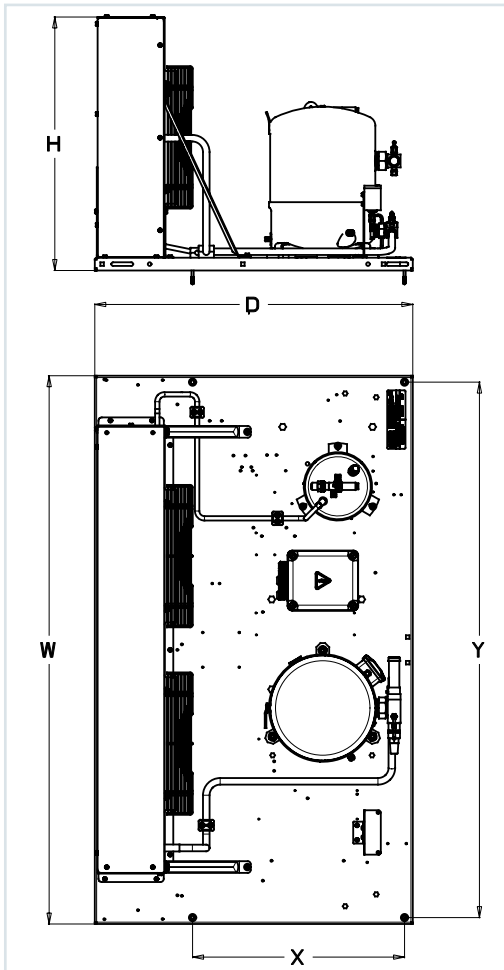
Optyma™ Commercial - Dimensions

Chassis A (Single Fan)



S.No	Description	Compressor	Application	H	W	D	X	Y	Units
1	OP-MCRN030MTA02E	MTZ018	MBP	545	630	650	400	595	114X5721
2	OP-MCRN030MTA02G		MBP						114X5722
3	OP-MCRN038MTA02G	MTZ022	MBP						114X5723
4	OP-MCRN038MTA02E		MBP						114X5724
5	OP-LCQN048NTA02E	NTZ048	LBP						114X5758
6	OP-LCQN048NTA02G		LBP						114X5759

Chassis B (Two Fan)

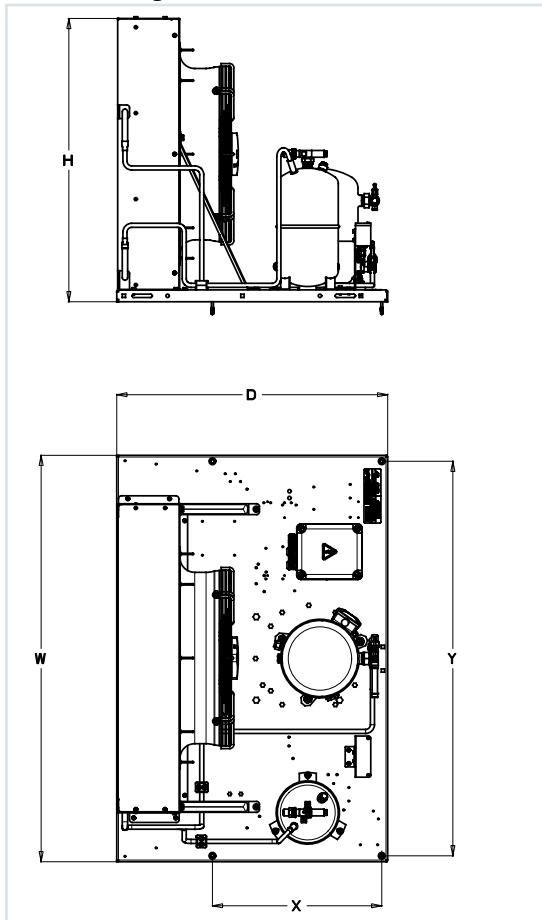


S.No	Description	Compressor	Application	H	W	D	X	Y	Units
1	OP-MGRN108MTA02E	MTZ064	MBP	693.5	1500	870	580	1465	114X5743
2	OP-MGRN121MTA02E	MTZ072	MBP						114X5746
3	OP-MGRN136MTA02E	MTZ080	MBP						114X5749
4	OP-LGQN096NTA02E	NTZ096	LBP						114X5766
5	OP-LGQN108NTA02E	NTZ108	LBP						114X5769
6	OP-LGQN136NTA02E	NTZ136	LBP						114X5771

Dimensions

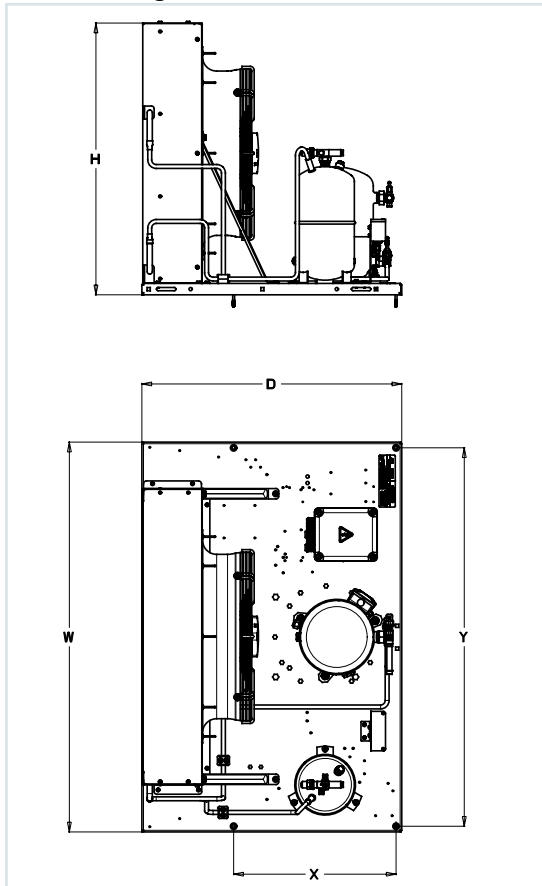
Optyma™ Commercial - Dimensions

Chassis C (Single Fan)



S.No	Description	Compressor	Application	H	W	D	X	Y	Units
1	OP-MCRN048MTA02E	MTZ028	MBP	705	900	900	600	865	114X5726
2	OP-MCRN048MTA02G		MBP						114X5728
3	OP-MCRN054MTA02E	MTZ032	MBP						114X5729
4	OP-MCRN054MTA02G		MBP						114X5731
5	OP-MCRN060MTA02E	MTZ036	MBP						114X5732
6	OP-MCRN060MTA02G		MBP						114X5734
7	OP-LCQN068NTA02E	NTZ068	LBP						114X5761
8	OP-LCQN068NTA02G		LBP						114X5762

Chassis D (Single Fan)

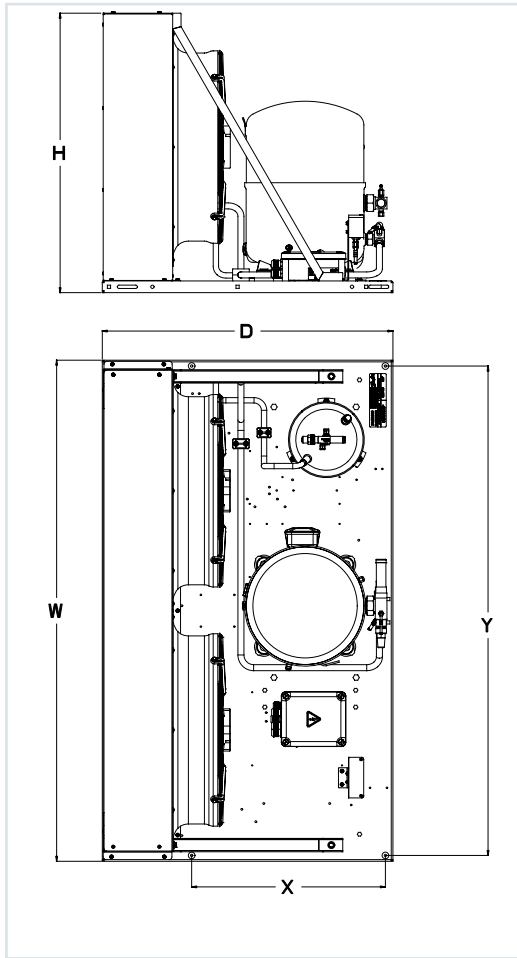


S.No	Description	Compressor	Application	H	W	D	X	Y	Units
1	OP-MCRN068MTA02E	MTZ040	MBP	836.5	1200	800	500	1165	114X5735
2	OP-MCRN086MTA02E	MTZ050	MBP						114X5737
3	OP-MCRN096MTA02E	MTZ056	MBP						114X5739
4	OP-MCRN108MTA02E	MTZ064	MBP						114X5740
5	OP-MCRN121MTA02E	MTZ072	MBP						114X5744
6	OP-MCRN136MTA02E	MTZ080	MBP						114X5747
7	OP-LCQN096NTA02E	NTZ096	LBP						114X5764
8	OP-LCQN108NTA02E	NTZ108	LBP						114X5768
9	OP-LCQN136NTA02E	NTZ136	LBP						114X5772

Dimensions

Optyma™ Commercial - Dimensions

Chassis E (Two Fan)

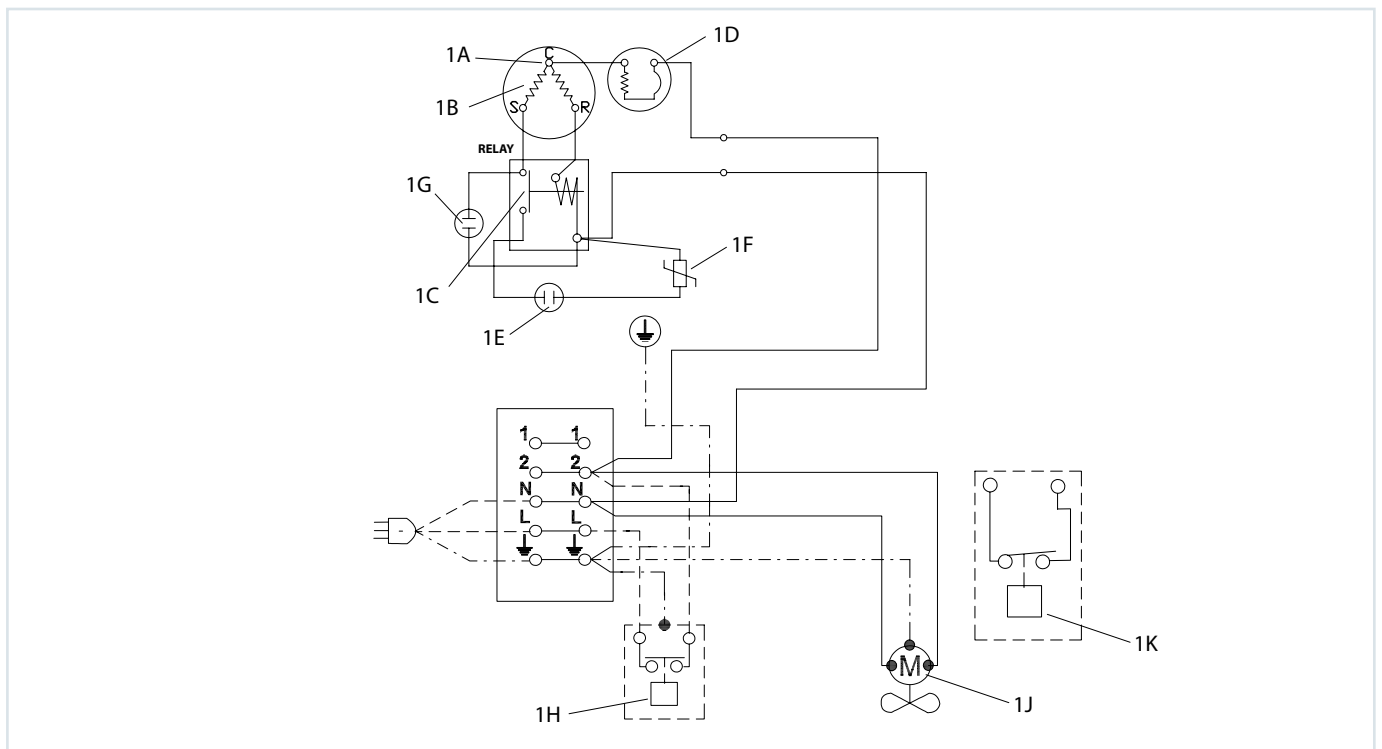
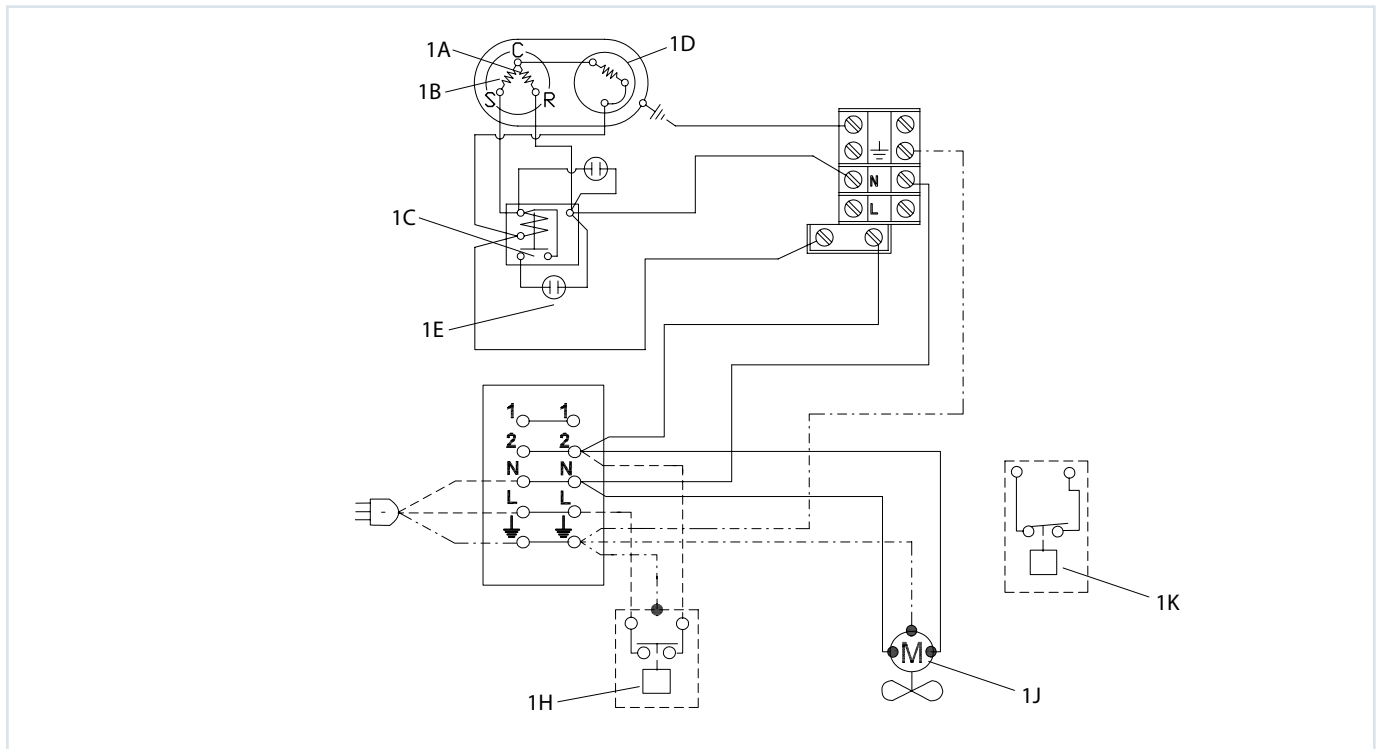


S.No	Description	Compressor	Application	H	W	D	X	Y	Units
1	OP-MGRN171MTA02E	MTZ100	MBP	836.5	1500	870	580	1465	114X5750
2	OP-MGRN215MTA02E	MTZ125	MBP						114X5753
3	OP-MGRN242MTA02E	MTZ144	MBP						114X5754
4	OP-MGRN271MTA02E	MTZ160	MBP						114X5757
5	OP-LGQN215NTA02E	NTZ215	LBP						114X5774
6	OP-LGQN271NTA02E	NTZ271	LBP						114X5776

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Wiring diagram

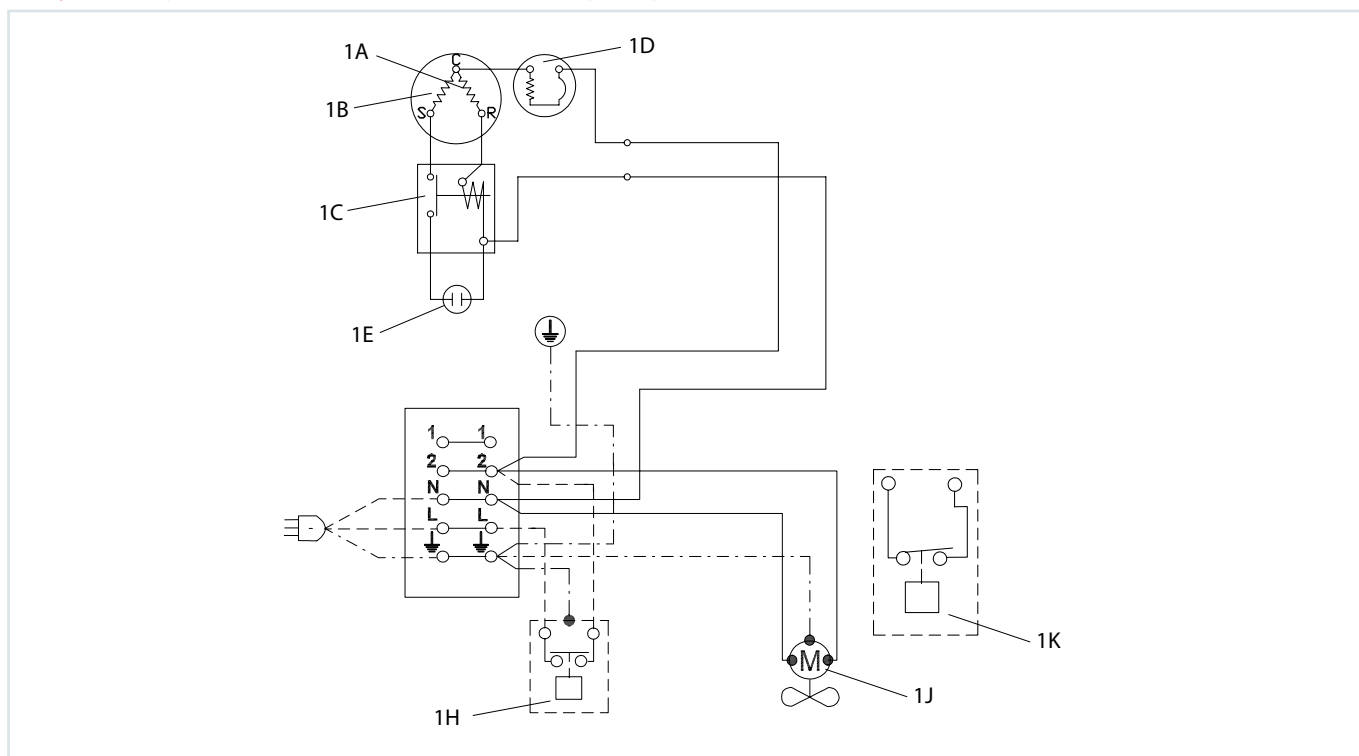
Optyma™ Light Commercial - Electrical wiring diagrams - R290



- 1A - Main winding
- 1B - Start winding
- 1C - Start relay
- 1D - Winding protector
- 1E - Start capacitor
- 1F - Bleeder resistance
- 1G - Run capacitor
- 1H - Thermostat
- 1J - Fan
- 1K - Pressure control

Wiring diagram

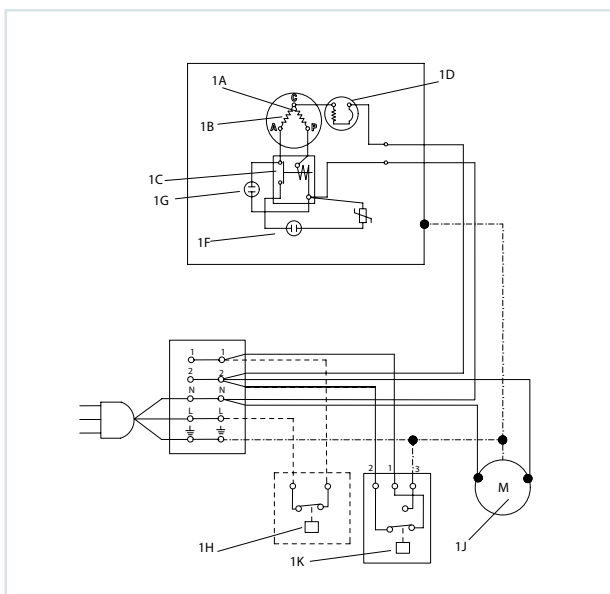
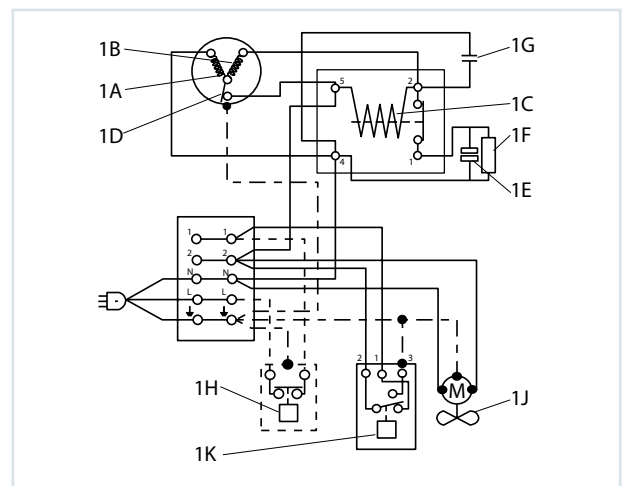
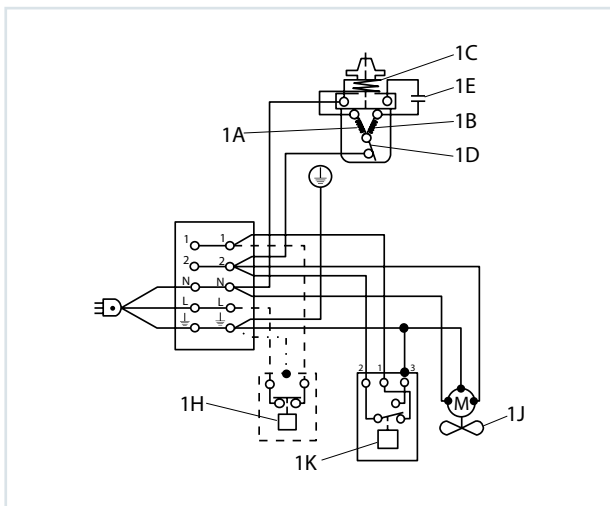
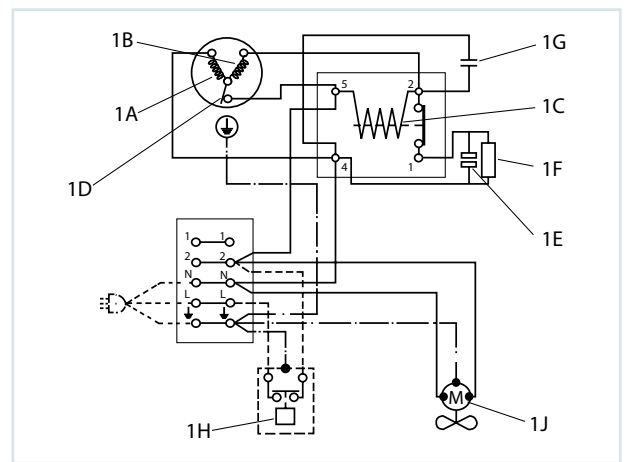
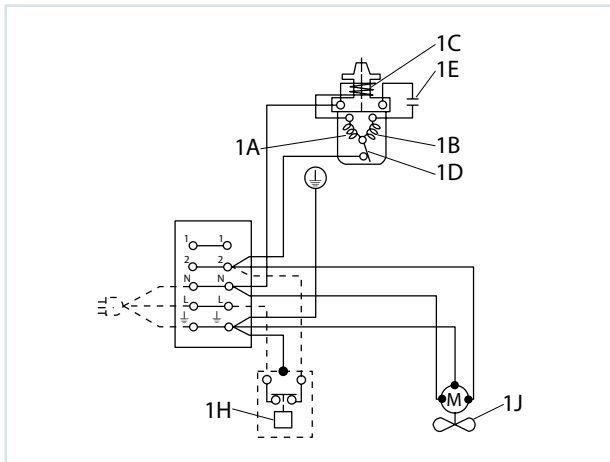
Optyma™ Light Commercial - Electrical wiring diagrams - R290



- 1A - Main winding
- 1B - Start winding
- 1C - Start relay
- 1D - Winding protector
- 1E - Start capacitor
- 1F - Bleeder resistance
- 1G - Run capacitor
- 1H - Thermostat
- 1J - Fan
- 1K - Pressure control

Wiring diagram

Optyma™ Light Commercial - Electrical wiring diagrams - R134a, R404A / R507 & R452A

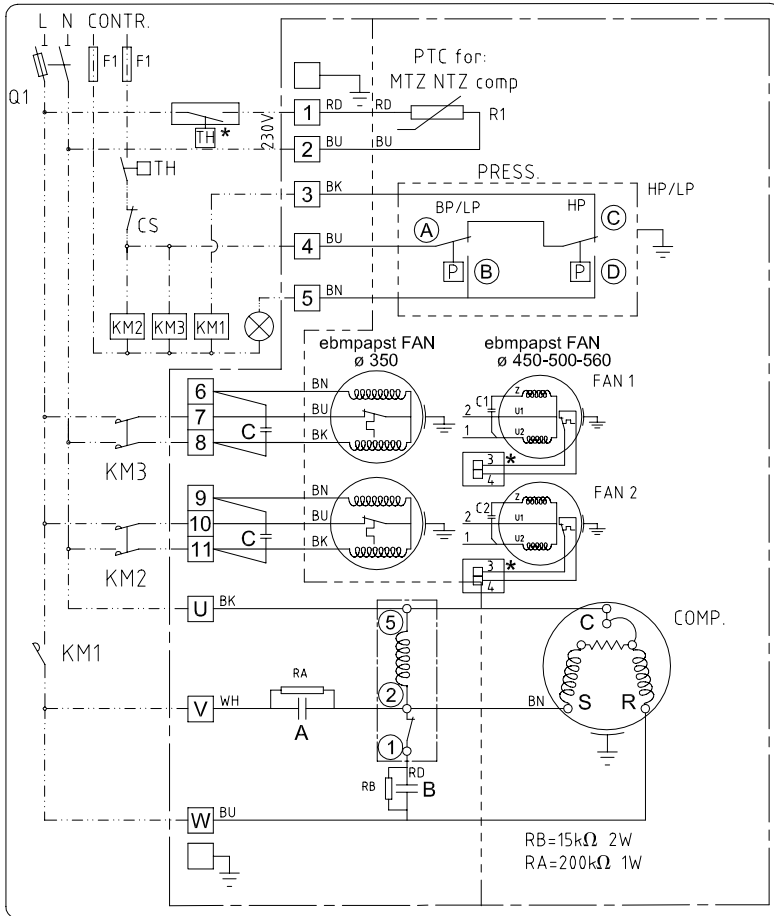


- 1A - Main winding
- 1B - Start winding
- 1C - Start relay
- 1D - Winding protector
- 1E - Start capacitor
- 1F - Bleeder resistance
- 1G - Run capacitor
- 1H - Thermostat
- 1J - Fan
- 1K - Pressure control

Wiring diagram

Optyma™ Commercial - Electrical wiring diagrams

Single Phase models



BK: BLACK BU: BLUE
 BN: BROWN WH: WHITE
 RD: RED GY: GREY
 One or two fans for Danfoss condensing units

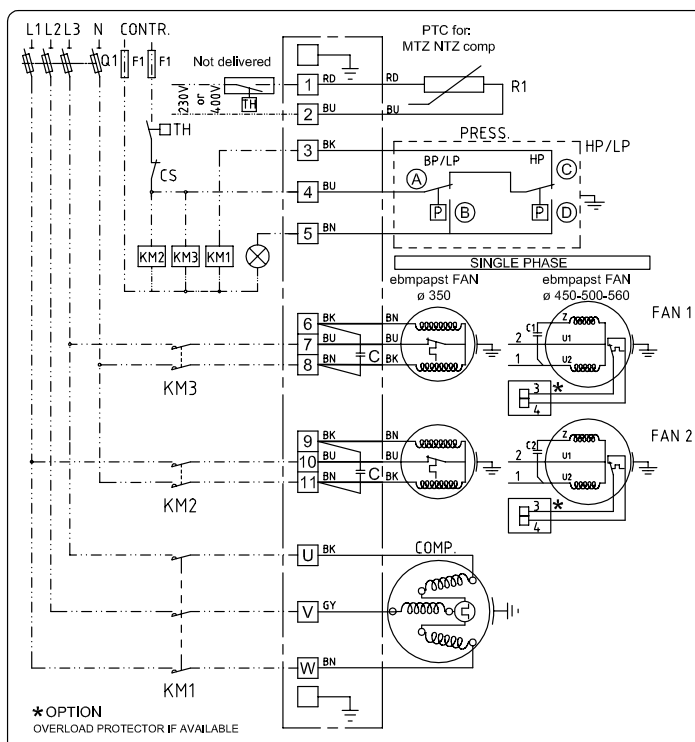
*OPTION OVERLOAD PROTECTOR IF AVAILABLE

50 Hz			
COMPRESSOR MODEL	DISPLACEMENT cm ³	A μF/450VAC	B μF/450VAC
NTZ048	048	30	100
NTZ068	068	30	100
MT-MTZ18	030	30	100
MT-MTZ22	038	30	100
MT-MTZ28	048	30	100
MT-MTZ32	054	35	135
MT-MTZ36	061	35	135
60 Hz			
NTZ048	048	25	100
NTZ068	068	50	135
MT-MTZ18	030	25	100
MT-MTZ22	038	45	100
MT-MTZ28	048	50	135
MT-MTZ32	054	45	100
MT-MTZ36	061	45	100

FAN DIAMETER	C (Capacitor Fan) ebmpapst	
	50 Hz	60 Hz
350	2	2
450	3	3
500	5	5
560	10	10

LEGEND	
A	RUN CAPACITOR COMPRESSOR
B	START CAPACITOR COMPRESSOR
CS	CONTROL SWITCH ON/OFF
C/C1/C2	CAPACITOR FAN
F1	FUSE CONTROL CIRCUIT
FAN 1-2	CONDENSER FANS
HP/LP	DUAL PRESSURE SWITCH
KM1	COMPRESSOR CONTACTOR
KM2	FAN CONTACTOR
KM3	FAN CONTACTOR
Q1	MAIN SWITCH + CIRCUIT BREAKER
R1	CRANKCASE HEATER
RA	BLEEDER RESISTOR
RB	BLEEDER RESISTOR
TH	THERMOSTAT

Three Phase models



BK: BLACK BU: BLUE
 BN: BROWN WH: WHITE
 RD: RED GY: GREY
 YE: YELLOW GN: GREEN
 One or two fans for Danfoss condensing units

50/60 Hz	C1/C2: μF/450VAC			
FAN Ømm	350	450	500	560
ebmpapst	2	3	5	10

LEGEND	
A	RUN CAPACITOR COMPRESSOR
B	START CAPACITOR COMPRESSOR
CS	CONTROL SWITCH ON/OFF
C/C1/C2	CAPACITOR FAN
F1	FUSE CONTROL CIRCUIT
FAN 1-2	CONDENSER FANS
HP/LP	DUAL PRESSURE SWITCH
KM1	COMPRESSOR CONTACTOR
KM2	FAN CONTACTOR
KM3	FAN CONTACTOR
Q1	MAIN SWITCH + CIRCUIT BREAKER
R1	CRANKCASE HEATER
RA	BLEEDER RESISTOR
RB	BLEEDER RESISTOR
TH	THERMOSTAT

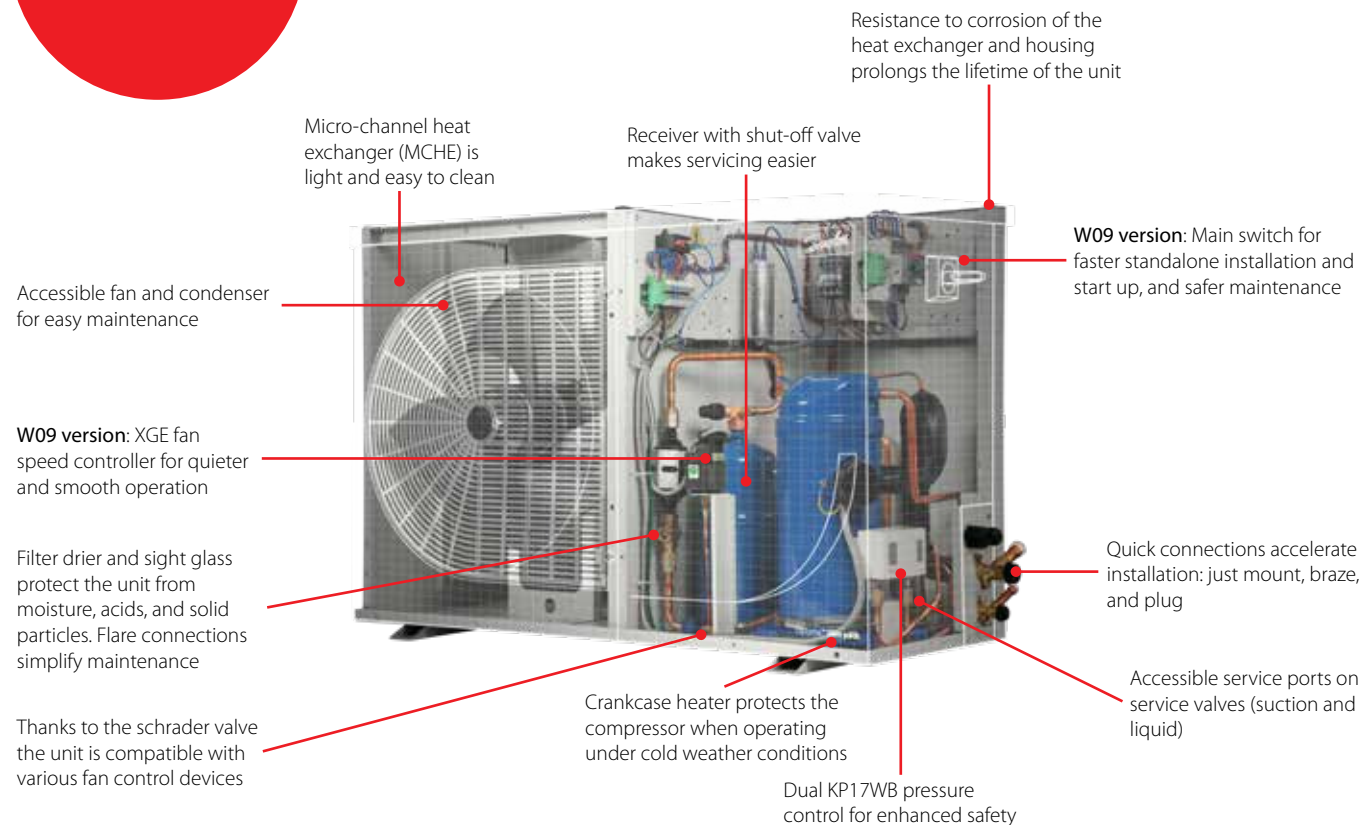
*OPTION OVERLOAD PROTECTOR IF AVAILABLE

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Optyma™ Slim Pack - The cost effective outdoor solution

Optyma™ **Slim Pack** is the cost effective packaged condensing unit - Micro Channel condenser technology. Danfoss has developed Optyma™ **Slim Pack** to meet all customers' needs in MBP and LBP applications.

Reliability, compactness, low sound level and low cost make the Danfoss Optyma™ **Slim Pack** condensing unit an optimal cooling solution for refrigeration. Dedicated outdoor condensing unit for cold, fermentation and storage rooms in all kinds of convenience stores or restaurants.



Facts

Applications:

- Mini-markets / supermarkets
- Restaurants
- Wine cellars
- Fish markets
- Butchers' shops
- Bakeries
- Laboratories
- Florists
- Petrol stations
- Industrial processes
- Milk cooling
- Dairy and general food storage
- Cold rooms
- Freezers
- Depending on models, available for R134a, R407A/F, R404A, R448A, R449A, R452A, R513A*)
- *) in progress

- The Optyma™ **Slim Pack** can be located even in residential areas. Smart compressor design. These unit presents low acoustic levels improving comfort and reducing surrounding impact.
- We provide the units with highly reliable scroll and reciprocating compressors, micro channel heat exchangers and all needed components which are pre-assembled, integrated and factory tested.
- Danfoss Optyma™ **Slim Pack** is designed for Outdoor & Indoor conditions using corrosion resistant microchannel heat exchangers and housing. The galvanized, painted and salt spray tested housing is used to ensure long lifetime.
- Optyma™ **Slim Pack** Condensing units meet Ecodesign 2018 targets and Energy

- related Product (ErP) directive applicable for fan motors. In addition, Optyma™ **Slim Pack** Condensing units are qualified with Low GWP refrigerants reducing environmental impact.
- System designed to perfectly fit into a compact and light housing. The Optyma™ **Slim Pack** weights up to 87 kg, which makes it the lightest solution in the market
- With quick connections of suction and liquid lines and service ports outside Optyma™ **Slim Pack** is among the fastest and easiest to install. Easy to clean MCHE saves your time and efforts, ensuring longer lifetime and optimized efficiency
- Danfoss Optyma™ **Slim Pack** extends your possibilities with models for low and medium temperatures.

Technical data and ordering

Optyma™ Slim Pack - R452A - LBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]						Q [kW]	P [kW]	COP	SEPR					
				-40	-35	-30	-25	-20	-15									-10
OP-LSQM014MP	MPT14LA	G	27		0.421	0.535	0.656	0.784	0.919	1.060								
			32		0.379	0.481	0.592	0.710	0.835	0.966	0.422	0.441	0.96		63	32	W05	114X7106
			38		0.328	0.418	0.515	0.621	0.734	0.854							W09	114X7129
			43		0.285	0.365	0.452	0.548	0.651	0.761								
OP-LSQM018MP	MPT16LA	G	27		0.443	0.583	0.735	0.897	1.070	1.253								
			32		0.396	0.522	0.661	0.810	0.971	1.142	0.441	0.465	0.95		63	32	W05	114X7107
			38		0.340	0.450	0.572	0.707	0.853	1.009							W09	114X7130
			43		0.293	0.390	0.499	0.621	0.754	0.899								
OP-LSQM026AJ	CAJ2446Z	G	27	0.472	0.659	0.881	1.144	1.447	1.794	2.184								
			32	0.408	0.581	0.788	1.031	1.312	1.634	1.997	0.644	0.671	0.96		67	36	W05	114X7085
			38		0.489	0.675	0.894	1.148	1.439	1.769							W09	114X7179
			43		0.414	0.582	0.780	1.010	1.275	1.577								
OP-LSQM034AJ	CAJ2464Z	G	27	0.628	0.859	1.139	1.473	1.864	2.316	2.830								
			32	0.549	0.763	1.022	1.332	1.695	2.115	2.594	0.846	0.892	0.95		68	37	W05	114X7086
			38		0.649	0.882	1.161	1.489	1.870	2.307							W09	114X7180
			43		0.556	0.767	1.019	1.318	1.666	2.067								
OP-LSQM048NT	NTZ048-5	G	27	0.771	1.090	1.478	1.931	2.446	3.018	3.641								
			32	0.655	0.948	1.303	1.718	2.191	2.717	3.291	1.053	0.950	1.11		71	40	W05	114X7087
			38	0.529	0.790	1.105	1.475	1.896	2.366	2.880							W09	114X7181
			43	0.433	0.667	0.950	1.281	1.660	2.082	2.545								
OP-LSQM048NT	NTZ048-4	E	27	0.778	1.076	1.438	1.860	2.340	2.873	3.454								
			32	0.679	0.947	1.273	1.655	2.092	2.579	3.112	1.054	0.981	1.07		71	40	W05	114X7088
			38	0.572	0.805	1.089	1.424	1.809	2.241	2.716							W09	114X7182
			43	0.491	0.695	0.945	1.242	1.584	1.969	2.396								
OP-LSQM074FH	FH2511Z	G	27	1.062	1.511	2.037	2.641	3.324	4.085	4.919								
			32	0.889	1.310	1.801	2.365	3.003	3.713	4.492	1.458	1.539	0.95		75	44	W05	114X7095
			38		1.070	1.518	2.033	2.614	3.262	3.975							W09	114X7185
			43		0.874	1.286	1.757	2.290	2.886	3.542								
OP-LSQM074FH	TFH2511Z	E	27	1.001	1.415	1.897	2.442	3.044	3.695	4.384								
			32	0.841	1.221	1.664	2.166	2.722	3.324	3.964	1.362	1.390	0.98		75	44	W05	114X7096
			38		1.003	1.398	1.848	2.347	2.890	3.467							W09	114X7186
			43		0.835	1.190	1.595	2.045	2.536	3.059								
OP-LSQM068NT	NTZ068-4	E	27	1.215	1.655	2.158	2.712	3.299	3.898	4.484								
			32	1.056	1.459	1.918	2.421	2.952	3.491	4.014	1.632	1.404	1.16		71	40	W05	114X7090
			38	0.864	1.223	1.629	2.070	2.534	3.000	3.446							W09	114X7184
			43	0.708	1.028	1.388	1.778	2.184	2.588	2.969								
OP-LSQM068NT	NTZ068-5	G	27	1.241	1.667	2.151	2.688	3.273	3.897	4.550								
			32	1.052	1.447	1.895	2.392	2.932	3.508	4.110	1.619	1.627	1.00		71	40	W05	114X7089
			38	0.833	1.192	1.597	2.045	2.530	3.047	3.586							W09	114X7183
			43	0.659	0.987	1.355	1.762	2.201	2.668	3.153								
OP-LSQM067LL	LLZ013T4	E	27	1.925	2.483	3.161	3.970	4.918	6.013	7.257								
			32	1.794	2.306	2.929	3.675	4.553	5.571	6.733	2.570	2.177	1.18	1.67	71	40	W05	114X7091
			38	1.642	2.096	2.651	3.318	4.108	5.030	6.089							W09	114X7187
			43	1.519	1.922	2.418	3.017	3.731	4.570	5.541								
OP-LSQM084LL	LLZ015T4	E	27	2.408	3.051	3.812	4.703	5.732	6.905	8.225								
			32	2.223	2.820	3.526	4.351	5.306	6.398	7.630	3.152	2.706	1.16	1.6	73	42	W05	114X7092
			38	1.997	2.533	3.167	3.909	4.771	5.761	6.884							W09	114X7188
			43	1.803	2.286	2.856	3.526	4.306	5.206	6.234								
OP-LSQM098LL	LLZ018T4	E	27	2.812	3.560	4.438	5.457	6.622	7.938	9.406								
			32	2.592	3.286	4.098	5.039	6.118	7.339	8.704	3.683	3.166	1.16	1.61	74	43	W05	114X7075
			38	2.318	2.943	3.671	4.516	5.486	6.588	7.824							W09	114X7189
			43	2.084	2.647	3.302	4.062	4.937	5.935	7.061								

LBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



Technical data and ordering

Optyma™ Slim Pack - R404A / R507 - LBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]						Q [kW]	P [kW]	COP	SEPR					
				-40	-35	-30	-25	-20	-15									-10
OP-LSQM014MP	MPT14LA	G	27		0.494	0.640	0.802	0.979	1.171	1.379								
			32		0.444	0.577	0.725	0.889	1.068	1.264	0.500	0.486	1.03		60	29	W05	114X7106
			38		0.384	0.501	0.633	0.781	0.945	1.126							W09	114X7129
			43		0.335	0.439	0.557	0.692	0.843	1.011								
OP-LSQM018MP	MPT16LA	G	27		0.535	0.710	0.903	1.115	1.345	1.594								
			32		0.480	0.638	0.816	1.013	1.228	1.463	0.540	0.504	1.07		60	29	W05	114X7107
			38		0.413	0.553	0.712	0.890	1.088	1.305							W09	114X7130
			43		0.359	0.483	0.626	0.789	0.971	1.173								
OP-LSQM026AJ	CAJ2446Z	G	27	0.526	0.732	0.978	1.268	1.606	1.993	2.432								
			32	0.455	0.645	0.872	1.140	1.451	1.809	2.216	0.724	0.715	1.01		67	36	W05	114X7085
			38	0.371	0.541	0.745	0.985	1.265	1.588	1.957							W09	114X7179
			43		0.457	0.641	0.857	1.111	1.404	1.739								
OP-LSQM034AJ	CAJ2464Z	G	27	0.685	0.933	1.232	1.586	2.000	2.476	3.015								
			32	0.599	0.826	1.101	1.428	1.809	2.249	2.749	0.930	0.953	0.98		68	37	W05	114X7086
			38	0.497	0.701	0.946	1.238	1.580	1.976	2.429							W09	114X7180
			43		0.598	0.819	1.082	1.391	1.750	2.163								
OP-LSQM048NT	NTZ048-5	G	27	0.776	1.134	1.568	2.083	2.677	3.349	4.098								
			32	0.651	0.981	1.381	1.853	2.398	3.017	3.706	1.104	1.097	1.01		71	40	W05	114X7087
			38	0.501	0.798	1.155	1.576	2.062	2.615	3.232							W09	114X7181
			43	0.381	0.647	0.968	1.345	1.782	2.279	2.836								
OP-LSQM048NT	NTZ048-4	E	27	0.783	1.143	1.572	2.072	2.645	3.290	4.007								
			32	0.670	1.000	1.392	1.849	2.371	2.960	3.615	1.126	0.997	1.13		71	40	W05	114X7088
			38	0.536	0.831	1.179	1.583	2.044	2.565	3.147							W09	114X7182
			43	0.427	0.692	1.003	1.363	1.775	2.240	2.760								
OP-LSQM074FH	TFH2511Z	E	27	1.177	1.670	2.254	2.931	3.695	4.543	5.468								
			32	0.985	1.434	1.969	2.588	3.291	4.074	4.931	1.620	1.514	1.07		75	44	W05	114X7096
			38	0.776	1.173	1.646	2.197	2.825	3.528	4.301							W09	114X7186
			43	0.620	0.972	1.394	1.887	2.452	3.087	3.789								
OP-LSQM074FH	FH2511Z	G	27	1.176	1.664	2.235	2.890	3.630	4.455	5.361								
			32	0.983	1.439	1.971	2.580	3.268	4.034	4.877	1.627	1.662	0.98		75	44	W05	114X7095
			38	0.756	1.172	1.655	2.207	2.831	3.526	4.292							W09	114X7185
			43	0.573	0.955	1.395	1.899	2.468	3.102	3.803								
OP-LSQM068NT	NTZ068-5	G	27	1.332	1.793	2.348	2.994	3.730	4.548	5.440								
			32	1.189	1.608	2.110	2.694	3.358	4.098	4.905	1.826	1.730	1.06		71	40	W05	114X7089
			38	1.017	1.388	1.828	2.338	2.918	3.564	4.270							W09	114X7183
			43	0.873	1.205	1.594	2.044	2.554	3.123	3.745								
OP-LSQM068NT	NTZ068-4	E	27	1.359	1.860	2.443	3.107	3.852	4.672	5.563								
			32	1.172	1.629	2.162	2.770	3.451	4.204	5.024	1.845	1.613	1.14		71	40	W05	114X7090
			38	0.967	1.374	1.846	2.386	2.991	3.662	4.394							W09	114X7184
			43	0.812	1.177	1.599	2.081	2.623	3.225	3.883								
OP-LSQM067LL	LLZ013T4	E	27	2.210	2.823	3.547	4.391	5.365	6.476	7.732								
			32	2.024	2.600	3.276	4.061	4.965	5.997	7.163	2.942	2.481	1.19	1.65	71	40	W05	114X7091
			38	1.790	2.319	2.934	3.645	4.462	5.395	6.451							W09	114X7187
			43	1.586	2.073	2.634	3.280	4.022	4.870	5.832								
OP-LSQM084LL	LLZ015T4	E	27	2.654	3.375	4.240	5.261	6.444	7.795	9.317								
			32	2.440	3.110	3.909	4.848	5.936	7.178	8.580	3.528	2.909	1.21	1.67	73	42	W05	114X7092
			38	2.171	2.777	3.494	4.332	5.303	6.412	7.667							W09	114X7188
			43	1.935	2.485	3.130	3.883	4.754	5.751	6.882								
OP-LSQM098LL	LLZ018T4	E	27	3.089	3.920	4.914	6.079	7.421	8.944	10.647								
			32	2.837	3.608	4.524	5.594	6.825	8.221	9.785	4.103	3.299	1.24	1.72	74	43	W05	114X7075
			38	2.519	3.216	4.035	4.987	6.082	7.324	8.719							W09	114X7189
			43	2.241	2.871	3.607	4.459	5.438	6.550	7.802								

LBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyima™ Slim Pack - R134a - MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)							EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-15	-10	-5	0	5	10	15								
OP-MSGM012SC	SC12G	G	27	0.549	0.693	0.861	1.055	1.277	1.528	1.810								
			32	0.503	0.640	0.800	0.987	1.200	1.442	1.714	0.655	0.382	1.71		62	31	W05	114X7099
			38	0.446	0.575	0.726	0.902	1.105	1.336	1.596							W09	114X7207
			43	0.400	0.521	0.664	0.832	1.025	1.246	1.497								
OP-MSGM015SC	SC15G	G	27	0.591	0.756	0.951	1.177	1.435	1.725	2.047								
			32	0.562	0.719	0.903	1.115	1.357	1.628	1.930	0.737	0.448	1.64		63	32	W05	114X7100
			38	0.517	0.666	0.838	1.034	1.256	1.506	1.782							W09	114X7208
			43	0.474	0.616	0.778	0.961	1.168	1.399	1.656								
OP-MSGM018SC	SC18G	G	27	0.757	0.937	1.144	1.381	1.651	1.954	2.293								
			32	0.680	0.855	1.057	1.289	1.552	1.849	2.180	0.876	0.544	1.61		63	32	W05	114X7101
			38	0.606	0.774	0.968	1.191	1.444	1.729	2.049							W09	114X7131
			43	0.556	0.716	0.902	1.114	1.357	1.631	1.938								
OP-MSGM021SC	SC21G	G	27	0.885	1.107	1.358	1.638	1.949	2.290	2.662								
			32	0.813	1.025	1.267	1.538	1.839	2.170	2.531	1.051	0.605	1.74		63	32	W05	114X7102
			38	0.733	0.932	1.159	1.416	1.702	2.018	2.364							W09	114X7132
			43	0.666	0.852	1.066	1.308	1.580	1.881	2.213								
OP-MSGM026AJ	CAJ4492Y	G	27	1.075	1.396	1.773	2.209	2.708	3.270	3.896								
			32	0.982	1.284	1.638	2.048	2.516	3.045	3.636	1.314	0.729	1.80		62	31	W05	114X7103
			38	0.867	1.149	1.477	1.856	2.289	2.779	3.328							W09	114X7209
			43	0.769	1.035	1.342	1.696	2.101	2.559	3.074								
OP-MSGM033AJ	CAJ4511Y	G	27	1.444	1.835	2.280	2.786	3.353	3.984	4.678								
			32	1.326	1.699	2.122	2.601	3.138	3.736	4.394	1.740	0.849	2.05		67	36	W05	114X7104
			38	1.180	1.531	1.927	2.373	2.873	3.430	4.045							W09	114X7210
			43	1.058	1.389	1.761	2.180	2.649	3.171	3.749								
OP-MSXM034ML	MLZ015T4	E	27	1.817	2.286	2.834	3.467	4.188	5.001	5.907								
			32	1.716	2.162	2.685	3.290	3.980	4.761	5.632	2.216	0.983	2.25		69	38	W05	114X7062
			38	1.597	2.012	2.502	3.071	3.723	4.462	5.290							W09	114X7196
			43	1.499	1.886	2.346	2.883	3.502	4.205	4.995								
OP-MSXM034ML	MLZ015T5	G	27	1.822	2.321	2.883	3.513	4.218	5.003	5.876								
			32	1.711	2.189	2.730	3.339	4.023	4.788	5.639	2.244	1.033	2.17		69	38	W05	114X7061
			38	1.580	2.026	2.536	3.115	3.770	4.504	5.324							W09	114X7195
			43	1.476	1.890	2.369	2.919	3.544	4.250	5.041								
OP-MSXM044ML	MLZ019T4	E	27	2.323	2.897	3.577	4.365	5.259	6.259	7.360								
			32	2.193	2.739	3.386	4.137	4.990	5.944	6.997	2.811	1.258	2.23		69	38	W05	114X7162
			38	2.032	2.543	3.149	3.853	4.655	5.554	6.548							W09	114X7212
			43	1.896	2.375	2.945	3.610	4.368	5.220	6.164								
OP-MSXM044ML	MLZ019T5	G	27	2.312	2.920	3.612	4.394	5.268	6.238	7.307								
			32	2.173	2.748	3.411	4.163	5.007	5.947	6.985	2.821	1.401	2.01		69	38	W05	114X7161
			38	2.009	2.539	3.157	3.867	4.670	5.568	6.564							W09	114X7211
			43	1.881	2.364	2.940	3.609	4.373	5.232	6.189								
OP-MSXM046ML	MLZ021T4	E	27	2.478	3.090	3.817	4.660	5.618	6.691	7.875								
			32	2.339	2.922	3.614	4.418	5.333	6.358	7.490	2.998	1.289	2.33		69	38	W05	114X7064
			38	2.167	2.713	3.363	4.118	4.979	5.945	7.014							W09	114X7198
			43	2.021	2.535	3.147	3.860	4.674	5.591	6.606								
OP-MSXM046ML	MLZ021T5	G	27	2.465	3.114	3.854	4.690	5.626	6.665	7.811								
			32	2.317	2.933	3.641	4.446	5.350	6.358	7.473	3.010	1.451	2.07		69	38	W05	114X7063
			38	2.143	2.710	3.372	4.133	4.994	5.959	7.030							W09	114X7197
			43	2.006	2.524	3.142	3.859	4.679	5.603	6.633								
OP-MSXM057ML	MLZ026T4	E	27	2.988	3.749	4.629	5.632	6.762	8.020	9.405								
			32	2.811	3.536	4.375	5.331	6.409	7.610	8.932	3.633	1.591	2.28		69	38	W05	114X7066
			38	2.596	3.276	4.062	4.959	5.972	7.101	8.346							W09	114X7200
			43	2.416	3.055	3.795	4.641	5.596	6.664	7.843								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector**®2 software



Technical data and ordering

Optyima™ Slim Pack - R134a - MBP (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-15	-10	-5	0	5									10	15
OP-MSXM057ML	MLZ026T5	G	27	2.981	3.762	4.649	5.647	6.760	7.991	9.345	3.639	1.914	1.90		69	38	W05 W09	114X7065 114X7199
			32	2.805	3.540	4.384	5.339	6.409	7.597	8.905								
			38	2.601	3.271	4.052	4.947	5.958	7.088	8.337								
			43	2.443	3.048	3.770	4.608	5.564	6.638	7.833								
OP-MSXM068ML	MLZ030T4	E	27	3.686	4.631	5.738	7.016	8.470	10.104	11.920	4.493	1.897	2.37		70	39	W05 W09	114X7068 114X7202
			32	3.484	4.382	5.437	6.657	8.048	9.614	11.357								
			38	3.240	4.078	5.066	6.213	7.524	9.005	10.657								
			43	3.037	3.820	4.748	5.831	7.073	8.480	10.053								
OP-MSXM068ML	MLZ030T5	G	27	3.786	4.657	5.752	7.035	8.471	10.032	11.692	4.540	2.184	2.08		70	39	W05 W09	114X7067 114X7201
			32	3.642	4.426	5.449	6.672	8.059	9.581	11.211								
			38	3.479	4.146	5.072	6.214	7.534	9.001	10.586								
			43	3.356	3.915	4.751	5.817	7.073	8.487	10.029								
OP-MSXM080ML	MLZ038T4	E	27	4.283	5.388	6.667	8.129	9.782	11.630	13.673	5.220	2.308	2.26	3.43	70	39	W05 W09	114X7070 114X7204
			32	4.029	5.086	6.307	7.704	9.282	11.048	13.001								
			38	3.718	4.713	5.863	7.176	8.663	10.326	12.170								
			43	3.454	4.396	5.482	6.724	8.130	9.707	11.457								
OP-MSXM080ML	MLZ038T5	G	27	4.250	5.469	6.787	8.230	9.821	11.578	13.518	5.271	2.438	2.16	3.03	70	39	W05 W09	114X7069 114X7203
			32	3.953	5.136	6.411	7.803	9.334	11.025	12.892								
			38	3.566	4.705	5.926	7.255	8.715	10.327	12.107								
			43	3.225	4.325	5.500	6.776	8.176	9.721	11.429								
OP-MSXM099ML	MLZ045T4	E	27	5.329	6.672	8.263	10.089	12.135	14.386	16.825	6.456	2.623	2.46	3.83	70	39	W05 W09	114X7071 114X7205
			32	5.018	6.290	7.806	9.553	11.514	13.674	16.016								
			38	4.645	5.822	7.239	8.880	10.731	12.775	14.994								
			43	4.337	5.425	6.750	8.297	10.049	11.990	14.101								
OP-MSXM108ML	MLZ048T4	E	27	5.637	7.050	8.708	10.601	12.721	15.056	17.592	6.819	2.840	2.40	3.74	70	39	W05 W09	114X7072 114X7206
			32	5.298	6.641	8.223	10.033	12.062	14.299	16.730								
			38	4.889	6.140	7.620	9.323	11.236	13.349	15.649								
			43	4.548	5.714	7.104	8.709	10.520	12.525	14.711								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Slim Pack - R448A - MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Ta [°C]					Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0									5	10
OP-MSXM034ML	MLZ015T4	E	27	2.372	2.942	3.595	4.338	5.175	6.110	7.142								
			32	2.193	2.731	3.348	4.050	4.843	5.729	6.711	3.409	1.647	2.07		69	38	W05	114X7062
			38	1.965	2.464	3.035	3.685	4.422	5.248	6.169							W09	114X7196
			43		2.229	2.759	3.365	4.053	4.828	5.696								
OP-MSXM034ML	MLZ015T5	G	27	2.360	2.934	3.592	4.340	5.182	6.120	7.153								
			32	2.195	2.736	3.356	4.061	4.856	5.743	6.725	3.418	1.604	2.13		69	38	W05	114X7061
			38	1.992	2.491	3.063	3.715	4.451	5.277	6.194							W09	114X7195
			43		2.283	2.812	3.416	4.102	4.875	5.737								
OP-MSXM044ML	MLZ019T4	E	27	2.992	3.699	4.502	5.404	6.409	7.517	8.727								
			32	2.780	3.443	4.194	5.040	5.984	7.027	8.170	4.281	2.165	1.98		69	38	W05	114X7162
			38	2.521	3.129	3.817	4.592	5.460	6.423	7.484							W09	114X7212
			43		2.863	3.495	4.209	5.011	5.906	6.897								
OP-MSXM044ML	MLZ019T5	G	27	2.894	3.600	4.404	5.314	6.332	7.459	8.696								
			32	2.697	3.363	4.121	4.978	5.939	7.007	8.181	4.207	2.280	1.85		69	38	W05	114X7161
			38	2.454	3.068	3.767	4.559	5.449	6.442	7.541							W09	114X7211
			43		2.813	3.460	4.195	5.025	5.954	6.987								
OP-MSXM046ML	MLZ021T4	E	27	3.178	3.933	4.791	5.759	6.840	8.035	9.343								
			32	2.930	3.640	4.446	5.355	6.372	7.499	8.738	4.535	2.237	2.03		69	38	W05	114X7064
			38	2.622	3.274	4.014	4.850	5.788	6.832	7.985							W09	114X7198
			43		2.957	3.639	4.411	5.281	6.254	7.335								
OP-MSXM046ML	MLZ021T5	G	27	3.182	3.942	4.809	5.791	6.890	8.108	9.445								
			32	2.949	3.663	4.477	5.400	6.437	7.589	8.858	4.568	2.352	1.94		69	38	W05	114X7063
			38	2.665	3.318	4.065	4.914	5.871	6.941	8.127							W09	114X7197
			43		3.025	3.713	4.496	5.384	6.382	7.495								
OP-MSXM057ML	MLZ026T4	E	27	3.811	4.724	5.742	6.868	8.104	9.450	10.901								
			32	3.473	4.333	5.289	6.345	7.506	8.770	10.138	5.406	2.940	1.84	3.15	69	38	W05	114X7066
			38	3.048	3.841	4.718	5.688	6.754	7.919	9.186							W09	114X7200
			43		3.412	4.221	5.114	6.099	7.179	8.360								
OP-MSXM057ML	MLZ026T5	G	27	3.863	4.769	5.790	6.932	8.193	9.572	11.064								
			32	3.561	4.404	5.354	6.416	7.593	8.883	10.284	5.475	3.082	1.78	2.93	69	38	W05	114X7065
			38	3.185	3.945	4.803	5.766	6.836	8.016	9.306							W09	114X7199
			43		3.548	4.323	5.197	6.175	7.260	8.454								
OP-MSXM068ML	MLZ030T5	G	27	4.812	5.958	7.265	8.744	10.404	12.248	14.278								
			32	4.447	5.529	6.761	8.157	9.726	11.473	13.403	6.890	3.266	2.11	3.30	70	39	W05	114X7067
			38	3.993	4.993	6.132	7.424	8.879	10.507	12.313							W09	114X7201
			43		4.531	5.587	6.788	8.146	9.671	11.373								
OP-MSXM068ML	MLZ030T4	E	27	4.860	5.997	7.295	8.767	10.419	12.259	14.287								
			32	4.485	5.559	6.783	8.172	9.734	11.476	13.402	6.911	3.138	2.20	3.48	70	39	W05	114X7068
			38	4.012	5.003	6.134	7.418	8.867	10.490	12.292							W09	114X7202
			43		4.516	5.564	6.757	8.109	9.629	11.326								
OP-MSXM080ML	MLZ038T5	G	27	5.554	6.850	8.310	9.943	11.753	13.739	15.900								
			32	5.167	6.388	7.759	9.290	10.988	12.855	14.891	7.919	3.985	1.99	3.07	70	39	W05	114X7069
			38	4.680	5.803	7.062	8.467	10.027	11.747	13.631							W09	114X7203
			43		5.292	6.452	7.747	9.188	10.783	12.539								
OP-MSXM080ML	MLZ038T4	E	27	5.654	6.949	8.417	10.066	11.901	13.922	16.126								
			32	5.214	6.433	7.812	9.361	11.088	12.995	15.081	7.969	3.716	2.14	3.49	70	39	W05	114X7070
			38	4.667	5.786	7.053	8.479	10.073	11.838	13.779							W09	114X7204
			43		5.227	6.395	7.714	9.192	10.836	12.654								
OP-MSXM099ML	MLZ045T4	E	27	6.863	8.500	10.345	12.405	14.683	17.178	19.881								
			32	6.342	7.876	9.600	11.525	13.656	15.995	18.537	9.800	4.693	2.09	3.46	70	39	W05	114X7071
			38	5.692	7.092	8.663	10.419	12.367	14.513	16.859							W09	114X7205
			43		6.412	7.848	9.456	11.247	13.228	15.406								
OP-MSXM108ML	MLZ048T4	E	27	7.357	9.067	10.997	13.154	15.541	18.156	20.992								
			32	6.775	8.377	10.182	12.201	14.439	16.897	19.572	10.403	5.300	1.96	3.31	70	39	W05	114X7072
			38	6.050	7.513	9.161	11.008	13.061	15.326	17.804							W09	114X7206
			43		6.764	8.274	9.971	11.865	13.964	16.275								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



Technical data and ordering

Optyma™ Slim Pack - R449A - MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]						Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5								
OP-MSYM009MY	MLY90RAb	G	27	0.668	0.878	1.098	1.327	1.566	1.813	0.813	0.430	1.89		62	31	W05	114X7108
			32	0.609	0.801	1.004	1.217	1.441	1.673								
			38	0.540	0.710	0.892	1.086	1.290	1.504								
			43	0.482	0.635	0.800	0.976	1.164	1.364								
OP-MSYM012MP	MPT12RA	G	27	0.930	1.198	1.478	1.768	2.067	2.373	1.112	0.589	1.89		65	34	W05	114X7109
			32	0.848	1.095	1.353	1.623	1.902	2.191								
			38	0.751	0.971	1.204	1.449	1.705	1.972								
			43	0.670	0.868	1.080	1.304	1.541	1.790								
OP-MSYM014MP	MPT14RA	G	27	0.978	1.251	1.544	1.859	2.193	2.546	1.166	0.729	1.60		60	29	W05	114X7110
			32	0.896	1.147	1.421	1.716	2.032	2.367								
			38	0.799	1.024	1.273	1.544	1.838	2.153								
			43	0.718	0.922	1.150	1.401	1.676	1.974								
OP-MSYM018AJ	CAJ9510Z	G	27	0.932	1.233	1.594	2.022	2.527	3.114	1.491	0.781	1.91		64	33	W05	114X7111
			32	0.854	1.134	1.469	1.868	2.339	2.889								
			38	1.015	1.321	1.685	2.117	2.622	3.209								
			43	0.916	1.199	1.535	1.934	2.404	2.950								
OP-MSYM024AJ	CAJ9513Z	G	27	1.153	1.549	2.021	2.577	3.222	3.960	1.876	0.902	2.08		64	33	W05	114X7097
			32	1.041	1.409	1.847	2.363	2.964	3.655								
			38	1.244	1.643	2.113	2.663	3.297	4.021								
			43	1.107	1.475	1.909	2.417	3.006	3.679								
OP-MSYM026AJ	CAJ4517Z	G	27	1.321	1.737	2.227	2.802	3.469	4.235	2.080	1.009	2.06		67	36	W05	114X7083
			32	1.203	1.591	2.047	2.582	3.205	3.923								
			38	1.416	1.833	2.323	2.894	3.554	4.309								
			43	1.271	1.657	2.109	2.638	3.252	3.956								
OP-MSYM026AJ	TAJ4517Z	E	27	1.298	1.730	2.233	2.819	3.495	4.268	2.081	1.059	1.97		67	36	W05	114X7093
			32	1.169	1.575	2.048	2.597	3.232	3.960								
			38	1.388	1.824	2.330	2.917	3.590	4.356								
			43	1.231	1.637	2.109	2.654	3.283	4.000								
OP-MSYM034AJ	TAJ4519Z	E	27	1.650	2.164	2.762	3.451	4.239	5.132	2.591	1.350	1.92		68	37	W05	114X7094
			32	1.503	1.986	2.546	3.191	3.930	4.768								
			38	1.771	2.288	2.882	3.562	4.336	5.206								
			43	1.589	2.071	2.625	3.259	3.980	4.792								
OP-MSYM034AJ	CAJ4519Z	G	27	1.650	2.185	2.805	3.521	4.340	5.269	2.627	1.416	1.86		68	37	W05	114X7084
			32	1.498	2.000	2.581	3.251	4.018	4.889								
			38	1.776	2.310	2.925	3.630	4.431	5.333								
			43	1.588	2.083	2.652	3.306	4.050	4.889								
OP-MSXM034ML	MLZ015T4	E	27	2.367	2.937	3.590	4.334	5.172	6.108	3.409	1.647	2.07		69	38	W05	114X7062
			32	2.187	2.726	3.343	4.046	4.839	5.727								
			38	1.960	2.458	3.029	3.681	4.418	5.246								
			43	2.224	2.754	3.360	4.049	4.826	5.696								
OP-MSXM034ML	MLZ015T5	G	27	2.355	2.929	3.587	4.336	5.179	6.118	3.418	1.604	2.13		69	38	W05	114X7061
			32	2.189	2.731	3.351	4.057	4.852	5.741								
			38	1.987	2.486	3.058	3.710	4.447	5.274								
			43	2.277	2.807	3.412	4.098	4.872	5.737								
OP-MSXM044ML	MLZ019T4	E	27	2.986	3.693	4.495	5.398	6.405	7.515	4.281	2.165	1.98		69	38	W05	114X7162
			32	2.773	3.436	4.188	5.034	5.980	7.025								
			38	2.514	3.122	3.810	4.586	5.455	6.420								
			43	2.856	3.489	4.203	5.007	5.903	6.897								
OP-MSXM044ML	MLZ019T5	G	27	2.888	3.593	4.398	5.308	6.327	7.457	4.207	2.280	1.85		69	38	W05	114X7161
			32	2.691	3.356	4.114	4.972	5.935	7.004								
			38	2.447	3.061	3.760	4.553	5.445	6.439								
			43	2.806	3.454	4.189	5.020	5.951	6.987								
OP-MSXM046ML	MLZ021T4	E	27	3.171	3.926	4.785	5.753	6.835	8.032	4.535	2.237	2.03		69	38	W05	114X7064
			32	2.923	3.633	4.439	5.349	6.367	7.497								
			38	2.615	3.267	4.007	4.843	5.783	6.829								
			43	2.950	3.632	4.405	5.276	6.251	7.335								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz
E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Slim Pack - R449A - MBP (count.)

Performance data

Model	Compressor	Electrical code 1)	T _{amb} [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				T _e [°C]						Q [kW]	P [kW]	COP	SEPR					
				-20	-15	-10	-5	0	5									10
OP-MSXM046ML	MLZ021T5	G	27	3.175	3.935	4.802	5.785	6.885	8.106	9.445								
			32	2.942	3.655	4.470	5.394	6.432	7.586	8.858	4.568	2.352	1.94		69	38	W05	114X7063
			38	2.657	3.311	4.058	4.908	5.866	6.938	8.127							W09	114X7197
			43		3.018	3.705	4.490	5.379	6.379	7.495								
OP-MSXM057ML	MLZ026T4	E	27	3.803	4.716	5.734	6.861	8.099	9.446	10.901								
			32	3.464	4.325	5.281	6.338	7.500	8.767	10.138	5.406	2.940	1.84	3.15	69	38	W05	114X7066
			38	3.040	3.832	4.710	5.680	6.748	7.916	9.186							W09	114X7200
			43		3.403	4.213	5.107	6.093	7.176	8.360								
OP-MSXM057ML	MLZ026T5	G	27	3.855	4.760	5.782	6.924	8.188	9.569	11.064								
			32	3.553	4.395	5.345	6.409	7.587	8.880	10.284	5.475	3.082	1.78	2.93	69	38	W05	114X7065
			38	3.176	3.936	4.795	5.758	6.830	8.013	9.306							W09	114X7199
			43		3.539	4.315	5.190	6.169	7.257	8.454								
OP-MSXM068ML	MLZ030T5	G	27	4.802	5.948	7.255	8.735	10.397	12.244	14.278								
			32	4.436	5.518	6.751	8.148	9.719	11.469	13.403	6.890	3.266	2.11	3.30	70	39	W05	114X7067
			38	3.983	4.982	6.121	7.414	8.872	10.503	12.313							W09	114X7201
			43		4.520	5.577	6.779	8.139	9.667	11.373								
OP-MSXM068ML	MLZ030T4	E	27	4.849	5.986	7.285	8.758	10.412	12.255	14.287								
			32	4.475	5.548	6.773	8.163	9.727	11.472	13.402	6.911	3.138	2.20	3.48	70	39	W05	114X7068
			38	4.001	4.992	6.123	7.409	8.860	10.486	12.292							W09	114X7202
			43		4.505	5.553	6.748	8.102	9.625	11.326								
OP-MSXM080ML	MLZ038T5	G	27	5.542	6.838	8.298	9.933	11.744	13.735	15.900								
			32	5.155	6.375	7.747	9.279	10.980	12.850	14.891	7.919	3.985	1.99	3.07	70	39	W05	114X7069
			38	4.667	5.790	7.049	8.456	10.018	11.742	13.631							W09	114X7203
			43		5.279	6.439	7.736	9.180	10.778	12.539								
OP-MSXM080ML	MLZ038T4	E	27	5.641	6.937	8.405	10.056	11.893	13.917	16.126								
			32	5.202	6.420	7.800	9.351	11.080	12.990	15.081	7.969	3.716	2.14	3.49	70	39	W05	114X7070
			38	4.654	5.774	7.041	8.469	10.064	11.833	13.779							W09	114X7204
			43		5.214	6.383	7.703	9.183	10.832	12.654								
OP-MSXM099ML	MLZ045T4	E	27	6.848	8.485	10.330	12.392	14.673	17.172	19.881								
			32	6.327	7.860	9.585	11.512	13.646	15.989	18.537	9.800	4.693	2.09	3.46	70	39	W05	114X7071
			38	5.676	7.076	8.648	10.405	12.357	14.507	16.859							W09	114X7205
			43		6.396	7.833	9.443	11.237	13.222	15.406								
OP-MSXM108ML	MLZ048T4	E	27	7.341	9.051	10.981	13.140	15.530	18.149	20.992								
			32	6.758	8.360	10.166	12.187	14.428	16.891	19.572	10.403	5.300	1.96	3.31	70	39	W05	114X7072
			38	6.033	7.496	9.145	10.994	13.050	15.319	17.804							W09	114X7206
			43		6.748	8.258	9.957	11.854	13.958	16.275								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector**®2 software



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Technical data and ordering

Optyma™ Slim Pack - R452A MBP*)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0									5	10
OP-MSYM018AJ	CAJ9510Z	G	27	1.020	1.315	1.665	2.079	2.564	3.126	3.772								
			32	0.928	1.202	1.526	1.910	2.360	2.884	3.487	1.588	0.860	1.85		64	33	W05	114X7111
			38	-	-	1.358	1.705	2.114	2.591	3.142							W09	114X7136
			43	-	-	1.216	1.533	1.907	2.345	2.852								
OP-MSYM024AJ	CAJ9513Z	G	27	-	1.649	2.109	2.647	3.267	3.974	-								
			32	-	1.491	1.916	2.413	2.988	3.645	-	1.995	0.994	2.01		64	33	W05	114X7097
			38	-	1.302	1.685	2.134	2.655	3.252	-						W09	114X7194	
			43	-	1.143	1.493	1.902	2.377	2.924	-								
OP-MSYM026AJ	TAJ4517Z	E	27	1.417	1.840	2.328	2.893	3.541	4.278	5.109								
			32	1.267	1.664	2.122	2.649	3.253	3.943	4.721	2.211	1.169	1.89		67	36	W05	114X7093
			38	1.085	1.450	1.868	2.349	2.902	3.532	4.246						W09	114X7192	
			43	-	1.270	1.654	2.096	2.603	3.184	3.843								
OP-MSYM026AJ	CAJ4517Z	G	27	1.442	1.848	2.322	2.876	3.515	4.246	5.071								
			32	1.304	1.681	2.121	2.634	3.228	3.908	4.678	2.210	1.113	1.99		67	36	W05	114X7083
			38	1.138	1.480	1.878	2.342	2.880	3.499	4.203						W09	114X7190	
			43	-	1.311	1.674	2.097	2.589	3.156	3.804								
OP-MSYM034AJ	TAJ4519Z	E	27	1.797	2.297	2.873	3.534	4.286	5.133	6.077								
			32	1.625	2.094	2.631	3.245	3.944	4.732	5.612	2.746	1.490	1.84		68	37	W05	114X7094
			38	1.415	1.845	2.335	2.893	3.529	4.246	5.049						W09	114X7193	
			43	-	1.633	2.083	2.595	3.177	3.834	4.571								
OP-MSYM034AJ	CAJ4519Z	G	27	1.796	2.318	2.917	3.605	4.387	5.269	6.251								
			32	1.619	2.107	2.666	3.305	4.031	4.851	5.766	2.784	1.563	1.78		68	37	W05	114X7084
			38	1.403	1.849	2.357	2.935	3.594	4.338	5.171						W09	114X7191	
			43	-	1.631	2.094	2.621	3.222	3.901	4.663								
OP-MSXM034ML	MLZ015T4	E	27	2.543	3.128	3.789	4.528	5.345	6.239	7.205								
			32	2.311	2.854	3.466	4.151	4.909	5.739	6.639	3.532	1.596	2.21		69	38	W05	114X7062
			38	2.020	2.509	3.062	3.680	4.365	5.117	5.937						W09	114X7196	
			43	1.767	2.211	2.711	3.271	3.894	4.581	5.333								
OP-MSXM034ML	MLZ015T5	G	27	2.660	3.222	3.858	4.568	5.354	6.216	7.152								
			32	2.461	2.983	3.575	4.238	4.973	5.781	6.664	3.646	1.684	2.16		69	38	W05	114X7061
			38	2.214	2.688	3.227	3.831	4.505	5.249	6.065						W09	114X7195	
			43	2.003	2.436	2.929	3.485	4.106	4.796	5.557								
OP-MSXM044ML	MLZ019T4	E	27	3.308	4.011	4.799	5.673	6.629	7.663	8.770								
			32	3.058	3.709	4.437	5.243	6.127	7.085	8.114	4.533	2.097	2.16		69	38	W05	114X7162
			38	2.746	3.330	3.983	4.706	5.501	6.367	7.302						W09	114X7212	
			43	2.476	3.002	3.590	4.242	4.961	5.748	6.603								
OP-MSXM044ML	MLZ019T5	G	27	3.374	4.081	4.876	5.757	6.723	7.770	8.893								
			32	3.116	3.771	4.506	5.320	6.214	7.185	8.230	3.532	1.596	2.21		69	38	W05	114X7161
			38	2.791	3.381	4.040	4.772	5.577	6.455	7.405						W09	114X7211	
			43	2.508	3.040	3.635	4.296	5.025	5.824	6.694								
OP-MSXM046ML	MLZ021T4	E	27	3.493	4.224	5.044	5.951	6.942	8.014	9.159								
			32	3.224	3.901	4.658	5.495	6.412	7.405	8.470	4.761	2.224	2.14		69	38	W05	114X7064
			38	2.886	3.494	4.172	4.923	5.748	6.645	7.612						W09	114X7198	
			43	2.592	3.139	3.749	4.426	5.172	5.987	6.871								
OP-MSXM046ML	MLZ021T5	G	27	3.425	4.224	5.114	6.096	7.164	8.312	9.534								
			32	3.194	3.940	4.768	5.678	6.667	7.730	8.862	4.877	2.346	2.08		69	38	W05	114X7063
			38	2.885	3.562	4.310	5.130	6.021	6.980	8.005						W09	114X7197	
			43	2.602	3.217	3.894	4.637	5.444	6.315	7.250								
OP-MSXM057ML	MLZ026T5	G	27	4.122	4.969	5.913	6.954	8.086	9.304	10.600								
			32	3.800	4.578	5.447	6.404	7.449	8.576	9.781	5.583	3.142	1.78	3.04	69	38	W05	114X7065
			38	3.403	4.096	4.870	5.726	6.662	7.679	8.772						W09	114X7199	
			43	3.060	3.680	4.373	5.141	5.986	6.908	7.908								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

*) Preliminary data

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyima™ Slim Pack - R452A MBP*) (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)							EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5	10								
OP-MSXM057ML	MLZ026T4	E	27	4.125	4.972	5.918	6.962	8.098	9.321	10.624								
			32	3.805	4.584	5.455	6.416	7.465	8.597	9.809	5.590	3.022	1.85	3.15	69	38	W05	114X7066
			38	3.411	4.106	4.883	5.742	6.684	7.706	8.807							W09	114X7200
			43	3.071	3.693	4.389	5.162	6.012	6.941	7.949								
OP-MSXM068ML	MLZ030T4	E	27	5.417	6.593	7.931	9.439	11.120	12.975	15.000								
			32	5.016	6.118	7.371	8.784	10.362	12.107	14.018	7.514	3.131	2.40	3.87	70	39	W05	114X7068
			38	4.514	5.524	6.671	7.966	9.417	11.027	12.799							W09	114X7202
			43	4.078	5.007	6.062	7.256	8.597	10.093	11.747								
OP-MSXM068ML	MLZ030T5	G	27	5.420	6.596	7.933	9.440	11.120	12.973	14.995								
			32	5.017	6.119	7.373	8.785	10.361	12.103	14.012	7.516	3.195	2.35	3.79	70	39	W05	114X7067
			38	4.514	5.524	6.671	7.965	9.414	11.021	12.790							W09	114X7201
			43	4.076	5.006	6.061	7.254	8.593	10.086	11.736								
OP-MSXM080ML	MLZ038T5	G	27	6.388	7.726	9.237	10.922	12.779	14.805	16.989								
			32	5.906	7.152	8.555	10.120	11.846	13.732	15.772	8.733	3.937	2.22	3.61	70	39	W05	114X7069
			38	5.291	6.418	7.686	9.100	10.665	12.380	14.243							W09	114X7203
			43	4.747	5.768	6.918	8.203	9.628	11.198	12.911								
OP-MSXM080ML	MLZ038T4	E	27	6.425	7.767	9.281	10.971	12.837	14.875	17.078								
			32	5.939	7.191	8.602	10.177	11.918	13.822	15.886	8.780	3.684	2.38	3.84	70	39	W05	114X7070
			38	5.314	6.450	7.730	9.159	10.743	12.482	14.376							W09	114X7204
			43	4.762	5.793	6.956	8.257	9.705	11.302	13.051								
OP-MSXM099ML	MLZ045T4	E	27	7.544	9.131	10.906	12.870	15.021	17.353	19.855								
			32	6.902	8.380	10.031	11.858	13.860	16.034	18.373	10.256	4.875	2.10	3.52	70	39	W05	114X7071
			38	6.095	7.433	8.926	10.579	12.396	14.375	16.514							W09	114X7205
			43	5.395	6.606	7.960	9.462	11.118	12.929	14.896								
OP-MSXM108ML	MLZ048T4	E	27	8.136	9.851	11.742	13.807	16.038	18.425	20.953								
			32	7.419	9.018	10.776	12.693	14.763	16.980	19.334	11.027	5.463	2.02	3.48	70	39	W05	114X7072
			38	6.510	7.957	9.545	11.275	13.147	15.155	17.296							W09	114X7206
			43	5.717	7.027	8.465	10.033	11.733	13.563	15.523								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

*) Preliminary data

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



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Technical data and ordering

Optyma™ Slim Pack - R407A - MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0									5	10
OP-MSXM034ML	MLZ015T4	E	27	2.297	2.872	3.545	4.322	5.210	6.211	7.326	3.351	1.536	2.18		69	38	W05	114X7062
			32	2.112	2.653	3.288	4.024	4.865	5.815	6.876								
			38	1.881	2.379	2.965	3.648	4.431	5.318	6.312								
			43		2.141	2.684	3.320	4.053	4.886	5.822								
OP-MSXM034ML	MLZ015T5	G	27	2.326	2.908	3.588	4.374	5.271	6.282	7.408	3.392	1.560	2.17		69	38	W05	114X7061
			32	2.138	2.686	3.328	4.071	4.921	5.881	6.952								
			38	1.903	2.407	3.000	3.690	4.480	5.376	6.379								
			43		2.166	2.715	3.357	4.097	4.938	5.882								
OP-MSXM044ML	MLZ019T4	E	27	2.851	3.553	4.369	5.304	6.362	7.543	8.846	4.122	2.078	1.98		69	38	W05	114X7162
			32	2.612	3.270	4.036	4.917	5.915	7.031	8.264								
			38	2.313	2.915	3.619	4.431	5.354	6.390	7.538								
			43		2.608	3.256	4.008	4.866	5.834	6.908								
OP-MSXM044ML	MLZ019T5	G	27	2.836	3.534	4.346	5.276	6.328	7.503	8.799	4.098	2.205	1.86		69	38	W05	114X7161
			32	2.596	3.250	4.012	4.888	5.880	6.989	8.214								
			38	2.296	2.894	3.593	4.399	5.316	6.344	7.483								
			43		2.586	3.228	3.974	4.825	5.784	6.850								
OP-MSXM046ML	MLZ021T4	E	27	2.968	3.727	4.597	5.584	6.691	7.919	9.265	4.364	2.204	1.98		69	38	W05	114X7064
			32	2.732	3.451	4.274	5.206	6.252	7.413	8.687								
			38	2.438	3.105	3.868	4.732	5.702	6.780	7.965								
			43		2.805	3.515	4.320	5.225	6.231	7.339								
OP-MSXM046ML	MLZ021T5	G	27	3.021	3.794	4.678	5.680	6.803	8.047	9.411	4.440	2.248	1.97		69	38	W05	114X7063
			32	2.781	3.512	4.348	5.294	6.355	7.531	8.820								
			38	2.480	3.159	3.933	4.810	5.794	6.885	8.083								
			43		2.852	3.572	4.389	5.306	6.324	7.445								
OP-MSXM057ML	MLZ026T4	E	27	3.575	4.477	5.501	6.652	7.929	9.331	10.849	5.214	2.788	1.87	3.01	69	38	W05	114X7066
			32	3.281	4.132	5.096	6.179	7.381	8.699	10.128								
			38	2.912	3.698	4.588	5.586	6.693	7.909	9.229								
			43		3.320	4.144	5.068	6.094	7.223	8.448								
OP-MSXM057ML	MLZ026T5	G	27	3.636	4.551	5.590	6.757	8.051	9.468	11.002	5.298	2.833	1.87	3.02	69	38	W05	114X7065
			32	3.336	4.199	5.178	6.275	7.492	8.824	10.267								
			38	2.960	3.757	4.659	5.670	6.790	8.019	9.350								
			43		3.372	4.206	5.141	6.180	7.319	8.555								
OP-MSXM068ML	MLZ030T5	G	27	4.657	5.759	7.057	8.559	10.269	12.191	14.322	6.722	3.117	2.16	3.46	70	39	W05	114X7067
			32	4.361	5.381	6.589	7.994	9.602	11.415	13.433								
			38	4.021	4.938	6.034	7.318	8.798	10.476	12.354								
			43		4.579	5.576	6.756	8.124	9.687	11.445								
OP-MSXM068ML	MLZ030T4	E	27	4.693	5.804	7.111	8.624	10.346	12.281	14.426	6.774	2.991	2.27	3.62	70	39	W05	114X7068
			32	4.395	5.424	6.642	8.057	9.677	11.503	13.534								
			38	4.054	4.979	6.084	7.379	8.870	10.561	12.453								
			43		4.619	5.625	6.815	8.195	9.770	11.542								
OP-MSXM080ML	MLZ038T5	G	27	5.297	6.531	7.978	9.644	11.533	13.643	15.969	7.601	3.817	1.99	3.22	70	39	W05	114X7069
			32	4.957	6.097	7.441	8.996	10.767	12.753	14.950								
			38	4.568	5.588	6.801	8.217	9.841	11.674	13.713								
			43		5.176	6.275	7.570	9.066	10.767	12.669								
OP-MSXM080ML	MLZ038T4	E	27	5.357	6.606	8.069	9.754	11.663	13.796	16.145	7.691	3.546	2.17	3.48	70	39	W05	114X7070
			32	5.016	6.170	7.530	9.104	10.895	12.904	15.126								
			38	4.624	5.659	6.889	8.324	9.969	11.824	13.887								
			43		5.245	6.361	7.675	9.193	10.916	12.844								
OP-MSXM099ML	MLZ045T4	E	27	6.413	8.067	9.958	12.096	14.490	17.138	20.039	9.357	4.629	2.02	3.31	70	39	W05	114X7071
			32	5.808	7.373	9.161	11.184	13.451	15.962	18.716								
			38	5.060	6.514	8.175	10.057	12.169	14.514	17.091								
			43		5.776	7.328	9.090	11.071	13.275	15.704								
OP-MSXM108ML	MLZ048T4	E	27	6.935	8.714	10.739	13.021	15.563	18.365	21.418	10.082	5.206	1.94	3.19	70	39	W05	114X7072
			32	6.269	7.949	9.862	12.019	14.424	17.077	19.972								
			38	5.444	7.003	8.777	10.780	13.017	15.490	18.194								
			43		6.188	7.844	9.715	11.810	14.131	16.675								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Slim Pack - R407F - MBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)					EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]					Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0									5	10
OP-MSXM034ML	MLZ015T4	E	27	2.441	3.044	3.746	4.555	5.477	6.514	7.669	3.515	1.639	2.14	69	38	W05	114X7062	
			32	2.250	2.819	3.483	4.250	5.125	6.112	7.213								
			38		2.536	3.151	3.864	4.681	5.605	6.638								
			43			2.861	3.526	4.292	5.161	6.136								
OP-MSXM034ML	MLZ015T5	G	27	2.499	3.115	3.833	4.659	5.598	6.655	7.831	3.596	1.680	2.14	69	38	W05	114X7061	
			32	2.303	2.884	3.563	4.345	5.237	6.243	7.362								
			38		2.594	3.221	3.948	4.780	5.721	6.772								
			43			2.924	3.602	4.381	5.266	6.257								
OP-MSXM044ML	MLZ019T4	E	27	3.059	3.801	4.660	5.640	6.746	7.977	9.333	4.362	2.251	1.94	69	38	W05	114X7162	
			32	2.809	3.506	4.313	5.237	6.282	7.447	8.732								
			38		3.135	3.877	4.730	5.697	6.780	7.977								
			43			3.497	4.286	5.187	6.199	7.321								
OP-MSXM044ML	MLZ019T5	G	27	3.042	3.780	4.634	5.609	6.709	7.934	9.281	4.336	2.391	1.81	69	38	W05	114X7161	
			32	2.792	3.484	4.286	5.205	6.243	7.401	8.677								
			38		3.111	3.848	4.694	5.654	6.729	7.917								
			43			3.465	4.248	5.140	6.143	7.255								
OP-MSXM046ML	MLZ021T4	E	27	3.186	3.991	4.910	5.946	7.103	8.380	9.776	4.624	2.390	1.94	69	38	W05	114X7064	
			32	2.940	3.704	4.574	5.555	6.650	7.860	9.183								
			38		3.343	4.151	5.062	6.080	7.207	8.439								
			43			3.781	4.631	5.583	6.637	7.792								
OP-MSXM046ML	MLZ021T5	G	27	3.243	4.062	4.995	6.047	7.220	8.515	9.928	4.704	2.439	1.93	69	38	W05	114X7063	
			32	2.993	3.769	4.652	5.647	6.758	7.984	9.322								
			38		3.400	4.220	5.144	6.176	7.316	8.563								
			43			3.842	4.704	5.668	6.734	7.902								
OP-MSXM057ML	MLZ026T4	E	27	3.782	4.724	5.790	6.983	8.302	9.743	11.298	5.445	2.992	1.82	2.98	69	38	W05	114X7066
			32	3.479	4.370	5.375	6.499	7.742	9.100	10.567								
			38		3.923	4.852	5.889	7.037	8.293	9.650								
			43			4.393	5.355	6.421	7.587									
OP-MSXM057ML	MLZ026T5	G	27	3.898	4.867	5.960	7.182	8.530	9.743	11.583	5.604	3.095	1.81	2.98	69	38	W05	114X7065
			32	3.584	4.499	5.530	6.680	7.949	9.333	10.824								
			38		4.035	4.986	6.047	7.218	8.495	9.873								
			43			4.510	5.493	6.578	7.764									
OP-MSXM068ML	MLZ030T5	G	27	5.011	6.171	7.530	9.097	10.876	12.869	15.074	7.129	3.361	2.12	3.41	70	39	W05	114X7067
			32	4.713	5.790	7.058	8.527	10.203	12.087	14.178								
			38		5.344	6.497	7.843	9.389	11.137	13.088								
			43			6.036	7.275	8.708	10.339	12.168								
OP-MSXM068ML	MLZ030T4	E	27	5.049	6.219	7.588	9.166	10.958	12.964	15.184	7.186	3.224	2.23	3.58	70	39	W05	114X7068
			32	4.750	5.836	7.115	8.595	10.282	12.180	14.286								
			38		5.388	6.552	7.909	9.467	11.229	13.194								
			43			6.089	7.339	8.784	10.429	12.273								
OP-MSXM080ML	MLZ038T5	G	27	5.698	6.996	8.510	10.247	12.208	14.394	16.797	8.059	4.134	1.95	3.16	70	39	W05	114X7069
			32	5.357	6.559	7.967	9.591	11.433	13.494	15.767								
			38		6.046	7.321	8.803	10.496	12.400	14.513								
			43			6.791	8.148	9.710	11.480	13.453								
OP-MSXM080ML	MLZ038T4	E	27	5.713	7.016	8.534	10.277	12.245	14.438	16.850	8.084	3.938	2.05	3.32	70	39	W05	114X7070
			32	5.372	6.579	7.993	9.623	11.473	13.541	15.824								
			38		6.067	7.349	8.838	10.539	12.453	14.576								
			43			6.820	8.185	9.757	11.537	13.522								
OP-MSXM099ML	MLZ045T4	E	27	6.872	8.617	10.598	12.828	15.315	18.060	21.062	9.892	5.025	1.97	3.23	70	39	W05	114X7071
			32	6.242	7.899	9.779	11.894	14.254	16.862	19.717								
			38		7.005	8.759	10.733	12.939	15.380	18.057								
			43			7.876	9.732	11.807	14.107	16.634								
OP-MSXM108ML	MLZ048T4	E	27	7.187	9.007	11.068	13.382	15.956	18.789	21.877	10.322	5.568	1.85	3.07	70	39	W05	114X7072
			32	6.517	8.243	10.196	12.389	14.829	17.517	20.450								
			38		7.290	9.110	11.154	13.430	15.942	18.687								
			43			8.169	10.086	12.224	14.588	17.175								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector[®]2** software



Technical data and ordering

Optyma™ Slim Pack - R404A / R507 - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	T _{amb} [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				T _e [°C]					Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0									5	10
OP-MSYM009MY	MLY90RAb	G	27	0.814	1.007	1.217	1.443	1.684	1.941									
			32	0.737	0.914	1.108	1.319	1.546	1.79	0.957	0.48	1.99		63	32	W05	114X7108	
			38	0.644	0.802	0.978	1.171	1.381	1.609							W09	114X7133	
			43	0.568	0.709	0.869	1.047	1.244	1.459									
OP-MSYM012MP	MPT12RA	G	27	1.115	1.365	1.631	1.914	2.213	2.526									
			32	1.01	1.239	1.486	1.751	2.033	2.331	1.3	0.646	2.01		65	34	W05	114X7109	
			38	0.883	1.089	1.313	1.556	1.817	2.097							W09	114X7134	
			43	0.779	0.964	1.169	1.394	1.638	1.902									
OP-MSYM014MP	MPT14RA	G	27	1.13	1.396	1.685	1.999	2.335	2.693									
			32	1.031	1.276	1.546	1.841	2.16	2.502	1.34	0.795	1.69		60	29	W05	114X7110	
			38	0.913	1.133	1.38	1.652	1.95	2.274							W09	114X7135	
			43	0.814	1.014	1.241	1.494	1.775	2.084									
OP-MSYM018AJ	CAJ9510Z	G	27	1.184	1.477	1.818	2.209	2.651	3.146	3.694								
			32	1.078	1.351	1.666	2.024	2.429	2.881	3.382	1.746	0.903	1.93		64	33	W05	114X7111
			38			1.48	1.8	2.16	2.561	3.005						W09	114X7136	
			43			1.324	1.612	1.933	2.292	2.688								
OP-MSYM024AJ	CAJ9513Z	G	27	1.822	2.288	2.82	3.418	4.082	4.808									
			32	1.638	2.067	2.557	3.108	3.72	4.392	2.168	1.045	2.07		64	33	W05	114X7097	
			38	1.417	1.804	2.243	2.738	3.288	3.895							W09	114X7194	
			43	1.235	1.586	1.983	2.431	2.93	3.482									
OP-MSYM026AJ	TAJ4517Z	E	27	1.595	2.029	2.522	3.078	3.7	4.388	5.141								
			32	1.416	1.824	2.285	2.802	3.379	4.017	4.717	2.398	1.231	1.95		67	36	W05	114X7093
			38	1.199	1.575	1.996	2.465	2.987	3.565	4.2						W09	114X7192	
			43	1.368	1.754	2.182	2.657	3.184	3.765									
OP-MSYM026AJ	CAJ4517Z	G	27	1.626	2.039	2.517	3.061	3.674	4.356	5.104								
			32	1.459	1.844	2.285	2.788	3.353	3.982	4.675	2.399	1.172	2.05		67	36	W05	114X7083
			38	1.259	1.609	2.007	2.459	2.967	3.533	4.159						W09	114X7190	
			43	1.413	1.776	2.185	2.644	3.157	3.728									
OP-MSYM034AJ	TAJ4519Z	E	27	2.018	2.526	3.102	3.747	4.461	5.242	6.087								
			32	1.811	2.287	2.823	3.42	4.079	4.799	5.581	2.97	1.573	1.89		68	37	W05	114X7094
			38	1.559	1.997	2.484	3.023	3.616	4.264	4.969						W09	114X7193	
			43	1.753	2.199	2.689	3.227	3.815	4.456									
OP-MSYM034AJ	CAJ4519Z	G	27	2.015	2.547	3.147	3.819	4.563	5.376	6.257								
			32	1.802	2.3	2.859	3.48	4.166	4.916	5.729	3.008	1.65	1.82		68	37	W05	114X7084
			38	1.544	2	2.506	3.065	3.68	4.353	5.085						W09	114X7191	
			43	1.749	2.209	2.715	3.27	3.878	4.541									
OP-MSXM034ML	MLZ015T4	E	27	2.502	3.081	3.734	4.463	5.272	6.158	7.121								
			32	2.251	2.793	3.398	4.073	4.82	5.64	6.535	3.58	1.693	2.11		69	38	W05	114X7062
			38	1.926	2.424	2.974	3.584	4.258	5.001	5.814						W09	114X7196	
			43	1.634	2.095	2.6	3.157	3.772	4.451	5.198								
OP-MSXM034ML	MLZ015T5	G	27	2.591	3.149	3.783	4.496	5.289	6.163	7.122								
			32	2.373	2.89	3.478	4.142	4.882	5.703	6.608	3.669	1.762	2.08		69	38	W05	114X7061
			38	2.101	2.569	3.102	3.705	4.383	5.139	5.981						W09	114X7195	
			43	1.867	2.293	2.78	3.334	3.959	4.662	5.452								
OP-MSXM044ML	MLZ019T4	E	27	3.235	3.925	4.696	5.556	6.511	7.563	8.716								
			32	2.959	3.596	4.307	5.101	5.985	6.964	8.044	4.556	2.203	2.07		69	38	W05	114X7162
			38	2.604	3.178	3.816	4.53	5.329	6.22	7.212						W09	114X7212	
			43	2.289	2.808	3.385	4.032	4.759	5.576	6.497								
OP-MSXM044ML	MLZ019T5	G	27	3.279	3.979	4.768	5.646	6.615	7.674	8.823								
			32	2.995	3.641	4.368	5.18	6.078	7.064	8.141	4.622	2.266	2.04		69	38	W05	114X7161
			38	2.634	3.213	3.865	4.595	5.407	6.305	7.294						W09	114X7211	
			43	2.316	2.837	3.425	4.086	4.825	5.649	6.566								
OP-MSXM046ML	MLZ021T4	E	27	3.404	4.124	4.928	5.824	6.815	7.905	9.099								
			32	3.108	3.772	4.514	5.34	6.257	7.271	8.39	4.778	2.35	2.03		69	38	W05	114X7064
			38	2.729	3.325	3.99	4.731	5.559	6.482	7.511						W09	114X7198	
			43	2.392	2.93	3.529	4.199	4.952	5.798	6.754								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Slim Pack - R404A / R507 - MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	T _{amb} [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				T _e [°C]					Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0									5	10
OP-MSXM046ML	MLZ021T5	G	27	3.45	4.182	5.004	5.917	6.922	8.018	9.203								
			32	3.147	3.821	4.578	5.421	6.352	7.371	8.481	4.848	2.435	1.99		69	38	W05	114X7063
			38	2.762	3.365	4.043	4.8	5.64	6.567	7.586							W09	114X7197
			43	2.422	2.964	3.574	4.258	5.022	5.872	6.817								
OP-MSXM057ML	MLZ026T5	G	27	3.973	4.806	5.741	6.777	7.912	9.142	10.467								
			32	3.619	4.382	5.238	6.189	7.234	8.373	9.609	5.571	3.291	1.69	2.9	69	38	W05	114X7065
			38	3.179	3.855	4.615	5.46	6.396	7.424	8.553							W09	114X7199
			43	2.795	3.397	4.073	4.83	5.673	6.609	7.65								
OP-MSXM057ML	MLZ026T4	E	27	3.977	4.812	5.749	6.788	7.926	9.162	10.493								
			32	3.625	4.39	5.249	6.203	7.252	8.397	9.639	5.58	3.164	1.76	3.01	69	38	W05	114X7066
			38	3.189	3.868	4.63	5.48	6.42	7.455	8.59							W09	114X7200
			43	2.809	3.414	4.094	4.855	5.703	6.645	7.693								
OP-MSXM068ML	MLZ030T4	E	27	5.271	6.443	7.784	9.3	10.998	12.88	14.945								
			32	4.832	5.926	7.177	8.594	10.185	11.954	13.907	7.566	3.279	2.31	3.73	70	39	W05	114X7068
			38	4.284	5.279	6.418	7.711	9.17	10.803	12.618							W09	114X7202
			43	3.809	4.717	5.758	6.945	8.291	9.806	11.506								
OP-MSXM068ML	MLZ030T5	G	27	5.273	6.446	7.786	9.302	10.997	12.876	14.938								
			32	4.832	5.927	7.178	8.594	10.182	11.949	13.898	7.568	3.353	2.26	3.66	70	39	W05	114X7067
			38	4.283	5.278	6.417	7.709	9.166	10.795	12.606							W09	114X7201
			43	3.806	4.714	5.755	6.941	8.284	9.797	11.492								
OP-MSXM080ML	MLZ038T5	G	27	6.066	7.469	9.041	10.768	12.634	14.626	16.73								
			32	5.504	6.806	8.273	9.892	11.65	13.536	15.538	8.735	4.027	2.17	3.33	70	39	W05	114X7069
			38	4.826	5.992	7.319	8.797	10.415	12.164	14.039							W09	114X7203
			43	4.268	5.307	6.506	7.857	9.349	10.976	12.738								
OP-MSXM080ML	MLZ038T4	E	27	6.238	7.571	9.084	10.78	12.662	14.727	16.973								
			32	5.708	6.948	8.353	9.93	11.682	13.612	15.72	8.822	3.856	2.29	3.71	70	39	W05	114X7070
			38	5.026	6.146	7.415	8.842	10.434	12.197	14.137							W09	114X7204
			43	4.423	5.435	6.584	7.881	9.335	10.956	12.755								
OP-MSXM099ML	MLZ045T4	E	27	7.288	8.825	10.553	12.472	14.58	16.875	19.357								
			32	6.643	8.055	9.648	11.422	13.379	15.521	17.853	10.216	5.001	2.04	3.37	70	39	W05	114X7071
			38	5.823	7.082	8.508	10.106	11.88	13.836	15.989							W09	114X7205
			43	5.1	6.228	7.513	8.96	10.58	12.381	14.387								
OP-MSXM108ML	MLZ048T4	E	27	7.856	9.491	11.303	13.308	15.517	17.94	20.584								
			32	7.147	8.653	10.321	12.168	14.209	16.459	18.932	10.943	5.478	2	3.31	70	39	W05	114X7072
			38	6.248	7.596	9.087	10.742	12.581	14.623	16.892							W09	114X7206
			43	5.457	6.671	8.012	9.504	11.172	13.041	15.144								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector**®2 software



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Technical data and ordering

Optyma™ Slim Pack

Ordering

Model number	Compressor Model	Application		Electrical code ¹⁾	Refrigerant ²⁾	Condenser Coil			Fan		Receiver	Dimensions					Weight		Code no.		
						Type	Airflow	Internal Volume	Number	Blade ø	Volume	Housing	Height	Width	Depth	Suction line	Liquid Line	Gross			Net
OP-LSQM014MP	MPT14LA	LBP	G	Q	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	64.4	50.9	114X7106	114X7129	
OP-LSQM018MP	MPT16LA	LBP	G	Q	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	64.6	51.1	114X7107	114X7130	
OP-LSQM026AJ	CAJ2446Z	LBP	G	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	76.7	61.5	114X7085	114X7179	
OP-LSQM034AJ	CAJ2464Z	LBP	G	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	76.7	61.5	114X7086	114X7180	
OP-LSQM048NT	NTZ048-5	LBP	G	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	5/8	1/2	77	62	114X7087	114X7181	
OP-LSQM048NT	NTZ048-4	LBP	E	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	5/8	1/2	77	62	114X7088	114X7182	
OP-LSQM074FH	FH2511Z	LBP	G	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	5/8	1/2	92	77	114X7095	114X7185	
OP-LSQM074FH	TFH2511Z	LBP	E	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	5/8	1/2	88	73	114X7096	114X7186	
OP-LSQM068NT	NTZ068-5	LBP	G	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	5/8	1/2	79	64	114X7089	114X7183	
OP-LSQM068NT	NTZ068-4	LBP	E	Q	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	5/8	1/2	80	65	114X7090	114X7184	
OP-LSQM067LL	LLZ013T4	LBP	E	Q	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	3/4	1/2	97	78	114X7091	114X7187	
OP-LSQM084LL	LLZ015T4	LBP	E	Q	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	3/4	1/2	97	78	114X7092	114X7188	
OP-LSQM098LL	LLZ018T4	LBP	E	Q	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	3/4	1/2	97	78	114X7075	114X7189	
OP-MSGM0125C	SC12G	MBP	G	G	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	65.5	52	114X7099	114X7207	
OP-MSGM0155C	SC15G	MBP	G	G	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	65.5	52	114X7100	114X7208	
OP-MSGM0185C	SC18G	MBP	G	G	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	66.5	53	114X7101	114X7131	
OP-MSYM009MY	MLY90RAB	MBP	G	Y	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	63.9	50.4	114X7108	114X7133	
OP-MSGM033AJ	CAJ4511Y	MBP	G	G	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	79	64	114X7104	114X7210	
OP-MSYM018AJ	CAJ9510Z	MBP	G	Y	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	77	62	114X7111	114X7136	
OP-MSGM0215C	SC21G	MBP	G	G	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	66.5	53	114X7102	114X7132	
OP-MSYM012MP	MPT12RA	MBP	G	Y	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	64.3	50.8	114X7109	114X7134	
OP-MSGM026AJ	CAJ4492Y	MBP	G	G	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	78	62.5	114X7103	114X7209	
OP-MSYM014MP	MPT14RA	MBP	G	Y	A7	2,200	0.4	1	365	1.3	B1	530	910	364	3/8	3/8	65	51.5	114X7110	114X7135	
OP-MSYM024AJ	CAJ9513Z	MBP	G	Y	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	78	63	114X7097	114X7194	
OP-MSYM026AJ	TAJ4517Z	MBP	E	Y	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	74.4	59.2	114X7093	114X7192	
OP-MSYM026AJ	CAJ4517Z	MBP	G	Y	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	77.7	62.5	114X7083	114X7190	
OP-MSYM034AJ	TAJ4519Z	MBP	E	Y	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	76.7	61.5	114X7094	114X7193	
OP-MSYM034AJ	CAJ4519Z	MBP	G	Y	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	1/2	1/2	77.7	62.5	114X7084	114X7191	
OP-MSXM034ML	MLZ015T4	MBP	E	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7062	114X7196	
OP-MSXM034ML	MLZ015T5	MBP	G	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7061	114X7195	
OP-MSXM044ML	MLZ019T4	MBP	E	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7162	114X7212	
OP-MSXM044ML	MLZ019T5	MBP	G	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7161	114X7211	
OP-MSXM046ML	MLZ021T4	MBP	E	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7064	114X7198	
OP-MSXM046ML	MLZ021T5	MBP	G	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7063	114X7197	
OP-MSXM057ML	MLZ026T5	MBP	G	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7065	114X7199	
OP-MSXM057ML	MLZ026T4	MBP	E	X	D7	3,300	0.6	1	450	3.4	B2	690	1087	464	3/4	1/2	85	70	114X7066	114X7200	
OP-MSXM068ML	MLZ030T4	MBP	E	X	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	7/8	1/2	95	76	114X7068	114X7202	
OP-MSXM068ML	MLZ030T5	MBP	G	X	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	7/8	1/2	95	76	114X7067	114X7201	
OP-MSXM080ML	MLZ038T5	MBP	G	X	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	7/8	1/2	96	77	114X7069	114X7203	
OP-MSXM080ML	MLZ038T4	MBP	E	X	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	7/8	1/2	96	77	114X7070	114X7204	
OP-MSXM099ML	MLZ045T4	MBP	E	X	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	7/8	1/2	98	79	114X7071	114X7205	
OP-MSXM108ML	MLZ048T4	MBP	E	X	G7	5,200	1.6	1	500	6.2	B3	825	1105	464	7/8	1/2	98	79	114X7072	114X7206	

¹⁾ G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

²⁾ G - R134a

X - R134a, R404A / R507, R407A, R407F, R449A, R448A

Y - R404A / R507, R449A

Q - R404A / R507, R452A

H - R404A / R507

Technical data and ordering

Optyma™ Slim Pack

Spareparts & accessories - LBP

Designation		LSQM026AJ	LSQM034AJ	LSQM048NT	LSQM048NT	LSQM068NT	LSQM068NT	LSQM067LL
Code Number	W05	114X7085	114X7086	114X7087	114X7088	114X7089	114X7090	114X7091
	W09	114X7179	114X7180	114X7181	114X7182	114X7183	114X7184	114X7187
Compressor Description		CAJ2446Z	CAJ2464Z	NTZ048-5	NTZ048-4	NTZ068-5	NTZ068-4	LLZ013T4
Oil		RL32HA/HT	RL32HA/HT	175PZ-POE	175PZ-POE	175PZ-POE	175PZ-POE	215PZ-POE46
Housing		B2	B2	B2	B2	B2	B2	B3
Spare Parts								
Compressor single pack		118U3992	118U3990	120F0228	120F0226	120F0232	120F0230	121L9535
Condenser		118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3494
Dual pressure switch		060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly								118U3829
Fan blade		118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	
Fan capacitor		118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	
Fan cowl/grill		118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3485
Fan motor		118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	118U3829
Filter drier		023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5044
Liquid valve		118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761
Receiver		118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3476
Sight glass		014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173
Suction valve		118U3761	118U3761	118U3764	118U3764	118U3764	118U3764	118U3762
Electrical Spare Parts								
Crankcase heater		120Z0057	120Z0057	120Z0459	120Z0459	120Z0459	120Z0459	120Z5040
Contactor kit		118U3893	118U3894	118U3894	118U3893	118U3895	118U3893	118U3896
Main switch kit	W05	118U3976	118U3976	118U3976	118U3872	118U3869	118U3873	118U3873
	W09	118U3851	118U3852	118U3852	118U3853	118U3854	118U3851	118U3852
Overload relay		118U3876	118U3877	118U3877	118U3978	118U3879	118U3876	118U3877
Run capacitor				8173041		8173041		
Starting capacitor		118U5191	118U5192	8173001		8173001		
Starting relay								
Sequence phase relay								118U3882
Isolator switch assembly		118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5120
Premounted FSC		061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144
Electrical Characteristics								
Wiring Diagram	W05	WD2	WD2	WD2	WD7	WD2	WD7	WD5
	W09	WD12	WD12	WD12	WD11	WD12	WD11	WD13
LRA Compressor [A]		29	40	37	16	53	25	62
MCC Compressor [A]		7.9	10	11	4.8	17	8.4	12
Max cont.power [kW]		1.4	1.87	2.19	2.28	4	3.57	4.59
MCC Fan [A]		0.47	0.47	0.47	0.47	0	0.47	0.97
Fan Power [W]		1x68	1x68	1x68	1x68	1x68	1x68	1x130
Min Fuse rating gL/gG (A)		10	16	16	10	25	16	16
Accessories (Not Premounted)								
Acoustic hood				120Z0575	120Z0575	120Z0575	120Z0575	120Z5052
FSC Male connection		061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142
FSC Female connection		061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140
Sheet Metal								
Top panel		118U5146	118U5146	118U5146	118U5146	118U5146	118U5146	118U5151
Fan panel		118U5147	118U5147	118U5147	118U5147	118U5147	118U5147	118U5152
Back panel		118U5148	118U5148	118U5148	118U5148	118U5148	118U5148	118U5153
Left side panel		118U5168	118U5168	118U5168	118U5168	118U5168	118U5168	118U5169
Service panel	W05	118U5149	118U5149	118U5149	118U5149	118U5149	118U5149	118U5154
	W09	118U5157	118U5157	118U5157	118U5157	118U5157	118U5157	118U5158

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Technical data and ordering

Optyma™ Slim Pack (count.)

Spareparts & accessories - LBP

Designation		LSQM084LL	LSQM098LL	LSQM074FH	LSQM074FH	LSQM014MP	LSQM018MP
Code Number	W05	114X7092	114X7075	114X7095	114X7096	114X7106	114X7107
	W09	114X7188	114X7189	114X7185	114X7186	114X7129	114X7130
Compressor Description		LLZ015T4	LLZ018T4	FH2511Z	TFH2511Z	MPT14LA	MPT16LA
Oil		215PZ-POE46	215PZ-POE46	RL32HA/HT	RL32HA/HT	POE32	POE32
Housing		B3	B3	B2	B2	B1	B1
Spare Parts							
Compressor single pack		121L9537	121L9539	118U3914	118U3915	123B2126	123B2127
Condenser		118U3494	118U3494	118U3493	118U3493	118U3492	118U3492
Dual pressure switch		060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly		118U3829	118U3829				
Fan blade				118U3481	118U3481	118U3480	118U3480
Fan capacitor				118U3297	118U3297	118U3296	118U3296
Fan cowl/grill		118U3485	118U3485	118U3484	118U3484	118U3483	118U3483
Fan motor		118U3829	118U3829	118U3823	118U3823	118U3477	118U3477
Filter drier		023Z5044	023Z5044	023Z5041	023Z5041	023Z5040	023Z5040
Liquid valve		118U3761	118U3761	118U3761	118U3761	118U3414	118U3414
Receiver		118U3476	118U3476	118U3475	118U3475	118U3474	118U3474
Sight glass		014L0173	014L0173	014L0173	014L0173	014L0182	014L0182
Suction valve		118U3762	118U3762	118U3764	118U3764	118U3414	118U3414
Electrical Spare Parts							
Crankcase heater		120Z5040	120Z5040	120Z0459	120Z0459	192H2096	192H2096
Contactor kit		118U3896	118U3896	118U3895	118U3893	118U3894	118U3894
Main switch kit	W05	118U3874	118U3874	118U3870	118U3872	118U3975	118U3975
	W09	118U3852	118U3852	118U3855	118U3851	118U3853	118U3853
Overload relay		118U3878	118U3878	118U3880	118U3876	118U3978	118U3978
Run capacitor						123B9222	123B9219
Starting capacitor				118U5199		123B9312	123B9316
Starting relay						123B9151	123B9151
Sequence phase relay		118U3882	118U3882				
Isolator switch assembly	W09	118U5120	118U5120	118U5117	118U5117	118U5117	118U5117
	W09	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144
Electrical Characteristics							
Wiring Diagram	W05	WD5	WD5	WD2	WD7	WD8	WD8
	W09	WD13	WD13	WD12	WD11	WD9	WD9
LRA Compressor [A]		88.5	90	81	28	16	19
MCC Compressor [A]		15	14.4	24	7.2	5	4
Max cont.power [kW]		5.49	6.2	3.45	3.34	0.78	0.89
MCC Fan [A]		0.97	0.97	0.47	0.47	0.32	0.32
Fan Power [W]		1x130	1x130	1x68	1x68	1x25	1x25
Min Fuse rating gL/gG (A)		20	20	32	10	10	10
Accessories (Not Premounted)							
Acoustic hood		120Z5052	120Z5052				
FSC Male connection		061H3142	061H3142	061H3142	061H3142	061H3142	061H3142
FSC Female connection		061H3140	061H3140	061H3140	061H3140	061H3140	061H3140
Sheet Metal							
Top panel		118U5151	118U5151	118U5146	118U5146	118U5141	118U5141
Fan panel		118U5152	118U5152	118U5147	118U5147	118U5142	118U5142
Back panel		118U5153	118U5153	118U5148	118U5148	118U5143	118U5143
Left side panel		118U5169	118U5169	118U5168	118U5168	118U5167	118U5167
Service panel	W05	118U5154	118U5154	118U5149	118U5149	118U5144	118U5144
	W09	118U5158	118U5158	118U5157	118U5157	118U5156	118U5156

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Technical data and ordering

Optyma™ Slim Pack

Spareparts & accessories - MBP

Designation		MSXM034ML	MSXM034ML	MSXM044ML	MSXM044ML	MSXM046ML	MSXM046ML	MSXM057ML	MSXM057ML	MSXM068ML
Code Number	W05	114X7061	114X7062	114X7161	114X7162	114X7063	114X7064	114X7065	114X7066	114X7067
	W09	114X7195	114X7196	114X7211	114X7212	114X7197	114X7198	114X7199	114X7200	114X7201
Compressor Description		MLZ015T5	MLZ015T4	MLZ019T5	MLZ019T4	MLZ021T5	MLZ021T4	MLZ026T5	MLZ026T4	MLZ030T5
Oil		215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46
Housing		B2	B2	B2	B2	B2	B2	B2	B2	B3
Spare Parts										
Compressor single pack		121L8631	121L8629	121U8026	121U8004	121L8635	121L8633	121L8639	121L8637	121L8643
Condenser		118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3494
Dual pressure switch		060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly										118U3829
Fan blade		118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	
Fan capacitor		118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	
Fan cowl/grill		118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3485
Fan motor		118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	118U3829
Filter drier		023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5044
Liquid valve		118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761
Receiver		118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3476
Sight glass		014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173
Suction valve		118U3762	118U3762	118U3762	118U3762	118U3762	118U3762	118U3762	118U3762	118U3763
Electrical Spare Parts										
Crankcase heater		120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040
Contact kit		118U3895	118U3893	118U3895	118U3867	118U3895	118U3867	118U3895	118U3867	118U3868
Main switch kit	W05	118U3869	118U3872	118U3870	118U3873	118U3870	118U3873	118U3870	118U3873	118U3871
	W09	118U3854	118U3851	118U3856	118U3851	118U3856	118U3851	118U3856	118U3852	118U3857
Overload relay		118U3879	118U3875	118U3880	118U3876	118U3880	118U3876	118U3880	118U3877	118U3880
Run capacitor		8173231		120Z0051		120Z0051		120Z0051		8173233
Starting capacitor		120Z0399		120Z0399		120Z0399		120Z0399		120Z0400
Starting relay		120Z0393		120Z0393		120Z0393		120Z0393		120Z0394
Sequence phase relay		118U3882	118U3882	118U3882	118U3882	118U3882	118U3882	118U3882	118U3882	118U3882
Isolator switch assembly	W09	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5119
Premounted FSC	W09	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144
Electrical Characteristics										
Wiring Diagram	W05	WD3	WD6	WD3	WD6	WD3	WD6	WD3	WD6	WD4
	W09	WD12	WD11	WD12	WD11	WD12	WD11	WD12	WD11	WD14
LRA Compressor [A]		60	30	97	45	97	45	97	45	127
MCC Compressor [A]		19	7	23	9.5	25	9.5	26	10	32
Max cont.power [kW]		2.53	2.73	3.38	3.33	3.38	3.33	4.42	4.14	4.89
MCC Fan [A]		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.97
Fan Power [W]		1x68	1x68	1x68	1x68	1x68	1x68	1x68	1x68	1x130
Min Fuse rating gL/gG (A)		25	10	32	16	32	16	32	16	40
Accessories (Not Premounted)										
Acoustic hood		120Z5043	120Z5043	120Z5043	120Z5043	120Z5043	120Z5043	120Z5043	120Z5043	120Z5044
FSC Male connection		061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142
FSC Female connection		061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140
Sheet Metal										
Top panel		118U5146	118U5146	118U5146	118U5146	118U5146	118U5146	118U5146	118U5146	118U5151
Fan panel		118U5147	118U5147	118U5147	118U5147	118U5147	118U5147	118U5147	118U5147	118U5152
Back panel		118U5148	118U5148	118U5148	118U5148	118U5148	118U5148	118U5148	118U5148	118U5153
Left side panel		118U5168	118U5168	118U5168	118U5168	118U5168	118U5168	118U5168	118U5168	118U5169
Service panel	W05	118U5149	118U5149	118U5149	118U5149	118U5149	118U5149	118U5149	118U5149	118U5154
	W09	118U5157	118U5157	118U5157	118U5157	118U5157	118U5157	118U5157	118U5157	118U5158

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Technical data and ordering

Optyma™ Slim Pack (count.)

Spareparts & accessories - MBP

Designation		MSXM068ML	MSXM080ML	MSXM080ML	MSXM099ML	MSXM108ML	MSYM026AJ	MSYM034AJ	MSYM026AJ	MSYM034AJ	MSYM024AJ
Code Number	W05	114X7068	114X7069	114X7070	114X7071	114X7072	114X7083	114X7084	114X7093	114X7094	114X7097
	W09	114X7202	114X7203	114X7204	114X7205	114X7206	114X7190	114X7191	114X7192	114X7193	114X7194
Compressor Description		MLZ030T4	MLZ038T5	MLZ038T4	MLZ045T4	MLZ048T4	CAJ451Z	CAJ451Z	TAJ451Z	TAJ451Z	CAJ9513Z
Oil		215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	RL32HA/HT	RL32HA/HT	RL32HA/HT	RL32HA/HT	RL32HA/HT
Housing		B3	B3	B3	B3	B3	B2	B2	B2	B2	B2
Spare Parts											
Compressor single pack		121L8641	121L8647	121L8645	121L8649	121L8651	118U3993	118U3994	118U3991	118U3989	118U3995
Condenser		118U3494	118U3494	118U3494	118U3494	118U3494	118U3493	118U3493	118U3493	118U3493	118U3493
Dual pressure switch		060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly		118U3829	118U3829	118U3829	118U3829	118U3829					
Fan blade							118U3481	118U3481	118U3481	118U3481	118U3481
Fan capacitor							118U3297	118U3297	118U3297	118U3297	118U3297
Fan cowl/grill		118U3485	118U3485	118U3485	118U3485	118U3485	118U3484	118U3484	118U3484	118U3484	118U3484
Fan motor		118U3829	118U3829	118U3829	118U3829	118U3829	118U3823	118U3823	118U3823	118U3823	118U3823
Filter drier		023Z5044	023Z5044	023Z5044	023Z5044	023Z5044	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041
Liquid valve		118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761	118U3761
Receiver		118U3476	118U3476	118U3476	118U3476	118U3476	118U3475	118U3475	118U3475	118U3475	118U3475
Sight glass		014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173
Suction valve		118U3763	118U3763	118U3763	118U3763	118U3763	118U3761	118U3761	118U3761	118U3761	118U3761
Electrical Spare Parts											
Crankcase heater		120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	192H2096	192H2096	192H2096	192H2096	120Z0057
Contact kit		118U3896	118U3868	118U3896	118U3896	118U3896	118U3896	118U3896	118U3893	118U3893	118U3894
Main switch kit	W05	118U3873	118U3871	118U3874	118U3874	118U3874	118U3976	118U3976	118U3872	118U3872	118U3976
	W09	118U3852	118U3857	118U3852	118U3852	118U3854	118U3852	118U3852	118U3853	118U3853	118U3852
Overload relay		118U3877	118U3881	118U3878	118U3878	118U3878	118U3877	118U3878	118U3978	118U3978	118U3877
Run capacitor			8173234								
Starting capacitor			8173001				118U5195	118U5196			118U5198
Starting relay			120Z0395								
Sequence phase relay		118U3882	118U3882	118U3882	118U3882	118U3882					
Isolator switch assembly	W09	118U5120	118U5119	118U5120	118U5120	118U5120	118U5117	118U5117	118U5117	118U5117	118U5117
Premounted FSC	W09	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144
Electrical Characteristics											
Wiring Diagram	W05	WD5	WD4	WD5	WD5	WD5	WD2	WD2	WD7	WD7	WD2
	W09	WD13	WD14	WD13	WD13	WD14	WD12	WD12	WD11	WD11	WD12
LRA Compressor [A]		60	130	70	82	87	38.5	45	18	22	33.5
MCC Compressor [A]		13	38	15	15	16	12.7	15.2	4	4.8	10.2
Max cont.power [kW]		4.88	5.77	5.78	7.01	7.55	2	2.74	2.09	2.7	1.75
MCC Fan [A]		0.97	0.97	0.97	0.97	0.97	0.47	0.47	0.47	0.47	0.47
Fan Power [W]		1x130	1x130	1x130	1x130	1x130	1x68	1x68	1x68	1x68	1x68
Min Fuse rating gL/gG (A)		16	40	20	20	20	16	16	10	10	16
Accessories (Not Premounted)											
Acoustic hood		120Z5044	120Z5044	120Z5044	120Z5044	120Z5044					
FSC Male connection		061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142
FSC Female connection		061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140
Sheet Metal											
Top panel		118U5151	118U5151	118U5151	118U5151	118U5151	118U5146	118U5146	118U5146	118U5146	118U5146
Fan panel		118U5152	118U5152	118U5152	118U5152	118U5152	118U5147	118U5147	118U5147	118U5147	118U5147
Back panel		118U5153	118U5153	118U5153	118U5153	118U5153	118U5148	118U5148	118U5148	118U5148	118U5148
Left side panel		118U5169	118U5169	118U5169	118U5169	118U5169	118U5168	118U5168	118U5168	118U5168	118U5168
Service panel	W05	118U5154	118U5154	118U5154	118U5154	118U5154	118U5149	118U5149	118U5149	118U5149	118U5149
	W09	118U5158	118U5158	118U5158	118U5158	118U5158	118U5157	118U5157	118U5157	118U5157	118U5157

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Technical data and ordering

Optyma™ Slim Pack (count.)

Spareparts & accessories - MBP

Designation		MSGM012SC	MSGM015SC	MSGM018SC	MSGM021SC	MSGM026AJ	MSGM033AJ	MSYM009MY	MSYM012MP	MSYM014MP	MSYM018AJ
Code Number	W05	114X7099	114X7100	114X7101	114X7102	114X7103	114X7104	114X7108	114X7109	114X7110	114X7111
	W09	114X7207	114X7208	114X7131	114X7132	114X7209	114X7210	114X7133	114X7134	114X7135	114X7136
Compressor Description		SC12G	SC15G	SC18G	SC21G	CAJ4492Y	CAJ4511Y	MLY90RAb	MPT12RA	MPT14RA	CAJ9510Z
Oil		POE	POE	POE	POE	RL32HA/HT	RL32HA/HT	POE32	POE32	POE32	RL32HA/HT
Housing		B1	B1	B1	B1	B2	B2	B1	B1	B1	B2
Spare Parts											
Compressor single pack		19580050	19580053	19580059	19580636	118U3997	118U3996	123B2514	123B2518	123B2704	118U3988
Condenser		118U3492	118U3492	118U3492	118U3492	118U3493	118U3493	118U3492	118U3492	118U3492	118U3493
Dual pressure switch		060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766	060-539766
Fan assembly											
Fan blade		118U3480	118U3480	118U3480	118U3480	118U3481	118U3481	118U3480	118U3480	118U3480	118U3481
Fan capacitor		118U3296	118U3296	118U3296	118U3296	118U3297	118U3297	118U3296	118U3296	118U3296	118U3297
Fan cowl/grill		118U3483	118U3483	118U3483	118U3483	118U3484	118U3484	118U3483	118U3483	118U3483	118U3484
Fan motor		118U3477	118U3477	118U3477	118U3477	118U3823	118U3823	118U3477	118U3477	118U3477	118U3823
Filter drier		023Z5040	023Z5040	023Z5040	023Z5040	023Z5041	023Z5041	023Z5040	023Z5040	023Z5040	023Z5041
Liquid valve		118U3414	118U3414	118U3414	118U3414	118U3761	118U3761	118U3414	118U3414	118U3414	118U3414
Receiver		118U3474	118U3474	118U3474	118U3474	118U3475	118U3475	118U3474	118U3474	118U3474	118U3475
Sight glass		014L0182	014L0182	014L0182	014L0182	014L0173	014L0173	014L0182	014L0182	014L0182	014L0173
Suction valve		118U3414	118U3414	118U3414	118U3414	118U3764	118U3764	118U3414	118U3414	118U3414	118U3414
Electrical Spare Parts											
Crankcase heater		192H2096	192H2096	192H2096	192H2096	120Z0459	120Z0459	192H2096	192H2096	192H2096	192H2096
Contact kit		118U3893	118U3893	118U3893	118U3893	118U3894	118U3894	118U3894	118U3894	118U3894	118U3894
Main switch kit	W05							118U3980	118U3975	118U3975	118U3975
	W09	118U5162	118U3853	118U3853	118U3853	118U3851	118U3851	118U3853	118U3853	118U3851	118U3851
Overload relay		118U3875	118U3875	118U3875	118U3875	118U3876	118U3876	118U3978	118U3876	118U3876	118U3876
Run capacitor								123B9222	123B9215	123B9226	
Starting capacitor		117U5017	117U5017	117U5017	117-7029	118U5193	118U5194	123B9315	123B9315	123B9315	118U5197
Starting relay		117U6003	117U6005	117U6019				123B9133	123B9151	123B9139	
Sequence phase relay											
Isolator switch assembly	W09	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117	118U5117
Premounted FSC	W09	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144	061H3144
Electrical Characteristics											
Wiring Diagram	W05	WD1	WD1	WD1	WD2	WD1	WD1	WD8	WD8	WD8	WD8
	W09	WD10	WD10	WD9	WD9	WD10	WD12	WD9	WD9	WD9	WD9
LRA Compressor [A]		12.4	14.8	18.6	21.8	28	30	17	18.5	21	30
MCC Compressor [A]		3.17	3.88	4.34	4.6	8.9	8.6	5.3	5.3	6.5	8
Max cont.power [kW]		0.812	0.819	0.945	0.936	1.43	1.69	0.62	0.84	1.03	1.3
MCC Fan [A]		0.32	0.32	0.32	0.32	0.47	0.47	0.32	0.32	0.32	0.47
Fan Power [W]		1x25	1x25	1x25	1x25	1x68	1x68	1x25	1x25	1x25	1x68
Min Fuse rating gL/gG (A)		10	10	10	10	16	16	10	10	10	10
Accessories (Not Premounted)											
Acoustic hood											
FSC Male connection		061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142	061H3142
FSC Female connection		061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140	061H3140
Sheet Metal											
Top panel		118U5141	118U5141	118U5141	118U5141	118U5146	118U5146	118U5141	118U5141	118U5141	118U5146
Fan panel		118U5142	118U5142	118U5142	118U5142	118U5147	118U5147	118U5142	118U5142	118U5142	118U5147
Back panel		118U5143	118U5143	118U5143	118U5143	118U5148	118U5148	118U5143	118U5143	118U5143	118U5148
Left side panel		118U5167	118U5167	118U5167	118U5167	118U5168	118U5168	118U5167	118U5167	118U5167	118U5168
Service panel	W05	118U5144	118U5144	118U5144	118U5144	118U5149	118U5149	118U5144	118U5144	118U5144	118U5149
	W09	118U5156	118U5156	118U5156	118U5156	118U5157	118U5157	118U5156	118U5156	118U5156	118U5157

MCC - Max Continuous Current

LRA - Locked Rotor Amps

FSC - Fan Speed Controller

Technical data and ordering

Optyma™ Slim Pack

Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Acoustic Hood	ACOUSTIC HOOD COMP 1CYL		120Z0575
Acoustic Hood	ACCOUSTIC HOOD - SMALL FRAME		120Z5043
Acoustic Hood	Acoustic hood for Scroll MLZ compressor		120Z5044
Acoustic Hood	ACCOUSTIC HOOD, LARGE FRAME		120Z5045
Acoustic Hood	Sound Cover, LLZ013-018		120Z5052
Capacitor	CAPACITOR 100µF 330V+R		8173001
Capacitor	CAPACITOR 30µF 450V		8173041
Capacitor	START CAPACITOR 80 mfd		117U5017
Capacitor	Start Capacitor 125 mF, 220V/50Hz		117U5012
Compressor Single Pack	TAJ4519Z - AJ1 range	Phased out & replaced by 118U3989 from SN: 054428CG3916	118U3751
Compressor Single Pack	CAJ2464Z - AJ1 range	Phased out & replaced by 118U3990 from SN: 054428CG3916	118U3769
Compressor Single Pack	TAJ4517Z - AJ1 range	Phased out & replaced by 118U3991 from SN: 054428CG3916	118U3770
Compressor Single Pack	CAJ2446Z - AJ1 range	Phased out & replaced by 118U3992 from SN: 054428CG3916	118U3779
Compressor Single Pack	CAJ4517Z - AJ1 range	Phased out & replaced by 118U3993 from SN: 054428CG3916	118U3810
Compressor Single Pack	CAJ4519Z - AJ1 range	Phased out & replaced by 118U3994 from SN: 054428CG3916	118U3811
Compressor Single Pack	CAJ9513Z - AJ1 range	Phased out & replaced by 118U3995 from SN: 054428CG3916	118U3912
Compressor Single Pack	FH2511Z		118U3914
Compressor Single Pack	TFH2511Z		118U3915
Compressor Single Pack	CAJ9510Z - AJ2 range		118U3988
Compressor Single Pack	TAJ4519Z - AJ2 range		118U3989
Compressor Single Pack	CAJ2464Z - AJ2 range		118U3990
Compressor Single Pack	TAJ4517Z - AJ2 range		118U3991
Compressor Single Pack	CAJ2446Z - AJ2 range		118U3992
Compressor Single Pack	CAJ4517Z - AJ2 range		118U3993
Compressor Single Pack	CAJ4519Z - AJ2 range		118U3994
Compressor Single Pack	CAJ9513Z - AJ2 range		118U3995
Compressor Single Pack	CAJ4511Y - AJ2 range		118U3996
Compressor Single Pack	CAJ4492Y - AJ2 range		118U3997
Compressor Single Pack	NTZ048-4LR1B		120F0226
Compressor Single Pack	NTZ048-5LR1B		120F0228
Compressor Single Pack	NTZ068-4LR1B		120F0230
Compressor Single Pack	NTZ068-5LR1B		120F0232
Compressor Single Pack	MLZ015T4LP9A		121L8629
Compressor Single Pack	MLZ015T5LP9A		121L8631
Compressor Single Pack	MLZ021T4LP9A		121L8633
Compressor Single Pack	MLZ021T5LP9A		121L8635
Compressor Single Pack	MLZ026T4LP9A		121L8637
Compressor Single Pack	MLZ026T5LP9A		121L8639
Compressor Single Pack	MLZ030T4LC9A		121L8641
Compressor Single Pack	MLZ030T5LC9A		121L8643
Compressor Single Pack	MLZ038T4LC9A		121L8645
Compressor Single Pack	MLZ038T5LC9A		121L8647
Compressor Single Pack	MLZ045T4LC9A		121L8649
Compressor Single Pack	MLZ048T4LC9A		121L8651
Compressor Single Pack	LLZ013T4LQ9A		121L9535
Compressor Single Pack	LLZ015T4LQ9A		121L9537
Compressor Single Pack	LLZ018T4LQ9A		121L9539
Compressor Single Pack	MPT14LA		123B2126
Compressor Single Pack	MPT16LA		123B2127
Compressor Single Pack	MLY90RAB		123B2514
Compressor Single Pack	MPT12RA		123B2518
Compressor Single Pack	MPT14RA		123B2704
Compressor Single Pack	SC12G		195B0050
Compressor Single Pack	SC15G		195B0053
Compressor Single Pack	SC18G		195B0059
Compressor Single Pack	SC21G		195B0636
Condenser	A7		118U3492
Condenser	D7		118U3493
Condenser	G7		118U3494
Contact kit	KIT CONT, SCHNEIDER-LC1E2501M6		118U3867
Contact kit	KIT CONT, SCHNEIDER-LC1E3801M6		118U3868
Contact kit	KIT CONT, SCHNEIDER-LC1E0901M5		118U3893

Technical data and ordering

Opty™ Slim Pack (count.)

Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Contact kit	KIT CONT, SCHNEIDER-LC1E1201M5		118U3894
Contact kit	KIT CONT, SCHNEIDER-LC1E3201M5		118U3895
Contact kit	KIT CONT, SCHNEIDER-LC1E1801M5		118U3896
Contact kit	KIT CONT, SCHNEIDER-LC1E3801M6		118U3898
Crankcase heater	Belt type, 50 W, 230 V, CE mark, UL		120Z0057
Crankcase heater	PTC heater 27 W, CE mark, UL		120Z0459
Crankcase heater	Belt type, 70 W, 240 V, CE mark, UL		120Z5040
Crankcase heater	Crankcase heater 55W * use 118U0051		192H2096
Door Handle	HANDLE, ABB-OHB2AJM,MSMN,OX55X131		118U3858
Dual pressure switch	KP 17 WB		060-539766
Fan assembly	Fan assembly		118U3829
Fan blade	Fan blade		118U3480
Fan blade	Fan blade		118U3481
Fan capacitor	1,8 µF		118U3296
Fan capacitor	3,5 µF		118U3297
Fan cowl/grill	Ä, 356 mm		118U3483
Fan cowl/grill	Ä, 457 mm		118U3484
Fan cowl/grill	Ä, 609 mm		118U3485
Fan motor (Capacitor not included)	25 W		118U3477
Fan motor (Capacitor not included)	68 W		118U3823
Fan speed control Female connection	XGE-4C		061H3140
Fan speed control Female connection	XGE-2C		061H3144
Fan speed control Male connection	XGE-4C		061H3142
Filter drier	DML083		023Z5040
Filter drier	DML084		023Z5041
Filter drier	DML164		023Z5044
Liquid valve	Brazed Service Valve 3/8"		118U3414
Liquid valve	Brazed Service Valve 1/2"		118U3761
Main switch kit	C60H2P25AC		118U3869
Main switch kit	C60H2P32AC		118U3870
Main switch kit	C60H2P40AC		118U3871
Main switch kit	C60H4P10AC		118U3872
Main switch kit	C60H4P16AC		118U3873
Main switch kit	C60H4P20AC		118U3874
Main switch kit	KIT CIRCUITBREAKER,C60H2P10A		118U3975
Main switch kit	KIT CIRCUITBREAKER,C60H2P16A		118U3976
Main switch kit	KIT CIRCUITBREAKER, SCHNEIDER-A9N2P06C		118U3980
Main switch kit	KIT MPCB, ABB-MS116-10+HK1-20		118U3851
Main switch kit	KIT MPCB, ABB-MS116-16+HK1-20		118U3852
Main switch kit	KIT MPCB, ABB-MS116-6.3+HK1-20		118U3853
Main switch kit	KIT MPCB, ABB-MS132-20+HK1-20		118U3854
Main switch kit	KIT MPCB, ABB-MS132-25+HK1-20		118U3855
Main switch kit	KIT MPCB, ABB-MS132-32+HK1-20		118U3856
Main switch kit	KIT MPCB, ABB-MS450-40+HKS4-20		118U3857
Main switch kit	SPARE PART, KIT MPCB MS116-4.0 2.5-4A		118U5162
Isolator switch	SPARE PART, ISOLATOR SWITCH SHAFT ASSLY B1/B2		118U5117
Isolator switch	SPARE PART, ISOLATOR SWITCH SHAFT ASSLY B3 3PH		118U5120
Isolator switch	SPARE PART, ISOLATOR SWITCH SHAFT ASSLY B3 1PH		118U5119
Oil	POE32 for Light Commercial (MLY / MPT)		-
Oil	RL32HA/HT for light Commercial (CAJ/FH/TAJ/TFH)		-
Oil	1 litre can of 175PZ - POE (NTZ Platform)	CU with a SN above 051220CG3016	120Z0638
Oil	2,5 litre can of 175PZ - POE (NTZ Platform)	CU with a SN above 051220CG3016	120Z0639
Oil	1 litre can of 215PZ - POE46 (MLZ & LLZ Platform)	CU with a SN above 051220CG3016	120Z0648
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE12+LAEB2		118U3875
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE14+LAEB2		118U3876
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE16+LAEB2		118U3877
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE21+LAEB2		118U3878
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE22+LAEB2		118U3879
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE32+LAEB2		118U3880
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE35+LAEB2		118U3881
Overload relay	KIT OL-RELAY, SCHNEIDER-LRE1		118U3978

Technical data and ordering

Optyma™ Slim Pack (count.)

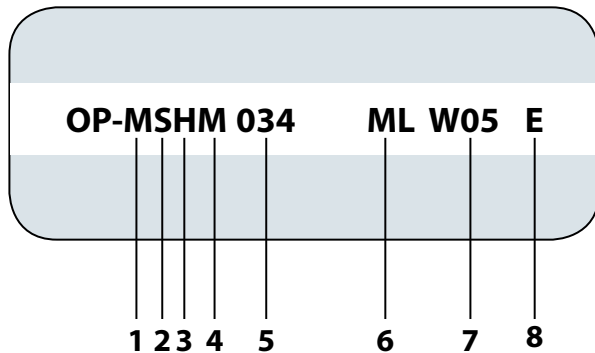
Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Receiver	1,3 L		118U3474
Receiver	3,4 L		118U3475
Receiver	6,2 L		118U3476
Relay	STARTING RELAY TYPE RVA6AMKL		8173022
Relay	STARTING RELAY		117U6013
Relay	Starting Relay SC 50/60 Hz		117U6019
Relay	STARTING RELAY SC 220V/60Hz		117U6011
Relay	SC-RELAY		117-7027
Relay	STARTING RELAY TL/SC 115V/50/60Hz		117U6003
Relay	STARTING RELAY SC 220V/50Hz		117U6005
Relay	SC-RELAY		117-7029
Run capacitor	Run capacitor 440V, 40 µF		8173231
Run capacitor	Run capacitor 440V,50 µF		8173233
Run capacitor	Run capacitor 440V,55 µF		8173234
Run capacitor	Run capacitor 70 µF		120Z0051
Sequence phase relay	SM500-MG73BF		118U3882
Sight glass	SGP 12 N		014L0173
Sight glass	SGP 10s N		014L0182
Suction valve	Brazed Service Valve 3/4"		118U3762
Suction valve	Brazed Service Valve 7/8"		118U3763
Suction valve	Brazed Service Valve 5/8"		118U3764
Top Panel B1	SPARE PART, SHEET METAL TOP B1		118U5141
Fan panel B1	SPARE PART, SHEET METAL FAN B1		118U5142
Back Panel B1	SPARE PART, SHEET METAL BACK B1		118U5143
Service panel W05 B1	SPARE PART, SHEET METAL SERVICE PANEL B1		118U5144
Left Side Panel B1	SPARE PART, SHEET METAL LEFT SIDE B1		118U5167
Service panel W09 B1	SPARE PART, SHEET METAL SERVICE PANEL B1- W09		118U5156
Top Panel B2	SPARE PART, SHEET METAL TOP B2		118U5146
Fan panel B2	SPARE PART, SHEET METAL FAN B2		118U5147
Back Panel B2	SPARE PART, SHEET METAL BACK B2		118U5148
Service panel W05 B2	SPARE PART, SHEET METAL SERVICE PANEL B2		118U5149
Left Side Panel B2	SPARE PART, SHEET METAL LEFT SIDE B2		118U5168
Service panel W09 B2	SPARE PART, SHEET METAL SERVICE PANEL B2 -W09		118U5157
Top Panel B3	SPARE PART, SHEET METAL TOP B3		118U5151
Fan panel B3	SPARE PART, SHEET METAL FAN B3		118U5152
Back Panel B3	SPARE PART, SHEET METAL BACK B3		118U5153
Service panel W05 B3	SPARE PART, SHEET METAL SERVICE PANEL B3		118U5154
Left Side Panel B3	SPARE PART, SHEET METAL LEFT SIDE B3		118U5169
Service panel W09 B3	SPARE PART, SHEET METAL SERVICE PANEL B3 -W09		118U5158
Starting KIT	CAJ2446Z _ F1 KIT Capacitor and relay		118U5191
Starting KIT	CAJ2464Z _ F1 KIT Capacitor and relay		118U5192
Starting KIT	CAJ4492Y _ F1 KIT Capacitor and relay		118U5193
Starting KIT	CAJ4511Y _ F1KIT Capacitor and relay		118U5194
Starting KIT	CAJ4517Z _ F1 KIT Capacitor and relay		118U5195
Starting KIT	CAJ4519Z _ F1 KIT Capacitor and relay		118U5196
Starting KIT	CAJ9510Z _ F1 KIT Capacitor and relay		118U5197
Starting KIT	CAJ9513Z _ F1KIT Capacitor and relay		118U5198
Starting KIT	FH2511Z _ F1KIT Capacitor and relay		118U5199
Start capacitor	STARTING CAPACITOR+CC 72-88µF/330V R216		123B9316
Run C capacitor	RUN CAPACITOR 16µF/420V, REF. 321		123B9219
Relay	RELAY + CON. BOARD 1158-8 BDG 158S+ NTC		123B9151
Start capacitor	STARTING CAPACITOR+CC 64-77µF/330V R205		123B9315
Run C capacitor	RUN CAPACITOR 10µF/420V, REF. 326		123B9222
Relay	RELAY + CON. BOARD 1149-8 BDG 149S+ NTC		123B9133
Start capacitor	START CAPACITOR 80 mfd		117U5373
Capacitor	CAPACITOR 161-193µF 330V		120Z0400
Start relay	Starting relay RVA9CKL		120Z0393
Start relay	Starting relay RVA3EKL		120Z0394
Start relay	Starting relay RVA4GKL		120Z0395
Start capacitor	Start capacitor 145-175 F		120Z0399
Relay	RELAY + CON. BOARD 1166-8 BDG 166S+ NTC		123B9139
Run C capacitor	RUN CAPACITOR 25µF/420V, REF. 310 MET.		123B9226

Nomenclature

Designation system for the Optyma™ Slim Pack range

(additional program frequency etc.: please contact your local wholesaler)



Number	Title	Description
1	Application	M = MBP L = LBP
2	Family	S = Optyma™ Slim Pack
3	Refrigerant	Q= R452A / R404A / 507 ; G=R134a ; H = R404A / R507 X = R404A / 507 / R134a / R407A / R407F / R448A / R449A / R452A Y = R404A / 507 / R449A
4	Condenser	M = Micro channel heat exchanger
5	Displacement	Displacement in cm ³
6	Compressor platform	AJ = CAJ, TAJ (Reciprocating) MP = MPT (Reciprocating) FH = FH, TFH (Reciprocating) MY = MLY (Reciprocating) NF = NF (Reciprocating) MX = MX (Reciprocating) NT = NTZ (Reciprocating) ML = MLZ (Scroll) SC = SC (Reciprocating) LL = LLZ (Scroll)
7	Version	W05 and W09
8	Electrical code	G = 230 V-1ph Comp & Fan E = 400 V-3ph Comp & 230 V-1ph Fan

Optyma™ Slim Pack - Cooling capacity and operating range range [kW]

Range span by refrigerant

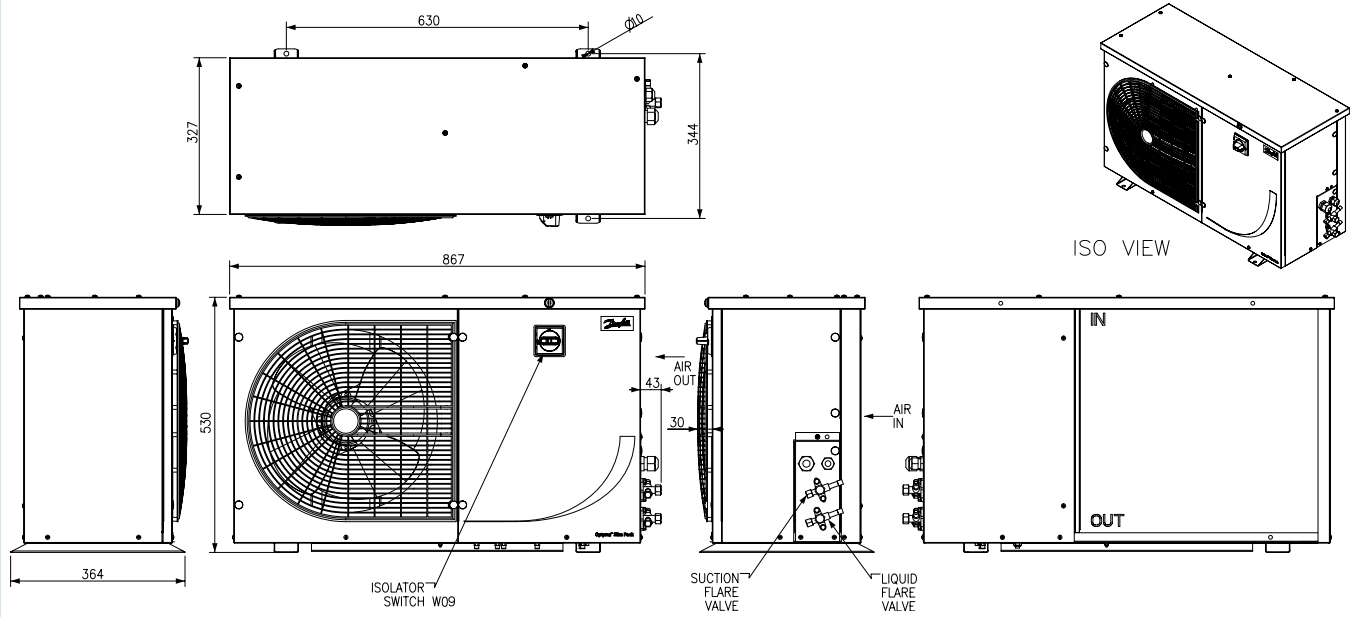
Minimum / Maximum Cooling capacity in [kW]	Optyma™ Slim Pack
Medium temperature (MBP)	
R448A	3.3 – 10.2
R449A	0.8 – 10.2
R134a	0.6 – 6.6
R452A	1.5 – 10.8
R407A	3.3 – 9.9
R407F	3.5 – 10.2
R404A / 507	0.9 – 10.3
Low temperature (LBP)	
R452A	0.4 – 3.3
R404A / 507	0.4 – 3.6

Rating conditions EN 13215 (dew point):

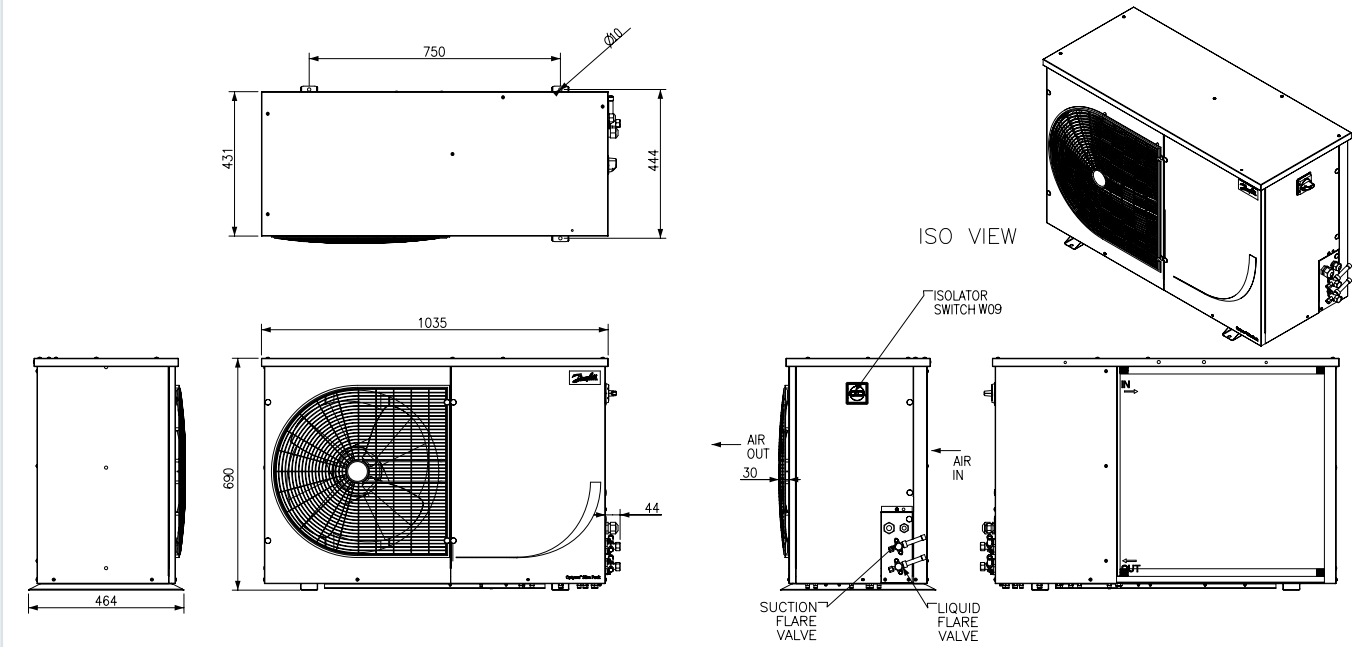
MBP: Ambient temp = 32 °C; Evap temp = -10 °C; Superheat = 10 K; Subcooling = 0 K / LBP: Ambient temp = 32 °C; Evap temp = -35 °C; Superheat = 10 K; Subcooling = 0 K

Dimensions

Housing B1



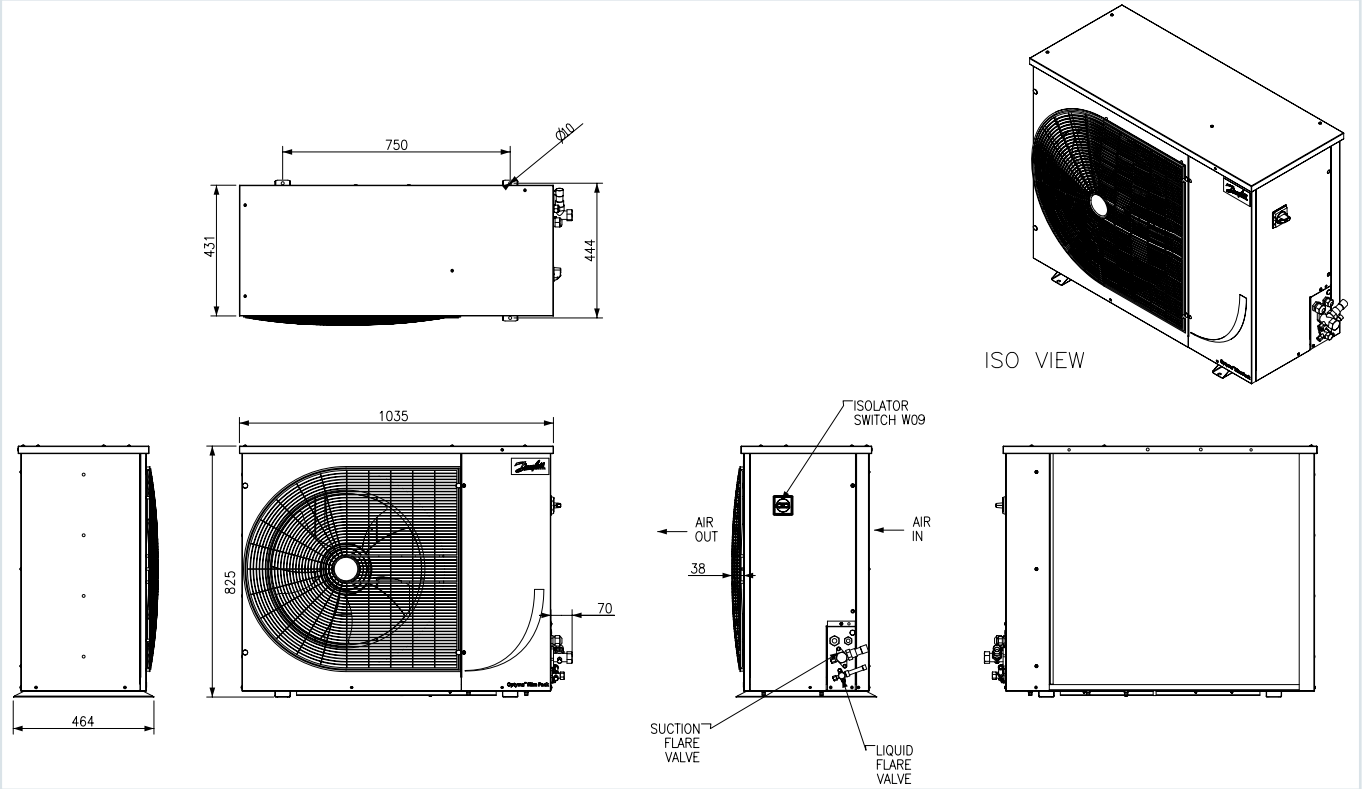
Housing B2



Dimensions are in (mm)

Dimensions

Housing B3

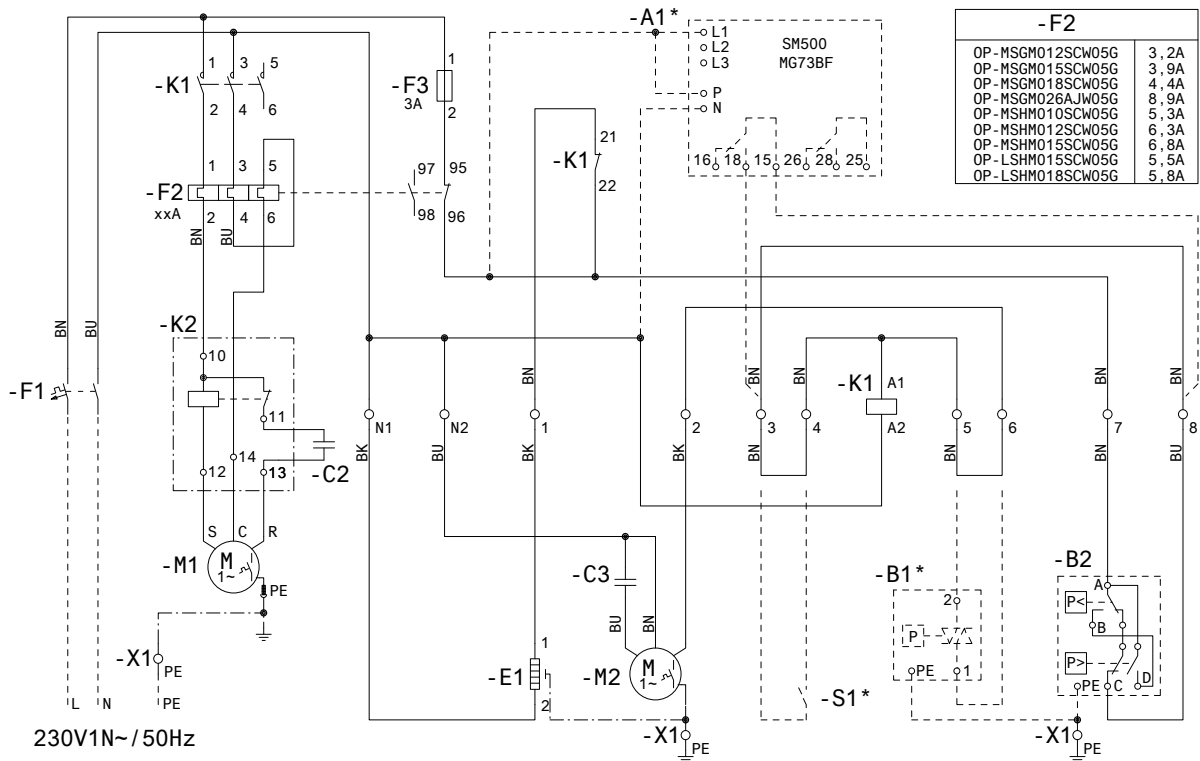


Dimensions are in (mm)

- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08
- 09
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18
- 19
- 20

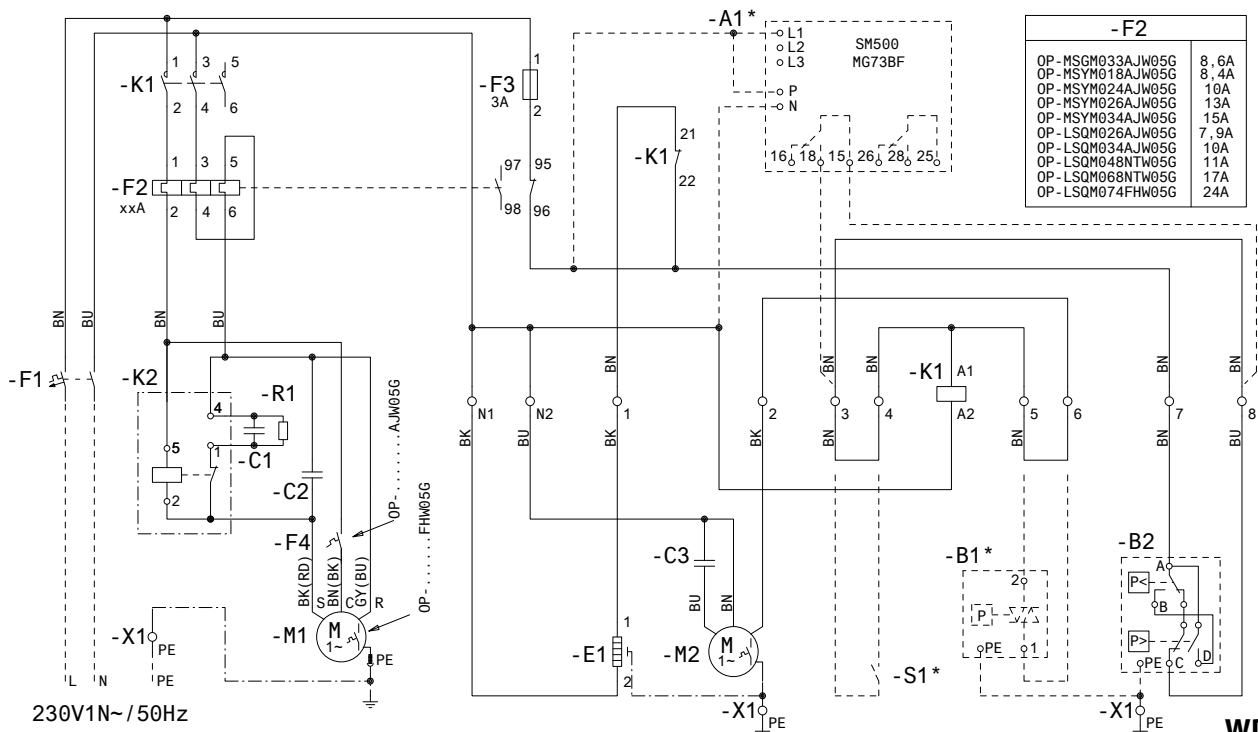
Wiring diagram

Code G : OP-MSGM012 - 015 - 018 - 026



WD 1

Code G : OP-LSQM026 - 034 - 048 - 068 - 074, OP-MSGM033, OP-MSHM018, OP-MSYM018 - 024 - 026 - 034



WD 2

Legend
BK black
BU blue
BN brown
GY grey
RD red
WH white

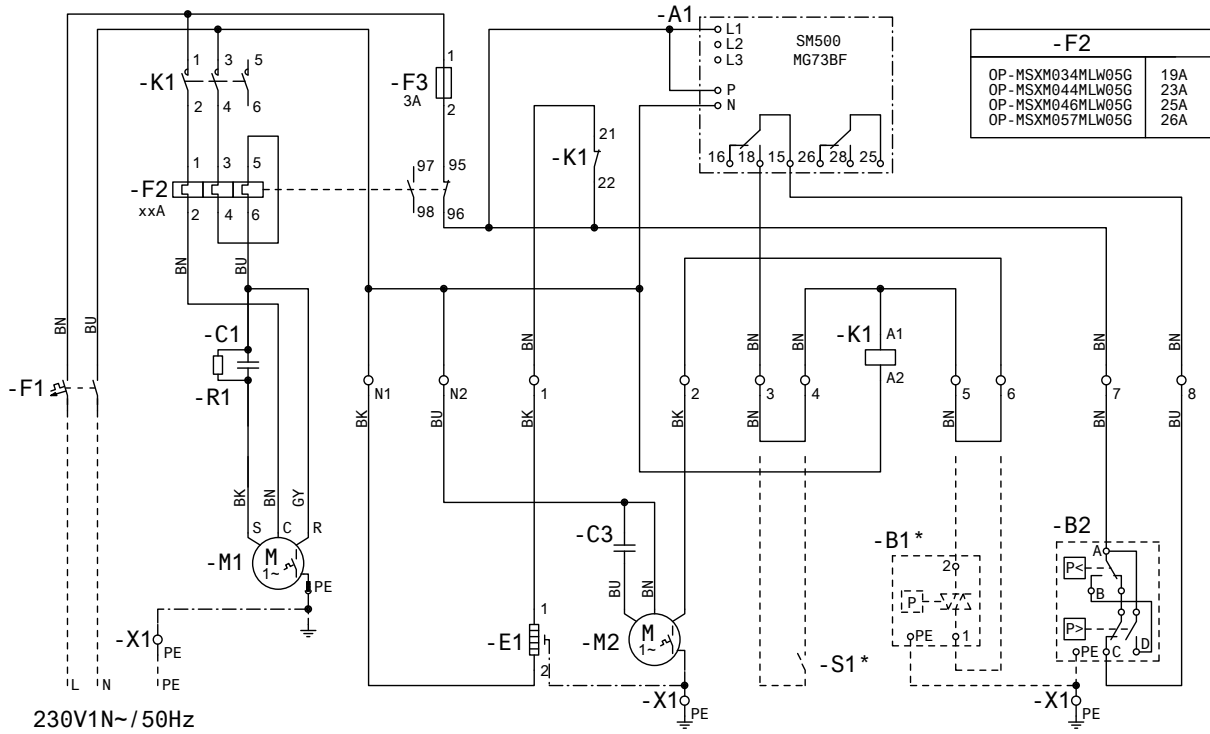
A1* Voltage relay (option)
B1* Fan speed controller (option)
B2 High and Low pressure switch
C1 Start capacitor compressor
C2 N° 1: Start capacitor compressor
N° 2: Run capacitor compressor
C3 Run capacitor fan

E1 Crankcase heater
F1 Main switch
F2 Overload relay
F3 Fuse control circuit
F4 Compressor thermal protector
K1 Contactor
K2 Start relay

M1 Compressor
M2 Fan motor
R1 Bleeder resistor
S1* Room thermostat (option)
X1 Terminals
* Option (remove bridge)

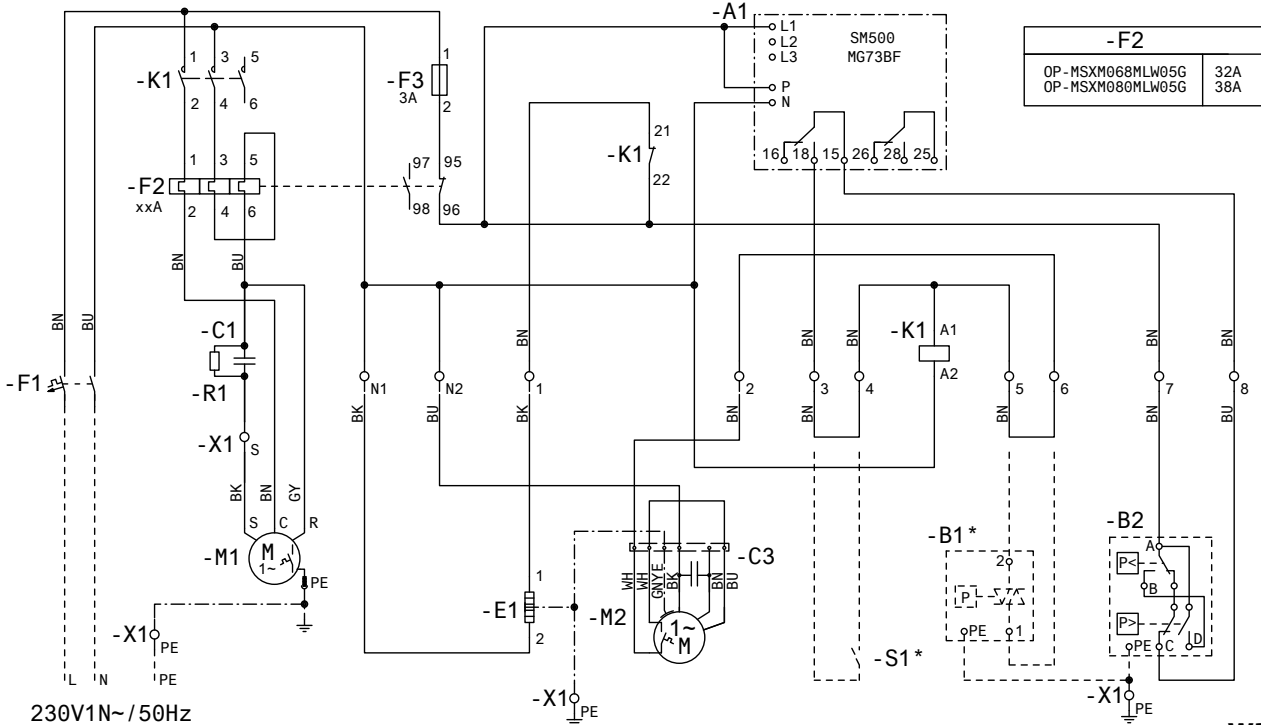
Wiring diagram

Code G : OP-MSXM034 - 044 - 46 - 057



WD 3

Code G : OP-MSXM068 - 080



WD 4

Legend
 BK black
 BU blue
 BN brown
 GY grey
 RD red
 WH white

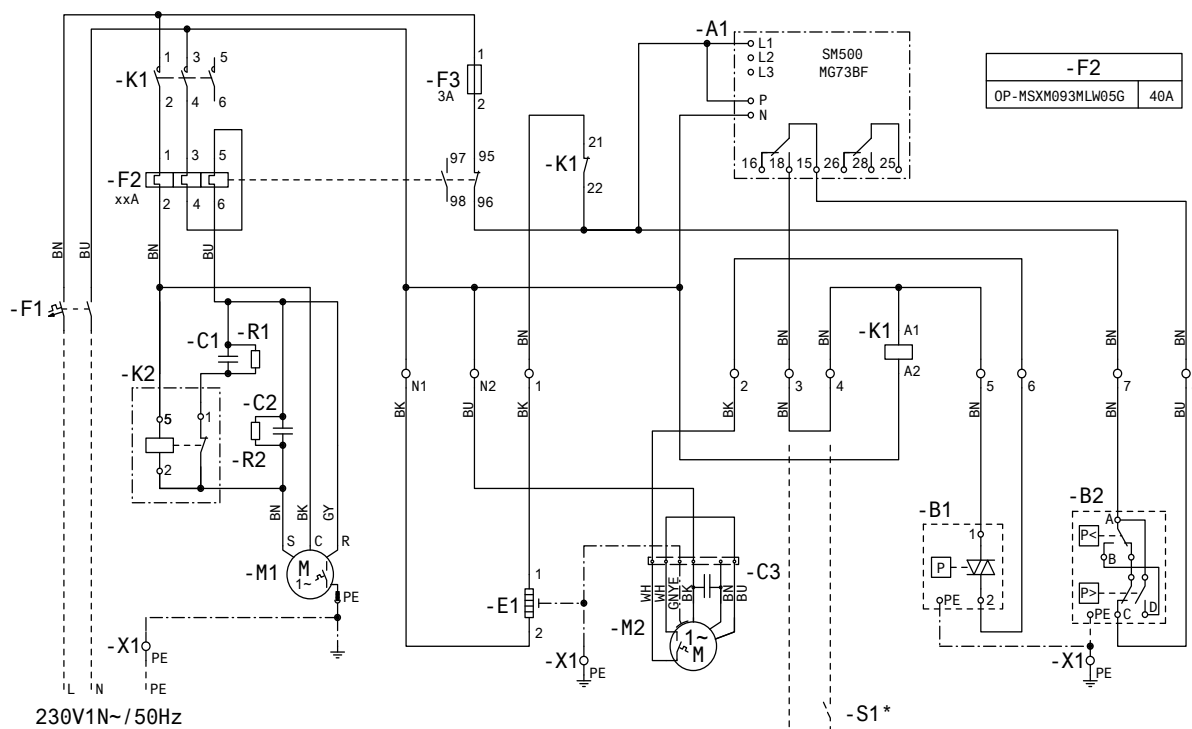
A1 Voltage relay
 B1* Fan speed controller (option)
 B2 High and Low pressure switch
 C1 Run capacitor compressor
 C3 Run capacitor fan
 E1 Crankcase heater

F1 Main switch
 F2 Overload relay
 F3 Fuse control circuit
 K1 Contactor
 K2 Start relay
 M1 Compressor

M2 Fan motor
 R1 Bleeder resistor
 S1* Room thermostat (option)
 X1 Terminals
 * Option (remove bridge)

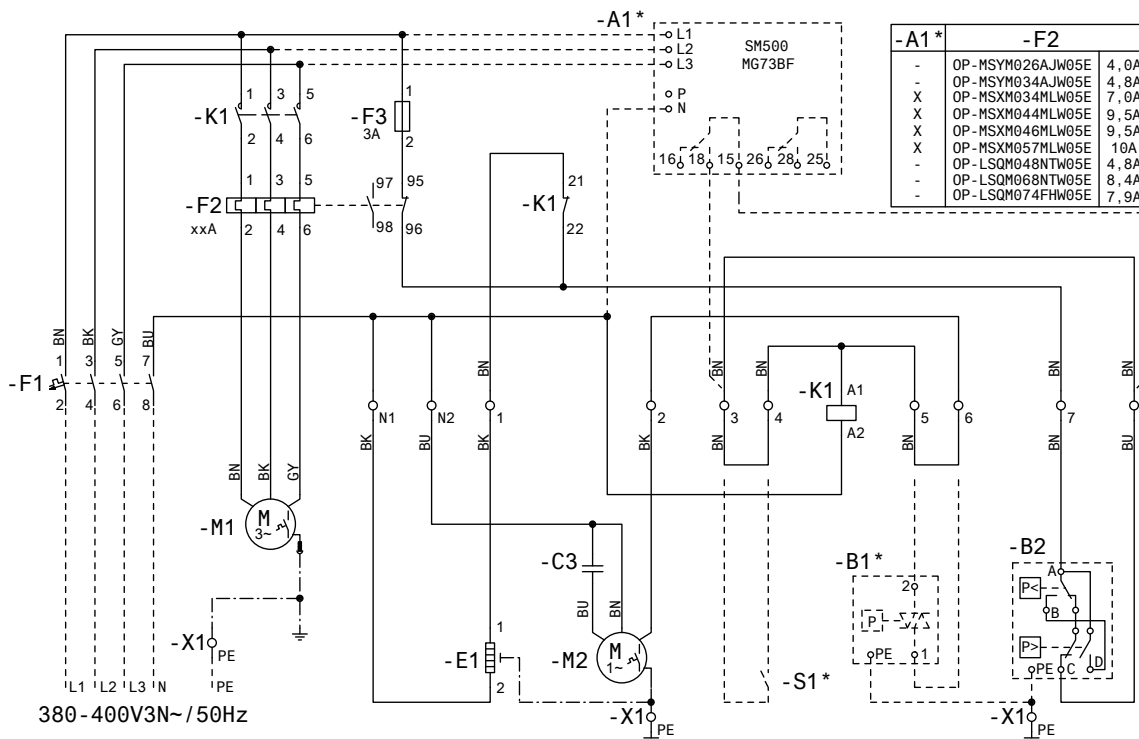
Wiring diagram

Code G : OP-MSXM093



WD 5

Code E : OP-LSQM048 - 068 - 074, OP-MSYM026 - 034, OP-MSXM034 - 044 - 046 - 057



WD 6

Legend

BK black
BU blue
BN brown
GY grey
RD red
WH white

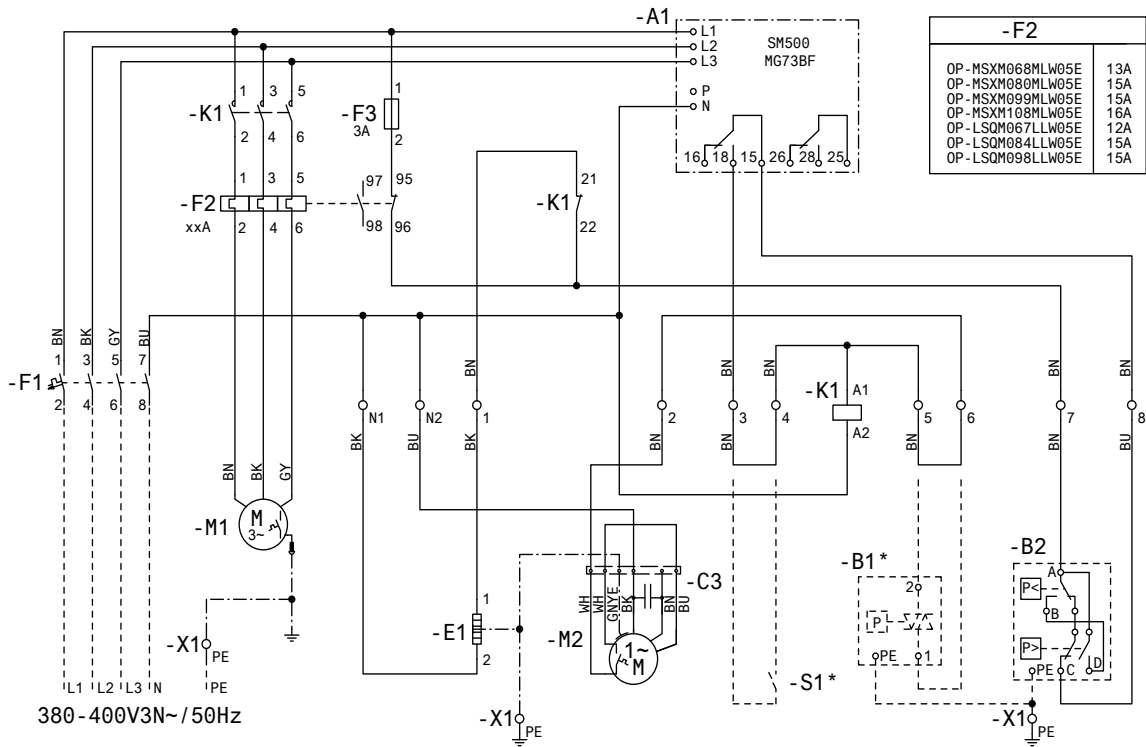
A1* Voltage relay (option)
B1* Fan speed controller (option)
B2 High and Low pressure switch
C1 Start capacitor compressor
C2 Run capacitor compressor
C3 Run capacitor fan

E1 Crankcase heater
F1 Main switch
F2 Overload relay
F3 Fuse control circuit
K1 Contactor
K2 Start relay

M1 Compressor
M2 Fan motor
R1, R2 Bleeder resistor
S1* Room thermostat (option)
X1 Terminals
* Option (remove bridge)

Wiring diagram

Code E : OP-MSXM068 - 080 - 099 - 108, OP-LSQM067 - 084 - 098

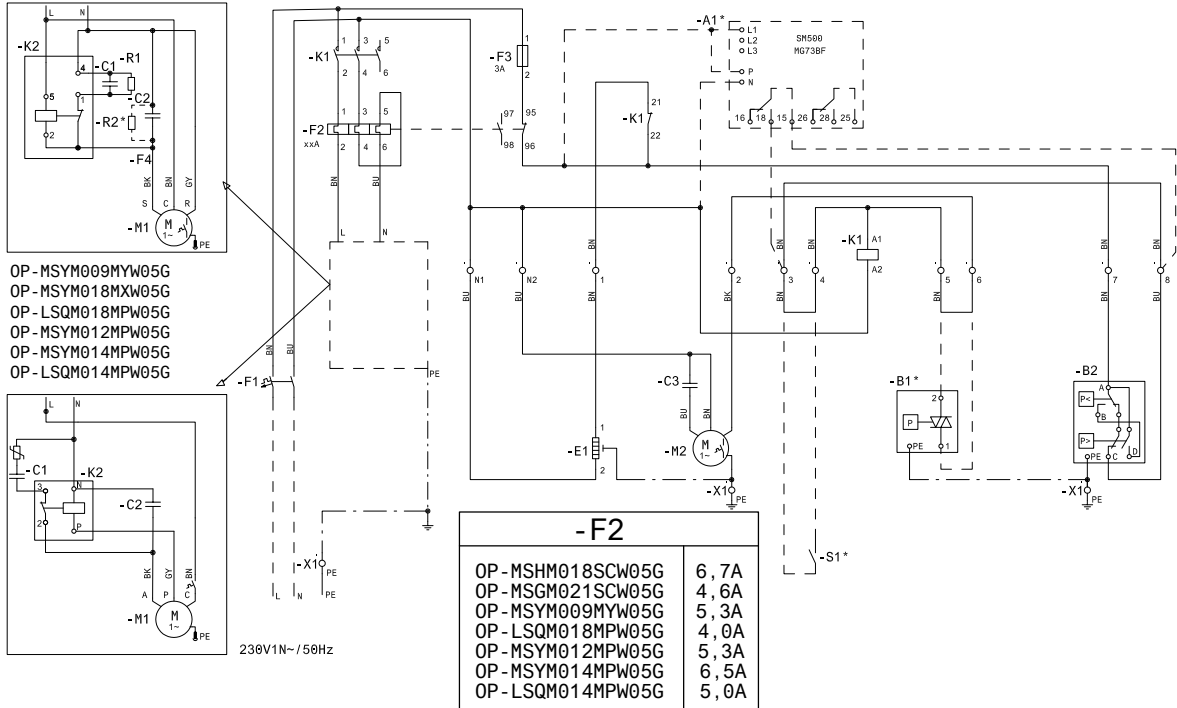


-F2	
OP-MSXM068MLW05E	13A
OP-MSXM080MLW05E	15A
OP-MSXM099MLW05E	15A
OP-MSXM108MLW05E	16A
OP-LSQM067LLW05E	12A
OP-LSQM084LLW05E	15A
OP-LSQM098LLW05E	15A

WD 7

Code G : OP-MSYM009 - 012 - 014 - 018, OP-LSQM014 - 018, OP-MSGM21

OP-MSHM018SCW05G
OP-MSGM021SCW05G



OP-MSYM009MYW05G
OP-MSYM018MXW05G
OP-LSQM018MPW05G
OP-MSYM012MPW05G
OP-MSYM014MPW05G
OP-LSQM014MPW05G

-F2	
OP-MSHM018SCW05G	6, 7A
OP-MSGM021SCW05G	4, 6A
OP-MSYM009MYW05G	5, 3A
OP-LSQM018MPW05G	4, 0A
OP-MSYM012MPW05G	5, 3A
OP-MSYM014MPW05G	6, 5A
OP-LSQM014MPW05G	5, 0A

WD 8

Legend

BK black
BU blue
BN brown
GY grey
RD red
WH white

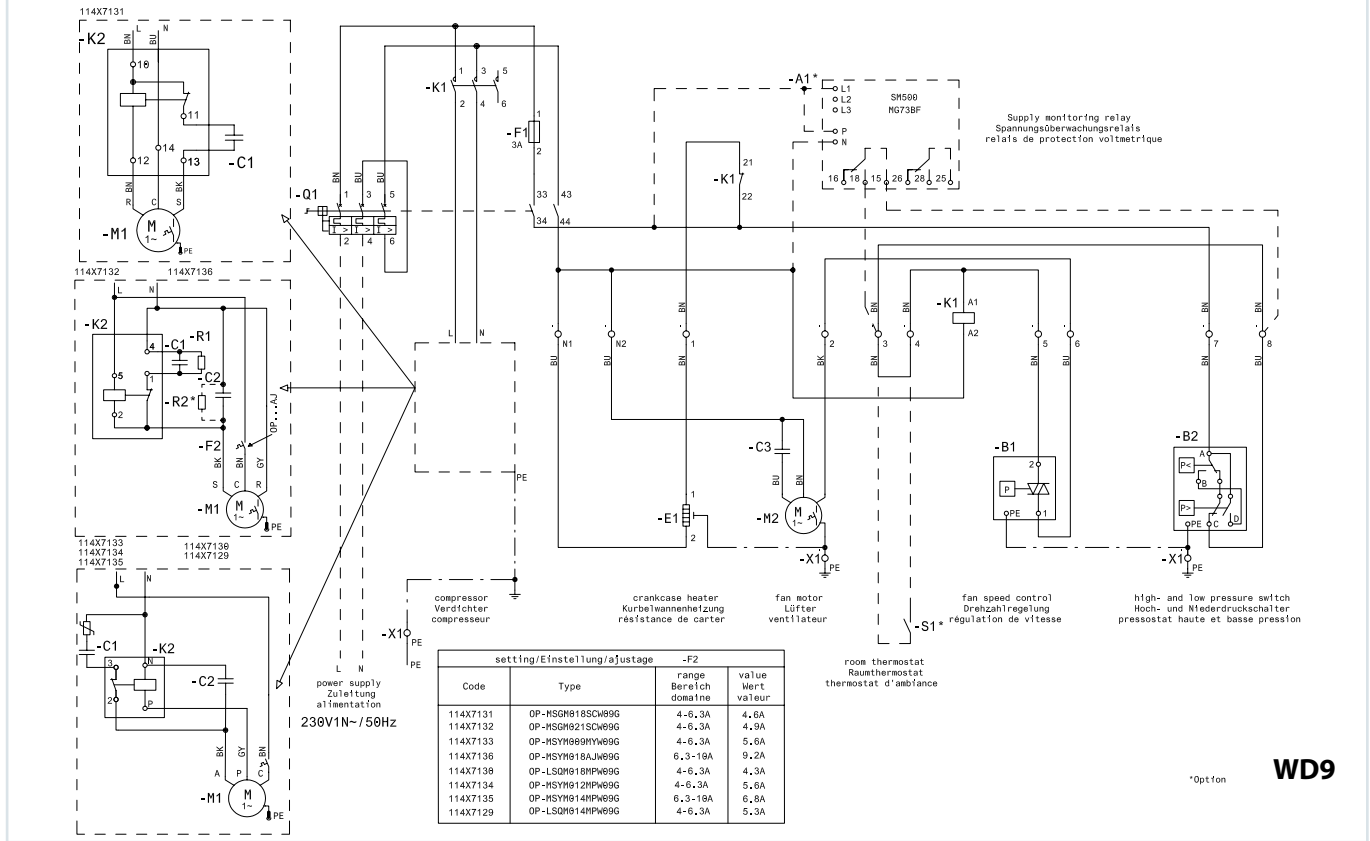
A1* Voltage relay
B1* Fan speed controller (option)
B2 High and Low pressure switch
C1 Start capacitor compressor
C2 Run capacitor compressor
C3 Run capacitor fan

E1 Crankcase heater
F1 Main switch
F2 Overload relay
F3 Fuse control circuit
K1 Contactor
K2 Start relay

M1 Compressor
M2 Fan motor
R1, R2* Bleeder resistor
S1* Room thermostat (option)
X1 Terminals
* Option (remove bridge)

Wiring diagram

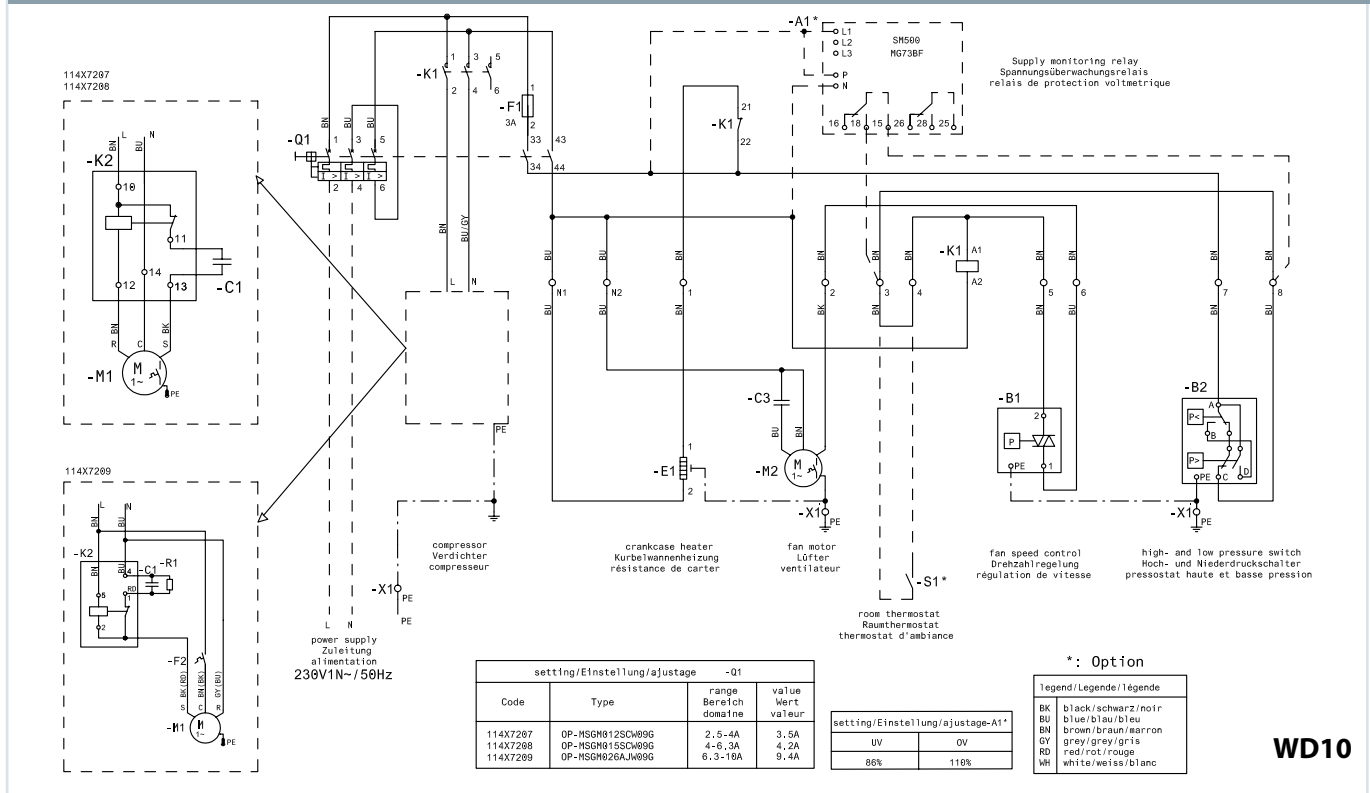
Code G (W09 Version): OP-LSQM014, 018, OP-MSGM018, 021, OP-MSYM009, 012, 014, OP-MSYM018



WD9

*Option

Code G (W09 Version): OP-MSGM012, 015, 026



WD10

Legend

BK black
BU blue
BN brown
GY grey
RD red
WH white

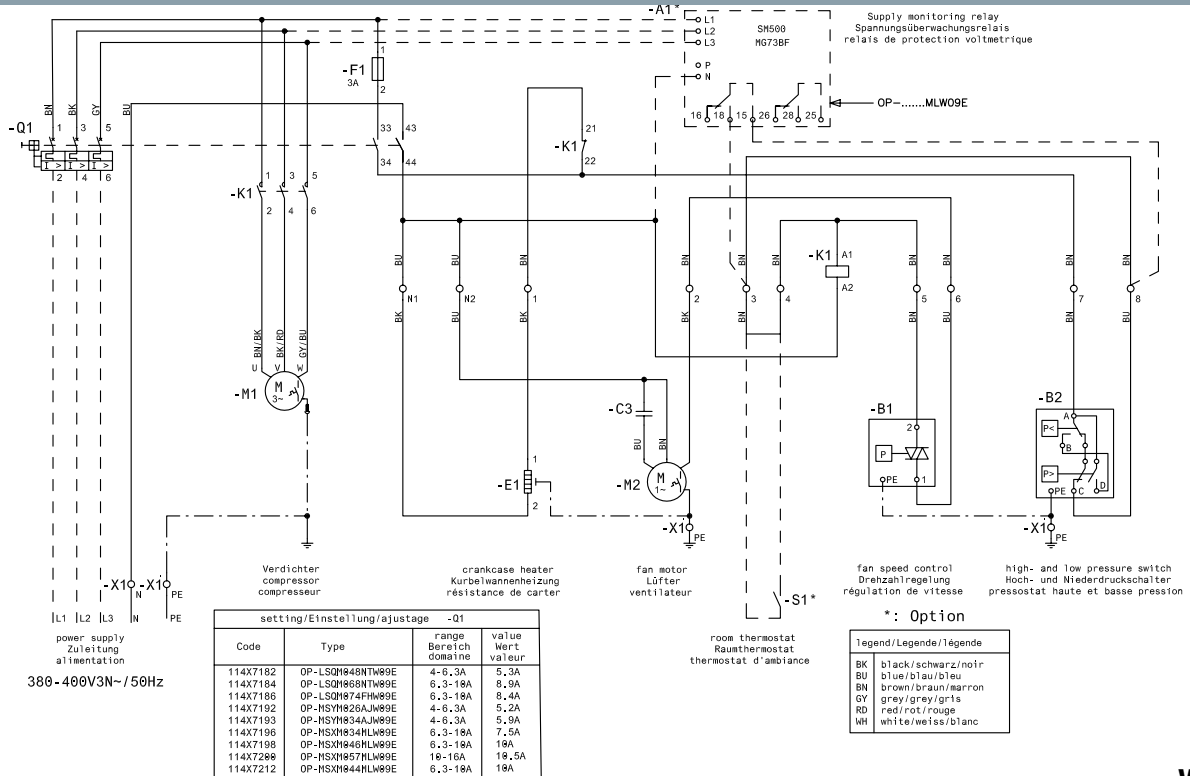
A1* Voltage relay
B1 Fan speed controller
B2 High and Low pressure switch
C1 Start capacitor compressor
C2 Run capacitor compressor
C3 Run capacitor fan

E1 Crankcase heater
F1 Main switch
F2 Overload relay
F3 Fuse control circuit
K1 Contactor
K2 Start relay

M1 Compressor
M2 Fan motor
R1, R2* Bleeder resistor
S1* Room thermostat (option)
X1 Terminals
* Option (remove bridge)

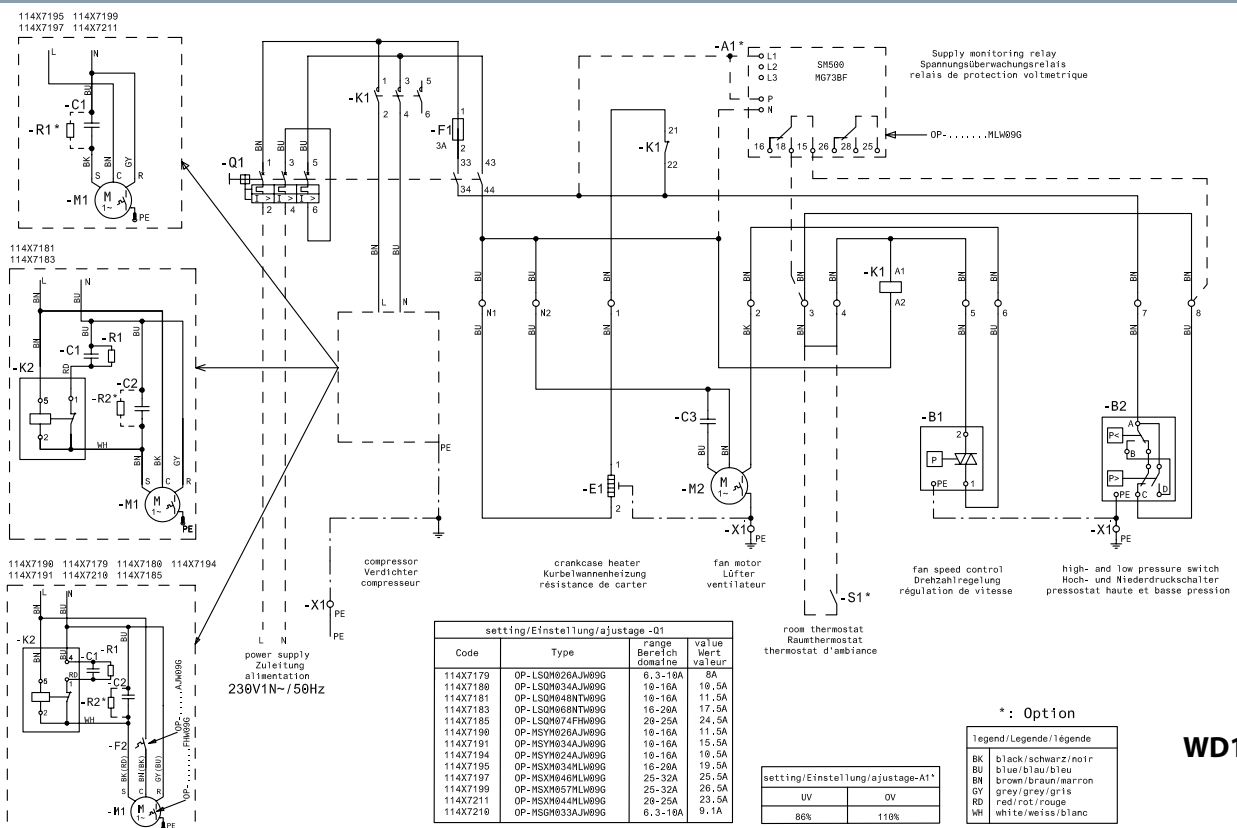
Wiring diagram

Code E (W09 Version): OP-LSQM048, 068, 074 OP-MSYM023, 034 OP-MSXM034, 044, 046, 057



WD11

Code E (W09 Version): OP-LSQM026, 034, 048, 068, 074 OP-MSYM024, 026, 034 OP-MSXM034, 044, 046, 057 OP-MSGM033



WD12

Legend

BK black
 BU blue
 BN brown
 GY grey
 RD red
 WH white

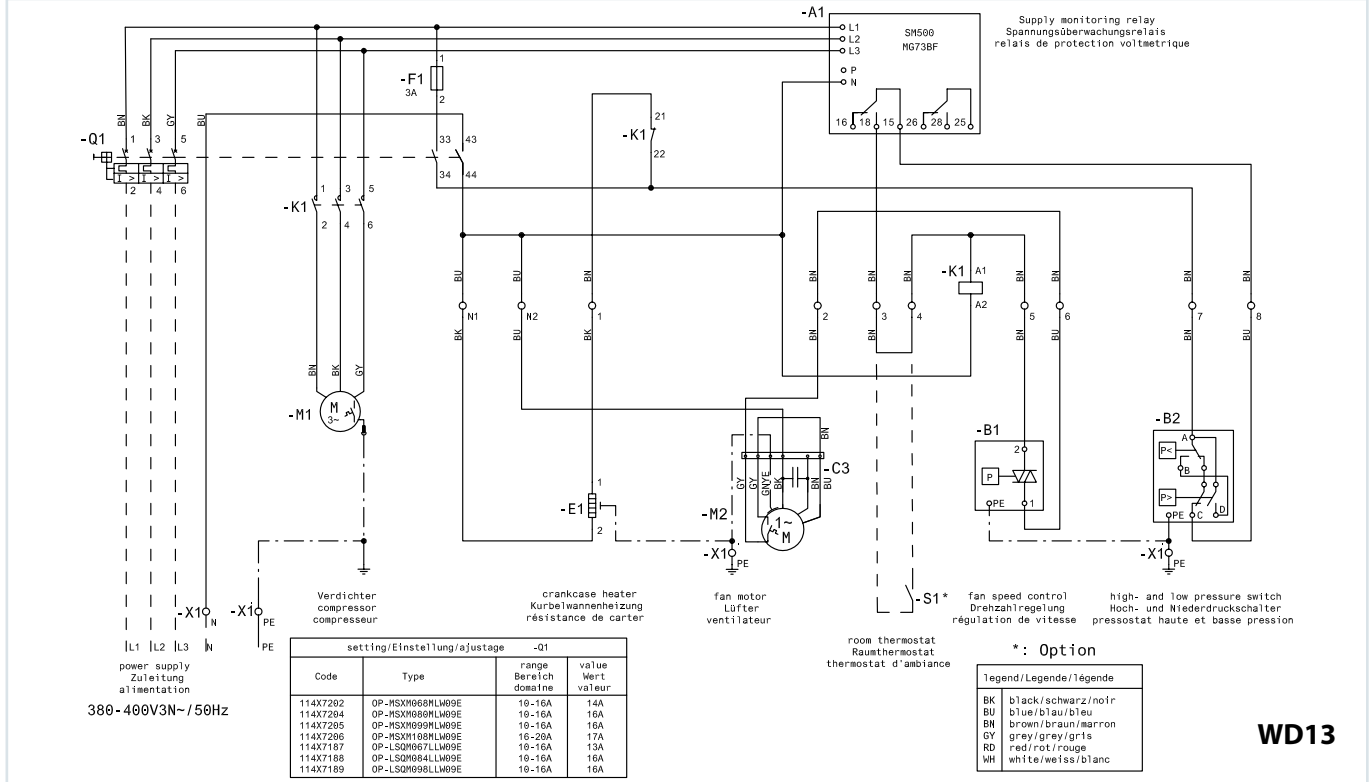
A1* Voltage relay
 B1 Fan speed controller
 B2 High and Low pressure switch
 C1 Start capacitor compressor
 C2 Run capacitor compressor
 C3 Run capacitor fan

E1 Crankcase heater
 F1 Main switch
 F2 Overload relay
 F3 Fuse control circuit
 K1 Contactor
 K2 Start relay

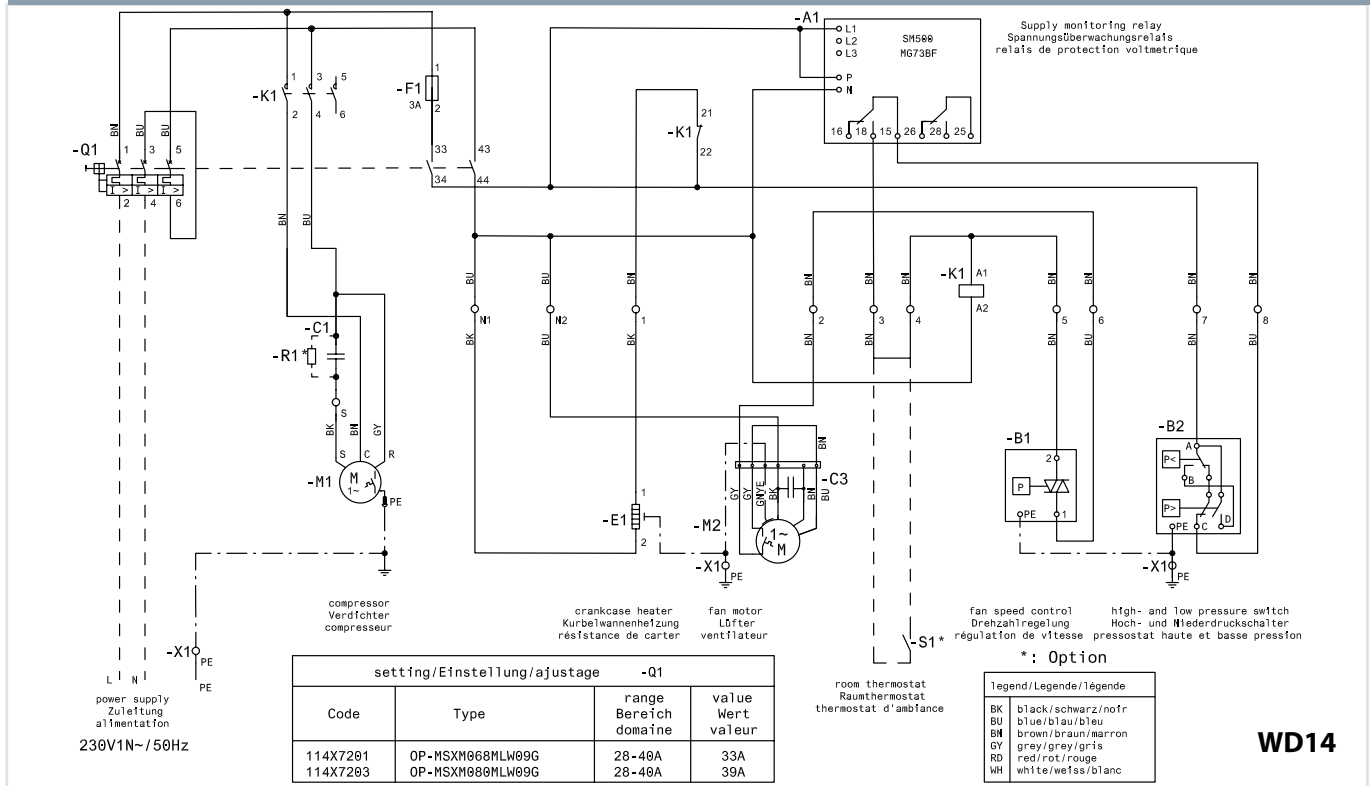
M1 Compressor
 M2 Fan motor
 R1, R2* Bleeder resistor
 S1* Room thermostat (option)
 X1 Terminals
 * Option (remove bridge)

Wiring diagram

Code G (W09 Version): OP-LSQM014, 018, OP-MSGM018, 021, OP-MSYM009, 012, 014, OP-MSYM018



Code G (W09 Version): OP-MSGM012, 015, 026



Legend

BK black
BU blue
BN brown
GY grey
RD red
WH white

A1* Voltage relay
B1 Fan speed controller
B2 High and Low pressure switch
C1 Start capacitor compressor
C2 Run capacitor compressor
C3 Run capacitor fan

E1 Crankcase heater
F1 Main switch
F2 Overload relay
F3 Fuse control circuit
K1 Contactor
K2 Start relay

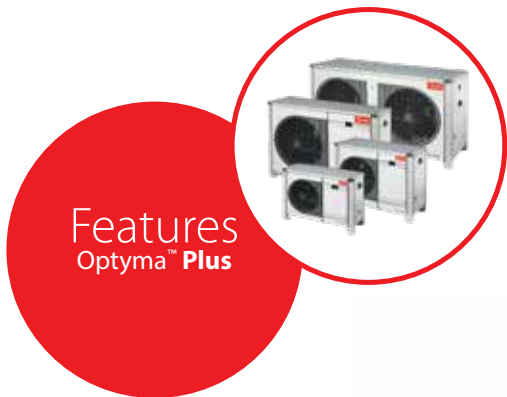
M1 Compressor
M2 Fan motor
R1, R2* Bleeder resistor
S1* Room thermostat (option)
X1 Terminals
* Option (remove bridge)

Quick Selection Notes:

Optyma™ Plus – The low noise condensing units for quick installation

Optyma™ Plus is the premium condensing unit designed with Danfoss expertise.

The Optyma™ Plus further optimizes energy and acoustic performances and maintenance time. Extended range fits more applications for low and medium refrigeration.



Electronic controller,
Parameter monitoring
and control

Electrical box IP54
(fully weather resistant)

On site stack
mounting

Micro channel
heat exchanger
(MCHE)

Compact design

Plug and play

3 access doors



Facts

Applications:

- Food Retail
- Commercial Refrigeration
- Light Commercial Refrigeration
- Food Processing and Storage

• Silent and outstanding performance

The Optyma™ Plus can be located even in residential areas. Smart compressor design, acoustic insulation and fan speed reduction during low capacity operation periods make the Optyma™ Plus the quietest solution today to respect your environment.

• Increased efficiency and sustainable solutions

Optyma™ Plus Condensing units range is compliant Ecodesign 2018 presenting high energetic efficiency solution improving payback and environmental impact. With the Optyma™ Plus substantial energy savings can be achieved thanks to the

energy efficient components inside such as: optimized compressors, micro channel heat exchanger, high efficiency fan motors, fan speed and crank case heater control. You are going to reduce the energy consumption significantly and therefore, cut the energy bills.

• Stock and logistics optimization

Multirefrigerant condensing units with optimized packaging cover a wide variety of applications and reduce your stock. Most of the Danfoss condensing units can be used with can be used with R134a, R404A, R448A, R449A, R452A and R513*) qualification in progress.

• Increase business opportunity with complete range of condensing units

Danfoss Optyma™ Plus extend your possibilities with new models for low and medium temperatures. Your cooling capacity has almost no limits

• Effortless installation

Featuring a more compact design, reduced weight and simplified wiring, the Optyma™ Plus Plug & Play unit is among the fastest to install and easiest to service. All parameters are already set up, switch on the power, and the cooling process is up and running!

• The highest standard and quality

We provide 100% factory tested units to our customers with premium quality. We at Danfoss do not accept any compromise regarding reliability of our products. The Optyma™ Plus includes all the best of our condensing units.

• Environmental friendly Optyma™ Plus

Condensing units meet Ecodesign 2018 targets and Energy related Product (ErP) directive applicable for fan motors. In addition, Optyma™ Plus Condensing units are qualified with Low GWP refrigerant reducing environmental impact.

Technical data and ordering

Optyma™ Plus - R452A - LBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)							EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]							Q [kW]	P [kW]	COP	SEPR					
				-40	-35	-30	-25	-20	-15	-10									
OP-LPQM017MP	MPT16LA	G	27		0.443	0.583	0.735	0.897	1.070	1.253									
			32		0.396	0.522	0.661	0.810	0.971	1.142	0.441	0.465	0.95		60	29	P00	114X3118	
			38		0.340	0.450	0.572	0.707	0.853	1.009									
			43		0.293	0.390	0.499	0.621	0.754	0.899									
OP-LPQM026AJ	CAJ2446Z	G	27	0.472	0.659	0.881	1.144	1.447	1.794	2.184									
			32	0.408	0.581	0.788	1.031	1.312	1.634	1.997	0.644	0.671	0.96		67	36	P00	114X3216	
			38		0.489	0.675	0.894	1.148	1.439	1.769									
			43		0.414	0.582	0.780	1.010	1.275	1.577									
OP-LPQM048NT	NTZ048-5	G	27	0.771	1.090	1.478	1.931	2.446	3.018	3.641									
			32	0.655	0.948	1.303	1.718	2.191	2.717	3.291	1.053	0.950	1.11		69	38	P00	114X3225	
			38	0.529	0.790	1.105	1.475	1.896	2.366	2.880									
			43	0.433	0.667	0.950	1.281	1.660	2.082	2.545									
OP-LPQM048NT	NTZ048-4	E	27	0.778	1.076	1.438	1.860	2.340	2.873	3.454									
			32	0.679	0.947	1.273	1.655	2.092	2.579	3.112	1.054	0.981	1.07		69	38	P00	114X3233	
			38	0.572	0.805	1.089	1.424	1.809	2.241	2.716									
			43	0.491	0.695	0.945	1.242	1.584	1.969	2.396									
OP-LPQM068NT	NTZ068-5	G	27	1.241	1.667	2.151	2.688	3.273	3.897	4.550									
			32	1.052	1.447	1.895	2.392	2.932	3.508	4.110	1.619	1.627	1.00		70	39	P00	114X3241	
			38	0.833	1.192	1.597	2.045	2.530	3.047	3.586									
			43	0.659	0.987	1.355	1.762	2.201	2.668	3.153									
OP-LPQM074FH	FH2511Z	G	27	1.062	1.511	2.037	2.641	3.324	4.085	4.919									
			32	0.889	1.310	1.801	2.365	3.003	3.713	4.492	1.458	1.539	0.95		69	38	P00	114X3252	
			38		1.070	1.518	2.033	2.614	3.262	3.975									
			43		0.874	1.286	1.757	2.290	2.886	3.542									
OP-LPQM074FH	TFH2511Z	E	27	1.001	1.415	1.897	2.442	3.044	3.695	4.384									
			32	0.841	1.221	1.664	2.166	2.722	3.324	3.964	1.362	1.390	0.98		69	38	P00	114X3253	
			38		1.003	1.398	1.848	2.347	2.890	3.467									
			43		0.835	1.190	1.595	2.045	2.536	3.059									
OP-LPQM068NT	NTZ068-4	E	27	1.215	1.655	2.158	2.712	3.299	3.898	4.484									
			32	1.056	1.459	1.918	2.421	2.952	3.491	4.014	1.632	1.404	1.16		70	39	P00	114X3249	
			38	0.864	1.223	1.629	2.070	2.534	3.000	3.446									
			43	0.708	1.028	1.388	1.778	2.184	2.588	2.969									
OP-LPQM096NT	NTZ096-4	E	27	1.487	2.022	2.651	3.363	4.142	4.972	5.836									
			32	1.289	1.773	2.344	2.990	3.699	4.454	5.241	1.984	1.863	1.07		72	41	P00	114X3357	
			38	1.063	1.484	1.982	2.549	3.173	3.838	4.532									
			43	0.887	1.253	1.691	2.190	2.741	3.330	3.943									
OP-LPQM136NT	NTZ136-4	E	27	2.700	3.657	4.822	6.198	7.785	9.578	11.566									
			32	2.380	3.243	4.298	5.548	6.997	8.640	10.472	3.602	2.975	1.21	1.63	73	42	P00	114X3365	
			38	2.025	2.779	3.703	4.804	6.086	7.550	9.193									
			43	1.751	2.417	3.234	4.211	5.355	6.669	8.154									
OP-LPQM215LL	LLZ024T4	E	27	3.619	4.605	5.778	7.161	8.770	10.623	12.731									
			32	3.345	4.266	5.360	6.650	8.154	9.889	11.869	4.746	3.940	1.20	1.67	78	47	P00	114X3476	
			38	3.005	3.841	4.834	6.005	7.376	8.963	10.784									
			43	2.712	3.472	4.374	5.442	6.696	8.155	9.837									
OP-LPQM271LL	LLZ034T4	E	27	5.186	6.570	8.201	10.101	12.287	14.769	17.551									
			32	4.780	6.066	7.578	9.340	11.369	13.678	16.274	6.782	5.457	1.24	1.74	78	47	P00	114X3482	
			38	4.278	5.437	6.798	8.385	10.217	12.310	14.673									
			43	3.847	4.893	6.120	7.553	9.214	11.119	13.281									

LBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



Technical data and ordering

Optyma™ Plus - R404A / R507 - LBP

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)							EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-40	-35	-30	-25	-20	-15	-10								
OP-LPQM017MP	MPT16LA	G	27		0.535	0.710	0.903	1.115	1.345	1.594								
			32		0.480	0.638	0.816	1.013	1.228	1.463	0.540	0.504	1.07		60	29	P00	114X3118
			38		0.413	0.553	0.712	0.890	1.088	1.305								
			43		0.359	0.483	0.626	0.789	0.971	1.173								
OP-LPQM026AJ	CAJ2446Z	G	27	0.526	0.732	0.978	1.268	1.606	1.993	2.432								
OP-LPQM026AJ	CAJ2446Z	G	32	0.455	0.645	0.872	1.140	1.451	1.809	2.216	0.724	0.715	1.01		67	36	P00	114X3216
			38	0.371	0.541	0.745	0.985	1.265	1.588	1.957								
			43		0.457	0.641	0.857	1.111	1.404	1.739								
			OP-LPQM048NT	NTZ048-5	G	27	0.776	1.134	1.568	2.083	2.677	3.349	4.098					
OP-LPQM048NT	NTZ048-5	G	32	0.651	0.981	1.381	1.853	2.398	3.017	3.706	1.104	1.097	1.01		69	38	P00	114X3225
			38	0.501	0.798	1.155	1.576	2.062	2.615	3.232								
			43	0.381	0.647	0.968	1.345	1.782	2.279	2.836								
			OP-LPQM048NT	NTZ048-4	E	27	0.783	1.143	1.572	2.072	2.645	3.290	4.007					
OP-LPQM048NT	NTZ048-4	E	32	0.670	1.000	1.392	1.849	2.371	2.960	3.615	1.126	0.997	1.13		69	38	P00	114X3233
			38	0.536	0.831	1.179	1.583	2.044	2.565	3.147								
			43	0.427	0.692	1.003	1.363	1.775	2.240	2.760								
			OP-LPQM074FH	TFH2511Z	E	27	1.177	1.670	2.254	2.931	3.695	4.543	5.468					
OP-LPQM074FH	TFH2511Z	E	32	0.985	1.434	1.969	2.588	3.291	4.074	4.931	1.620	1.514	1.07		69	38	P00	114X3253
			38	0.776	1.173	1.646	2.197	2.825	3.528	4.301								
			43	0.620	0.972	1.394	1.887	2.452	3.087	3.789								
			OP-LPQM074FH	FH2511Z	G	27	1.176	1.664	2.235	2.890	3.630	4.455	5.361					
OP-LPQM074FH	FH2511Z	G	32	0.983	1.439	1.971	2.580	3.268	4.034	4.877	1.627	1.662	0.98		69	38	P00	114X3252
			38	0.756	1.172	1.655	2.207	2.831	3.526	4.292								
			43	0.573	0.955	1.395	1.899	2.468	3.102	3.803								
			OP-LPQM068NT	NTZ068-5	G	27	1.332	1.793	2.348	2.994	3.730	4.548	5.440					
OP-LPQM068NT	NTZ068-5	G	32	1.189	1.608	2.110	2.694	3.358	4.098	4.905	1.826	1.730	1.06		70	39	P00	114X3241
			38	1.017	1.388	1.828	2.338	2.918	3.564	4.270								
			43	0.873	1.205	1.594	2.044	2.554	3.123	3.745								
			OP-LPQM068NT	NTZ068-4	E	27	1.359	1.860	2.443	3.107	3.852	4.672	5.563					
OP-LPQM068NT	NTZ068-4	E	32	1.172	1.629	2.162	2.770	3.451	4.204	5.024	1.845	1.613	1.14		70	39	P00	114X3249
			38	0.967	1.374	1.846	2.386	2.991	3.662	4.394								
			43	0.812	1.177	1.599	2.081	2.623	3.225	3.883								
			OP-LPQM096NT	NTZ096-4	E	27	1.480	2.019	2.667	3.418	4.262	5.184	6.164					
OP-LPQM096NT	NTZ096-4	E	32	1.262	1.752	2.340	3.023	3.791	4.631	5.527	1.988	1.951	1.02		72	41	P00	114X3357
			38	1.003	1.432	1.948	2.549	3.226	3.969	4.763								
			43	0.794	1.171	1.627	2.158	2.760	3.421	4.130								
			OP-LPQM136NT	NTZ136-4	E	27	2.549	3.477	4.594	5.909	7.428	9.150	11.073					
OP-LPQM136NT	NTZ136-4	E	32	2.214	3.068	4.094	5.301	6.696	8.282	10.056	3.468	3.128	1.11	1.60	73	42	P00	114X3365
			38	1.821	2.584	3.498	4.575	5.821	7.240	8.834								
			43	1.503	2.188	3.008	3.974	5.094	6.373	7.814								
			OP-LPQM215LL	LLZ024T4	E	27	3.997	5.083	6.389	7.930	9.719	11.763	14.068					
OP-LPQM215LL	LLZ024T4	E	32	3.676	4.687	5.893	7.312	8.958	10.839	12.963	5.313	4.264	1.25	1.71	78	47	P00	114X3476
			38	3.273	4.188	5.271	6.540	8.010	9.692	11.597								
			43	2.920	3.750	4.727	5.867	7.188	8.702	10.421								
			OP-LPQM271LL	LLZ034T4	E	27	5.429	6.821	8.466	10.379	12.568	15.038	17.788					
OP-LPQM271LL	LLZ034T4	E	32	4.953	6.244	7.754	9.498	11.490	13.737	16.242	7.114	5.791	1.23	1.81	78	47	P00	114X3482
			38	4.337	5.503	6.848	8.390	10.143	12.121	14.332								
			43	3.776	4.836	6.042	7.412	8.967	10.719	12.683								

LBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Plus - R134a - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]						Q [kW]	P [kW]	COP	SEPR				
				-15	-10	-5	0	5	10								
OP-MPGM033AJ	CAJ4511Y	G	27	1.444	1.835	2.280	2.786	3.353	3.984	4.678	1.740	0.849	2.05	67	36	P00	114X4220
			32	1.326	1.699	2.122	2.601	3.138	3.736	4.394							
			38	1.180	1.531	1.927	2.373	2.873	3.430	4.045							
OP-MPXM034ML	MLZ015T4	E	27	1.817	2.286	2.834	3.467	4.188	5.001	5.907	2.216	0.983	2.25	68	37	P00	114X4264
			32	1.716	2.162	2.685	3.290	3.980	4.761	5.632							
			38	1.597	2.012	2.502	3.071	3.723	4.462	5.290							
OP-MPXM034ML	MLZ015T5	G	27	1.822	2.321	2.883	3.513	4.218	5.003	5.876	2.244	1.033	2.17	68	37	P00	114X4261
			32	1.711	2.189	2.730	3.339	4.023	4.788	5.639							
			38	1.580	2.026	2.536	3.115	3.770	4.504	5.324							
OP-MPXM046ML	MLZ021T4	E	27	2.478	3.090	3.817	4.660	5.618	6.691	7.875	2.998	1.289	2.33	68	37	P00	114X4284
			32	2.339	2.922	3.614	4.418	5.333	6.358	7.490							
			38	2.167	2.713	3.363	4.118	4.979	5.945	7.014							
OP-MPXM046ML	MLZ021T5	G	27	2.465	3.114	3.854	4.690	5.626	6.665	7.811	3.010	1.451	2.07	68	37	P00	114X4281
			32	2.317	2.933	3.641	4.446	5.350	6.358	7.473							
			38	2.143	2.710	3.372	4.133	4.994	5.959	7.030							
OP-MPXM057ML	MLZ026T4	E	27	2.988	3.749	4.629	5.632	6.762	8.020	9.405	3.633	1.591	2.28	68	37	P00	114X4293
			32	2.811	3.536	4.375	5.331	6.409	7.610	8.932							
			38	2.596	3.276	4.062	4.959	5.972	7.101	8.346							
OP-MPXM057ML	MLZ026T5	G	27	2.981	3.762	4.649	5.647	6.760	7.991	9.345	3.639	1.914	1.90	68	37	P00	114X4290
			32	2.805	3.540	4.384	5.339	6.409	7.597	8.905							
			38	2.601	3.271	4.052	4.947	5.958	7.088	8.337							
OP-MPXM068ML	MLZ030T4	E	27	3.686	4.631	5.738	7.016	8.470	10.104	11.920	4.493	1.897	2.37	69	38	P00	114X4311
			32	3.484	4.382	5.437	6.657	8.048	9.614	11.357							
			38	3.240	4.078	5.066	6.213	7.524	9.005	10.657							
OP-MPXM068ML	MLZ030T5	G	27	3.786	4.657	5.752	7.035	8.471	10.032	11.692	4.540	2.184	2.08	69	38	P00	114X4308
			32	3.642	4.426	5.449	6.672	8.059	9.581	11.211							
			38	3.479	4.146	5.072	6.214	7.534	9.001	10.586							
OP-MPXM080ML	MLZ038T4	E	27	4.283	5.388	6.667	8.129	9.782	11.630	13.673	5.220	2.308	2.26	69	38	P00	114X4324
			32	4.029	5.086	6.307	7.704	9.282	11.048	13.001							
			38	3.718	4.713	5.863	7.176	8.663	10.326	12.170							
OP-MPXM080ML	MLZ038T5	G	27	4.250	5.469	6.787	8.230	9.821	11.578	13.518	5.271	2.438	2.16	69	38	P00	114X4321
			32	3.953	5.136	6.411	7.803	9.334	11.025	12.892							
			38	3.566	4.705	5.926	7.255	8.715	10.327	12.107							
OP-MPXM108ML	MLZ048T4	E	27	5.637	7.050	8.708	10.601	12.721	15.056	17.592	6.819	2.840	2.40	75	44	P00	114X4344
			32	5.298	6.641	8.223	10.033	12.062	14.299	16.730							
			38	4.889	6.140	7.620	9.323	11.236	13.349	15.649							
OP-MPXM125ML	MLZ058T4	E	27	6.778	8.475	10.421	12.628	15.107	17.864	20.905	8.189	3.677	2.23	77	46	P00	114X4414
			32	6.346	7.978	9.843	11.956	14.327	16.964	19.874							
			38	5.815	7.364	9.130	11.125	13.363	15.853	18.604							
OP-MPXM162ML	MLZ076T4	E	27	8.698	10.884	13.393	16.234	19.416	22.943	26.820	10.523	4.681	2.25	77	46	P00	114X4434
			32	8.169	10.246	12.638	15.353	18.399	21.782	25.505							
			38	7.544	9.476	11.714	14.265	17.136	20.335	23.866							
OP-MPXM162ML	MLZ076T4	E	43	7.035	8.834	10.931	13.335	16.052	19.089	22.451							

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz
E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio, Q [kW], Cooling Capacity, P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



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Technical data and ordering

Opty™ Plus - R448A - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5	10								
OP-MPXM034ML	MLZ015T4	E	27	2.372	2.942	3.595	4.338	5.175	6.110	7.142	3.409	1.647	2.07		68	37	P00	114X4264
			32	2.193	2.731	3.348	4.050	4.843	5.729	6.711								
			38	1.965	2.464	3.035	3.685	4.422	5.248	6.169								
			43		2.229	2.759	3.365	4.053	4.828	5.696								
OP-MPXM034ML	MLZ015T5	G	27	2.36	2.934	3.592	4.340	5.182	6.120	7.153	3.418	1.604	2.13		68	37	P00	114X4261
			32	2.195	2.736	3.356	4.061	4.856	5.743	6.725								
			38	1.992	2.491	3.063	3.715	4.451	5.277	6.194								
			43		2.283	2.812	3.416	4.102	4.875	5.737								
OP-MPXM046ML	MLZ021T4	E	27	3.178	3.933	4.791	5.759	6.840	8.035	9.343	4.535	2.237	2.03		68	37	P00	114X4284
			32	2.93	3.640	4.446	5.355	6.372	7.499	8.738								
			38	2.622	3.274	4.014	4.850	5.788	6.832	7.985								
			43		2.957	3.639	4.411	5.281	6.254	7.335								
OP-MPXM046ML	MLZ021T5	G	27	3.182	3.942	4.809	5.791	6.890	8.108	9.445	4.568	2.352	1.94		68	37	P00	114X4281
			32	2.949	3.663	4.477	5.400	6.437	7.589	8.858								
			38	2.665	3.318	4.065	4.914	5.871	6.941	8.127								
			43		3.025	3.713	4.496	5.384	6.382	7.495								
OP-MPXM057ML	MLZ026T4	E	27	3.811	4.724	5.742	6.868	8.104	9.450	10.901	5.406	2.940	1.84	3.15	68	37	P00	114X4293
			32	3.473	4.333	5.289	6.345	7.506	8.770	10.138								
			38	3.048	3.841	4.718	5.688	6.754	7.919	9.186								
			43		3.412	4.221	5.114	6.099	7.179	8.360								
OP-MPXM057ML	MLZ026T5	G	27	3.863	4.769	5.790	6.932	8.193	9.572	11.064	5.475	3.082	1.78	2.93	68	37	P00	114X4290
			32	3.561	4.404	5.354	6.416	7.593	8.883	10.284								
			38	3.185	3.945	4.803	5.766	6.836	8.016	9.306								
			43		3.548	4.323	5.197	6.175	7.260	8.454								
OP-MPXM068ML	MLZ030T5	G	27	4.812	5.958	7.265	8.744	10.404	12.248	14.278	6.890	3.266	2.11	3.30	69	38	P00	114X4308
			32	4.447	5.529	6.761	8.157	9.726	11.473	13.403								
			38	3.993	4.993	6.132	7.424	8.879	10.507	12.313								
			43		4.531	5.587	6.788	8.146	9.671	11.373								
OP-MPXM068ML	MLZ030T4	E	27	4.86	5.997	7.295	8.767	10.419	12.259	14.287	6.911	3.138	2.20	3.48	69	38	P00	114X4311
			32	4.485	5.559	6.783	8.172	9.734	11.476	13.402								
			38	4.012	5.003	6.134	7.418	8.867	10.490	12.292								
			43		4.516	5.564	6.757	8.109	9.629	11.326								
OP-MPXM080ML	MLZ038T5	G	27	5.554	6.850	8.310	9.943	11.753	13.739	15.900	7.919	3.985	1.99	3.07	69	38	P00	114X4321
			32	5.167	6.388	7.759	9.290	10.988	12.855	14.891								
			38	4.68	5.803	7.062	8.467	10.027	11.747	13.631								
			43		5.292	6.452	7.747	9.188	10.783	12.539								
OP-MPXM080ML	MLZ038T4	E	27	5.654	6.949	8.417	10.066	11.901	13.922	16.126	7.969	3.716	2.14	3.49	69	38	P00	114X4324
			32	5.214	6.433	7.812	9.361	11.088	12.995	15.081								
			38	4.667	5.786	7.053	8.479	10.073	11.838	13.779								
			43		5.227	6.395	7.714	9.192	10.836	12.654								
OP-MPXM108ML	MLZ048T4	E	27	7.357	9.067	10.997	13.154	15.541	18.156	20.992	10.403	5.300	1.96	3.31	75	44	P00	114X4344
			32	6.775	8.377	10.182	12.201	14.439	16.897	19.572								
			38	6.05	7.513	9.161	11.008	13.061	15.326	17.804								
			43		6.764	8.274	9.971	11.865	13.964	16.275								
OP-MPXM125ML	MLZ058T4	E	27	8.752	10.784	13.088	15.678	18.560	21.734	25.194	12.411	5.856	2.12	3.42	77	46	P00	114X4414
			32	8.094	10.001	12.160	14.589	17.297	20.286	23.558								
			38	7.275	9.018	10.993	13.220	15.711	18.474	21.514								
			43		8.166	9.979	12.030	14.333	16.901	19.744								
OP-MPXM162ML	MLZ076T4	E	27	10.583	13.218	16.207	19.567	23.303	27.413	31.890	15.258	7.988	1.91	3.13	77	46	P00	114X4434
			32	9.654	12.132	14.943	18.105	21.627	25.514	29.760								
			38	8.496	10.769	13.351	16.263	19.520	23.128	27.093								
			43		9.587	11.965	14.658	17.683	21.051	24.775								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio, Q [kW], Cooling Capacity, P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



Technical data and ordering

Optyma™ Plus - R449A - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]						Q [kW]	P [kW]	COP	SEPR					
				-20	-15	-10	-5	0	5									10
OP-MPYM008MY	MLY80RAb	G	27		0.632	0.822	1.025	1.240	1.467	1.704								
			32		0.574	0.749	0.937	1.138	1.351	1.574	0.760	0.393	1.93		60	29	P00	114X4119
			38		0.504	0.661	0.831	1.015	1.211	1.419								
OP-MPYM009MY	MLY90RAb	G	27		0.668	0.878	1.098	1.327	1.566	1.813								
			32		0.609	0.801	1.004	1.217	1.441	1.673	0.813	0.430	1.89		61	30	P00	114X4120
			38		0.540	0.710	0.892	1.086	1.290	1.504								
OP-MPYM012MP	MPT12RA	G	27		0.930	1.198	1.478	1.768	2.067	2.373								
			32		0.848	1.095	1.353	1.623	1.902	2.191	1.112	0.589	1.89		63	32	P00	114X4121
			38		0.751	0.971	1.204	1.449	1.705	1.972								
OP-MPYM014MP	MPT14RA	G	27		0.978	1.251	1.544	1.859	2.193	2.546								
			32		0.896	1.147	1.421	1.716	2.032	2.367	1.166	0.729	1.60		60	29	P00	114X4122
			38		0.799	1.024	1.273	1.544	1.838	2.153								
OP-MPYM018AJ	CAJ9510Z	G	27	0.932	1.233	1.594	2.022	2.527	3.114	3.791								
			32	0.854	1.134	1.469	1.868	2.339	2.889	3.524	1.491	0.781	1.91		67	36	P00	114X4230
			38		1.015	1.321	1.685	2.117	2.622	3.209								
OP-MPYM024AJ	CAJ9513Z	G	27	1.153	1.549	2.021	2.577	3.222	3.960	4.796								
			32	1.041	1.409	1.847	2.363	2.964	3.655	4.439	1.876	0.902	2.08		67	36	P00	114X4200
			38		1.244	1.643	2.113	2.663	3.297	4.021								
OP-MPYM026AJ	CAJ4517Z	G	27	1.321	1.737	2.227	2.802	3.469	4.235	5.103								
			32	1.203	1.591	2.047	2.582	3.205	3.923	4.739	2.080	1.009	2.06		67	36	P00	114X4212
			38		1.416	1.833	2.323	2.894	3.554	4.309								
OP-MPYM026AJ	TAJ4517Z	E	27	1.298	1.730	2.233	2.819	3.495	4.268	5.144								
			32	1.169	1.575	2.048	2.597	3.232	3.960	4.785	2.081	1.059	1.97		67	36	P00	114X4213
			38		1.388	1.824	2.330	2.917	3.590	4.356								
OP-MPYM034AJ	TAJ4519Z	E	27	1.657	2.175	2.778	3.474	4.273	5.179	6.195								
			32	1.51	1.997	2.561	3.213	3.962	4.812	5.768	2.606	1.346	1.94		67	36	P00	114X4227
			38		1.781	2.302	2.903	3.592	4.378	5.263								
OP-MPYM034AJ	CAJ4519Z	G	27	1.65	2.185	2.805	3.521	4.340	5.269	6.309								
			32	1.498	2.000	2.581	3.251	4.018	4.889	5.866	2.627	1.416	1.86		67	36	P00	114X4226
			38		1.776	2.310	2.925	3.630	4.431	5.333								
OP-MPX034ML	MLZ015T4	E	27	2.367	2.937	3.590	4.334	5.172	6.108	7.142								
			32	2.187	2.726	3.343	4.046	4.839	5.727	6.711	3.409	1.647	2.07		68	37	P00	114X4264
			38	1.96	2.458	3.029	3.681	4.418	5.246	6.169								
OP-MPX034ML	MLZ015T5	G	27	2.355	2.929	3.587	4.336	5.179	6.118	7.153								
			32	2.189	2.731	3.351	4.057	4.852	5.741	6.725	3.418	1.604	2.13		68	37	P00	114X4261
			38	1.987	2.486	3.058	3.710	4.447	5.274	6.194								
OP-MPX046ML	MLZ021T4	E	27	3.171	3.926	4.785	5.753	6.835	8.032	9.343								
			32	2.923	3.633	4.439	5.349	6.367	7.497	8.738	4.535	2.237	2.03		68	37	P00	114X4284
			38	2.615	3.267	4.007	4.843	5.783	6.829	7.985								
OP-MPX046ML	MLZ021T5	G	27	3.175	3.935	4.802	5.785	6.885	8.106	9.445								
			32	2.942	3.655	4.470	5.394	6.432	7.586	8.858	4.568	2.352	1.94		68	37	P00	114X4281
			38	2.657	3.311	4.058	4.908	5.866	6.938	8.127								
			43		3.018	3.705	4.490	5.379	6.379	7.495								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz
E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -35 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio, Q [kW], Cooling Capacity, P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Plus - R449A - MBP (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]						Q [kW]	P [kW]	COP	SEPR					
				-20	-15	-10	-5	0	5									10
OP-MPXM057ML	MLZ026T4	E	27	3.803	4.716	5.734	6.861	8.099	9.446	10.901							P00	114X4293
			32	3.464	4.325	5.281	6.338	7.500	8.767	10.138	5.406	2.940	1.84	3.15	68	37		
			38	3.04	3.832	4.710	5.680	6.748	7.916	9.186								
			43		3.403	4.213	5.107	6.093	7.176	8.360								
OP-MPXM057ML	MLZ026T5	G	27	3.855	4.760	5.782	6.924	8.188	9.569	11.064							P00	114X4290
			32	3.553	4.395	5.345	6.409	7.587	8.880	10.284	5.475	3.082	1.78	2.93	68	37		
			38	3.176	3.936	4.795	5.758	6.830	8.013	9.306								
			43		3.539	4.315	5.190	6.169	7.257	8.454								
OP-MPXM068ML	MLZ030T5	G	27	4.802	5.948	7.255	8.735	10.397	12.244	14.278							P00	114X4308
			32	4.436	5.518	6.751	8.148	9.719	11.469	13.403	6.890	3.266	2.11	3.30	69	38		
			38	3.983	4.982	6.121	7.414	8.872	10.503	12.313								
			43		4.520	5.577	6.779	8.139	9.667	11.373								
OP-MPXM068ML	MLZ030T4	E	27	4.849	5.986	7.285	8.758	10.412	12.255	14.287							P00	114X4311
			32	4.475	5.548	6.773	8.163	9.727	11.472	13.402	6.911	3.138	2.20	3.48	69	38		
			38	4.001	4.992	6.123	7.409	8.860	10.486	12.292								
			43		4.505	5.553	6.748	8.102	9.625	11.326								
OP-MPXM080ML	MLZ038T5	G	27	5.542	6.838	8.298	9.933	11.744	13.735	15.900							P00	114X4321
			32	5.155	6.375	7.747	9.279	10.980	12.850	14.891	7.919	3.985	1.99	3.07	69	38		
			38	4.667	5.790	7.049	8.456	10.018	11.742	13.631								
			43		5.279	6.439	7.736	9.180	10.778	12.539								
OP-MPXM080ML	MLZ038T4	E	27	5.641	6.937	8.405	10.056	11.893	13.917	16.126							P00	114X4324
			32	5.202	6.420	7.800	9.351	11.080	12.990	15.081	7.969	3.716	2.14	3.49	69	38		
			38	4.654	5.774	7.041	8.469	10.064	11.833	13.779								
			43		5.214	6.383	7.703	9.183	10.832	12.654								
OP-MPXM108ML	MLZ048T4	E	27	7.341	9.051	10.981	13.140	15.530	18.149	20.992							P00	114X4344
			32	6.758	8.360	10.166	12.187	14.428	16.891	19.572	10.403	5.300	1.96	3.31	75	44		
			38	6.033	7.496	9.145	10.994	13.050	15.319	17.804								
			43		6.748	8.258	9.957	11.854	13.958	16.275								
OP-MPXM125ML	MLZ058T4	E	27	8.733	10.765	13.070	15.662	18.547	21.726	25.194							P00	114X4414
			32	8.075	9.981	12.142	14.573	17.284	20.279	23.558	12.411	5.856	2.12	3.42	77	46		
			38	7.255	8.998	10.974	13.204	15.698	18.466	21.514								
			43		8.146	9.960	12.013	14.320	16.893	19.744								
OP-MPXM162ML	MLZ076T4	E	27	10.56	13.195	16.185	19.547	23.287	27.404	31.890							P00	114X4434
			32	9.631	12.108	14.920	18.084	21.611	25.504	29.760	15.258	7.988	1.91	3.13	77	46		
			38	8.473	10.745	13.328	16.243	19.504	23.119	27.093								
			43		9.564	11.942	14.638	17.667	21.042	24.775								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio, Q [kW], Cooling Capacity, P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Plus - R452A - MBP *)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code		
				Te [°C]						Q [kW]	P [kW]	COP	SEPR						
				-20	-15	-10	-5	0	5									10	
OP-MPYM018AJ	CAJ9510Z	G	27	1.020	1.315	1.665	2.079	2.564	3.126	3.772									
			32	0.928	1.202	1.526	1.910	2.360	2.884	3.487	1.588	0.860	1.85		64	33	P00	114X4230	
			38	-	-	1.358	1.705	2.114	2.591	3.142									
			43	-	-	1.216	1.533	1.907	2.345	2.852									
OP-MPYM024AJ	CAJ9513Z	G	27	-	1.649	2.109	2.647	3.267	3.974	-									
			32	-	1.491	1.916	2.413	2.988	3.645	-	1.995	0.994	2.01		64	33	P00	114X4200	
			38	-	1.302	1.685	2.134	2.655	3.252	-									
			43	-	1.143	1.493	1.902	2.377	2.924	-									
OP-MPYM026AJ	CAJ4517Z	G	27	1.442	1.848	2.322	2.876	3.515	4.246	5.071									
			32	1.304	1.681	2.121	2.634	3.228	3.908	4.678	2.210	1.113	1.99		67	36	P00	114X4212	
			38	1.138	1.480	1.878	2.342	2.880	3.499	4.203									
			43	-	1.311	1.674	2.097	2.589	3.156	3.804									
OP-MPYM026AJ	TAJ4517Z	E	27	1.417	1.840	2.328	2.893	3.541	4.278	5.109									
			32	1.267	1.664	2.122	2.649	3.253	3.943	4.721	2.211	1.169	1.89		67	36	P00	114X4213	
			38	1.085	1.450	1.868	2.349	2.902	3.532	4.246									
			43	-	1.270	1.654	2.096	2.603	3.184	3.843									
OP-MPYM034AJ	TAJ4519Z	E	27	1.797	2.297	2.873	3.534	4.286	5.133	6.077									
			32	1.625	2.094	2.631	3.245	3.944	4.732	5.612	2.746	1.490	1.84		68	37	P00	114X4227	
			38	1.415	1.845	2.335	2.893	3.529	4.246	5.049									
			43	-	1.633	2.083	2.595	3.177	3.834	4.571									
OP-MPYM034AJ	CAJ4519Z	G	27	1.796	2.318	2.917	3.605	4.387	5.269	6.251									
			32	1.619	2.107	2.666	3.305	4.031	4.851	5.766	2.784	1.563	1.78		68	37	P00	114X4226	
			38	1.403	1.849	2.357	2.935	3.594	4.338	5.171									
			43	-	1.631	2.094	2.621	3.222	3.901	4.663									
OP-MPX034ML	MLZ015T4	E	27	2.543	3.128	3.789	4.528	5.345	6.239	7.205									
			32	2.311	2.854	3.466	4.151	4.909	5.739	6.639	3.532	1.596	2.21		69	38	P00	114X4264	
			38	2.020	2.509	3.062	3.680	4.365	5.117	5.937									
			43	1.767	2.211	2.711	3.271	3.894	4.581	5.333									
OP-MPX034ML	MLZ015T5	G	27	2.660	3.222	3.858	4.568	5.354	6.216	7.152									
			32	2.461	2.983	3.575	4.238	4.973	5.781	6.664	3.646	1.684	2.16		69	38	P00	114X4261	
			38	2.214	2.688	3.227	3.831	4.505	5.249	6.065									
			43	2.003	2.436	2.929	3.485	4.106	4.796	5.557									
OP-MPX046ML	MLZ021T4	E	27	3.493	4.224	5.044	5.951	6.942	8.014	9.159									
			32	3.224	3.901	4.658	5.495	6.412	7.405	8.470	4.761	2.224	2.14		69	38	P00	114X4284	
			38	2.886	3.494	4.172	4.923	5.748	6.645	7.612									
			43	2.592	3.139	3.749	4.426	5.172	5.987	6.871									
OP-MPX046ML	MLZ021T5	G	27	3.425	4.224	5.114	6.096	7.164	8.312	9.534									
			32	3.194	3.940	4.768	5.678	6.667	7.730	8.862	4.877	2.346	2.08		69	38	P00	114X4281	
			38	2.885	3.562	4.310	5.130	6.021	6.980	8.005									
			43	2.602	3.217	3.894	4.637	5.444	6.315	7.250									
OP-MPX057MLP00G	MLZ026T5	G	27	4.122	4.969	5.913	6.954	8.086	9.304	10.600									
			32	3.800	4.578	5.447	6.404	7.449	8.576	9.781	5.583	3.142	1.78	3.04	69	38	P00	114X4290	
			38	3.403	4.096	4.870	5.726	6.662	7.679	8.772									
			43	3.060	3.680	4.373	5.141	5.986	6.908	7.908									
OP-MPX057MLP00E	MLZ026T4	E	27	4.125	4.972	5.918	6.962	8.098	9.321	10.624									
			32	3.805	4.584	5.455	6.416	7.465	8.597	9.809	5.590	3.022	1.85	3.15	69	38	P00	114X4293	
			38	3.411	4.106	4.883	5.742	6.684	7.706	8.807									
			43	3.071	3.693	4.389	5.162	6.012	6.941	7.949									
OP-MPX068MLP00G	MLZ030T5	G	27	5.420	6.596	7.933	9.440	11.120	12.973	14.995									
			32	5.017	6.119	7.373	8.785	10.361	12.103	14.012	7.516	3.195	2.35	3.79	70	39	P00	114X4308	
			38	4.514	5.524	6.671	7.965	9.414	11.021	12.790									
			43	4.076	5.006	6.061	7.254	8.593	10.086	11.736									
OP-MPX068MLP00E	MLZ030T4	E	27	5.417	6.593	7.931	9.439	11.120	12.975	15.000									
			32	5.016	6.118	7.371	8.784	10.362	12.107	14.018	7.514	3.131	2.40	3.87	70	39	P00	114X4311	
			38	4.514	5.524	6.671	7.966	9.417	11.027	12.799									
			43	4.078	5.007	6.062	7.256	8.597	10.093	11.747									

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

*) Preliminary data

SEPR, Seasonal Energy Performance Ratio, Q [kW], Cooling Capacity, P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



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Technical data and ordering

Optyma™ Plus - R452A - MBP *) (count.)

Performance data

Model	Compressor	Electrical code 1)	Tamb [°C]	Cooling capacity Q [kW] 2)						EcoDesign 3)				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
				Te [°C]						Q [kW]	P [kW]	COP	SEPR					
				-20	-15	-10	-5	0	5									10
OP-MPXM080MLP00G	MLZ038T5	G	27	6.388	7.726	9.237	10.922	12.779	14.805	16.989	8.733	3.937	2.22	3.61	70	39	P00	114X4321
			32	5.906	7.152	8.555	10.120	11.846	13.732	15.772								
			38	5.291	6.418	7.686	9.100	10.665	12.380	14.243								
			43	4.747	5.768	6.918	8.203	9.628	11.198	12.911								
OP-MPXM080MLP00E	MLZ038T4	E	27	6.425	7.767	9.281	10.971	12.837	14.875	17.078	8.780	3.684	2.38	3.84	70	39	P00	114X4324
			32	5.939	7.191	8.602	10.177	11.918	13.822	15.886								
			38	5.314	6.450	7.730	9.159	10.743	12.482	14.376								
			43	4.762	5.793	6.956	8.257	9.705	11.302	13.051								
OP-MPXM108MLP00E	MLZ048T4	E	27	8.136	9.851	11.742	13.807	16.038	18.425	20.953	11.027	5.463	2.02	3.48	70	39	P00	114X4344
			32	7.419	9.018	10.776	12.693	14.763	16.980	19.334								
			38	6.510	7.957	9.545	11.275	13.147	15.155	17.296								
			43	5.717	7.027	8.465	10.033	11.733	13.563	15.523								
OP-MPXM125MLP00E	MLZ058T4	E	27	9.354	11.537	13.979	16.684	19.656	22.893	26.389	13.487	5.945	2.27	3.61	77	46	P00	114X4414
			32	8.516	10.574	12.872	15.416	18.213	21.264	24.570								
			38	7.458	9.357	11.472	13.815	16.395	19.218	22.295								
			43	6.532	8.289	10.244	12.412	14.805	17.435	20.319								
OP-MPXM162MLP00E	MLZ076T4	E	27	12.410	14.960	17.771	20.824	24.095	27.559	31.190	16.991	8.093	2.10	3.38	77	46	P00	114X4434
			32	11.327	13.638	16.177	18.933	21.890	25.031	28.338								
			38	9.967	11.978	14.180	16.572	19.145	21.894	24.809								
			43	8.792	10.540	12.451	14.530	16.778	19.194	21.780								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

*) Preliminary data

SEPR, Seasonal Energy Performance Ratio,

Q [kW], Cooling Capacity,

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Plus - R407A - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5	10								
OP-MPXM034ML	MLZ015T4	E	27	2.297	2.872	3.545	4.322	5.210	6.211	7.326							P00	114X4264
			32	2.112	2.653	3.288	4.024	4.865	5.815	6.876	3.351	1.536	2.18		68	37		
			38	1.881	2.379	2.965	3.648	4.431	5.318	6.312								
			43	2.141	2.684	3.320	4.053	4.886	5.822									
OP-MPXM034ML	MLZ015T5	G	27	2.326	2.908	3.588	4.374	5.271	6.282	7.408							P00	114X4261
			32	2.138	2.686	3.328	4.071	4.921	5.881	6.952	3.392	1.560	2.17		68	37		
			38	1.903	2.407	3.000	3.690	4.480	5.376	6.379								
			43	2.166	2.715	3.357	4.097	4.938	5.882									
OP-MPXM046ML	MLZ021T4	E	27	2.968	3.727	4.597	5.584	6.691	7.919	9.265							P00	114X4284
			32	2.732	3.451	4.274	5.206	6.252	7.413	8.687	4.364	2.204	1.98		68	37		
			38	2.438	3.105	3.868	4.732	5.702	6.780	7.965								
			43	2.805	3.515	4.320	5.225	6.231	7.339									
OP-MPXM046ML	MLZ021T5	G	27	3.021	3.794	4.678	5.680	6.803	8.047	9.411							P00	114X4281
			32	2.781	3.512	4.348	5.294	6.355	7.531	8.820	4.440	2.248	1.97		68	37		
			38	2.48	3.159	3.933	4.810	5.794	6.885	8.083								
			43	2.852	3.572	4.389	5.306	6.324	7.445									
OP-MPXM057ML	MLZ026T4	E	27	3.575	4.477	5.501	6.652	7.929	9.331	10.849							P00	114X4293
			32	3.281	4.132	5.096	6.179	7.381	8.699	10.128	5.214	2.788	1.87	3.01	68	37		
			38	2.912	3.698	4.588	5.586	6.693	7.909	9.229								
			43	3.320	4.144	5.068	6.094	7.223	8.448									
OP-MPXM057ML	MLZ026T5	G	27	3.636	4.551	5.590	6.757	8.051	9.468	11.002							P00	114X4290
			32	3.336	4.199	5.178	6.275	7.492	8.824	10.267	5.298	2.833	1.87	3.02	68	37		
			38	2.960	3.757	4.659	5.670	6.790	8.019	9.350								
			43	3.372	4.206	5.141	6.180	7.319	8.555									
OP-MPXM068ML	MLZ030T5	G	27	4.657	5.759	7.057	8.559	10.269	12.191	14.322							P00	114X4308
			32	4.361	5.381	6.589	7.994	9.602	11.415	13.433	6.722	3.117	2.16	3.46	68	37		
			38	4.021	4.938	6.034	7.318	8.798	10.476	12.354								
			43	4.579	5.576	6.756	8.124	9.687	11.445									
OP-MPXM068ML	MLZ030T4	E	27	4.693	5.804	7.111	8.624	10.346	12.281	14.426							P00	114X4311
			32	4.395	5.424	6.642	8.057	9.677	11.503	13.534	6.774	2.991	2.27	3.62	68	37		
			38	4.054	4.979	6.084	7.379	8.870	10.561	12.453								
			43	4.619	5.625	6.815	8.195	9.770	11.542									
OP-MPXM080ML	MLZ038T5	G	27	5.297	6.531	7.978	9.644	11.533	13.643	15.969							P00	114X4321
			32	4.957	6.097	7.441	8.996	10.767	12.753	14.950	7.601	3.817	1.99	3.22	68	37		
			38	4.568	5.588	6.801	8.217	9.841	11.674	13.713								
			43	5.176	6.275	7.570	9.066	10.767	12.669									
OP-MPXM080ML	MLZ038T4	E	27	5.357	6.606	8.069	9.754	11.663	13.796	16.145							P00	114X4324
			32	5.016	6.170	7.530	9.104	10.895	12.904	15.126	7.691	3.546	2.17	3.48	68	37		
			38	4.624	5.659	6.889	8.324	9.969	11.824	13.887								
			43	5.245	6.361	7.675	9.193	10.916	12.844									
OP-MPXM108ML	MLZ048T4	E	27	6.935	8.714	10.739	13.021	15.563	18.365	21.418							P00	114X4344
			32	6.269	7.949	9.862	12.019	14.424	17.077	19.972	10.082	5.206	1.94	3.19	68	37		
			38	5.444	7.003	8.777	10.780	13.017	15.490	18.194								
			43	6.188	7.844	9.715	11.810	14.131	16.675									
OP-MPXM125ML	MLZ058T4	E	27	8.114	10.135	12.435	15.023	17.903	21.073	24.524							P00	114X4414
			32	7.45	9.356	11.519	13.951	16.659	19.640	22.888	11.766	5.925	1.99	3.18	68	37		
			38	6.624	8.385	10.379	12.621	15.117	17.869	20.873								
			43	7.545	9.394	11.473	13.790	16.349	19.147									
OP-MPXM162ML	MLZ076T4	E	27	10.156	12.831	15.872	19.291	23.090	27.263	31.793							P00	114X4434
			32	9.173	11.702	14.573	17.800	21.388	25.332	29.620	14.892	7.845	1.90	3.11	68	37		
			38	7.955	10.300	12.959	15.949	19.278	22.944	26.936								
			43	9.092	11.568	14.355	17.463	20.892	24.633									

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



Technical data and ordering

Optyma™ Plus - R407F - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5	10								
OP-MPXM034ML	MLZ015T4	E	27	2.441	3.044	3.746	4.555	5.477	6.514	7.669							P00	114X4264
			32	2.25	2.819	3.483	4.250	5.125	6.112	7.213	3.515	1.639	2.14		68	37		
			38		2.536	3.151	3.864	4.681	5.605	6.638								
			43			2.861	3.526	4.292	5.161	6.136								
OP-MPXM034ML	MLZ015T5	G	27	2.499	3.115	3.833	4.659	5.598	6.655	7.831							P00	114X4261
			32	2.303	2.884	3.563	4.345	5.237	6.243	7.362	3.596	1.680	2.14		68	37		
			38		2.594	3.221	3.948	4.780	5.721	6.772								
			43			2.924	3.602	4.381	5.266	6.257								
OP-MPXM046ML	MLZ021T4	E	27	3.186	3.991	4.910	5.946	7.103	8.380	9.776							P00	114X4284
			32	2.94	3.704	4.574	5.555	6.650	7.860	9.183	4.624	2.390	1.94		68	37		
			38		3.343	4.151	5.062	6.080	7.207	8.439								
			43			3.781	4.631	5.583	6.637	7.792								
OP-MPXM046ML	MLZ021T5	G	27	3.243	4.062	4.995	6.047	7.220	8.515	9.928							P00	114X4281
			32	2.993	3.769	4.652	5.647	6.758	7.984	9.322	4.704	2.439	1.93		68	37		
			38		3.400	4.220	5.144	6.176	7.316	8.563								
			43			3.842	4.704	5.668	6.734	7.902								
OP-MPXM057ML	MLZ026T4	E	27	3.782	4.724	5.790	6.983	8.302	9.743	11.298							P00	114X4293
			32	3.479	4.370	5.375	6.499	7.742	9.100	10.567	5.445	2.992	1.82	2.98	68	37		
			38		3.923	4.852	5.889	7.037	8.293	9.650								
			43			4.393	5.355	6.421	7.587									
OP-MPXM057ML	MLZ026T5	G	27	3.898	4.867	5.960	7.182	8.530	10.000	11.583							P00	114X4290
			32	3.584	4.499	5.530	6.680	7.949	9.333	10.824	5.604	3.095	1.81	2.98	68	37		
			38		4.035	4.986	6.047	7.218	8.495	9.873								
			43			4.510	5.493	6.578	7.764									
OP-MPXM068ML	MLZ030T5	G	27	5.011	6.171	7.530	9.097	10.876	12.869	15.074							P00	114X4308
			32	4.713	5.790	7.058	8.527	10.203	12.087	14.178	7.129	3.361	2.12	3.41	69	38		
			38		5.344	6.497	7.843	9.389	11.137	13.088								
			43			6.036	7.275	8.708	10.339	12.168								
OP-MPXM068ML	MLZ030T4	E	27	5.049	6.219	7.588	9.166	10.958	12.964	15.184							P00	114X4311
			32	4.75	5.836	7.115	8.595	10.282	12.180	14.286	7.186	3.224	2.23	3.58	69	38		
			38		5.388	6.552	7.909	9.467	11.229	13.194								
			43			6.089	7.339	8.784	10.429	12.273								
OP-MPXM080ML	MLZ038T5	G	27	5.698	6.996	8.510	10.247	12.208	14.394	16.797							P00	114X4321
			32	5.357	6.559	7.967	9.591	11.433	13.494	15.767	8.059	4.134	1.95	3.16	69	38		
			38		6.046	7.321	8.803	10.496	12.400	14.513								
			43			6.791	8.148	9.710	11.480	13.453								
OP-MPXM080ML	MLZ038T4	E	27	5.713	7.016	8.534	10.277	12.245	14.438	16.850							P00	114X4324
			32	5.372	6.579	7.993	9.623	11.473	13.541	15.824	8.084	3.938	2.05	3.32	69	38		
			38		6.067	7.349	8.838	10.539	12.453	14.576								
			43			6.820	8.185	9.757	11.537	13.522								
OP-MPXM108ML	MLZ048T4	E	27	7.187	9.007	11.068	13.382	15.956	18.789	21.877							P00	114X4344
			32	6.517	8.243	10.196	12.389	14.829	17.517	20.450	10.322	5.568	1.85	3.07	75	44		
			38		7.290	9.110	11.154	13.430	15.942	18.687								
			43			8.169	10.086	12.224	14.588	17.175								
OP-MPXM125ML	MLZ058T4	E	27	8.71	10.842	13.251	15.948	18.937	22.213	25.769							P00	114X4414
			32	8.024	10.040	12.313	14.853	17.667	20.753	24.104	12.456	6.423	1.94	3.13	77	46		
			38		9.036	11.138	13.486	16.087	18.941	22.044								
			43			10.116	12.299	14.719	17.377	20.272								
OP-MPXM162ML	MLZ076T4	E	27	10.814	13.619	16.792	20.344	24.275	28.576	33.225							P00	114X4434
			32	9.803	12.462	15.466	18.827	22.547	26.618	31.020	15.654	8.407	1.86	3.05	77	46		
			38		11.009	13.801	16.925	20.383	24.170	28.268								
			43			12.346	15.263	18.496	22.039	25.877								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10K, Subcooling 0K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Plus - R404A / R507 - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾						EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code			
				Te [°C]						Q [kW]	P [kW]	COP	SEPR							
				-20	-15	-10	-5	0	5									10		
OP-MPYM008MY	MLY80RAB	G	27		0.756	0.936	1.132	1.345	1.573											
			32		0.683	0.848	1.031	1.230	1.446		0.888	0.421	2.11		60	29				
			38		0.596	0.744	0.909	1.092	1.293											
			43		0.524	0.657	0.808	0.978	1.165											
OP-MPYM009MY	MLY90RAB	G	27		0.814	1.007	1.217	1.443	1.684											
			32		0.737	0.914	1.108	1.319	1.546		0.960	0.480	1.99		61	30				
			38		0.644	0.802	0.978	1.171	1.381											
			43		0.568	0.709	0.869	1.047	1.244											
OP-MPYM012MP	MPT12RA	G	27		1.115	1.365	1.631	1.914	2.213	2.526										
			32		1.010	1.239	1.486	1.751	2.033	2.331	1.300	0.646	2.01		63	32				
			38		0.883	1.089	1.313	1.556	1.817	2.097										
			43		0.779	0.964	1.169	1.394	1.638	1.902										
OP-MPYM014MP	MPT14RA	G	27		1.130	1.396	1.685	1.999	2.335	2.693										
			32		1.031	1.276	1.546	1.841	2.160	2.502	1.340	0.795	1.69		60	29				
			38		0.913	1.133	1.380	1.652	1.950	2.274										
			43		0.814	1.014	1.241	1.494	1.775	2.084										
OP-MPYM018AJ	CAJ9510Z	G	27	1.184	1.477	1.818	2.209	2.651	3.146	3.694										
			32	1.078	1.351	1.666	2.024	2.429	2.881	3.382	1.746	0.903	1.93		67	36				
			38			1.480	1.800	2.160	2.561	3.005										
			43			1.324	1.612	1.933	2.292	2.688										
OP-MPYM024AJ	CAJ9513Z	G	27		1.822	2.288	2.820	3.418	4.082	4.808										
			32		1.638	2.067	2.557	3.108	3.720	4.392	2.168	1.045	2.07		67	36				
			38		1.417	1.804	2.243	2.738	3.288	3.895										
			43		1.235	1.586	1.983	2.431	2.930	3.482										
OP-MPYM026AJ	CAJ4517Z	G	27	1.626	2.039	2.517	3.061	3.674	4.356	5.104										
			32	1.459	1.844	2.285	2.788	3.353	3.982	4.675	2.399	1.172	2.05		67	36				
			38	1.259	1.609	2.007	2.459	2.967	3.533	4.159										
			43		1.413	1.776	2.185	2.644	3.157	3.728										
OP-MPYM026AJ	TAJ4517Z	E	27	1.595	2.029	2.522	3.078	3.700	4.388	5.141										
			32	1.416	1.824	2.285	2.802	3.379	4.017	4.717	2.398	1.231	1.95		67	36				
			38	1.199	1.575	1.996	2.465	2.987	3.565	4.200										
			43		1.368	1.754	2.182	2.657	3.184	3.765										
OP-MPYM034AJ	TAJ4519Z	E	27	2.018	2.526	3.102	3.747	4.461	5.242	6.087										
			32	1.811	2.287	2.823	3.420	4.079	4.799	5.581	2.970	1.573	1.89		67	36				
			38	1.559	1.997	2.484	3.023	3.616	4.264	4.969										
			43		1.753	2.199	2.689	3.227	3.815	4.456										
OP-MPYM034AJ	CAJ4519Z	G	27	2.015	2.547	3.147	3.819	4.563	5.376	6.257										
			32	1.802	2.300	2.859	3.480	4.166	4.916	5.729	3.008	1.650	1.82		67	36				
			38	1.544	2.000	2.506	3.065	3.680	4.353	5.085										
			43		1.749	2.209	2.715	3.270	3.878	4.541										
OP-MPX034ML	MLZ015T4	E	27	2.502	3.081	3.734	4.463	5.272	6.158	7.121										
			32	2.251	2.793	3.398	4.073	4.820	5.640	6.535	3.580	1.693	2.11		68	37				
			38	1.926	2.424	2.974	3.584	4.258	5.001	5.814										
			43	1.634	2.095	2.600	3.157	3.772	4.451	5.198										
OP-MPX034ML	MLZ015T5	G	27	2.591	3.149	3.783	4.496	5.289	6.163	7.122										
			32	2.373	2.890	3.478	4.142	4.882	5.703	6.608	3.669	1.762	2.08		68	37				
			38	2.101	2.569	3.102	3.705	4.383	5.139	5.981										
			43	1.867	2.293	2.780	3.334	3.959	4.662	5.452										
OP-MPX046ML	MLZ021T4	E	27	3.404	4.124	4.928	5.824	6.815	7.905	9.099										
			32	3.108	3.772	4.514	5.340	6.257	7.271	8.390	4.778	2.350	2.03		68	37				
			38	2.729	3.325	3.990	4.731	5.559	6.482	7.511										
			43	2.392	2.930	3.529	4.199	4.952	5.798	6.754										
OP-MPX046ML	MLZ021T5	G	27	3.450	4.182	5.004	5.917	6.922	8.018	9.203										
			32	3.147	3.821	4.578	5.421	6.352	7.371	8.481	4.848	2.435	1.99		68	37				
			38	2.762	3.365	4.043	4.800	5.640	6.567	7.586										
			43	2.422	2.964	3.574	4.258	5.022	5.872	6.817										

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio, Q [kW], Cooling Capacity, P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector*2** software



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Technical data and ordering

Optyma™ Plus - R404A / R507 - MBP (count.)

Performance data

Model	Compressor	Electrical code ¹⁾	Tamb [°C]	Cooling capacity Q [kW] ²⁾							EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
				Te [°C]							Q [kW]	P [kW]	COP	SEPR				
				-20	-15	-10	-5	0	5	10								
OP-MPXM057ML	MLZ026T5	G	27	3.973	4.806	5.741	6.777	7.912	9.142	10.467							P00	114X4290
			32	3.619	4.382	5.238	6.189	7.234	8.373	9.609	5.571	3.291	1.69	2.90	68	37		
			38	3.179	3.855	4.615	5.460	6.396	7.424	8.553								
			43	2.795	3.397	4.073	4.830	5.673	6.609	7.650								
OP-MPXM057ML	MLZ026T4	E	27	3.977	4.812	5.749	6.788	7.926	9.162	10.493							P00	114X4293
			32	3.625	4.390	5.249	6.203	7.252	8.397	9.639	5.580	3.164	1.76	3.01	68	37		
			38	3.189	3.868	4.630	5.480	6.420	7.455	8.590								
			43	2.809	3.414	4.094	4.855	5.703	6.645	7.693								
OP-MPXM068ML	MLZ030T5	G	27	5.273	6.446	7.786	9.302	10.997	12.876	14.938							P00	114X4308
			32	4.832	5.927	7.178	8.594	10.182	11.949	13.898	7.568	3.353	2.26	3.66	69	38		
			38	4.283	5.278	6.417	7.709	9.166	10.795	12.606								
			43	3.806	4.714	5.755	6.941	8.284	9.797	11.492								
OP-MPXM068ML	MLZ030T4	E	27	5.271	6.443	7.784	9.300	10.998	12.880	14.945							P00	114X4311
			32	4.832	5.926	7.177	8.594	10.185	11.954	13.907	7.566	3.279	2.31	3.73	69	38		
			38	4.284	5.279	6.418	7.711	9.170	10.803	12.618								
			43	3.809	4.717	5.758	6.945	8.291	9.806	11.506								
OP-MPXM080ML	MLZ038T5	G	27	6.066	7.469	9.041	10.768	12.634	14.626	16.730							P00	114X4321
			32	5.504	6.806	8.273	9.892	11.650	13.536	15.538	8.735	4.027	2.17	3.33	69	38		
			38	4.826	5.992	7.319	8.797	10.415	12.164	14.039								
			43	4.268	5.307	6.506	7.857	9.349	10.976	12.738								
OP-MPXM080ML	MLZ038T4	E	27	6.238	7.571	9.084	10.780	12.662	14.727	16.973							P00	114X4324
			32	5.708	6.948	8.353	9.930	11.682	13.612	15.720	8.822	3.856	2.29	3.71	69	38		
			38	5.026	6.146	7.415	8.842	10.434	12.197	14.137								
			43	4.423	5.435	6.584	7.881	9.335	10.956	12.755								
OP-MPXM108ML	MLZ048T4	E	27	7.856	9.491	11.303	13.308	15.517	17.940	20.584							P00	114X4344
			32	7.147	8.653	10.321	12.168	14.209	16.459	18.932	10.943	5.478	2.00	3.31	75	44		
			38	6.248	7.596	9.087	10.742	12.581	14.623	16.892								
			43	5.457	6.671	8.012	9.504	11.172	13.041	15.144								
OP-MPXM125ML	MLZ058T4	E	27	9.409	11.580	14.000	16.676	19.608	22.795	26.233							P00	114X4414
			32	8.513	10.552	12.820	15.326	18.074	21.068	24.310	13.539	6.214	2.18	3.48	77	46		
			38	7.385	9.257	11.334	13.628	16.149	18.906	21.911								
			43	6.404	8.125	10.034	12.145	14.472	17.028	19.836								
OP-MPXM162ML	MLZ076T4	E	27	12.516	15.012	17.725	20.689	23.929	27.465	31.318							P00	114X4434
			32	11.400	13.616	16.030	18.678	21.592	24.799	28.325	16.975	8.520	1.99	3.23	77	46		
			38	10.034	11.882	13.909	16.158	18.665	21.464	24.592								
			43	8.881	10.396	12.079	13.976	16.130	18.579	21.368								

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector**®2 software



Technical data and ordering

Optyma™ Plus

Ordering

Model number	Compressor Model	Application	Electrical code 1)	Refrigerant 2)	Condenser Coil			Fan	Receiver	Dimensions						Weight		Code no.		
					Type	Airflow	Internal Volume			Blade ø	Volume	Housing	Height	Width	Depth	Suction line	Liquid Line		Gross	Net
						[m ² /h]														
OP-LPQM017MPP00G	MPT16LA	LBP	G	Q	A7	2,200	0.41	1	365	1.3	H1	652	906	356	3/8	3/8	65	49	114X3118	
OP-LPQM026AJP00G	CAJ2446Z	LBP	G	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X3216	
OP-LPQM048NTP00G	NTZ048-5	LBP	G	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	5/8	3/8	102	80	114X3225	
OP-LPQM048NTP00E	NTZ048-4	LBP	E	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	5/8	3/8	102	80	114X3233	
OP-LPQM068NTP00G	NTZ068-5	LBP	G	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	5/8	3/8	102	80	114X3241	
OP-LPQM068NTP00E	NTZ068-4	LBP	E	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	5/8	3/8	102	80	114X3249	
OP-LPQM074FHP00G	FH2511Z	LBP	G	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	5/8	3/8	111	94	114X3252	
OP-LPQM074FHP00E	TFH2511Z	LBP	E	Q	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	5/8	3/8	106	89	114X3253	
OP-LPQM096NTP00E	NTZ096-4	LBP	E	Q	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	7/8	1/2	143	107	114X3357	
OP-LPQM136NTP00E	NTZ136-4	LBP	E	Q	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	1 1/8	1/2	143	107	114X3365	
OP-LPQM215LLP00E	LLZ024T4	LBP	E	Q	J7	9,500	2.03	2	500	10	H4	966	1800	600	1 1/8	3/4	218	169	114X3476	
OP-LPQM271LLP00E	LLZ034T4	LBP	E	Q	J7	9,500	2.03	2	500	10	H4	966	1800	600	1 1/8	3/4	218	169	114X3482	
OP-MPYM008MYP00G	MLY80RAB	MBP	G	Y	A7	2,200	0.41	1	365	1.3	H1	652	906	356	3/8	1/4	65	49	114X4119	
OP-MPYM009MYP00G	MLY90RAB	MBP	G	Y	A7	2,200	0.41	1	365	1.3	H1	652	906	356	3/8	1/4	65	49	114X4120	
OP-MPYM012MPP00G	MPT12RA	MBP	G	Y	A7	2,200	0.41	1	365	1.3	H1	652	906	356	3/8	3/8	65	49	114X4121	
OP-MPYM014MPP00G	MPT14RA	MBP	G	Y	A7	2,200	0.41	1	365	1.3	H1	652	906	356	3/8	3/8	65	49	114X4122	
OP-MPYM024AJP00G	CAJ9513Z	MBP	G	Y	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4200	
OP-MPYM026AJP00G	CAJ4517Z	MBP	G	Y	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4212	
OP-MPYM026AJP00E	TAJ4517Z	MBP	E	Y	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4213	
OP-MPGM033AJP00G	CAJ4511Y	MBP	G	G	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4220	
OP-MPYM034AJP00G	CAJ4519Z	MBP	G	Y	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4226	
OP-MPYM034AJP00E	TAJ4519Z	MBP	E	Y	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4227	
OP-MPYM018AJP00G	CAJ9510Z	MBP	G	Y	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	1/2	3/8	97	80	114X4230	
OP-MPX034MLP00G	MLZ015T5	MBP	G	X	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	3/4	1/2	109	87	114X4261	
OP-MPX034MLP00E	MLZ015T4	MBP	E	X	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	3/4	1/2	109	87	114X4264	
OP-MPX046MLP00G	MLZ021T5	MBP	G	X	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	3/4	1/2	109	87	114X4281	
OP-MPX046MLP00E	MLZ021T4	MBP	E	X	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	3/4	1/2	109	87	114X4284	
OP-MPX057MLP00G	MLZ026T5	MBP	G	X	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	3/4	1/2	109	87	114X4290	
OP-MPX057MLP00E	MLZ026T4	MBP	E	X	D7	3,300	0.61	1	450	3.4	H2	813	1055	430	3/4	1/2	109	87	114X4293	
OP-MPX068MLP00G	MLZ030T5	MBP	G	X	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	7/8	5/8	137	101	114X4308	
OP-MPX068MLP00E	MLZ030T4	MBP	E	X	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	7/8	5/8	137	101	114X4311	
OP-MPX080MLP00G	MLZ038T5	MBP	G	X	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	7/8	5/8	137	101	114X4321	
OP-MPX080MLP00E	MLZ038T4	MBP	E	X	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	7/8	5/8	137	101	114X4324	
OP-MPX108MLP00E	MLZ048T4	MBP	E	X	G7	5,200	1.69	1	500	6.2	H3	967	1406	481	7/8	5/8	137	101	114X4344	
OP-MPX1125MLP00E	MLZ058T4	MBP	E	X	J7	9,500	2.03	2	500	10	H4	966	1800	600	1 1/8	3/4	218	169	114X4414	
OP-MPX1162MLP00E	MLZ076T4	MBP	E	X	J7	9,500	2.03	2	500	10	H4	966	1800	600	1 1/8	3/4	218	169	114X4434	

1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz
E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

2) G - R134a

X - R134a, R404A / R507, R407A, R407F, R449A, R448A

Y - R404A / R507, R449A

Q - R404A / R507, R452A



For regular updates and detailed capacities, please refer to Coolselector*2 software



Technical data and ordering

Optyma™ Plus

Spareparts & accessories - LBP

Designation	LPQM017MP	LPQM026AJ	LPQM048NT	LPQM048NT	LPQM068NT	LPQM068NT	LPQM074FH
Code Number	114X3118	114X3216	114X3225	114X3233	114X3241	114X3249	114X3252
Compressor Description	MPT16LA	CAJ2446Z	NTZ048-5	NTZ048-4	NTZ068-5	NTZ068-4	FH2511Z
Oil	POE32	RL32HA/HT	175PZ-POE	175PZ-POE	175PZ-POE	175PZ-POE	RL32HA/HT
Housing	H1	H2	H2	H2	H2	H2	H2
Spare Parts							
Compressor single pack	123B2127	118U3992	120F0228	120F0226	120F0232	120F0230	118U3914
Condenser	118U3492	118U3493	118U3493	118U3493	118U3493	118U3493	118U3493
Discharge pressure sensor	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722
Fan assembly							
Fan blade	118U3480	118U3481	118U3481	118U3481	118U3481	118U3481	118U3481
Fan capacitor	118U3296	118U3297	118U3297	118U3297	118U3297	118U3297	118U3297
Fan cowl/grill	118U3483	118U3484	118U3484	118U3484	118U3484	118U3484	118U3484
Fan motor	118U3477	118U3823	118U3823	118U3823	118U3823	118U3823	118U3823
Filter drier	023Z5039	023Z5040	023Z5040	023Z5040	023Z5040	023Z5040	023Z5040
High-pressure switch	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718
Liquid valve	009G7051	009G7051	009G7051	009G7051	009G7051	009G7051	009G7051
Low-pressure switch	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720
Receiver	118U3474	118U3475	118U3475	118U3475	118U3475	118U3475	118U3475
Sight glass	014L0182	014L0172	014L0172	014L0172	014L0172	014L0172	014L0172
Suction pressure sensor	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721
Suction valve	009G7051	009G7051	009G7053	009G7053	009G7053	009G7053	009G7053
Electrical Spare Parts							
Crankcase heater	192H2096	192H2096	120Z0459	120Z0459	120Z0459	120Z0459	120Z0459
Optyma™ Plus Controller	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465
Discharge temperature sensor	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007
Suction and ambient temp sensor	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003
Contact kit	118U3845	118U3845	118U3846	118U3845	118U3848	118U3845	118U3845
Door handle	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858
Main switch kit	118U3853	118U3851	118U3852	118U3853	118U3854	118U3851	118U3853
Run capacitor	123B9219		8173041		8173041		
Starting capacitor	123B9316	118U5191	8173001		8173001		118U5199
Starting relay	123B9151		8173022		8173022		
Electrical characteristics							
Wiring Diagram	WD7	WD3	WD3	WD5	WD3	WD5	WD3
LRA Compressor [A]	19	29	37	16	53	25	81
MCC Compressor [A]	4	7.9	11	5	17	8.4	24
Max cont.power [kW]	0.89	1.31	2.19	2	3.62	3.57	3.45
MCC Fan [A]	0.32	0.47	0.47	0	0.47	0.47	0.47
Fan Power [W]	1x25	1x68	1x68	1x68	1x68	1x68	1x68
Min Fuse rating gL/gG (A)	10	16	20	10	25	16	32
Accessories (not premounted)							
Acoustic hood			120Z575	120Z575	120Z575	120Z575	
Adap-Kool Accessories							
External Display & settings	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575
Cable for EKA Displays 6 m	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299
Mounting kit for EKA Display	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584
MODBUS Communication Module	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571
Lon-Bus Communication Module	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579
Programming Key	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582
Sheet Metal							
Top Panel	118U5121	118U5126	118U5126	118U5126	118U5126	118U5126	118U5126
Fan Panel	118U5122	118U5127	118U5127	118U5127	118U5127	118U5127	118U5127
Back Panel	118U5123	118U5128	118U5128	118U5128	118U5128	118U5128	118U5128
Front Panel	118U5124	118U5129	118U5129	118U5129	118U5129	118U5129	118U5129
Access Panel	118U5125	118U5130	118U5130	118U5130	118U5130	118U5130	118U5130
Left side Panel	118U5163	118U5164	118U5164	118U5164	118U5164	118U5164	118U5164
Fan Panel (LH)							
Fan Panel (RH)							

MCC - Max Continuous Current

LRA - Locked Rotor Amps

MCA - Minimum Circuit Ampacity

Technical data and ordering

Optyma™ Plus (count.)

Spareparts & accessories - LBP

Designation	LPQM074FH	LPQM096NT	LPQM136NT	LPQM215LL	LPQM271LL
Code Number	114X3253	114X3357	114X3365	114X3476	114X3482
Compressor Description	TFH2511Z	NTZ096-4	NTZ136-4	LLZ024T4	LLZ034T4
Oil	RL32HA/HT	175PZ-POE	175PZ-POE	215PZ-POE46	215PZ-POE46
Housing	H2	H3	H3	H4	H4
Spare Parts					
Compressor single pack	118U3915	120F0234	120F0236	121L9541	121L9543
Condenser	118U3493	118U3494	118U3494	118U3717	118U3717
Discharge pressure sensor	118U3722	118U3722	118U3722	118U3722	118U3722
Fan assembly		118U3829	118U3829	118U3829	118U3829
Fan blade	118U3481				
Fan capacitor	118U3297				
Fan cowl/grill	118U3484	118U3485	118U3485	118U3485	118U3485
Fan motor	118U3823				
Filter drier	023Z5040	023Z5044	023Z5044	023Z5046	023Z5046
High-pressure switch	118U3718	118U3718	118U3718	118U3718	118U3718
Liquid valve	009G7051	009G7052	009G7052	009G7054	009G7054
Low-pressure switch	118U3720	118U3720	118U3720	118U3720	118U3720
Receiver	118U3475	118U3476	118U3476	118U3716	118U3716
Sight glass	014L0172	014L0173	014L0173	014L0175	014L0175
Suction pressure sensor	118U3721	118U3721	118U3721	118U3721	118U3721
Suction valve	009G7053	009G7055	009G7056	009G7056	009G7056
Electrical Spare Parts					
Crankcase heater	120Z0459	120Z0459	120Z0459	120Z5040	120Z5040
Optyma™ Plus Controller	118U3465	118U3465	118U3465	118U3465	118U3465
Discharge temperature sensor	084N2007	084N2007	084N2007	084N2007	084N2007
Suction and ambient temp sensor	084N0003	084N0003	084N0003	084N0003	084N0003
Contact kit	118U3845	118U3846	118U3847	118U3848	118U3848
Door handle	118U3858	118U3858	118U3858	118U3858	118U3858
Main switch kit	118U3853	118U3851	118U3852	118U3856	118U3856
Run capacitor					
Starting capacitor					
Starting relay					
Electrical characteristics					
Wiring Diagram	WD5	WD5	WD5	WD6	WD6
LRA Compressor [A]	28	32	51	95	150
MCC Compressor [A]	7.2	10.1	14.3	21	26
Max cont.power [kW]	3.34	4.53	6.87	7.96	11.1
MCC Fan [A]	0.47	0.97	0.97	2x0.97	2x0.97
Fan Power [W]	1x68	1x130	1x130	2x130	2x130
Min Fuse rating gL/gG (A)	16	16	20	32	40
Accessories (not premounted)					
Acoustic hood		120Z576	120Z576	120Z5053	120Z5055
Adap-Kool Accessories					
External Display & settings	084B8575	084B8575	084B8575	084B8575	084B8575
Cable for EKA Displays 6 m	084B7299	084B7299	084B7299	084B7299	084B7299
Mounting kit for EKA Display	084B8584	084B8584	084B8584	084B8584	084B8584
MODBUS Communication Module	084B8571	084B8571	084B8571	084B8571	084B8571
Lon-Bus Communication Module	084B8579	084B8579	084B8579	084B8579	084B8579
Programming Key	084B8582	084B8582	084B8582	084B8582	084B8582
Sheet Metal					
Top Panel	118U5126	118U5131	118U5131	118U5136	118U5136
Fan Panel	118U5127	118U5132	118U5132		
Back Panel	118U5128	118U5133	118U5133	118U5139	118U5139
Front Panel	118U5129	118U5134	118U5134		
Access Panel	118U5130	118U5135	118U5135	118U5140	118U5140
Left side Panel	118U5164	118U5165	118U5165	118U5166	118U5166
Fan Panel (LH)				118U5137	118U5137
Fan Panel (RH)				118U5138	118U5138

MCC - Max Continuous Current

LRA - Locked Rotor Amps

MCA - Minimum Circuit Ampacity

Technical data and ordering

Opty™ Plus (count.)

Spareparts & accessories - MBP

Designation	MPYM008MY	MPYM009MY	MPYM012MP	MPYM014MP	MPYM024AJ	MPYM026AJ	MPYM026AJ	MPGM033AJ	MPYM034AJ
Code Number	114X4119	114X4120	114X4121	114X4122	114X4200	114X4212	114X4213	114X4220	114X4226
Compressor Description	MLY90Rab	MLY90Rab	MPT12RA	MPT14RA	CAJ9513Z	CAJ4517Z	TAJ4517Z	CAJ4511Y	CAJ4519Z
Oil	POE32	POE32	POE32	POE32	RL32HA/HT	RL32HA/HT	RL32HA/HT	RL32HA/HT	RL32HA/HT
Housing	H1	H1	H1	H1	H2	H2	H2	H2	H2
Spare Parts									
Compressor single pack	123B2510	123B2514	123B2518	123B2704	118U3995	118U3993	118U3991	118U3996	118U3994
Condenser	118U3492	118U3492	118U3492	118U3492	118U3493	118U3493	118U3493	118U3493	118U3493
Discharge pressure sensor	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722
Fan assembly									
Fan blade	118U3480	118U3480	118U3480	118U3480	118U3481	118U3481	118U3481	118U3481	118U3481
Fan capacitor	118U3296	118U3296	118U3296	118U3296	118U3297	118U3297	118U3297	118U3297	118U3297
Fan cowl/grill	118U3483	118U3483	118U3483	118U3483	118U3484	118U3484	118U3484	118U3484	118U3484
Fan motor	118U3477	118U3477	118U3477	118U3477	118U3823	118U3823	118U3823	118U3823	118U3823
Filter drier	023Z5039	023Z5040	023Z5040	023Z5040	023Z5040	023Z5040	023Z5040	023Z5041	023Z5040
High-pressure switch	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718
Liquid valve	009G7050	009G7050	009G7051	009G7051	009G7022	009G7022	009G7022	009G7022	009G7022
Low-pressure switch	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720
Receiver	118U3474	118U3474	118U3474	118U3474	118U3475	118U3475	118U3475	118U3475	118U3475
Sight glass	014L0181	014L0181	014L0181	014L0181	014L0172	014L0172	014L0172	014L0172	014L0172
Suction pressure sensor	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721
Suction valve	009G7051	009G7051	009G7051	009G7051	009G7021	009G7021	009G7021	009G7021	009G7021
Electrical Spare Parts									
Crankcase heater	192H2096	192H2096	192H2096	192H2096	192H2096	192H2096	192H2096	192H2096	192H2096
Opty™ Plus Controller	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465
Discharge temperature sensor	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007
Suction and ambient temp sensor	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003
Contact kit	118U3845	118U3845	118U3845	118U3845	118U3845	118U3846	118U3845	118U3845	118U3847
Door handle	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858
Main switch kit	118U3853	118U3853	118U3853	118U3853	118U3851	118U3851	118U3851	118U3851	118U3852
Run capacitor	123B9315	123B9315	123B9315	123B9315					
Starting capacitor	123B9222	123B9222	123B9215	123B9226	118U5198	118U5195		118U5194	118U5196
Starting relay	123B9133	123B9133	123B9151	123B9139					
Electrical Characteristics									
Wiring Diagram	WD7	WD7	WD7	WD7	WD3	WD3	WD2	WD3	WD3
LRA Compressor [A]	14	17	18.5	21	33.5	38.5	18	30	45
MCC Compressor [A]	4.9	5.3	5.3	6.5	10.2	12.7	4	8.9	15.2
Max cont.power [kW]	0.55	0.62	0.84	1.03	1.75	1.96	2.05	1.5	2.7
MCC Fan [A]	0.32	0.32	0.32	0.32	0.47	0.47	0.47	0.47	0.47
Fan Power [W]	1x25	1x25	1x25	1x25	1x68	1x68	1x68	1x68	1x68
Min Fuse rating gL/gG (A)	10	10	10	16	20	20	10	16	20
Accessories (Not Premounted)									
Acoustic hood									
Adap-Kool Accessories									
External Display & settings	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575
Cable for EKA Displays 6 m	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299
Mounting kit for EKA Display	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584
MODBUS Communication Module	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571
Lon-Bus Communication Module	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579
Programming Key	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582
Sheet Metal									
Top Panel	118U5121	118U5121	118U5121	118U5121	118U5126	118U5126	118U5126	118U5126	118U5126
Fan Panel	118U5122	118U5122	118U5122	118U5122	118U5127	118U5127	118U5127	118U5127	118U5127
Back Panel	118U5123	118U5123	118U5123	118U5123	118U5128	118U5128	118U5128	118U5128	118U5128
Front Panel	118U5124	118U5124	118U5124	118U5124	118U5129	118U5129	118U5129	118U5129	118U5129
Access Panel	118U5125	118U5125	118U5125	118U5125	118U5130	118U5130	118U5130	118U5130	118U5130
Left side Panel	118U5163	118U5163	118U5163	118U5163	118U5164	118U5164	118U5164	118U5164	118U5164
Fan Panel (LH)									
Fan Panel (RH)									

MCC - Max Continuous Current
LRA - Locked Rotor Amps
MCA - Minimum Circuit Ampacity

Technical data and ordering

Optyma™ Plus (count.)

Spareparts & accessories - MBP

Designation	MPYM034AJ	MPYM018AJ	MPXM034ML	MPXM034ML	MPXM046ML	MPXM046ML	MPXM057ML	MPXM057ML	MPXM068ML
Code Number	114X4227	114X4230	114X4261	114X4264	114X4281	114X4284	114X4290	114X4293	114X4308
Compressor Description	TAJ4519Z	CAJ9510Z	MLZ015T5	MLZ015T4	MLZ021T5	MLZ021T4	MLZ026T5	MLZ026T4	MLZ030T5
Oil	RL32HA/HT	RL32HA/HT	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46
Housing	H2	H2	H2	H2	H2	H2	H2	H2	H3
Spare Parts									
Compressor single pack	118U3989	118U3988	121L8631	121L8629	121L8635	121L8633	121L8639	121L8637	121L8643
Condenser	118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3493	118U3494
Discharge pressure sensor	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722
Fan assembly									118U3829
Fan blade	118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	118U3481	
Fan capacitor	118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	118U3297	
Fan cowl/grill	118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3484	118U3485
Fan motor	118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	118U3823	
Filter drier	023Z5040	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5041	023Z5045
High-pressure switch	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718
Liquid valve	009G7022	009G7022	009G7052	009G7052	009G7052	009G7052	009G7052	009G7052	009G7053
Low-pressure switch	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720
Receiver	118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3475	118U3476
Sight glass	014L0172	014L0172	014L0173	014L0173	014L0173	014L0173	014L0173	014L0173	014L0174
Suction pressure sensor	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721
Suction valve	009G7021	009G7021	009G7054	009G7054	009G7054	009G7054	009G7054	009G7054	009G7055
Electrical Spare Parts									
Crankcase heater	192H2096	192H2096	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040
Optyma™ Plus Controller	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465
Discharge temperature sensor	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007
Suction and ambient temp sensor	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003
Contact kit	118U3847	118U3845	118U3848	118U3845	118U3848	118U3846	118U3849	118U3846	118U3849
Door handle	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858
Main switch kit	118U3852	118U3851	118U3854	118U3851	118U3856	118U3852	118U3856	118U3852	118U3857
Run capacitor			8173231		120Z0051		120Z0051		8173233
Starting capacitor		118U5197	120Z0399		120Z0399		120Z0399		120Z0040
Starting relay			120Z0393		120Z0393		120Z0393		120Z0394
Electrical Characteristics									
Wiring Diagram	WD2	WD2	WD4	WD5	WD4	WD5	WD4	WD5	WD4
LRA Compressor [A]	30	30	60	30	97	45	97	45	127
MCC Compressor [A]	7	8	19	7	25	9.5	26	10	32
Max cont.power [kW]	2.73	1.3	2.53	2.73	3.38	3.33	4.42	4.14	4.89
MCC Fan [A]	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.97
Fan Power [W]	1x68	1x68	1x68	1x68	1x68	1x68	1x68	1x68	1x130
Min Fuse rating gL/gG (A)	10	16	25	16	40	20	40	20	50
Accessories (Not Premounted)									
Acoustic hood			120Z5043	120Z5043	120Z5043	120Z5043	120Z5043	120Z5043	120Z5044
Adap-Kool Accessories									
External Display & settings	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575
Cable for EKA Displays 6 m	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299
Mounting kit for EKA Display	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584
MODBUS Communication Module	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571
Lon-Bus Communication Module	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579
Programming Key	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582
Sheet Metal									
Top Panel	118U5126	118U5126	118U5126	118U5126	118U5126	118U5126	118U5126	118U5126	118U5131
Fan Panel	118U5127	118U5127	118U5127	118U5127	118U5127	118U5127	118U5127	118U5127	118U5132
Back Panel	118U5128	118U5128	118U5128	118U5128	118U5128	118U5128	118U5128	118U5128	118U5133
Front Panel	118U5129	118U5129	118U5129	118U5129	118U5129	118U5129	118U5129	118U5129	118U5134
Access Panel	118U5130	118U5130	118U5130	118U5130	118U5130	118U5130	118U5130	118U5130	118U5135
Left side Panel	118U5164	118U5164	118U5164	118U5164	118U5164	118U5164	118U5164	118U5164	118U5165
Fan Panel (LH)									
Fan Panel (RH)									

MCC - Max Continuous Current
LRA - Locked Rotor Amps
MCA - Minimum Circuit Ampacity

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Technical data and ordering

Optyma™ Plus (count.)

Spareparts & accessories - MBP

Designation	MPXM068ML	MPXM080ML	MPXM080ML	MPXM108ML	MPXM125ML	MPXM162ML
Code Number	114X4311	114X4321	114X4324	114X4344	114X4414	114X4434
Compressor Description	MLZ030T4	MLZ038T5	MLZ038T4	MLZ048T4	MLZ058T4	MLZ076T4
Oil	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46	215PZ-POE46
Housing	H3	H3	H3	H3	H4	H4
Spare Parts						
Compressor single pack	121L8641	121L8647	121L8645	121L8651	121L8653	121L8655
Condenser	118U3494	118U3494	118U3494	118U3494	118U3717	118U3717
Discharge pressure sensor	118U3722	118U3722	118U3722	118U3722	118U3722	118U3722
Fan assembly	118U3829	118U3829	118U3829	118U3829	118U3829	118U3829
Fan blade						
Fan capacitor						
Fan cowl/grill	118U3485	118U3485	118U3485	118U3485	118U3485	118U3485
Fan motor						
Filter drier	023Z5045	023Z5045	023Z5045	023Z5045	023Z5046	023Z5046
High-pressure switch	118U3718	118U3718	118U3718	118U3718	118U3718	118U3718
Liquid valve	009G7053	009G7053	009G7053	009G7053	009G7054	009G7054
Low-pressure switch	118U3720	118U3720	118U3720	118U3720	118U3720	118U3720
Receiver	118U3476	118U3476	118U3476	118U3476	118U3716	118U3716
Sight glass	014L0174	014L0174	014L0174	014L0174	014L0175	014L0175
Suction pressure sensor	118U3721	118U3721	118U3721	118U3721	118U3721	118U3721
Suction valve	009G7055	009G7055	009G7055	009G7055	009G7056	009G7056
Electrical Spare Parts						
Crankcase heater	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040	120Z5040
Optyma™ Plus Controller	118U3465	118U3465	118U3465	118U3465	118U3465	118U3465
Discharge temperature sensor	084N2007	084N2007	084N2007	084N2007	084N2007	084N2007
Suction and ambient temp sensor	084N0003	084N0003	084N0003	084N0003	084N0003	084N0003
Contact kit	118U3847	118U3850	118U3847	118U3848	118U3847	118U3848
Door handle	118U3858	118U3858	118U3858	118U3858	118U3858	118U3858
Main switch kit	118U3852	118U3857	118U3852	118U3854	118U3855	118U3856
Run capacitor		8173234				
Starting capacitor		8173001				
Starting relay		120Z0395				
Electrical Characteristics						
Wiring Diagram	WD5	WD4	WD5	WD5	WD6	WD6
LRA Compressor [A]	60	130	70	87	95	140
MCC Compressor [A]	13	38	15	16	20	25
Max cont.power [kW]	4.88	5.77	5.78	7.55	9.39	11.41
MCC Fan [A]	0.97	0.47	0.97	0.97	2x0.97	2x0.97
Fan Power [W]	1x130	1x130	1x130	1x130	1x130	1x130
Min Fuse rating gL/gG (A)	20	50	20	25	32	40
Accessories (Not Premounted)						
Acoustic hood	120Z5044	120Z5044	120Z5044	120Z5044	120Z5045	120Z5045
Adap-Kool Accessories						
External Display & settings	084B8575	084B8575	084B8575	084B8575	084B8575	084B8575
Cable for EKA Displays 6 m	084B7299	084B7299	084B7299	084B7299	084B7299	084B7299
Mounting kit for EKA Display	084B8584	084B8584	084B8584	084B8584	084B8584	084B8584
MODBUS Communication Module	084B8571	084B8571	084B8571	084B8571	084B8571	084B8571
Lon-Bus Communication Module	084B8579	084B8579	084B8579	084B8579	084B8579	084B8579
Programming Key	084B8582	084B8582	084B8582	084B8582	084B8582	084B8582
Sheet Metal						
Top Panel	118U5131	118U5131	118U5131	118U5131	118U5136	118U5136
Fan Panel	118U5132	118U5132	118U5132	118U5132		
Back Panel	118U5133	118U5133	118U5133	118U5133	118U5139	118U5139
Front Panel	118U5134	118U5134	118U5134	118U5134		
Access Panel	118U5135	118U5135	118U5135	118U5135	118U5140	118U5140
Left side Panel	118U5165	118U5165	118U5165	118U5165	118U5166	118U5166
Fan Panel (LH)					118U5137	118U5137
Fan Panel (RH)					118U5138	118U5138

MCC - Max Continuous Current
LRA - Locked Rotor Amps
MCA - Minimum Circuit Ampacity

Technical data and ordering

Optyma™ Plus

Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Acoustic Hood	ACOUSTIC HOOD COMP 1CYL		120Z0575
Acoustic Hood	ACCOUSTIC HOOD - SMALL FRAME		120Z5043
Acoustic Hood	Acoustic hood for Scroll MLZ compressor		120Z5044
Acoustic Hood	ACCOUSTIC HOOD, LARGE FRAME		120Z5045
Acoustic Hood	Sound Cover, LLZ013-018		120Z5052
Cable for EKA Displays 6 m	EKA Accessory		084B7299
Capacitor	CAPACITOR 100µF 330V+R		8173001
Capacitor	CAPACITOR 30µF 450V		8173041
Compressor Single Pack	TAJ4519Z - AJ1 range	Phased out & replaced by 118U3989 from SN: 054428CG3916	118U3751
Compressor Single Pack	TAJ4517Z - AJ1 range	Phased out & replaced by 118U3991 from SN: 054428CG3916	118U3770
Compressor Single Pack	CAJ2446Z - AJ1 range	Phased out & replaced by 118U3992 from SN: 054428CG3916	118U3779
Compressor Single Pack	CAJ4517Z - AJ1 range	Phased out & replaced by 118U3993 from SN: 054428CG3916	118U3810
Compressor Single Pack	CAJ4519Z - AJ1 range	Phased out & replaced by 118U3994 from SN: 054428CG3916	118U3811
Compressor Single Pack	CAJ9513Z - AJ1 range	Phased out & replaced by 118U3995 from SN: 054428CG3916	118U3912
Compressor Single Pack	FH2511Z		118U3914
Compressor Single Pack	TFH2511Z		118U3915
Compressor Single Pack	CAJ9510Z - AJ2 range		118U3988
Compressor Single Pack	TAJ4519Z - AJ2 range		118U3989
Compressor Single Pack	TAJ4517Z - AJ2 range		118U3991
Compressor Single Pack	CAJ2446Z - AJ2 range		118U3992
Compressor Single Pack	CAJ4517Z - AJ2 range		118U3993
Compressor Single Pack	CAJ4519Z - AJ2 range		118U3994
Compressor Single Pack	CAJ9513Z - AJ2 range		118U3995
Compressor Single Pack	CAJ4511Y - AJ2 range		118U3996
Compressor Single Pack	NTZ048-4LR1B		120F0226
Compressor Single Pack	NTZ048-5LR1B		120F0228
Compressor Single Pack	NTZ068-4LR1B		120F0230
Compressor Single Pack	NTZ068-5LR1B		120F0232
Compressor Single Pack	NTZ096A4LR1B		120F0234
Compressor Single Pack	NTZ136A4LR1B		120F0236
Compressor Single Pack	MLZ015T4LP9A		121L8629
Compressor Single Pack	MLZ015T5LP9A		121L8631
Compressor Single Pack	MLZ021T4LP9A		121L8633
Compressor Single Pack	MLZ021T5LP9A		121L8635
Compressor Single Pack	MLZ026T4LP9A		121L8637
Compressor Single Pack	MLZ026T5LP9A		121L8639
Compressor Single Pack	MLZ030T4LC9A		121L8641
Compressor Single Pack	MLZ030T5LC9A		121L8643
Compressor Single Pack	MLZ038T4LC9A		121L8645
Compressor Single Pack	MLZ038T5LC9A		121L8647
Compressor Single Pack	MLZ048T4LC9A		121L8651
Compressor Single Pack	MLZ058T4LC9A		121L8653
Compressor Single Pack	MLZ076T4LC9A		121L8655
Compressor Single Pack	LLZ024T4LQ9A		121L9541
Compressor Single Pack	LLZ034T4LQ9A		121L9543
Compressor Single Pack	MPT16LA		123B2127
Compressor Single Pack	MLY80RAb		123B2510
Compressor Single Pack	MLY90RAb		123B2514
Compressor Single Pack	MPT12RA		123B2518
Compressor Single Pack	MPT14RA		123B2704
Compressor Single Pack	SC12MLX	CU phased out but spare part still available	195B0323
Compressor Single Pack	SC18CLX.2	CU phased out but spare part still available	195B0332
Compressor Single Pack	SC10MLX	CU phased out but spare part still available	195B0345
Compressor Single Pack	SC15MLX	CU phased out but spare part still available	195B0391
Compressor Single Pack	GS26CLX	CU phased out but spare part still available	195B0427
Compressor Single Pack	GS34MFX	CU phased out but spare part still available	195B0435
Compressor Single Pack	GS34MLX	CU phased out but spare part still available	195B0438
Compressor Single Pack	NF7MLX	CU phased out but spare part still available	195B0443
Compressor Single Pack	SC18MLX	CU phased out but spare part still available	195B0624
Condenser	A7		118U3492
Condenser	D7		118U3493
Condenser	G7		118U3494
Condenser	J7		118U3717

Technical data and ordering

Optyma™ Plus (count.)

Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Contact kit	A 9-30-01-80, DILM07-01, DILM09-01		118U3845
Contact kit	A12-30-01-80, DILM12-01		118U3846
Contact kit	A 16-30-01-80, DILM15-01		118U3847
Contact kit	A 26-30-01-80, DILM17-01		118U3848
Contact kit	A 30-30-01-80, DILM25-01		118U3849
Contact kit	A 50-30-00-80, DILM32-01		118U3850
Crankcase heater	Belt type, 50 W, 230 V, CE mark, UL		120Z0057
Crankcase heater	PTC heater 27 W, CE mark, UL		120Z0459
Crankcase heater	Belt type, 70 W, 240 V, CE mark, UL		120Z5040
Crankcase heater	CRANKCASE HEATER 55W	192H2096 Phased out Use 118U0051	118U0051
Discharge pressure sensor	AKS 32R 0...32 bar		118U3722
Discharge temperature sensor	AKS21A		084N2007
Door handle	Door handle, ABB-OHB2AJM,MSMN,OX55X131		118U3858
External Display & settings	EKA164B		084B8575
Fan assembly	Fan assembly		118U3829
Fan blade	Fan blade		118U3480
Fan blade	Fan blade		118U3481
Fan capacitor	1,8 µF		118U3296
Fan capacitor	3,5 µF		118U3297
Fan cowl/grill	Ä, 356 mm		118U3483
Fan cowl/grill	Ä, 457 mm		118U3484
Fan cowl/grill	Ä, 609 mm		118U3485
Fan motor (Capacitor not included)	25 W		118U3477
Fan motor (Capacitor not included)	68 W		118U3823
Filter drier	DML082		023Z5039
Filter drier	DML083		023Z5040
Filter drier	DML084		023Z5041
Filter drier	DML164		023Z5044
Filter drier	DML165		023Z5045
Filter drier	DML 166		023Z5046
High-pressure switch	ACB-2UB463W		118U3718
Liquid valve	GBC 6s Ball Valve M/25		009G7050
Liquid valve	GBC 10s		009G7051
Liquid valve	GBC 12s Ball Valve M/25		009G7052
Liquid valve	Liquid line valve		009G7053
Liquid valve	Suction line valve		009G7054
Lon-Bus COM Module	EKA175		084B8579
Low-pressure switch	ACB-2UA418W		118U3720
Main switch kit	MS132 - 25		118U3855
Main switch kit	MS132 - 32		118U3856
Main switch kit	MS450 - 40		118U3857
MODBUS COM Module	EKA178B		084B8571
Mounting kit for EKA Display	EKA Accessory		084B8584
MPCB	MPCB, ABB-MS116-10+HK1-12		118U3851
MPCB	MPCB, ABB-MS116-16+HK1-12		118U3852
MPCB	MPCB, ABB-MS116-6.3+HK1-12		118U3853
MPCB	MPCB, ABB-MS132-20+HK1-12		118U3854
Oil	POE32 for Light Commercial (MLY / MPT)		-
Oil	RL32HA/HT for light Commercial (CAJ/FH/TAJ/TFH)		-
Oil	1 litre can of 175PZ - POE (NTZ Platform)	CU with a SN above 051220CG3016	120Z0638
Oil	2,5 litre can of 175PZ - POE (NTZ Platform)	CU with a SN above 051220CG3016	120Z0639
Oil	1 litre can of 215PZ - POE46 (MLZ & LLZ Platform)	CU with a SN above 051220CG3016	120Z0648
Optyma Plus Controller	OPTYMA PLUS CONTROLLER-084B8080		118U3465
Programming Key	AKA183A		084B8582
Receiver	1,3 L		118U3474
Receiver	3,4 L		118U3475
Receiver	6,2 L		118U3476
Receiver	10 L		118U3716
Run capacitor	PSC starting kit, 30 µF, 15 µF		7701035
Run capacitor	Run capacitor 440V, 40 µF		8173231
Run capacitor	Run capacitor 440V, 50 µF		8173233
Run capacitor	Run capacitor 440V, 55 µF		8173234
Run capacitor	Run capacitor 70 µF		120Z0051

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Technical data and ordering

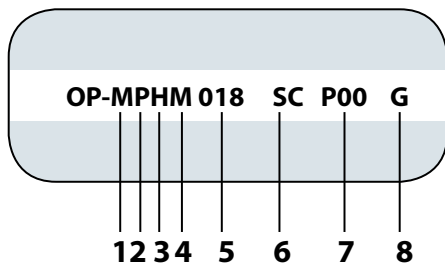
Optyma™ Plus (count.)

Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Sight glass	SGP 10 N		014L0172
Sight glass	SGP 12 N		014L0173
Sight glass	SGP 16 N		014L0174
Sight glass	SGP 19 N		014L0175
Sight glass	SGP 6s N		014L0181
Sight glass	SGP 10s N		014L0182
Starting capacitor	Start capacitor 125 µF, 220V - SC		117U5012
Starting capacitor	Start capacitor 80 µF, 220V - SC		117U5017
Starting capacitor	Start capacitor 125 µF, 220V - NF,NL		117U5018
Starting capacitor	Start capacitor 161-193 µF		120Z0040
Starting capacitor	Start capacitor 145-175 µF		120Z0399
Starting relay	Starting relay type RVA-6AMKL/3ARR3J4A4		8173022
Starting relay	RELAY ASSY. HST - *MRP56EN-6; 117U2121		117U4139
Starting relay	Starting Relay SC		117U6011
Starting relay	Starting Relay		117U6013
Starting relay	Starting relay type RVA9CKL/3ARR3J4A4		120Z0393
Starting relay	Starting relay type RVA3EKL/3ARR3J24P4		120Z0394
Starting relay	Starting relay type RVA4GKL/3ARR3J25S4		120Z0395
Relay	SC-RELAY		117-7027
Suc & Amb temp sensor	AKS11		084N0003
Suction pressure sensor	AKS 32R -1...12 bar		118U3721
Suction valve	GBC 22s Ball Valve M/25		009G7055
Suction valve	GBC 28s Ball Valve M/5		009G7056
Starting KIT	CAJ2446Z _ F1 KIT Capacitor and relay		118U5191
Starting KIT	CAJ2464Z _ F1 KIT Capacitor and relay		118U5192
Starting KIT	CAJ4492Y _ F1 KIT Capacitor and relay		118U5193
Starting KIT	CAJ4511Y _ F1KIT Capacitor and relay		118U5194
Starting KIT	CAJ4517Z _ F1 KIT Capacitor and relay		118U5195
Starting KIT	CAJ4519Z _ F1 KIT Capacitor and relay		118U5196
Starting KIT	CAJ9510Z _ F1 KIT Capacitor and relay		118U5197
Starting KIT	CAJ9513Z _ F1KIT Capacitor and relay		118U5198
Starting KIT	FH2511Z _ F1KIT Capacitor and relay		118U5199
Start capacitor	STARTING CAPACITOR+CC 72-88µF/330V R216		123B9316
Run C capacitor	RUN CAPACITOR 16µF/420V, REF. 321		123B9219
Relay	RELAY + CON. BOARD 1158-8 BDG 158S+ NTC		123B9151
Start capacitor	STARTING CAPACITOR+CC 64-77µF/330V R205		123B9315
Run C capacitor	RUN CAPACITOR 10µF/420V, REF. 326		123B9222
Relay	RELAY + CON. BOARD 1149-8 BDG 149S+ NTC		123B9133
Start capacitor	START CAPACITOR 80 mfd		117U5373
Relay	RELAY + CON. BOARD 1166-8 BDG 166S+ NTC		123B9139
Run C capacitor	RUN CAPACITOR 25µF/420V, REF. 310 MET.		123B9226
Top Panel H1	SPARE PART, SHEET METAL TOP H1		118U5121
Fan panel H1	SPARE PART, SHEET METAL FAN H1		118U5122
Back Panel H1	SPARE PART, SHEET METAL BACK H1		118U5123
Front Panel H1	SPARE PART, SHEET METAL FRONT H1		118U5124
Access Panel H1	SPARE PART, SHEET METAL ACCESS H1		118U5125
Left Side Panel H1	SPARE PART, SHEET METAL LEFT SIDE H1		118U5163
Top Panel H2	SPARE PART, SHEET METAL TOP H2		118U5126
Fan panel H2	SPARE PART, SHEET METAL FAN H2		118U5127
Back Panel H2	SPARE PART, SHEET METAL BACK H2		118U5128
Front Panel H2	SPARE PART, SHEET METAL FRONT H2		118U5129
Access Panel H2	SPARE PART, SHEET METAL ACCESS H2		118U5130
Left Side Panel H2	SPARE PART, SHEET METAL LEFT SIDE H2		118U5164
Top Panel H3	SPARE PART, SHEET METAL TOP H3		118U5131
Fan panel H3	SPARE PART, SHEET METAL FAN H3		118U5132
Back Panel H3	SPARE PART, SHEET METAL BACK H3		118U5133
Front Panel H3	SPARE PART, SHEET METAL FRONT H3		118U5134
Access Panel H3	SPARE PART, SHEET METAL ACCESS H3		118U5135
Left Side Panel H3	SPARE PART, SHEET METAL LEFT SIDE H3		118U5165
Top Panel H4	SPARE PART, SHEET METAL TOP H4		118U5136
Fan LH panel H4	SPARE PART, SHEET METAL FAN LH H4		118U5137
Fan RH panel H4	SPARE PART, SHEET METAL FAN RH H4		118U5138
Back Panel H4	SPARE PART, SHEET METAL BACK H4		118U5139
Access Panel H4	SPARE PART, SHEET METAL ACCESS H4		118U5140
Left Side Panel H4	SPARE PART, SHEET METAL LEFT SIDE H4		118U5166

Nomenclature

Designation system for the Optyma™ Plus program



Number	Title	Description
1	Application	L = LBP M = MBP
2	Family	P = Optyma™ Plus
3	Refrigerant	Q= R452A / R404A / 507; G=R134a; H = R404A / R507 X = R404A / 507 / R134a / R407A / R407 F/ R448A / R449A / R452A Y = R404A / 507 / R449A
4	Condenser	Micro channel heat exchanger
5	Displacement	Displacement in cm ³
6	Compressor platform	AJ = CAJ, TAJ (Reciprocating) MP = MPT (Reciprocating) FH = FH, TFH (Reciprocating) MY = MLY (Reciprocating) NF = NF (Reciprocating) MX = MX (Reciprocating) NT = NTZ (Reciprocating) ML = MLZ (Scroll) SC = SC (Reciprocating) LL = LLZ (Scroll)
7	Version	P00 Optyma™ Plus
8	Electrical code	G = 230V-1ph Comp & Fan E = 400V-3ph Comp & 230V-1ph Fan

Optyma™ Plus - cooling capacity & operating range presentation [kW]

Range span by refrigerant

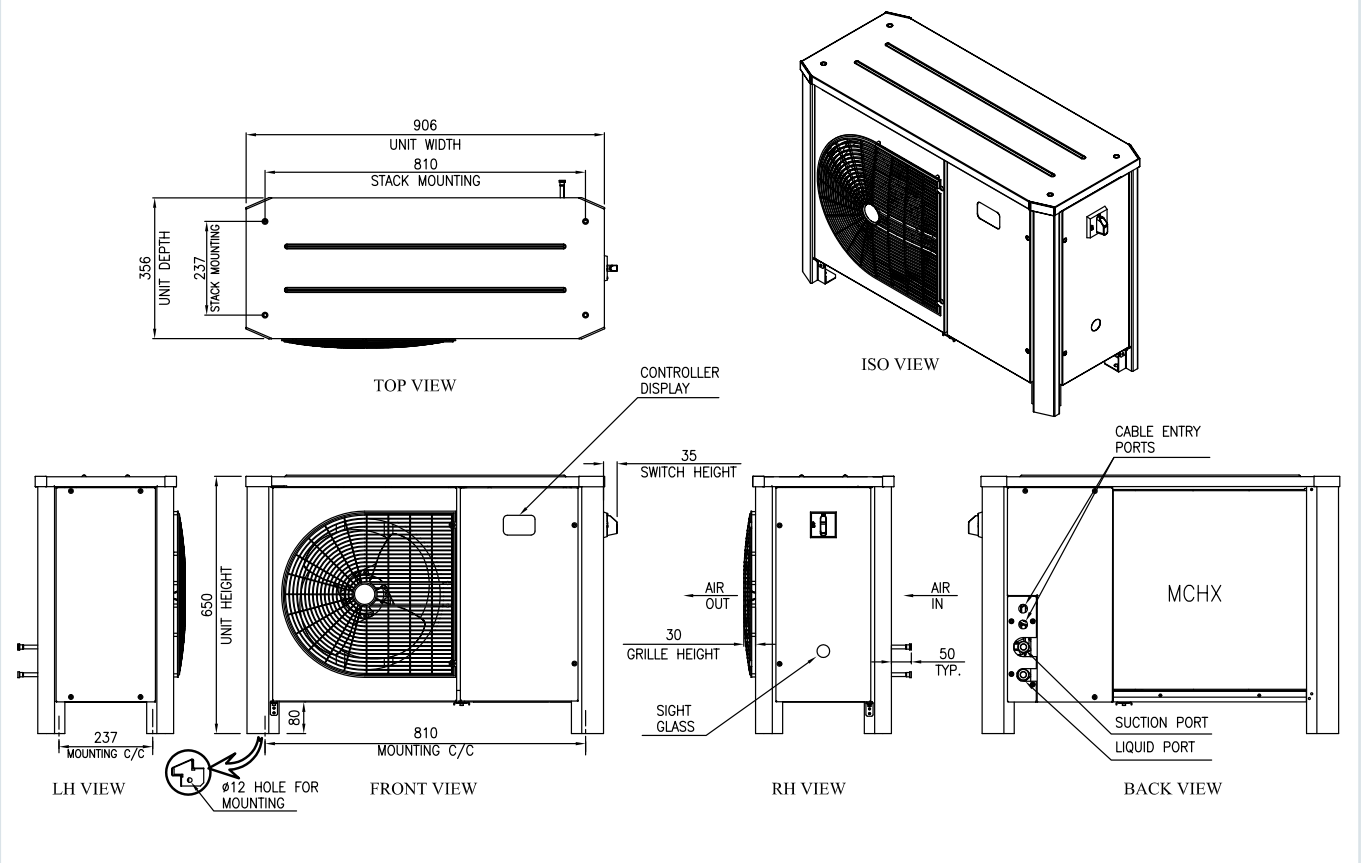
Minimum / Maximum Cooling capacity in [kW]	Optyma™ Plus
Medium temperature (MBP)	
R448A	3.3 – 14.9
R449A	0.7 – 14.9
R134a	1.7 – 10.2
R452A	1.5 – 16.2
R407A	3.3 – 14.6
R407F	3.5 – 15.5
R404A / 507	0.7 – 16
Low temperature (LBP)	
R452A	0.4 – 6.1
R404A / 507	0.5 – 6.2

Rating conditions EN 13215 (dew point):

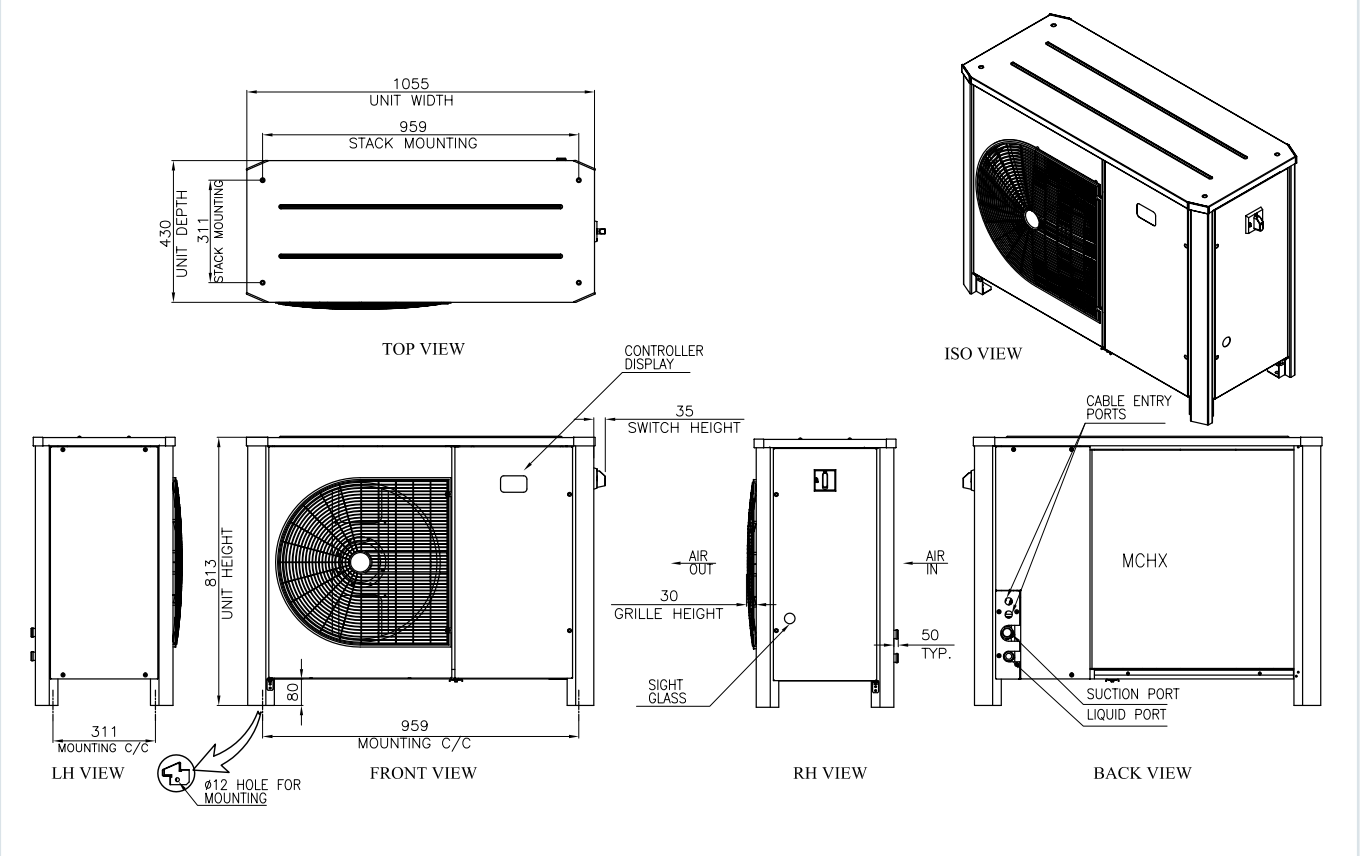
MBP: Ambient temp = 32 °C; Evap temp = -10 °C; Superheat = 10 K; Subcooling = 0 K / **LBP:** Ambient temp = 32 °C; Evap temp = -35 °C; Superheat = 10 K; Subcooling = 0 K

Dimensions

Housing H1



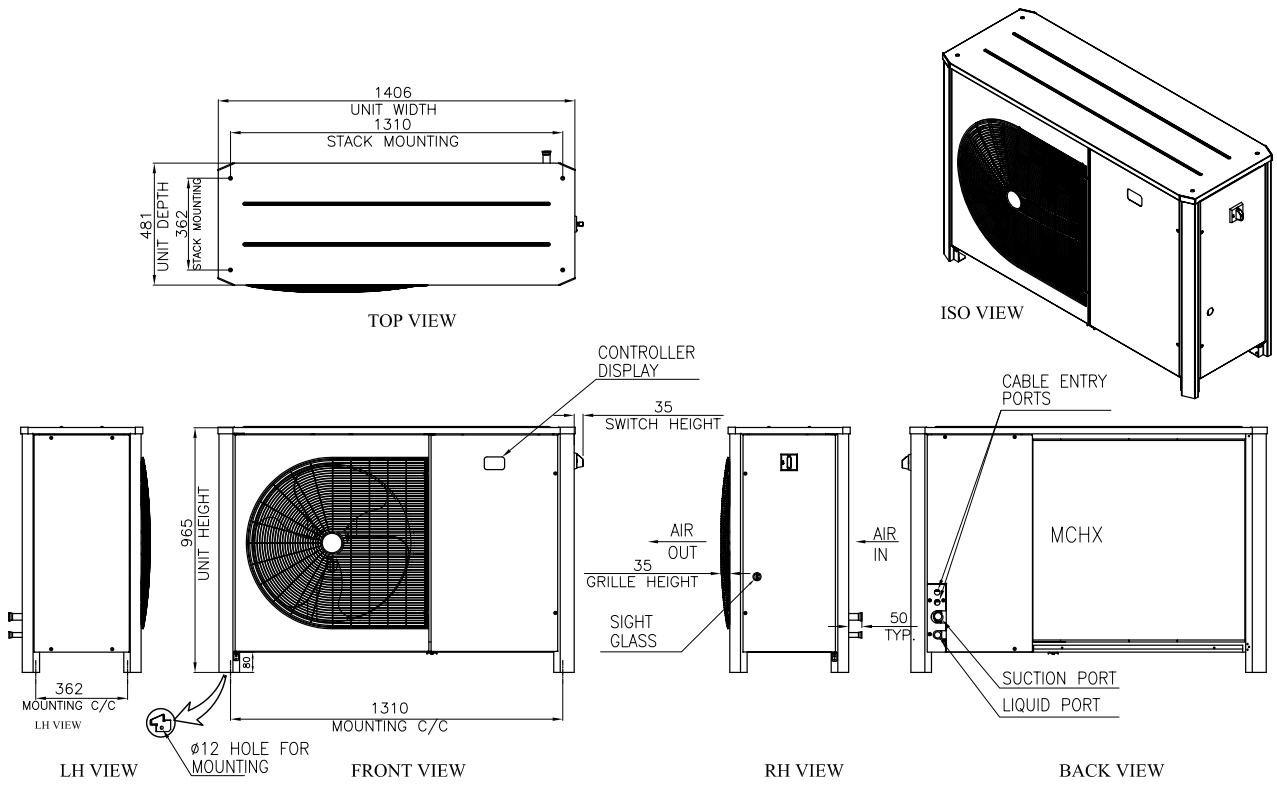
Housing H2



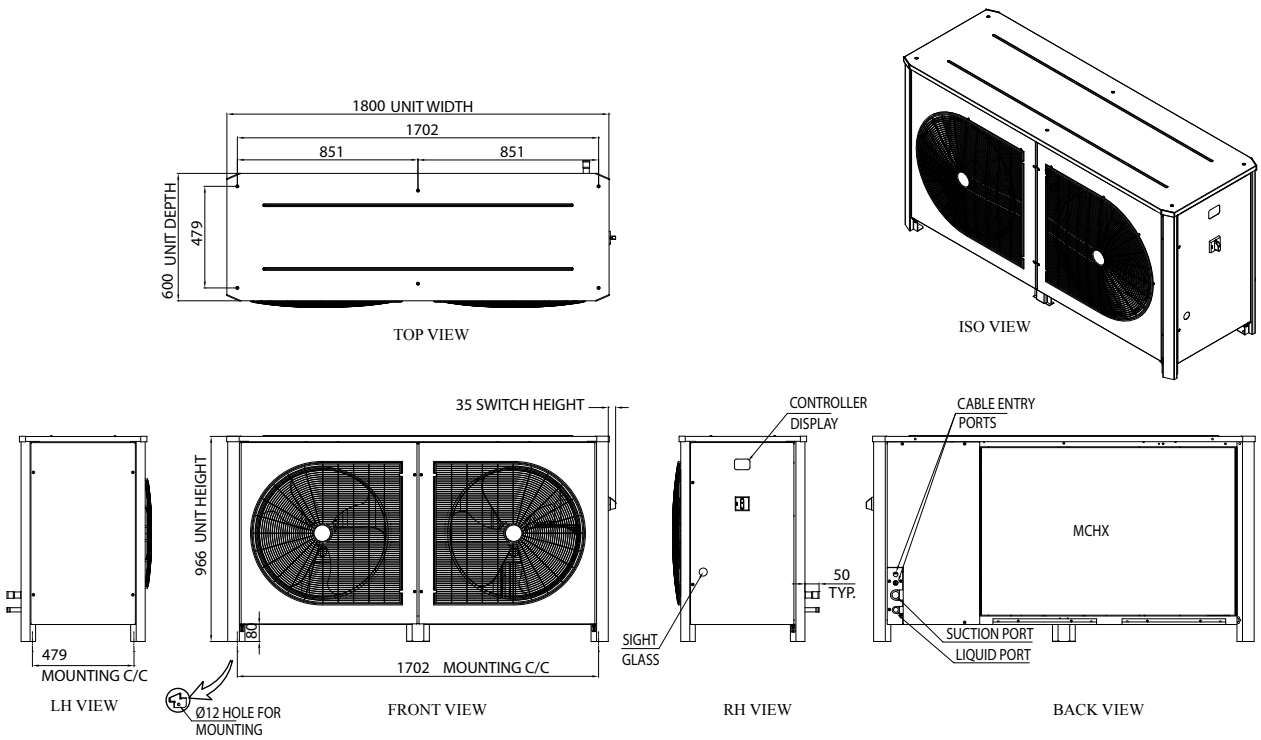
Dimensions are in (mm)

Dimensions

Housing H3



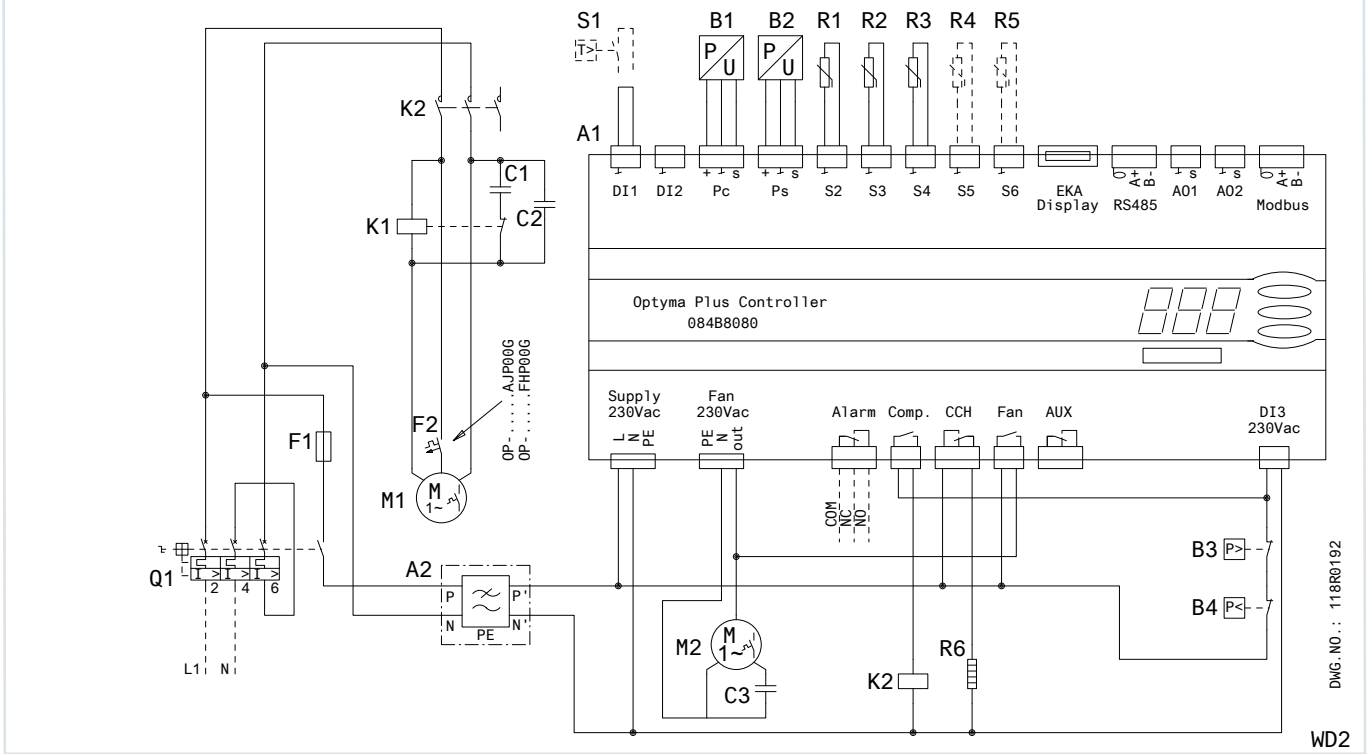
Housing H4



Dimensions are in (mm)

Electrical wiring diagrams

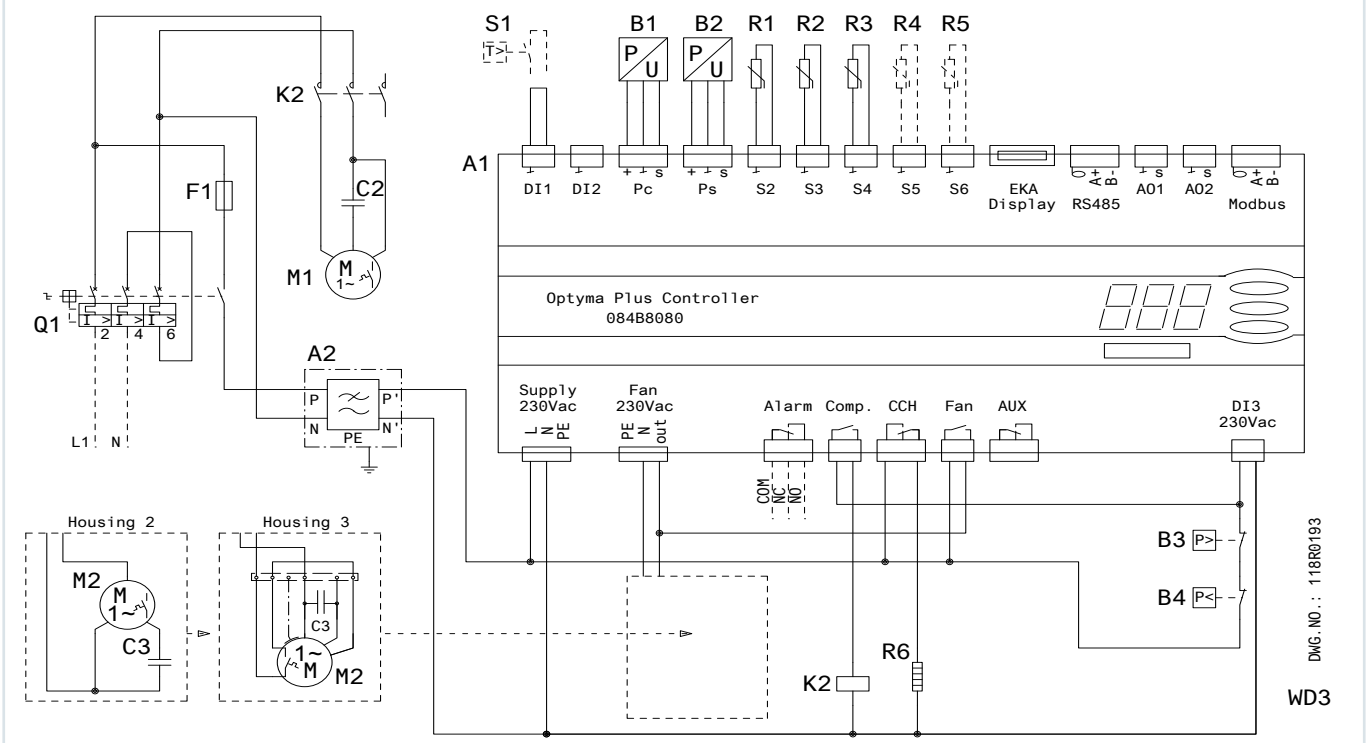
Code G : OP-LPQM026-048-068-074, OP-MPGM033-34, OP-MPYM018-024-026-034



DWG. NO.: 118R0192

WD2

Code G : OP-MPX034-046-057-068-080



DWG. NO.: 118R0193

WD3

- A1 : Optyma™ Plus Controller
- A2 : EMI Filter
- B1 : Condensing Pressure Transducer
- B2 : Suction Pressure Transducer
- B3 : High Pressure Switch
- B4 : Low Pressure Switch
- C1 : Start Capacitor (Compressor)
- C2 : Run Capacitor (Compressor)

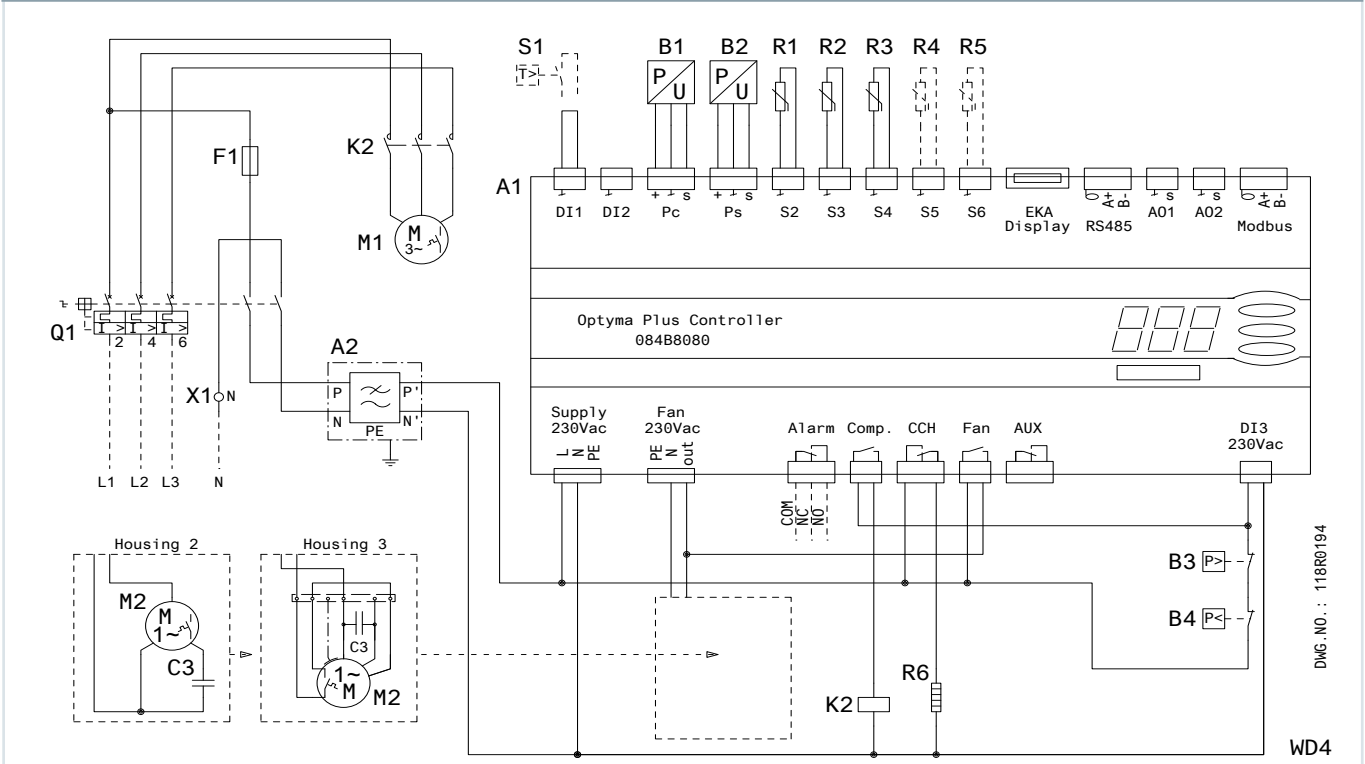
- C3 : Run Capacitor (Fan)
- F1 : Fuse (Control Circuit)
- F2 : Motor Protector
- K1 : Start Relay
- K2 : Contactor
- M1 : Compressor
- M2 : Fan Motor
- Q1 : Main Switch

- R1 : Ambient Temp. Sensor
- R2 : Discharge Temp. Sensor
- R3 : Suction Temp. Sensor
- R4, R5 : Auxiliary Temp. Sensor (optional)
- R6 : Crankcase Heater
- S1 : Room Thermostat (optional)

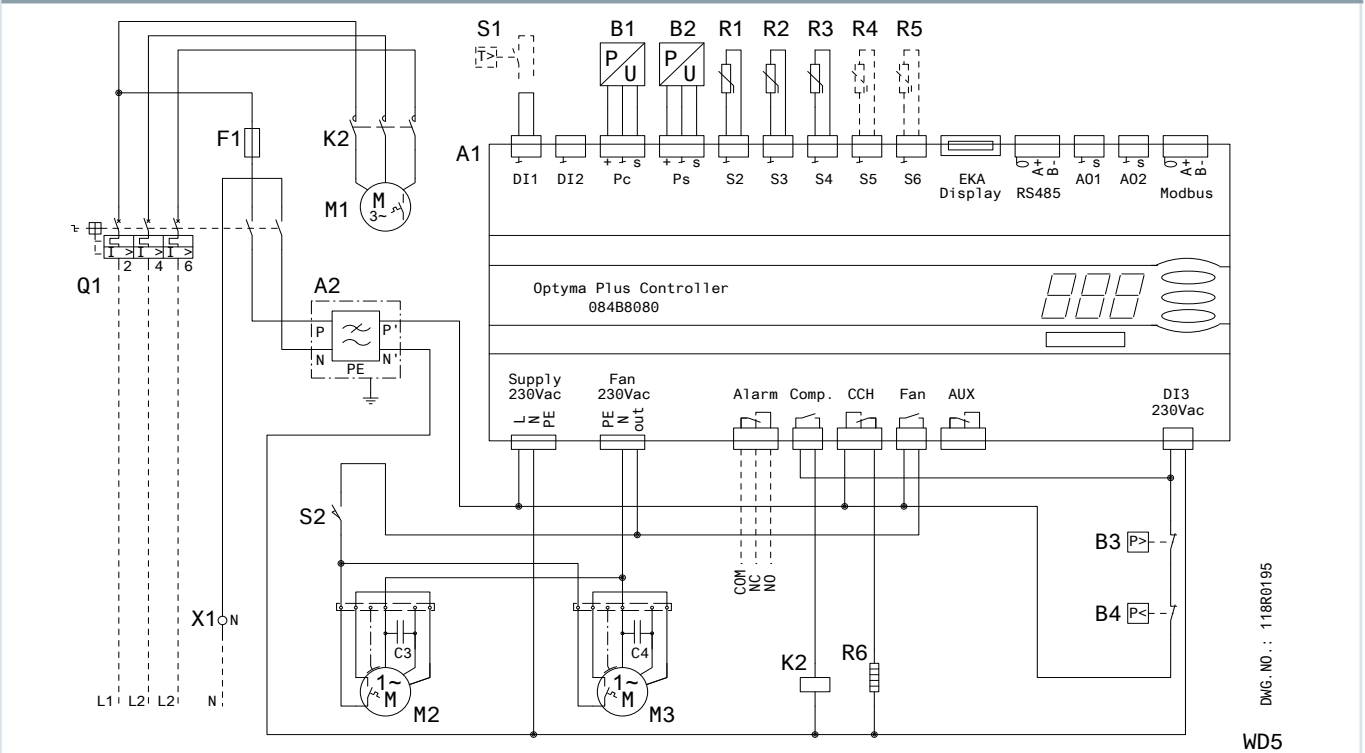
- Supply : Supply
- Fan : Fan
- Alarm : Alarm
- Comp. : Compressor
- CCH : Crankcase Heater
- Aux : Auxiliary

Electrical wiring diagrams

Code E : OP-LPQM048-068-074-096-136 & OP-MPXM034-046-057-068-080-108



Code E : OP-LPQM215-271 & OP-MPXM125-162



- A1 : Optyima **Plus** Controller
- A2 : EMI Filter
- B1 : Condensing Pressure Transducer
- B2 : Suction Pressure Transducer
- B3 : High Pressure Switch
- B4 : Low Pressure Switch
- C3 : Run Capacitor (Fan 1)
- C4 : Run Capacitor (Fan 2)

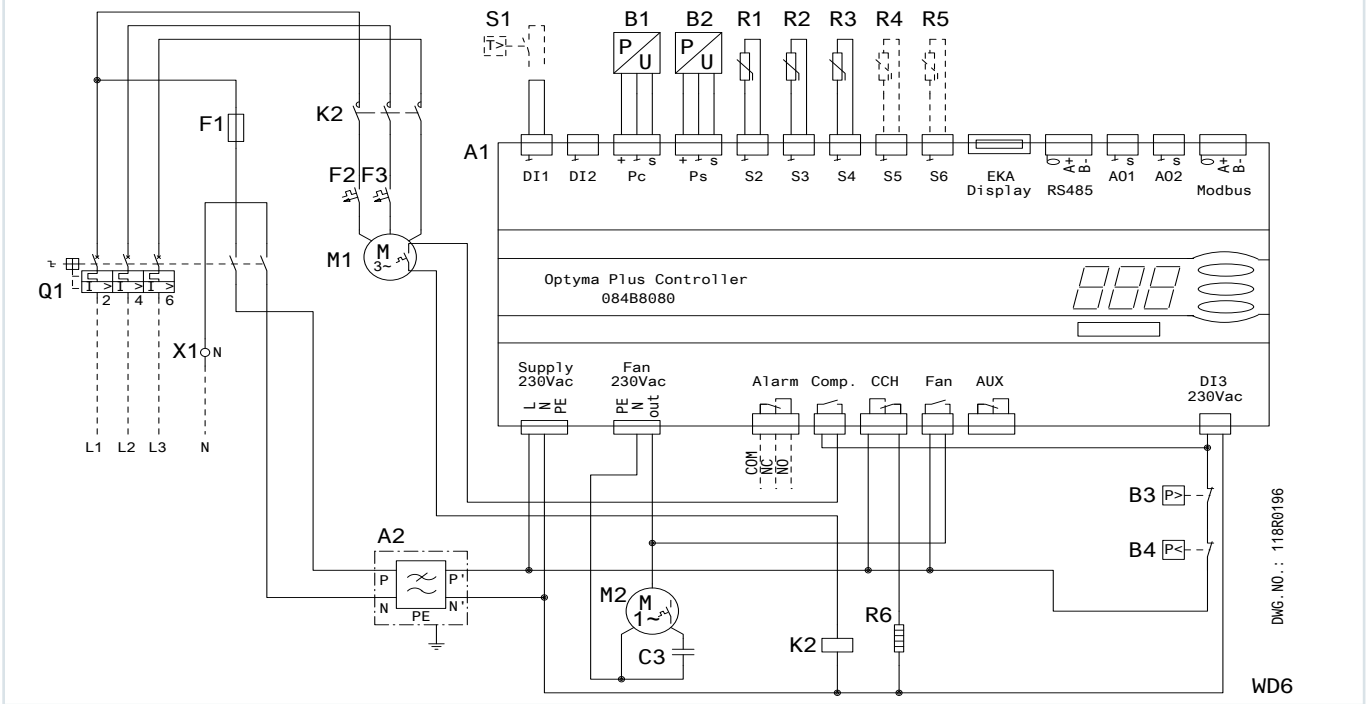
- F1 : Fuse (Control Circuit)
- K2 : Contactor
- M1 : Compressor
- M2 : Fan Motor 1
- M3 : Fan Motor 2
- R1 : Ambient Temp. Sensor
- R2 : Discharge Temp. Sensor

- R3 : Suction Temp. Sensor
- R4,R5 : Auxiliary Temp. Sensor (optional)
- R6 : Crankcase Heater
- S1 : Room Thermostat (optional)
- S2 : Door Limit Switch
- X1 : Terminal

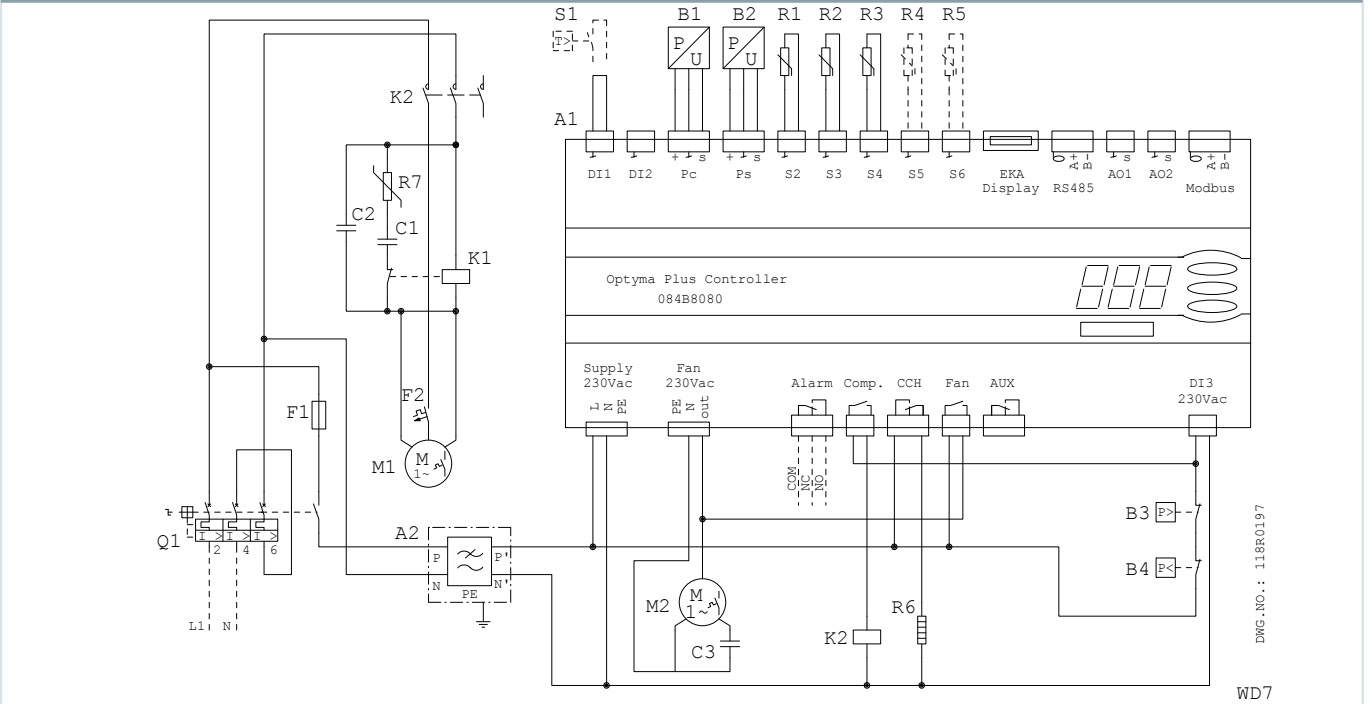
- Supply : Supply
- Fan : Fan
- Alarm : Alarm
- Comp. : Compressor
- CCH : Crankcase Heater
- Aux : Auxiliary

Electrical wiring diagrams

Code E : OP-MPYM026-034



Code G : OP-LPQM017 & OP-MPYM008-009-012-014



A1 : Optyma™ **Plus** Controller
 A2 : EMI Filter
 B1 : Condensing Pressure Transducer
 B2 : Suction Pressure Transducer
 B3 : High Pressure Switch
 B4 : Low Pressure Switch
 C1 : Start Capacitor (Compressor)
 C2 : Run Capacitor (Compressor)
 C3 : Run Capacitor (Fan)

F1 : Fuse (Control Circuit)
 F2,F3 : Motor protector
 K1 : Start Relay
 K2 : Contactor
 M1 : Compressor
 M2 : Fan Motor
 Q1 : Main Switch
 R1 : Ambient Temp. Sensor
 R2 : Discharge Temp. Sensor

R3 : Suction Temp. Sensor
 R4,R5 : Auxiliary Temp. Sensor (optional)
 R6 : Crankcase Heater
 R7 : NTC Resistor
 S1 : Room Thermostat (optional)
 X1 : Terminal

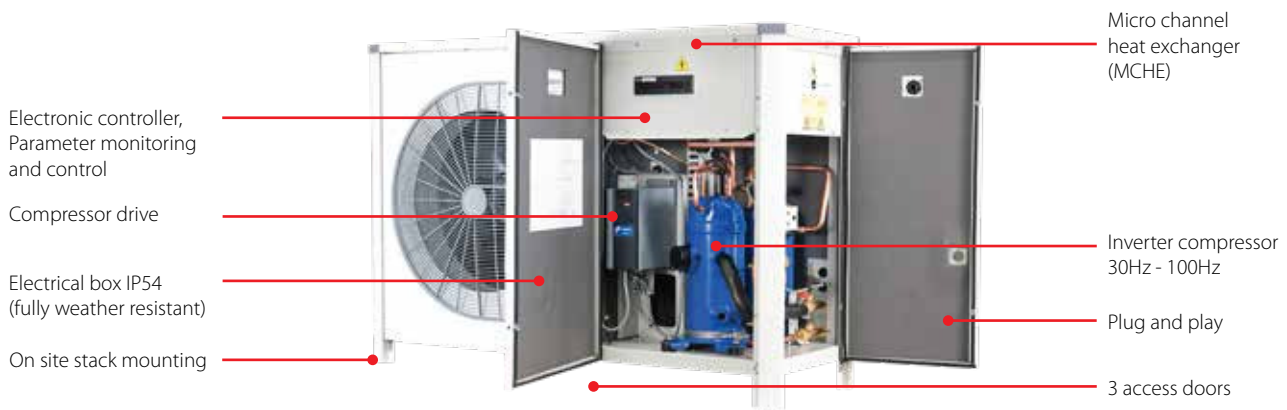
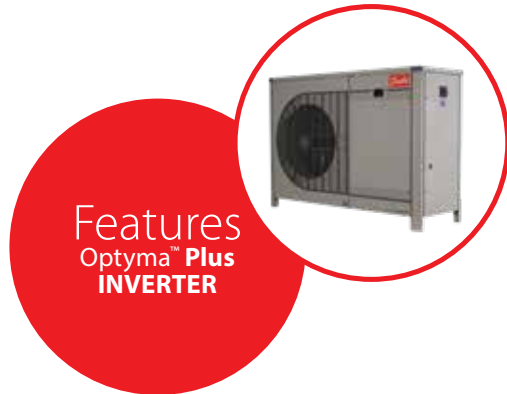
Supply : Supply
 Fan : Fan
 Alarm : Alarm
 Comp. : Compressor
 CCH : Crankcase Heater
 Aux : Auxiliary

Optyma™ Plus Inverter

Capacity modulation in a simple and adaptive package

Optyma™ Plus INVERTER combines our market leading expertise in condensing unit design with the unique benefits of stepless inverter scroll technology.

The result is 25% higher energy efficiency in an adaptive package, for medium and high temperature refrigeration applications in the range of 1.7 kW to 9kW with R448A, R449A, R407A/F and R404A



Facts

Unique Danfoss features

- Danfoss inverter scroll and drive tuned to work together for a wide range of refrigeration applications
- Danfoss micro-channel heat exchanger
- IDV* technology enhances part-load efficiency and allows less stress on components
- Danfoss proven condensing unit design
- Optyma™ Plus Controller
- Compliant with EcoDesign 2018 regulation

Plug-and-play variable speed technology

- One model suits several applications and model selection is easy and safe, especially in sensitive applications where the loads change rapidly
- The installation of an Optyma™ Plus INVERTER is as simple as a standard Optyma™ Plus. Preset parameters and Modbus communication makes start-up and maintenance of the condensing unit effortlessly quick and easy

High reliability for safe food preservation

- Accurate temperature and humidity control can be tailored to suit the requirements of different foods and beverages
- Improved food preservation and less waste of valuable products
- Electronic controller enables quick and accurate diagnostics
- Built-in compressor protection functions

*IDV: Intermediate Discharge Valves

Technical data and ordering

Optyma™ Plus INVERTER

Technical specifications

Unit	Condenser coil			Condenser fan	Receiver	Dimensions					Weight [kg]	
	Type	Air flow [m³/h]	Internal volume [dm³]	Fan blade Ø [mm]	volume [L] (without valve)	Depth D [mm]	Width W [mm]	Height H [mm]	Suction line [in]	Liquid line [in]	Gross	Net
OP-MPLM028 OP-MPPM028	G7	5200	1.62	1x500	6.2	481	1406	965	3/4	5/8	150	124
OP-MPLM035 OP-MPPM035	G7	5200	1.62	1x500	6.2	481	1406	965	3/4	5/8	151	125
OP-MPLM044 OP-MPPM044	G7	5200	1.62	1x500	6.2	481	1406	965	3/4	5/8	151	125



For more information and performance with other refrigerants, please refer to Coolselector® 2 at coolselector.danfoss.com or contact Danfoss.

Technical data and ordering

Optyma™ Plus INVERTER - R448A/R449A - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Compressor speed, rps	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
					Te [°C]					Q [kW]	P [kW]	COP	SEPR				
					-15	-10	-5	0	5								
OP-MPPM028VVL	VLZ028TGA	E	30	27	1.465	1.839	2.276	2.783	3.365					71	40	P01	114X4302
				32	1.375	1.732	2.149	2.633	3.190								
				38	-	-	-	-	-								
				43	-	-	-	-	-								
			50	27	2.494	3.107	3.816	4.629	5.553					72	41		
				32	2.346	2.930	3.605	4.379	5.259								
				38	-	2.706	3.338	4.064	4.891								
				43	-	2.510	3.106	3.790	4.571								
			75	27	3.656	4.527	5.536	6.695	8.013					73	42		
				32	3.443	4.270	5.226	6.324	7.573								
				38	-	3.949	4.842	5.866	7.032								
				43	-	3.670	4.509	5.472	6.569								
100	27	4.686	5.774	7.041	8.502	10.171					74	43					
	32	4.421	5.451	6.648	8.028	9.605	5.548	3.058	1.81	3.38							
	38	-	5.056	6.170	7.454	8.922											
	43	-	4.713	5.761	6.967	8.346											
OP-MPPM035VVL	VLZ035TGA	E	30	27	1.836	2.301	2.845	3.476	4.201					73	42	P01	114X4316
				32	1.722	2.166	2.684	3.284	3.974								
				38	-	-	-	-	-								
				43	-	-	-	-	-								
			50	27	3.091	3.846	4.713	5.699	6.812					74	43		
				32	2.896	3.616	4.442	5.381	6.441								
				38	-	3.327	4.102	4.983	5.977								
				43	-	3.076	3.806	4.637	5.577								
			75	27	4.505	5.569	6.792	8.183	9.752					74	43		
				32	4.227	5.238	6.396	7.713	9.200								
				38	-	4.827	5.907	7.136	8.523								
				43	-	4.472	5.487	6.641	7.945								
100	27	5.773	7.090	8.615	10.361	12.338					75	44					
	32	5.439	6.683	8.119	9.765	11.631	6.814	3.837	1.78	3.29							
	38	-	6.185	7.518	9.045	10.779											
	43	-	5.757	7.006	8.436	10.061											
OP-MPPM044VVL	VLZ044TGA	E	30	27	2.364	2.954	3.637	4.422	5.317					73	42	P01	114X4334
				32	2.213	2.776	3.429	4.180	5.037								
				38	-	-	-	-	-								
				43	-	-	-	-	-								
			50	27	3.894	4.834	5.915	7.145	8.532					74	43		
				32	3.650	4.544	5.570	6.739	8.058								
				38	-	4.185	5.144	6.238	7.473								
				43	-	3.876	4.779	5.808	6.973								
			75	27	5.674	7.003	8.510	10.203	12.087					75	44		
				32	5.308	6.572	8.003	9.609	11.397								
				38	-	6.034	7.371	8.873	10.544								
				43	-	5.566	6.825	8.237	9.810								
100	27	7.289	8.959	10.828	12.899	15.173					76	45					
	32	6.786	8.375	10.149	12.112	14.265	8.558	4.753	1.80	3.73							
	38	-	7.634	9.291	11.123	13.130											
	43	-	6.982	8.539	10.260	12.145											

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Plus INVERTER - R407A - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Compressor speed, rps	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code	
					Te [°C]					Q [kW]	P [kW]	COP	SEPR					
					-15	-10	-5	0	5									
OP-MPPM028VVL	VLZ028TGA	E	30	27	1.435	1.797	2.227	2.732	3.320					73	42	P01	114X4302	
				32	1.345	1.686	2.092	2.570	3.128									
				38	-	1.557	1.934	2.380	2.902									
				43	-	-	-	-	-									
				50	27	2.382	2.994	3.711	4.543	5.499					73			42
					32	2.243	2.829	3.515	4.310	5.224								
					38	-	2.622	3.267	4.015	4.876								
					43	-	2.442	3.050	3.757	4.571								
				75	27	3.499	4.412	5.470	6.686	8.069					74			43
					32	3.306	4.177	5.183	6.339	7.654								
					38	-	3.879	4.821	5.901	7.131								
					43	-	3.618	4.503	5.519	6.676								
100	27	4.549	5.740	7.106	8.660	10.413					75	44						
	32	4.313	5.438	6.726	8.192	9.847	5.539	2.834	1.95	3.49								
	38	-	5.067	6.261	7.621	9.158												
	43	-	4.747	5.864	7.135	8.575												
OP-MPPM035VVL	VLZ035TGA	E	30	27	1.806	2.259	2.796	3.426	4.157					72	41	P01	114X4316	
				32	1.692	2.119	2.626	3.223	3.916									
				38	-	1.956	2.427	2.983	3.632									
				43	-	-	-	-	-									
				50	27	2.988	3.751	4.643	5.674	6.854					72			41
					32	2.812	3.542	4.393	5.378	6.504								
					38	-	3.279	4.079	5.003	6.061								
					43	-	3.051	3.803	4.674	5.674								
				75	27	4.374	5.503	6.805	8.291	9.973					73			42
					32	4.128	5.203	6.439	7.849	9.443								
					38	-	4.824	5.977	7.292	8.779								
					43	-	4.492	5.573	6.806	8.201								
100	27	5.666	7.124	8.782	10.652	12.744					75	44						
	32	5.367	6.741	8.302	10.064	12.035	6.876	3.494	1.97	3.63								
	38	-	6.270	7.715	9.345	11.172												
	43	-	5.864	7.212	8.734	10.442												
OP-MPPM044VVL	VLZ044TGA	E	30	27	2.303	2.877	3.556	4.350	5.268					73	42	P01	114X4334	
				32	2.159	2.699	3.339	4.091	4.962									
				38	-	2.491	3.085	3.785	4.600									
				43	-	-	-	-	-									
				50	27	3.796	4.757	5.876	7.163	8.629					73			42
					32	3.569	4.487	5.553	6.779	8.175								
					38	-	4.148	5.146	6.294	7.602								
					43	-	3.852	4.790	5.870	7.101								
				75	27	5.527	6.933	8.542	10.363	12.405					74			43
					32	5.208	6.543	8.067	9.790	11.720								
					38	-	6.052	7.468	9.069	10.862								
					43	-	5.620	6.944	8.440	10.117								
100	27	7.125	8.914	10.926	13.170	15.649					74	43						
	32	6.738	8.421	10.311	12.419	14.750	8.612	4.446	1.94	3.71								
	38	-	7.813	9.557	11.502	13.656												
	43	-	7.288	8.911	10.721	12.728												

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz

E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio

Q [kW], Cooling Capacity

P [kW], Power Input



For regular updates and detailed capacities, please refer to Coolselector®2 software



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Technical data and ordering

Optyma™ Plus INVERTER - R407F - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Compressor speed, rps	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
					Te [°C]					Q [kW]	P [kW]	COP	SEPR				
					-15	-10	-5	0	5								
OP-MPPM028VVL	VLZ028TGA	E	30	27	1.534	1.915	2.363	2.888	3.496					73	42	P01	114X4302
				32	1.447	1.808	2.234	2.733	3.313								
				38	-	1.679	2.078	2.547	3.092								
				43	-	-	-	-	-								
			50	27	2.598	3.258	4.022	4.900	5.902					73	42		
				32	2.450	3.083	3.815	4.655	5.613								
				38	-	2.862	3.555	4.349	5.254								
				43	-	2.669	3.328	4.083	4.943								
			75	27	3.826	4.792	5.901	7.163	8.590					74	43		
				32	3.612	4.539	5.600	6.806	8.169								
				38	-	4.220	5.223	6.362	7.647								
				43	-	3.942	4.895	5.977	7.197								
100	27	4.950	6.174	7.573	9.158	10.939					75	44					
	32	4.689	5.857	7.191	8.703	10.400	5.905	2.979	1.98	3.58							
	38	-	5.470	6.724	8.145	9.742											
	43	-	5.141	6.327	7.671	9.182											
OP-MPPM035VVL	VLZ035TGA	E	30	27	1.931	2.408	2.969	3.623	4.380					72	41	P01	114X4316
				32	1.820	2.272	2.805	3.428	4.149								
				38	-	2.110	2.609	3.193	3.871								
				43	-	-	-	-	-								
			50	27	3.258	4.080	5.029	6.116	7.351					72	41		
				32	3.069	3.858	4.766	5.804	6.984								
				38	-	3.577	4.435	5.416	6.529								
				43	-	3.330	4.147	5.078	6.135								
			75	27	4.776	5.970	7.334	8.878	10.612					73	42		
				32	4.503	5.648	6.951	8.425	10.079								
				38	-	5.242	6.472	7.860	9.417								
				43	-	4.888	6.055	7.372	8.847								
100	27	6.156	7.655	9.358	11.274	13.409					75	44					
	32	5.825	7.254	8.876	10.699	12.731	7.326	3.682	1.99	3.71							
	38	-	6.764	8.286	9.996	11.902											
	43	-	6.347	7.783	9.397	11.198											
OP-MPPM044VVL	VLZ044TGA	E	30	27	2.464	3.068	3.778	4.603	5.555					73	42	P01	114X4334
				32	2.322	2.895	3.568	4.354	5.260								
				38	-	2.686	3.316	4.052	4.903								
				43	-	-	-	-	-								
			50	27	4.135	5.170	6.359	7.714	9.244					73	42		
				32	3.891	4.882	6.019	7.311	8.771								
				38	-	4.519	5.591	6.809	8.184								
				43	-	4.200	5.218	6.374	7.677								
			75	27	6.024	7.510	9.195	11.089	13.196					74	43		
				32	5.670	7.092	8.700	10.503	12.509								
				38	-	6.567	8.080	9.774	11.658								
				43	-	6.107	7.540	9.143	10.924								
100	27	7.723	9.567	11.641	13.951	16.496					74	43					
	32	7.298	9.052	11.023	13.215	15.631	9.164	4.701	1.95	3.78							
	38	-	8.421	10.265	12.315	14.574											
	43	-	7.884	9.618	11.548	13.675											

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz
E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio
Q [kW], Cooling Capacity
P [kW], Power Input



For regular updates and detailed capacities, please refer to **Coolselector®2** software



Technical data and ordering

Optyma™ Plus INVERTER - R404A - MBP

Performance data

Model	Compressor	Electrical code ¹⁾	Compressor speed, rps	Tamb [°C]	Cooling capacity Q [kW] ²⁾					EcoDesign ³⁾				Sound power level dB(A)	Sound pressure level 10 m dB(A)	Version	Code
					Te [°C]					Q [kW]	P [kW]	COP	SEPR				
					-15	-10	-5	0	5								
OP-MPPM028VVL	VLZ028TGA	E	30	27	1.597	1.990	2.446	2.972	3.573					71	40	P01	114X4302
				32	1.484	1.854	2.284	2.780	3.349								
				38	-	-	-	-	-								
			50	27	2.700	3.340	4.080	4.929	5.894					72	41		
				32	2.505	3.106	3.802	4.601	5.510								
				38	2.266	2.820	3.461	4.198	5.039								
			75	27	3.994	4.916	5.976	7.181	8.542					73	42		
				32	3.707	4.574	5.569	6.701	7.981								
				38	3.354	4.151	5.066	6.110	7.290								
			100	27	5.202	6.381	7.724	9.241	10.939					74	43		
				32	4.832	5.939	7.198	8.620	10.214	6.250	3.328	1.88	3.47				
				38	4.368	5.384	6.539	7.845	9.310								
OP-MPPM035VVL	VLZ035TGA	E	30	27	2.027	2.517	3.085	3.739	4.485					73	42	P01	114X4316
				32	1.878	2.339	2.875	3.491	4.196								
				38	-	-	-	-	-								
			50	27	3.402	4.193	5.108	6.153	7.338					74	43		
				32	3.158	3.899	4.755	5.735	6.846								
				38	2.854	3.533	4.317	5.215	6.236								
			75	27	4.962	6.087	7.381	8.853	10.511					74	43		
				32	4.610	5.659	6.866	8.240	9.790								
				38	4.169	5.126	6.226	7.481	8.899								
			100	27	6.354	7.768	9.389	11.226	13.287					75	44		
				32	5.901	7.218	8.727	10.438	12.36	7.614	4.088	1.86	3.77				
				38	5.331	6.529	7.901	9.460	11.214								
OP-MPPM044VVL	VLZ044TGA	E	30	27	2.620	3.236	3.949	4.767	5.698					73	42	P01	114X4334
				32	2.426	3.008	3.681	4.453	5.334								
				38	-	-	-	-	-								
			50	27	4.322	5.303	6.426	7.700	9.134					74	43		
				32	4.012	4.932	5.987	7.183	8.532								
				38	3.623	4.470	5.439	6.541	7.784								
			75	27	6.267	7.656	9.231	10.997	12.960					75	44		
				32	5.812	7.111	8.583	10.234	12.070								
				38	5.243	6.432	7.777	9.289	10.972								
			100	27	8.008	9.755	11.715	13.888	16.273					76	45		
				32	7.406	9.033	10.856	12.879	15.102	9.560	5.220	1.83	3.76				
				38	6.648	8.128	9.785	11.626	13.651								
			43	5.980	7.335	8.852	10.539	12.399									

MBP

(1) G - Compressor 230V/1~/50Hz, fan 230V/1~/50Hz
E - Compressor 400V/3~/50Hz, fan 230V/1~/50Hz

(2) Nominal conditions (EN13215), Evaporating temperatures at dew point, Superheat 10 K, Subcooling 0 K

(3) Rated conditions (EN13215), Evaporating temperature (dew point) -10 °C, Ambient air temperature 32 °C, Return Gas Temperature 20 °C, Subcooling 0 K

SEPR, Seasonal Energy Performance Ratio
Q [kW], Cooling Capacity
P [kW], Power Input



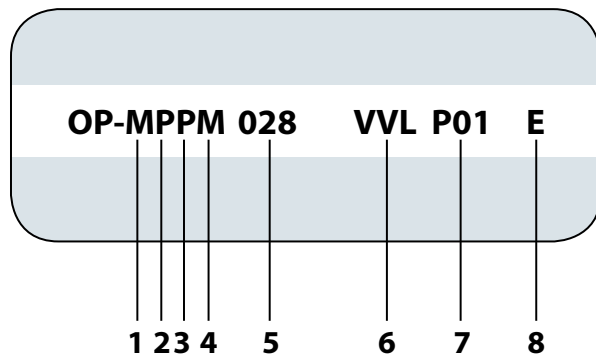
For regular updates and detailed capacities, please refer to Coolselector*2 software



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Nomenclature

Designation system for the Optyma™ Plus INVERTER - MBP



Number	Title	Description
1	Application	M = MBP
2	Design	P = Packaged units
3	Refrigerant	P = R404A, R407A, R407F, R448A, R449A
4	Condenser type	M = Micro channel heat exchanger
5	Displacement	028 = 28 cm³/rev
6	Compressor platform	VVL = variable speed scroll VLZ compressor
7	Version	P01
8	Electrical code	E = Compressor 400 V/3 phase/50 Hz, fan 230 V/1 phase/ 50 Hz

Optyma™ Plus INVERTER - cooling capacity range presentation [kW]

Range span by refrigerant

Minimum / Maximum Cooling capacity in [kW]	Optyma™ Plus INVERTER
Medium temperature (MBP)	
R448A	1.7 – 8.3
R449A	1.7 – 8.3
R407A	1.7 – 8.4
R407F	1.8 – 9
R404A / 507	1.8 – 9

Rating conditions EN 13215 (dew point):

MBP: Ambient temp = 32 °C; Evap temp = -10 °C; Superheat = 10 K; Subcooling = 0 K

Technical data and ordering

Optyma™ Plus INVERTER

Spare parts & accessories - MBP

Designation	OP-MPLM028	OP-MPPM028	OP-MPLM035	OP-MPPM035	OP-MPLM044	OP-MPPM044
Code Number	114X4300 *)	114X4302	114X4315 *)	114X4316	114X4333 *)	114X4334
Compressor Description	VLZ028TGA		VLZ035TGA		VLZ044TGA	
Compressor oil	120Z5034	120Z0648	120Z5034	120Z0648	120Z5034	120Z0648
Spare Parts						
Compressor	120G0162		120G0159		120G0156	
Condenser	118U3494		118U3494		118U3494	
Oil separator	118U3981		118U3981		118U3982	
Fan assembly	118U3829		118U3829		118U3829	
Fan cowl/grill	118U3485		118U3485		118U3485	
Filter	023Z5045		023Z5045		023Z5045	
High-pressure switch	118U3718		118U3718		118U3718	
Low-pressure switch	118U3720		118U3720		118U3720	
Receiver	118U3476		118U3476		118U3476	
Sight glass	014F0174		014F0174		014F0174	
Suction line valve	009G7054		009G7054		009G7054	
Liquid line valve	009G7053		009G7053		009G7053	
Electrical Spare Parts						
Crankcase heater	120Z5040		120Z5040		120Z5040	
Controller	118U3465		118U3465		118U3465	
Discharge temperature sensor	084N2007		084N2007		084N2007	
High-pressure transmitter	118U3722		118U3722		118U3722	
Low-pressure transmitter	118U3721		118U3721		118U3721	
Suction and ambient temp sensor	084N0003		084N0003		084N0003	
Compressor contact	118U3847		118U3847		118U3847	
Door handle	118U3858		118U3858		118U3858	
Main switch	118U3852	118U3854	118U3852	118U3854	118U3852	118U3854
Compressor drive CDS803	118U3973		118U3973		118U3973	
EMI filter (Drive)	118U3972		118U3972		118U3972	
EMI filter (Controller)	118U3974		118U3974		118U3974	
Electrical Characteristics						
MCC Compressor [A] 400V/3phase	8.1		9.8		12.0	
Max cont.power consumption [kW]	3.98		4.94		6.33	
MCC Fan [A] 230V/1 phase	0.96		0.96		0.96	
Fan power output [W]	1x130		1x130		1x130	
Fan power consumption [W]	1x220		1x220		1x220	
Accessories (Not Premounted)						
Acoustic hood	120Z5043		120Z5043		120Z5043	
Sheet Metal						
Top panel	118U5131		118U5131		118U5131	
Fan Panel	118U5132		118U5132		118U5132	
Back panel	118U5133		118U5133		118U5133	
Front panel	118U5134		118U5134		118U5134	
Access panel	118U5135		118U5135		118U5135	
Left side panel	118U5165		118U5165		118U5165	

MCC - Max Continuous Current

*) Phased out model

Note: For service purpose original components (spare parts) recommended by Danfoss should be used.

Technical data and ordering

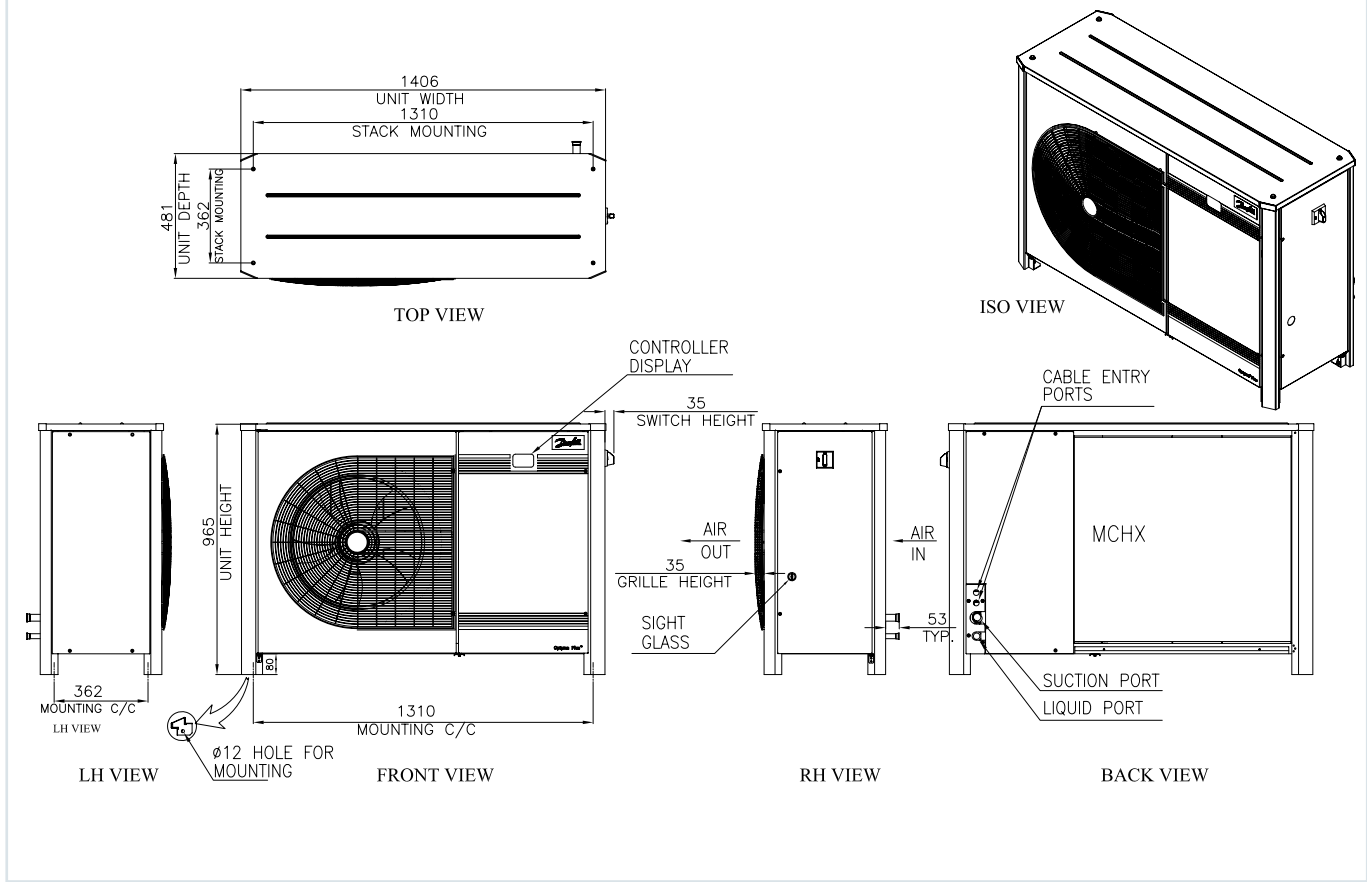
Optyma™ Plus INVERTER

Spare parts & accessories list

Component type	Component description	Additional informations	Component code
Compressor Single pack	Compressor VLZ028TGNE9A/M		120G0162
Compressor Single pack	Compressor VLZ035TGNE9A/M		120G0159
Compressor Single pack	Compressor VLZ044TGNE9A/M		120G0156
Condenser	CONDENSER COIL MCHX G7		118U3494
Oil Separator	SEPARATEUR HUILE SO/ER-31 OPTYMA INVERT		118U3981
Oil separator	SEPARATEUR HUILE SO/ER16101 OPTYMA INVER		118U3982
Fan assembly	FAN ASSEMBLIES, EBM, ERP2015		118U3829
Fan cowl/grill	FAN GRILL HOUSING 3 OP PLUS		118U3485
Filter	Filter drier DML 165 M/12		023Z5045
High-pressure switch	HIGH PR SWITCH ACB-2UB463W		118U3718
Low-pressure switch	LOW PR SWITCH ACB-2UA418W		118U3720
Receiver	LIQUID RECEIVER 6,2L OP PLUS		118U3476
Sight glass	Del-SGN+ 16 Sight Glass M/36		014F0174
Suction valve	GBC 18s Ball Valve M/25		009G7054
Liquid valve	GBC 16s Ball Valve M/25		009G7053
Crankcase heater	CRANKCASE HEATER, 240V 70W		120Z5040
Controller	OPTYMA PLUS CONTROLLER-084B8080		118U3465
Discharge temperature sensor	Sensor AKS 21 A 2.5m		084N2007
High-pressure transmitter	AKS HP PR TRANSMITTER		118U3722
Low-pressure transmitter	AKS LP PR TRANSMITTER		118U3721
Suction and ambient temp sensor	Sensor AKS 11 3.5m		084N0003
Compressor contact	CONT, ABB-A16-30-01-80+CA5-11		118U3847
Door handle	HANDLE, ABB-OHB2AJM,MSMN,OX5X131		118U3858
Compressor drive CDS803	Drive CDS803 7,5kW H OPTYMA INVERTER		118U3973
EMI filter (Drive)	Filtre pour Drive EN 55011 class B (C1)		118U3972
EMI filter (Controller)	CONTROLLER EMC/RFI FILTER OPTYMA PLUS		118U3974
Top Panel	SPARE PART, SHEET METAL TOP H3		118U5131
Fan panel	SPARE PART, SHEET METAL FAN H3		118U5132
Back panel	SPARE PART, SHEET METAL BACK H3		118U5133
Front Panel	SPARE PART, SHEET METAL FRONT H3		118U5134
Access Panel	SPARE PART, SHEET METAL ACCESS H3		118U5135
Left Side panel	SPARE PART, SHEET METAL LEFT SIDE H3		118U5165
Main switch	MPCB, ABB-MS116-16+HK1-12		118U3852
Main switch	MPCB, ABB-MS132-20+HK1-12		118U3854
Acoustic hood	ACCOUSTIC HOOD SMALL now use (120Z5083)		120Z5043

Dimensions

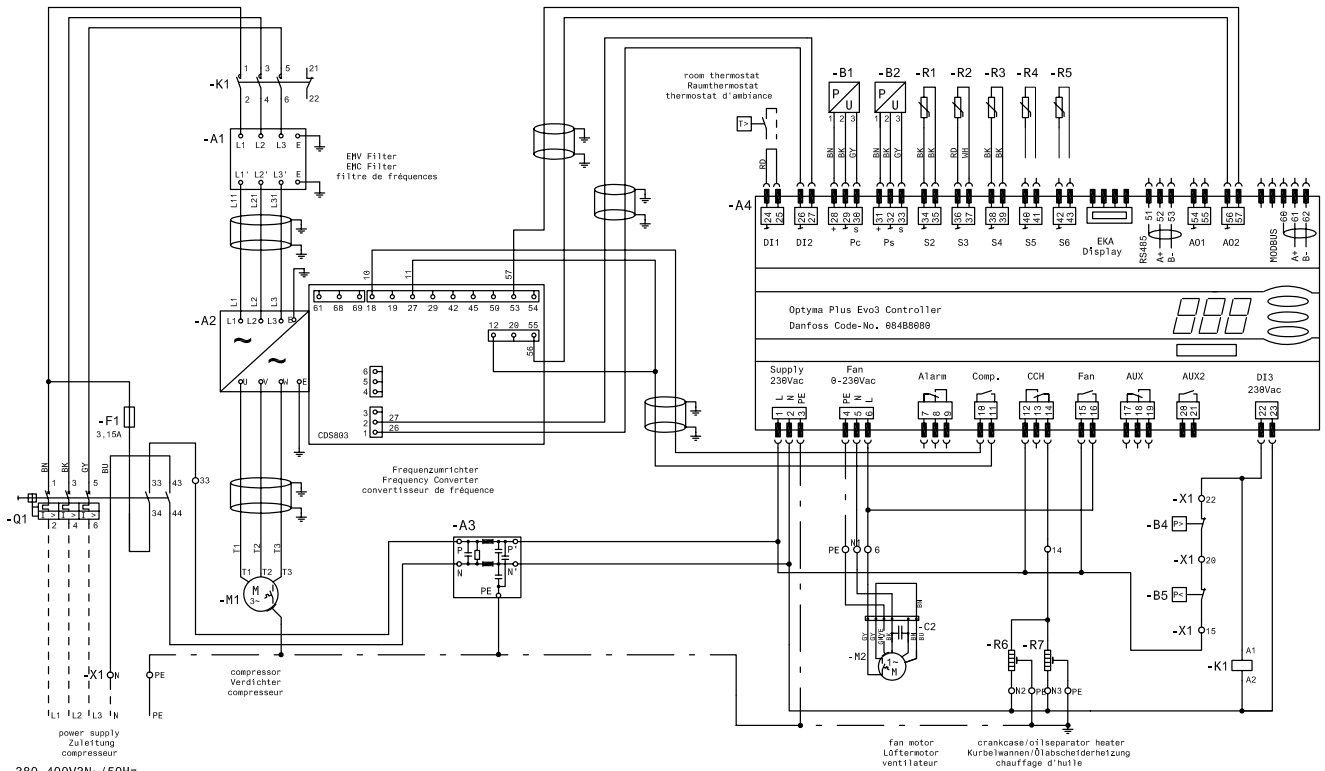
OP-MPLM028-035-044, OP-MPPM028-035-044



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Electrical wiring diagrams

OP-MPLM028-035-044, OP-MPPM028-035-044



380-400V3N~/50Hz

setting/Einstellung/ajustage			Q1
Code	type/Typ/type	range Bereich domaine	value Wert valeur
114X4323	OP-MPLM044VLP01E	10-10A	16A
114X4315	OP-MPLM35VLP01E	10-16A	14A
114X4309	OP-MPLM28VLP01E	10-16A	11A
114X4334	OP-MPPM044VLP01E	10-20A	16A
114X4316	OP-MPPM35VLP01E	10-20A	16A
114X4302	OP-MPPM28VLP01E	10-20A	16A

sensors/Sensoren/capteurs	
-B1	condensing press./Kondensationsdruck/press.de cond.
-B2	suction pressure/Saugdruck/press.de aspiratfon
-B3	high pressure/Hochdruck/haute pression
-B4	low pressure/Niederdruck/basse pression
-R1	ambient temp./Umgebungstemp./temp. ambiante
-R2	discharge temp./Druckgastemp./temp. de refoulement
-R3	suction gas temp./Sauggastemp./temp. du gaz aspiré
-R4/S	Aux.temperature/diverse Temp./résérve température

colours/Farben couleurs	
BK	black/schwarz/noir
BU	blue/blau/bleu
BN	brown/brun/marron
GY	grey/grau/gris
RD	red/rot/rouge
WH	white/weiß/blanc

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- A1 : EMC/RFI Filter (Compressor)
- A2 : Frequency Converter
- A3 : EMI Filter (Controls)
- A4 : Optyma™ Plus Controller
- B1 : Condensing Pressure Transducer
- B2 : Suction Pressure Transducer
- B3 : High Pressure Switch
- B4 : Low Pressure Switch

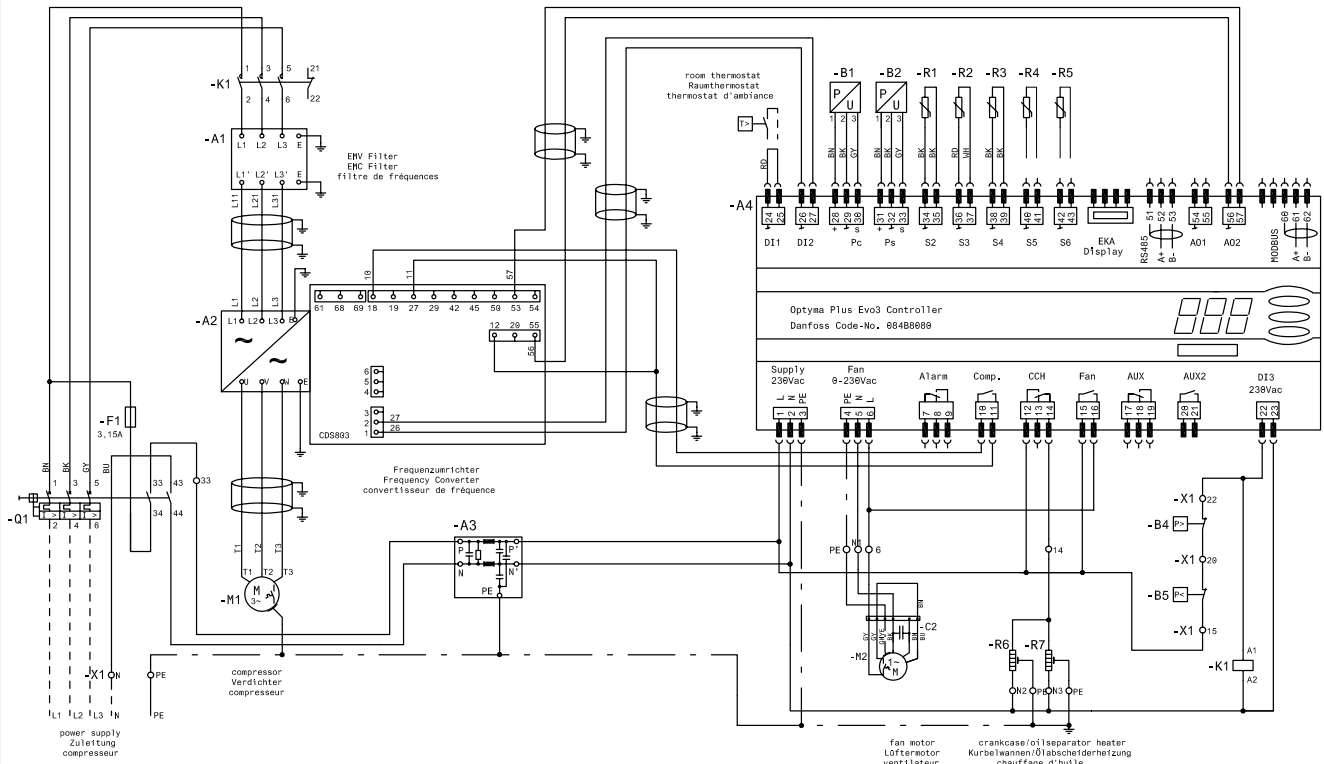
- C1 : Run Capacitor (Fan)
- F1 : Fuse (Control Circuit)
- K1 : Contactor
- M1 : Compressor
- M2 : Fan Motor
- Q1 : Main Switch
- R1 : Ambient Temp. Sensor
- R2 : Discharge Temp. Sensor

- R3 : Suction Temp. Sensor
- R4,R5 : Auxiliary Temp. Sensor (optional)
- R6 : Crankspace heater
- R7 : Oil Separator Heater
- S1 : Room Thermostat (optional)
- X1 : Terminal

- Supply : Supply
- Fan : Fan
- Alarm : Alarm
- Comp. : Compressor
- CCH : Crankspace Heater
- Aux : Auxiliary

Electrical wiring diagrams

OP-MPLM028-035-044, OP-MPPM028-035-044- Emergency Wiring



380-400V3N~/50Hz

setting/Einstellung/ajustage			
Code	type/Typ/type	range Bereich/Bereich	value Wert/Wert
114X4333	OP-NPLM44WLP01E	10-16A	16A
114X4315	OP-NPLM35WLP01E	10-16A	14A
114X4380	OP-NPLM28WLP01E	10-16A	11A
114X4334	OP-NPPM44WLP01E	16-28A	16A
114X4316	OP-NPPM35WLP01E	16-28A	16A
114X4362	OP-NPPM28WLP01E	16-28A	16A

sensors/Sensoren/capteurs	
-B1	condensing press./Kondensationsdruck/press.de cond.
-B2	suction pressure/Saugdruck/press.de aspiratfon
-B3	high pressure/Hochdruck/haute pressfon
-B4	low pressure/Wiederdruck/basse pressfon
-R1	ambtent. temp./Umgebungtemp./temp. ambiante
-R2	d/charge temp./Druckgastemp./temp. de refoulement
-R3	suction gas temp./Sauggastemp./temp. du gaz aspiré
-R4/S	Aux.temperature/diverse Temp./réservé temperature

colours/Farben/ couleurs	
BK	black/schwarz/noir
BU	blue/blau/bleu
BN	brown/brun/marron
GY	grey/grau/gris
RD	red/rot/rouge
WH	white/weiß/blanc

- A1 : EMC/RFI Filter (Compressor)
- A2 : Frequency Converter
- A3 : EMI Filter (Controls)
- A4 : Optyma™ Plus Controller
- B1 : Condensing Pressure Transducer
- B2 : Suction Pressure Transducer
- B3 : High Pressure Switch
- B4 : Low Pressure Switch

- B5* : Fan Speed Controller / Pressure Switch
- C1 : Run Capacitor (Fan)
- F1 : Fuse (Control Circuit)
- K1 : Contactor
- M1 : Compressor
- M2 : Fan Motor
- Q1 : Main Switch
- R1 : Ambient Temp. Sensor

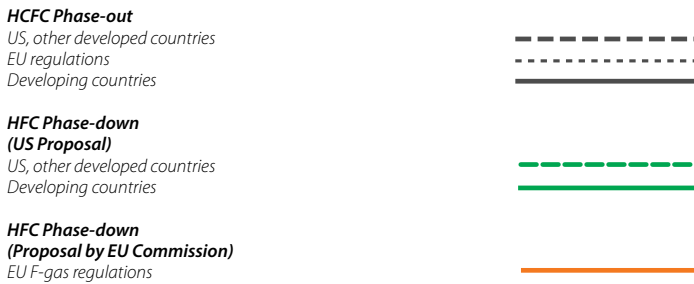
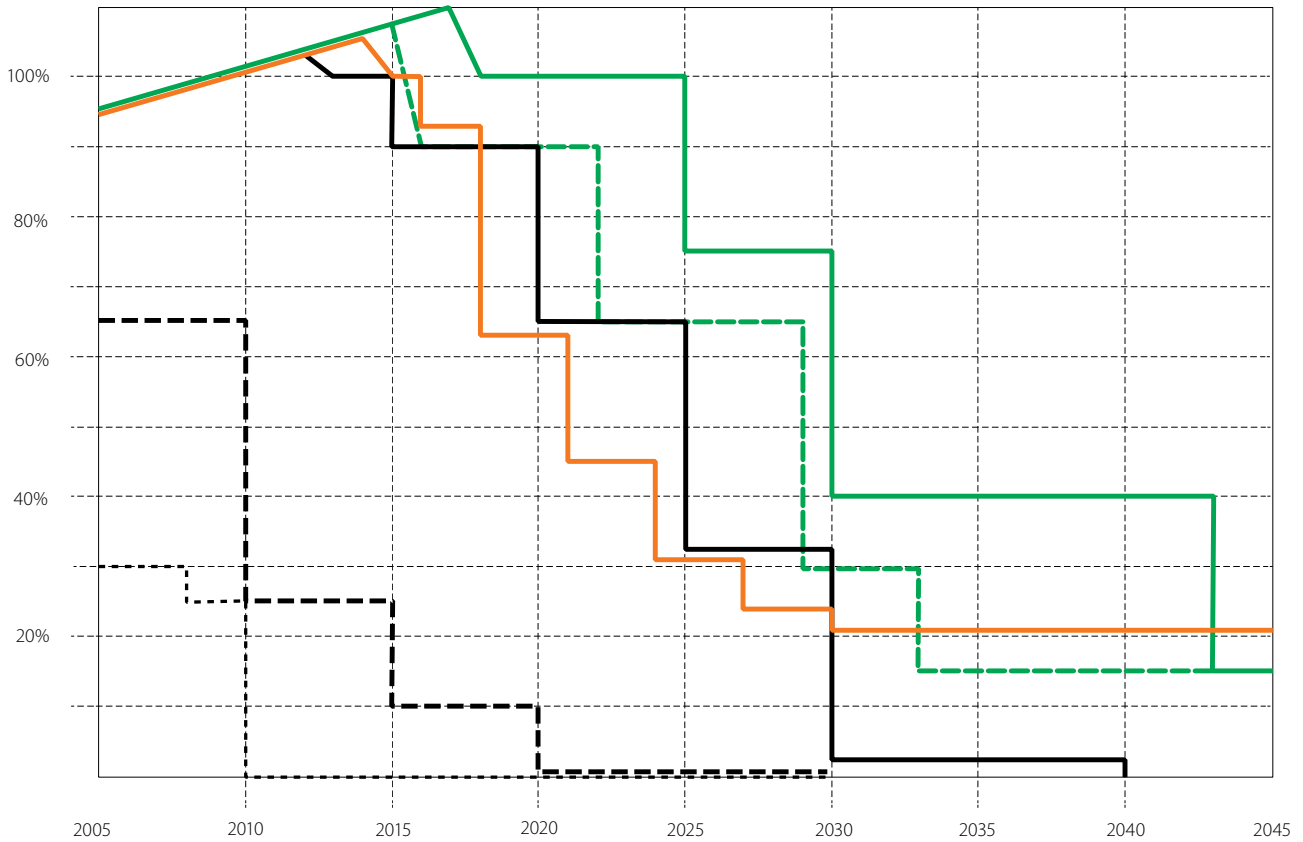
- R2 : Discharge Temp. Sensor
- R3 : Suction Temp. Sensor
- R4,R5 : Auxiliary Temp. Sensor (optional)
- R6 : Crankcase heater
- R7 : Oil Separator Heater
- R8 : Compressor Speed Potentiometer
- X1 : Terminal

- Supply : Supply
- Fan : Fan
- Alarm : Alarm
- Comp. : Compressor
- Aux : Auxiliary

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Refrigerant control schedules

The graph below shows the phase-out of HCFC refrigerants as agreed under the Montreal Protocol and the various proposals for HFC phase-down. Initial slope of HFC proposals are indicative and not part of the proposals.



Perhaps the most effective mechanism of the F-gas regulation will be the GWP-based phase-down of HFC refrigerants. The phase-down will effectively reduce the supply of high-GWP refrigerants to where demand cannot be met. In turn, this will lead to significantly higher prices on HFC refrigerants. The higher the GWP, the higher the price. Although transitional refrigerants such as R407A and R407F are not directly affected by refrigerant bans in the near term, prices will undoubtedly increase and may become prohibitive in most applications with more than a few kg charge.

Overview of refrigerant trends

Refrigerant	Application	Refrigeration												Air Conditioning											
		Domestic-Household refrigeration			Light Commercial refrigeration			Commercial Racks and Condensing Units			Industrial Refrigeration			Residential A/C (including Reversible systems)			Commercial A/C			Residential and Commercial			Industrial		
		Watt			150-5000			> 5.000			> 1.000.000			1.000 - 20.000			> 20.000								
		2018	2022	2027	2018	2022	2027	2018	2022	2027	2018	2022	2027	2018	2022	2027	2018	2022	2027	2018	2022	2027	2018	2022	2027
CO ₂ R744	NAM				C																				
	Europe				C			C					*												
	China												*										C	C	
	ROW												*												
NH ₃ (2L) R717	NAM												*												
	Europe												*												
	China												*												
	ROW												*												
HC	NAM	C																							
	Europe																								
	China																								
	ROW																								
HFC	NAM																								
	Europe																								
	China																								
	ROW																								
HFC/HFO below GWP 700	NAM																								
	Europe																								
	China																								
	ROW																								

	Main refrigerant
	Regular use
	Limited use and only niche applications
	Not applicable or unclear situation

Seen from a global perspective, the tendency of the industry is to move increasingly toward natural refrigerant solutions when it is technologically safe & economically feasible. Synthetic refrigerants are still likely to play an important role in both the refrigeration and air conditioning industries, where the trend is also moving toward new low-GWP substances that cause a minimal environmental impact.

CO₂ (R744)

The CO₂'s GWP value equal to 1
Lends itself well to food retail applications, where the impact, in case of leaks, is minimal and where its thermodynamic properties make it the ideal media for heat recovery
Transcritical CO₂ cycles reject a large proportion of the cycle heat at high temperatures which makes it suitable for heat pumps
In industrial refrigeration, CO₂ provides a means to reduce the charge of Ammonia, increasing the efficiency and decreasing the footprint of freezing equipment
In transport refrigeration and electronics cooling, CO₂ provides a non-flammable, environmentally benign solution

Ammonia (NH₃ - R717)

GWP and ODP (Ozone Depletion Potential) equal to zero, cost (per kg) considerably lower than the cost of HFCs
Ammonia is one of the most energy efficient refrigerants in applications ranging from high to low temperatures. With the increasing focus on energy consumption, ammonia is a sustainable choice for the future
Ammonia has better heat transfer properties than most of chemical refrigerants and therefore plant construction and operating costs will be lower

Hydrocarbons (R290, R600)

Provides high energy-efficiency, good volumetric capacity and large operating envelopes compared to HFCs
The flammability limits the use to small systems and chillers (e.g. chillers for food retail systems or for comfort air conditioning installed outside the building)
Allows for very low evaporating temperatures without overheating the compressor when used in heat pumps (with HFCs you need to supplement with an electrical heating element for the really cold days or more expensive vapor / liquid injection cycles) Medium GWP HFC / HFO blends
A transitional solution that can be used in retrofitting high-GWP HFC systems. Medium GWP solutions, <1500, and non-flammable are particularly indicated where indoor system charge can be an issue and alternative system architecture too expensive

Mildly flammable HFC & HFO

The low GWP and low flammability makes these refrigerants suitable for relatively large systems
Especially interesting for air conditioning where there is a lack of non-flammable (A1) natural alternatives

Danfoss and low-GWP refrigerants

Sustainable solutions are in the best interests of all stakeholders in our industry. Sustainability safeguards long-term investments and ensures compliance with Corporate Social Responsibility (CSR). Today, when talking about refrigerants and long-term sustainability, Danfoss considers three main parameters that must be aligned to accomplish a real sustainable balance:

affordability, safety, and environment. In order to enable the market to achieve these CO₂ eq reduction targets, Danfoss is actively working on solutions for alternative refrigerants with a pragmatic approach, keeping system efficiency, costs and safety in mind. The company offers a wide range of products and solutions for low-GWP synthetic and natural refrigerants for

both refrigeration and air-conditioning applications.



Main applications and refrigerant types

GWP values are decreasing due to phase downs and energy efficiency demands (MEPS) are increasing. HVAC-R professionals will focus on using components that allow for the lowest possible charge and on technologies with the best cost/performance ratio for a given refrigerant type. Choosing a refrigerant is no simple task; it depends on the timing of regional regulations as well as applied standards and building codes. In the last year, the situation has been further complicated by massive price increases and the decreased availability of fluorinated refrigerants.

Chillers:

Depending on their size and the compressor technology they use, chillers operate with low to high pressure refrigerants and are divided into two categories: low/medium (L/M) and medium/high (M/H) pressure. L/M chillers transitioning from R123 can stay non-flammable using HFO solutions like R1233zd (fig.1). R134a applications have non-flammable, A1 solutions with GWP less than 640, such as HFO blends R513A and R450A. If A2L classification is accepted according to applied safety standards and building codes, then the GWP level can come very close to zero using the pure HFO R1234ze (fig.1). We expect industry professionals will adopt this ultra-low GWP refrigerant as a long-term solution for these kinds of systems. For M/H pressure chillers, there is no ideal non-flammable alternative for incumbent refrigerants such as R410A. Instead, industry professionals must accept A2L or even A3 solutions like R290. A2L alternatives are in the 125-750 GWP range like R32 and several R32/HFO based blends. Their use should be acceptable for systems installed outdoors or in machine rooms, but their placement must always follow local safety standards and building codes. The market will likely move to low-GWP alternatives which offer the best balance of system cost and performance. We foresee that the high density/ pressure refrigerant choice will fall into two groups: the majority with a GWP around 500-750 and a smaller but still significant group applying A3 refrigerants like R290.

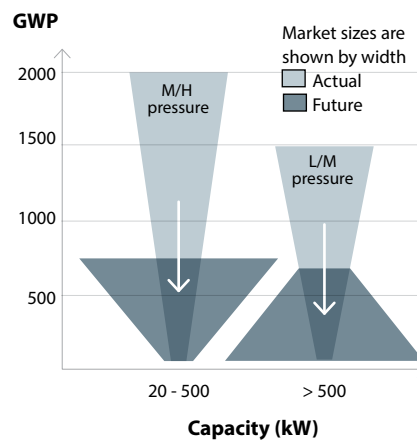


Figure 1: Market transition and GWP level per Chiller size. Most of the M/H Chillers will use refrigerants with a GWP around 750, and most L/M chillers will use ultra-low GWP refrigerants

VRF systems:

VRF systems use a relatively large amount of refrigerant per unit, compared to ducted systems, due to their decentralized evaporators and subsequent piping. Minimizing piping size requires medium to high density refrigerants where the only alternatives to R410A are A2L refrigerants such as R32 or R452B. Innovative, alternative fluids for circulation are under constant development—water is an obvious choice and even CO₂ has been proposed.

Industrial Refrigeration:

From a glance, Industrial Refrigeration (IR) seems to be an easy sector regarding low GWP refrigerants, but we still see potential pitfalls as well as room for innovation. NH₃ (ammonia) has been the preferred refrigerant due to its excellent efficiency and it continues to be used as demands for sustainable refrigerants increase. However, safety concerns may potentially limit the success of NH₃ as it is toxic, necessitating comprehensive measures in order to be utilized safely. We have learned, as an industry, some important lessons such as avoiding large charges and careful planning the location of larger plants. This has led to find new, innovative ways to reduce charge sizes for example when combining NH₃ with CO₂: CO₂ takes on the role of thermal carrier and is circulated inside the larger storage facilities.

Commercial Refrigeration

Commercial Refrigeration applications are very diverse regarding systems types and refrigerants used. It includes cold rooms, glass door merchandizers, and display and islands cabinets, either in centralized or plug-ins – hermetic or autonomous cooling circuits with condensing units. Commercial Refrigeration applications are grouped into three main categories.

1. Hermetically sealed applications today use various refrigerants with GWP up to 4000. They are suited for using

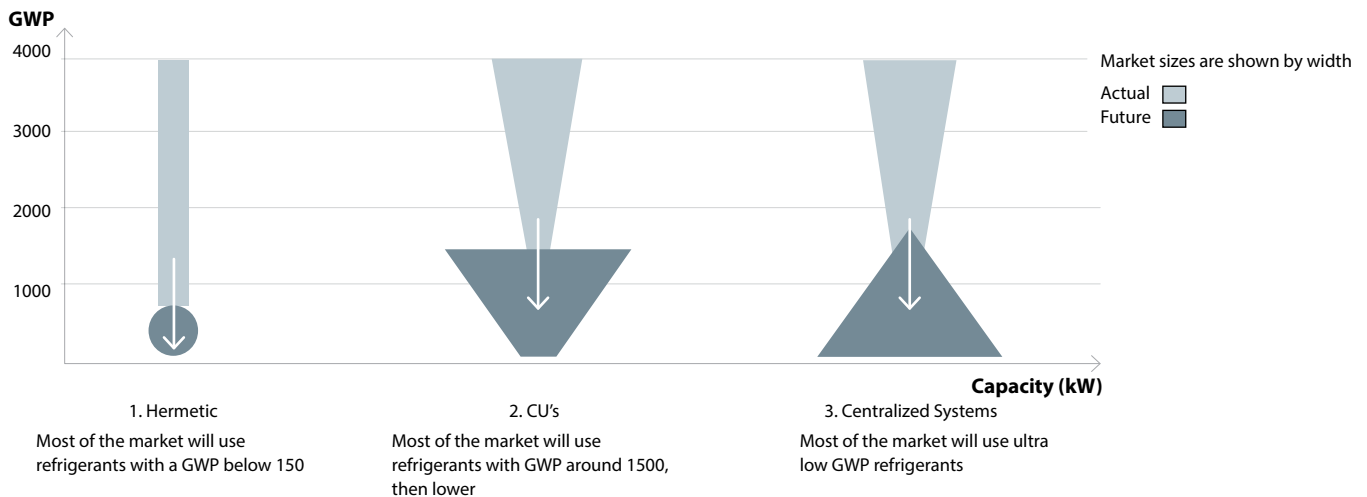


Figure 2: Market transition and GWP levels for Commercial Refrigeration applications

low GWP refrigerants, which are safe due to their low charge amounts. Many of these systems already use hydrocarbons like R600a and R290 and the EU phasedown has required GWP values below 150 since 2016 (Fig. 2)

2. Condensing units have a refrigerant charge that is typically between 1 and 20 kg and safety on flammability is imperative as many of these systems can be accessed by the public. High GWP refrigerants like R404A have been used for many years, but new alternative A1- classified HFCs like R452A have a GWP of less than 60% of R404A. Nevertheless, the impact of higher compressor discharge temperatures on the operating envelope and the impact of refrigerant glide on cooling performance present new challenges. We believe that most of the market will quickly move to an average GWP level of around 1500 before

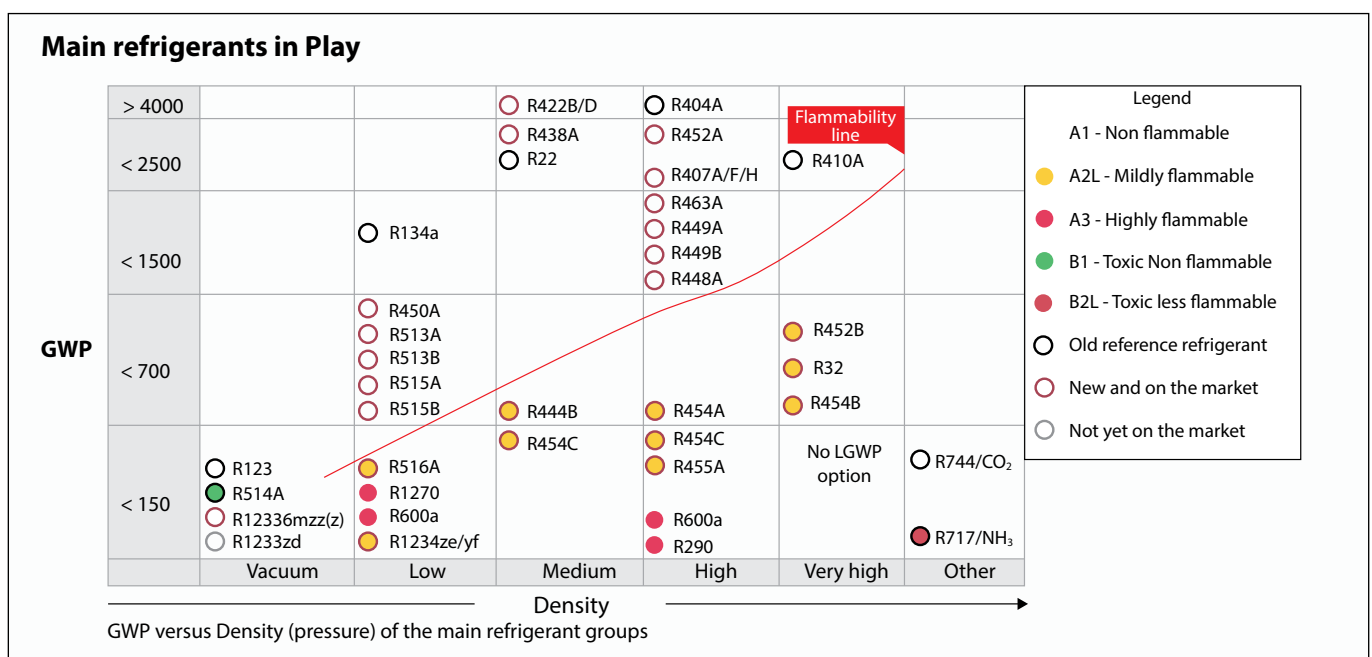
slowly seeking for more, lower solutions like CO₂, R290 (Hydrocarbons), or lower GWP HFO Blends like R448A and R449A. (Fig. 2)

3. Centralized DX systems are by far the highest refrigerant-consuming application due to their large charge sizes and high leakage rates. In the EU phasedown, they are estimated to use more than 40% of the baseline amount of refrigerant recommended by the phasedown. During the last ten years, CO₂ has become a viable refrigerant and can be used in different system setups:

- Transcritical systems where CO₂ is used in all circuits (MT and LT). CO₂ transcritical systems have also been driving the development of integrated heating and cooling systems, linking the refrigerant choice to the type of system.
- Indirect systems where a chiller-like rack using HFCs, HCs, or NH₃ cools the CO₂ in

a receiver, which is then circulated in the MT circuit, cooling the MT circuit. LT is also covered by CO₂ and condenses either directly to the chiller on top or the CO₂ MT circuit.

- Cascade systems where CO₂ is used only in the LT circuit and cascaded into the MT circuit which uses HFC. This type of system still uses around 80% of the HFC refrigerant used in a conventional system. Geographical location affects the energy efficiency of any system due to outdoor ambient temperature. Transcritical CO₂ systems have been known to be extraordinary sensitive to outdoor temperatures. However, the latest developments with ejector technologies have seriously increased CO₂ system efficiency even in very warm climates and we expect it to see a market breakthrough during the next years.



Products for refrigerants with a GWP <2500

Refrigerants									
Product grouping	Product	Product description	Pressure [bar]	R1233zd	R1234ze	R134a	R290, R600a	R32	R407A R407F
Electronic controllers ¹⁾	AK-PC 7XX	Advanced pack controllers		●	●	●	●	●	●
	AK-PC 351/ 5XX	Standard pack controllers			●**)	●	●	●	●
	AK-CC 550/750	Case controller for electronic expansion valves			●**)	●	●	●	●
	AK-CC 250/350/450	Case controller for thermostatic expansion valves					●	●	●
	EKC 326a	CO ₂ gas pressure controllers							
	MCX	Programmable controllers		●	●		●	●	●
	EIM 336	Electronic superheat controllers			●	●	●	●	●
	EKE 1A, EKE 1B, EKE 1C (1V)				●	●	●	●	●
	EKC 313	Cascade injection with CO ₂		●	●		●	●	●
	EKC 315a	Superheat controllers		●	●		●	●	●
EKC 361	Temperature controllers		●	●		●	●	●	
EKE 347	Liquid level controllers		●	●			●	●	
Compressors for air conditioning	DSH / DCJ	Scrolls with IDVs for air conditioning						●*)	
	HLJ / HCJ+ / SH	Scrolls for air conditioning							
	PSH	Scrolls heating optimized							
	SZ	Scrolls for air conditioning							
	VZH	Inverter scrolls for air conditioning						●*)	
	TT, TG, VTT	Turbocor oil-free centrifugal compressors			●	●			
Compressors for refrigeration	MTZ	Maneurop reciprocating compressor for medium temp.				●			●
	NTZ	Maneurop reciprocating compressor for low temp.							
	MLZ	Scroll compressor for medium temperature				●			●
	LLZ	Scroll compressor for low temperature							
	PL/TL/DL/FR/NL/SC/GS/B/U/L/P/X/S	Light Commercial AC Compressors for LBP/MBP				●	●		
	SLV, NLV, DLV, XV	Variable speed reciprocating compressor for LBP/MBP					●		
BD	Light Commercial AC/DC compressors for mobile cooling				●	●			
Condensing units	Optyma™	Condensing Units for medium temperature refrigeration				●	●		●
	Optyma™	Condensing Units for low temperature refrigeration					●		
	Optyma™ Slim Pack, Optyma™ Plus	Condensing Units for medium temperature refrigeration				●			●
	Optyma™ Slim Pack, Optyma™ Plus	Condensing Units for low temperature refrigeration							
	Optyma™ Plus INVERTER	Condensing Units for medium temperature refrigeration							●
Electronic expansion valves	AKV	Electronic expansion valves	28 – 52			●			● ⁵⁾
	AKVA	Electronic expansion valves	42						●
	AKVH	Electronic expansion valves	90			●			●
	ETS Colibri®	Electronic expansion valves	50		●	●	●	●	●
	ETS 12.5 - 400	Electronic expansion valves	45.5/34		●	●			●
Electronic Pressure & Temperature regulating Valves	CCM	Standstill capable electronic backpressure regulators	90			●			
	CCMT		140			●			
	CTM	Multi Ejector	140						
	CTR	3-Way Heat Reclaim Valve	140						
	KVS	Electronic suction modulating valves	45.5/34		●	●			●
	ICM	Industrial motorized regulating valves	52/65						●
	ICMTS	High pressure industrial motorized regulating valves	140					●	
Sensors & transmitters	AKS	Pressure sensors with 4 – 20 mA, volt., and ratiometric outputs	100	●	●	●	●	●	●
	AKS 4100	Liquid level sensors	100						●
	MBS 8200	Pressure sensors with 4 – 20 mA, and ratiometric outputs	160	●	●	●	●	●	●
	AKS Temperature	Sensors with Pt1000, Pt 1000 and thermistor elements		●	●	●	●	●	●
	GD	Gas detecting sensors			●		●		
Heat exchangers	BPHE	Brazed Plate heat exchangers			●	●	●	●	●
	MPHE	Micro Plate heat exchangers			●	●	●	●	●
	MCHE	Micro Channel heat exchangers			●	●	●	●	●

¹⁾ Parameters for other refrigerants can be entered manually, please refer to refrigerant constants for ADAP-KOOL

●*) Qualification in progress

●**) Only in the latest versions of the controller software

●***) except AKV20 with media temperature constantly below 0 °C

§) only for solder version

Refrigerants																	
R407C	R410A	R422B	R422D	R444B	R448A	R449A	R449B	R450A	R452A	R452B	R454A	R454B	R454C	R455A	R513A	R744 (CO ₂)	R717 (NH ₃)
•	•		•		•**)	•**)			•**)		•				•	•	•
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For any refrigerants not listed and for the detailed information per product, please contact Danfoss or check in Coolselector: coolselector.danfoss.com

Products for refrigerants with a GWP <2500

Refrigerants									
Product grouping	Product	Product description	Pressure [bar]	R1233zd	R1234ze	R134a	R290, R600a	R32	R407A R407F
Thermostatic expansion valves	TU	Stainless steel thermostatic expansion valves	45.5					●	
	TU		34			●	●		●
	TC		45.5			●	●	●	●
	T2	Thermostatic expansion valves	34			●			●
	TD1		34			●	●		
	TG		46		●	●	●	●	●
	TE5-TE55		28			●			●
TEA	Industrial thermostatic exp. valves								
Solenoid valves	EVR v2 ²⁾	Allround solenoid valves	32 – 45.2		● ⁶⁾	●	● ⁶⁾	● ⁶⁾	●
	EVRA/T	Solenoid valves	42			●			●
	EVRH	High pressure solenoid valves	45.2		●	●		●	●
	EVU	Semi-hermetic solenoid valves	70						●
	EVUL	Fully-hermetic solenoid valves	90				●		●
	ICLX	Flexline™ solenoid valves	52			●		●	●
Valve stations	ICF	Flexline™ valve stations	52/65			●			●
Mechanical pressure & temperature regulating valves	KVD	Receiver pressure regulators				●	●		●
	KVC	Capacity regulators				●	●		●
	KVL	Crankcase pressure regulators				●	●		●
	KVP	Evaporating pressure regulators				●	●		●
	KVR	Condensing pressure regulators				●	●		●
	CPCE	Hot gas bypass regulating valves				●	●		●
	CVC / CVP	Pilot valve for ICS	65			●			●
	ICS	Mechanical backpressure regulators	52/65			●	●	●	●
	REG-S	Flexline™ regulating valves	52			●	●	●	●
Switches	AKS 38	Electro-mechanical float switches	28		●			●	●
	KP	Pressure switches	46		●	●	●		●
	RT				●	●		●	
	MP	Differential pressure switches				●	●	●	●
	RT					●			●
	ACB	Cartridge pressure controls	45		●	●	●	●	●
CCB	165								
Water regulating valves	WVFX	Pressure operated water valves				●	●		●
	WVO					●	●		●
	WVS					●	●		●
Filters & driers	DCR	Receiver filter driers with replaceable solid cover	28/46	●	●	●			●
	DMC	Receiver filter driers	42	●	●	●	●	●	●
	DCC	Receiver filter driers		●	●	●	●	●	●
	DML	Liquid line filter driers	46	●	●	●	● ³⁾	● ³⁾	●
	DCL			●	●	●	● ³⁾	● ³⁾	●
	DMB	Bi-flow filter driers	46	●	●	●	● ³⁾	● ³⁾	●
	DCB			●	●	●	● ³⁾	● ³⁾	●
	DAS	Burn-out filter driers	35	●	●	●	● ³⁾	● ³⁾	●
	DMT	Filter driers for transcritical applications	140						
DMSC	Filter drier for subcritical applications	52							
Check valves	NRV	Piston check valves	46		●	●	● ⁴⁾	● ⁴⁾	●
	NRVA		40			●	●	●	●
	CHV-X	Flexline™ check valves	52/65			●			●
	SCA-X	Flexline™ check & stop valves	52/65			●			●
Shut-off valves	GBC	Shut-off ball valves	45		●	●	● ⁴⁾	● ⁴⁾	●
	BML	Shut-off diaphragm valves	28		●	●	● ⁵⁾		
	SNV / SVA	Gauge valves / Flexline™ stop valves	52/65		●	●	●	●	●
Sight glasses	SG	Sight glasses for low pressures	35			●			●
	SGP	Sight glasses for high pressures	52		●	●	● ⁵⁾	● ⁵⁾	●

^{*)} Qualification in progress

²⁾ New EVR: 45.2 bar

³⁾ Filter Dryers with connection sizes below 25 mm - Qualification of the filter driers mentioned for R452B and R454B in progress - Qualification of DMSC/52 bar for CO₂ in progress

⁴⁾ NRV with connection sizes below 22 mm / GBC with connection sizes below 25 mm

⁵⁾ Only for solder version

⁶⁾ EVR v2 2 to 22 with solder connection and without manual stem

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LPQM026AJ	732	MLZ015	531	MLZ019T4	533
LPQM048NT	732	MLZ015T4	532	MLZ019T4	533
LPQM048NT	732	MLZ015T4	532	MLZ019T4	534
LPQM068NT	732	MLZ015T4	533	MLZ019T4	534
LPQM068NT	732	MLZ015T4	533	MLZ019T4	535
LPQM074FH	732	MLZ015T4	534	MLZ019T4	535
LPQM074FH	733	MLZ015T4	534	MLZ019T4	687
LPQM096NT	733	MLZ015T4	535	MLZ019T4	689
LPQM136NT	733	MLZ015T4	535	MLZ019T4	690
LPQM215LL	733	MLZ015T4	687	MLZ019T4	692
LPQM271LL	733	MLZ015T4	689	MLZ019T4	694
LSQM014MP	700	MLZ015T4	690	MLZ019T4	695
LSQM018MP	700	MLZ015T4	692	MLZ019T4	696
LSQM026AJ	699	MLZ015T4	694	MLZ019T4	698
LSQM034AJ	699	MLZ015T4	695	MLZ019T4	701
LSQM048NT	699	MLZ015T4	696	MLZ019T4A	536
LSQM048NT	699	MLZ015T4	698	MLZ019T4A	536
LSQM067LL	699	MLZ015T4	701	MLZ019T4A	537
LSQM068NT	699	MLZ015T4	721	MLZ019T4A	537
LSQM068NT	699	MLZ015T4	722	MLZ019T4A	538
LSQM074FH	700	MLZ015T4	723	MLZ019T4A	538
LSQM074FH	700	MLZ015T4	725	MLZ019T5	687
LSQM084LL	700	MLZ015T4	727	MLZ019T5	689
LSQM098LL	700	MLZ015T4	728	MLZ019T5	690
		MLZ015T4	729	MLZ019T5	692
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		MLZ015T4	735	MLZ019T5	695
		MLZ015T4A	536	MLZ019T5	696
		MLZ015T4A	536	MLZ019T5	698
		MLZ015T4A	537	MLZ019T5	701
		MLZ015T4A	537	MLZ021	527
		MLZ015T4A	538	MLZ021	527
		MLZ015T4A	538	MLZ021	528
		MLZ015T5	687	MLZ021	528
		MLZ015T5	689	MLZ021	528
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		MLZ015T5	692	MLZ021	529
		MLZ015T5	694	MLZ021	529
		MLZ015T5	695	MLZ021	530
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		MLZ015T5	701	MLZ021	531
		MLZ015T5	721	MLZ021	531
		MLZ015T5	722	MLZ021	531
		MLZ015T5	723	MLZ021T4	532
		MLZ015T5	725	MLZ021T4	532
		MLZ015T5	727	MLZ021T4	533
		MLZ015T5	728	MLZ021T4	533
		MLZ015T5	729	MLZ021T4	534
		MLZ015T5	731	MLZ021T4	534
		MLZ015T5	735	MLZ021T4	535
		MLZ019	527	MLZ021T4	535
		MLZ019	527	MLZ021T4	687
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		MLZ019	530	MLZ021T4	721
		MLZ019	531	MLZ021T4	722
		MLZ019	531	MLZ021T4	723
		MLZ019	531	MLZ021T4	725

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M12 Cable	42
M12 Cable	46
MLY12Lab	666
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MLY60Lab	627
MLY60Lab	630
MLY60Lab	663
MLY60Lab	666
MLY80Lab	663
MLY80Lab	666
MLY80Rab	723
MLY80Rab	729
MLY80Rab	731
MLY80Rab	734
MLY90Rab	690
MLY90Rab	696
MLY90Rab	698
MLY90Rab	703
MLY90Rab	723
MLY90Rab	729
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MLY90Rab	734
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MLZ021T4	731	MLZ026T4A	536	MLZ030T4A	538
MLZ021T4	735	MLZ026T4A	537	MLZ030T4A	538
MLZ021T4A	536	MLZ026T4A	537	MLZ030T5	688
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MLZ021T4A	537	MLZ026T4A	538	MLZ030T5	691
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MLZ021T4A	538	MLZ026T5	689	MLZ030T5	694
MLZ021T4A	538	MLZ026T5	691	MLZ030T5	695
MLZ021T5	687	MLZ026T5	692	MLZ030T5	697
MLZ021T5	689	MLZ026T5	694	MLZ030T5	698
MLZ021T5	691	MLZ026T5	695	MLZ030T5	701
MLZ021T5	692	MLZ026T5	697	MLZ030T5	721
MLZ021T5	694	MLZ026T5	698	MLZ030T5	722
MLZ021T5	695	MLZ026T5	701	MLZ030T5	724
MLZ021T5	697	MLZ026T5	721	MLZ030T5	725
MLZ021T5	698	MLZ026T5	722	MLZ030T5	727
MLZ021T5	701	MLZ026T5	724	MLZ030T5	728
MLZ021T5	721	MLZ026T5	725	MLZ030T5	730
MLZ021T5	722	MLZ026T5	727	MLZ030T5	731
MLZ021T5	723	MLZ026T5	728	MLZ030T5	735
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MLZ021T5	728	MLZ026T5	735	MLZ038	528
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MLZ026	527	MLZ030	528	MLZ038	529
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MLZ026	528	MLZ030	529	MLZ038	531
MLZ026	529	MLZ030	530	MLZ038	531
MLZ026	529	MLZ030	530	MLZ038	531
MLZ026	530	MLZ030	531	MLZ038T4	532
MLZ026	530	MLZ030	531	MLZ038T4	532
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MLZ026	531	MLZ030T4	532	MLZ038T4	533
MLZ026	531	MLZ030T4	532	MLZ038T4	534
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MLZ026T4	534	MLZ030T4	535	MLZ038T4	691
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MLZ026T4	535	MLZ030T4	689	MLZ038T4	693
MLZ026T4	535	MLZ030T4	689	MLZ038T4	693
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MLZ026T4	689	MLZ030T4	691	MLZ038T4	695
MLZ026T4	689	MLZ030T4	693	MLZ038T4	697
MLZ026T4	691	MLZ030T4	693	MLZ038T4	697
MLZ026T4	693	MLZ030T4	694	MLZ038T4	698
MLZ026T4	693	MLZ030T4	695	MLZ038T4	702
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MLZ026T4	695	MLZ030T4	698	MLZ038T4	721
MLZ026T4	695	MLZ030T4	698	MLZ038T4	722
MLZ026T4	697	MLZ030T4	702	MLZ038T4	724
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MLZ026T4	727	MLZ030T4	730	MLZ038T4A	536
MLZ026T4	727	MLZ030T4	731	MLZ038T4A	537
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MLZ026T4	728	MLZ030T4	736	MLZ038T4A	537
MLZ026T4	730	MLZ030T4A	536	MLZ038T4A	537
		MLZ030T4A	536		

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MLZ038T4A	538	MLZ045T4A	536	MLZ058T4	532
MLZ038T5	688	MLZ045T4A	536	MLZ058T4	533
MLZ038T5	689	MLZ045T4A	537	MLZ058T4	533
MLZ038T5	691	MLZ045T4A	537	MLZ058T4	534
MLZ038T5	693	MLZ045T4A	538	MLZ058T4	534
MLZ038T5	694	MLZ045T4A	538	MLZ058T4	535
MLZ038T5	695	MLZ048	527	MLZ058T4	535
MLZ038T5	697	MLZ048	527	MLZ058T4	721
MLZ038T5	698	MLZ048	528	MLZ058T4	722
MLZ038T5	702	MLZ048	528	MLZ058T4	724
MLZ038T5	721	MLZ048	528	MLZ058T4	726
MLZ038T5	722	MLZ048	529	MLZ058T4	727
MLZ038T5	724	MLZ048	529	MLZ058T4	728
MLZ038T5	726	MLZ048	529	MLZ058T4	730
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MLZ038T5	728	MLZ048	530	MLZ058T4	736
MLZ038T5	730	MLZ048	530	MLZ058T4A	536
MLZ038T5	731	MLZ048	531	MLZ058T4A	536
MLZ038T5	736	MLZ048	531	MLZ058T4A	537
MLZ042	527	MLZ048	531	MLZ058T4A	537
MLZ042	527	MLZ048T4	532	MLZ058T4A	538
MLZ042	528	MLZ048T4	532	MLZ058T4A	538
MLZ042	528	MLZ048T4	533	MLZ066	527
MLZ042	528	MLZ048T4	533	MLZ066	527
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MLZ042	529	MLZ048T4	535	MLZ066	528
MLZ042	530	MLZ048T4	535	MLZ066	529
MLZ042	530	MLZ048T4	688	MLZ066	529
MLZ042	530	MLZ048T4	689	MLZ066	529
MLZ042	531	MLZ048T4	691	MLZ066	530
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MLZ042T5	532	MLZ048T4	694	MLZ066	530
MLZ042T5	533	MLZ048T4	695	MLZ066	531
MLZ042T5	534	MLZ048T4	697	MLZ066	531
MLZ042T5	535	MLZ048T4	698	MLZ066	531
MLZ045	527	MLZ048T4	702	MLZ066T4	532
MLZ045	527	MLZ048T4	721	MLZ066T4	532
MLZ045	528	MLZ048T4	722	MLZ066T4	533
MLZ045	528	MLZ048T4	724	MLZ066T4	533
MLZ045	528	MLZ048T4	726	MLZ066T4	534
MLZ045	529	MLZ048T4	727	MLZ066T4	534
MLZ045	529	MLZ048T4	728	MLZ066T4	535
MLZ045	529	MLZ048T4	730	MLZ066T4	535
MLZ045	530	MLZ048T4	731	MLZ066T4A	536
MLZ045	530	MLZ048T4	736	MLZ066T4A	536
MLZ045	530	MLZ048T4A	536	MLZ066T4A	537
MLZ045	531	MLZ048T4A	536	MLZ066T4A	537
MLZ045	531	MLZ048T4A	537	MLZ066T4A	538
MLZ045	531	MLZ048T4A	537	MLZ066T4A	538
MLZ045T1	534	MLZ048T4A	538	MLZ076	527
MLZ045T1	535	MLZ048T4A	538	MLZ076	527
MLZ045T4	532	MLZ058	527	MLZ076	528
MLZ045T4	532	MLZ058	527	MLZ076	528
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MLZ045T4	695	MLZ058	531	MLZ076	531
MLZ045T4	695	MLZ058	531	MLZ076T4	532
MLZ045T4	697	MLZ058	531	MLZ076T4	532
MLZ045T4	697	MLZ058	531	MLZ076T4	532
MLZ045T4	698	MLZ058	531	MLZ076T4	532
MLZ045T4	698	MLZ058	531	MLZ076T4	532

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MLZ076T4	533	MPT16LA	685	MTZ018	485
MLZ076T4	533	MPT16LA	686	MTZ018	486
MLZ076T4	534	MPT16LA	698	MTZ018	486
MLZ076T4	534	MPT16LA	700	MTZ018	487
MLZ076T4	535	MPT16LA	719	MTZ018	487
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MLZ076T4	721	MPT16LA	731	MTZ018	488
MLZ076T4	722	MPT16LA	732	MTZ018	489
MLZ076T4	724	MPXM034ML	735	MTZ018	489
MLZ076T4	726	MPXM034ML	735	MTZ018	490
MLZ076T4	727	MPXM046ML	735	MTZ018	490
MLZ076T4	728	MPXM046ML	735	MTZ018	491
MLZ076T4	730	MPXM057ML	735	MTZ018	491
MLZ076T4	731	MPXM057ML	735	MTZ018	637
MLZ076T4	736	MPXM068ML	735	MTZ018	637
MLZ076T4A	536	MPXM068ML	736	MTZ018	640
MLZ076T4A	536	MPXM080ML	736	MTZ018	640
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MLZ076T4A	537	MPXM108ML	736	MTZ018	643
MLZ076T4A	538	MPXM125ML	736	MTZ018	646
MLZ076T4A	538	MPXM162ML	736	MTZ018	646
MMIGRS2	46	MPYM008MY	734	MTZ018	649
MMIGRS2	391	MPYM009MY	734	MTZ018	649
MMIGRS2	397	MPYM012MP	734	MTZ018	652
MMIGRS2	405	MPYM014MP	734	MTZ018	652
MMIGRS2	407	MPYM018AJ	735	MTZ018	655
MMIGRS2	409	MPYM024AJ	734	MTZ018	655
MMIGRS2	411	MPYM026AJ	734	MTZ018	659
MMIGRS2	413	MPYM026AJ	734	MTZ018	659
MMIGRS2	415	MPYM034AJ	734	MTZ018	664
MMIGRS2 Remote Display	395	MPYM034AJ	735	MTZ018	664
MMIMYK gateway	395	MSGM012SC	703	MTZ018	677
MP 54	115	MSGM015SC	703	MTZ018-4	670
MP 54	115	MSGM018SC	703	MTZ018-5	670
MP 55	115	MSGM021SC	703	MTZ022	482
MP 55	115	MSGM026AJ	703	MTZ022	482
MP 55A	115	MSGM033AJ	703	MTZ022	483
MP 55E	116	MSXM034ML	701	MTZ022	483
MPGM033AJ	734	MSXM034ML	701	MTZ022	484
MPT12LA	627	MSXM034ML	701	MTZ022	484
MPT12LA	631	MSXM044ML	701	MTZ022	485
MPT12LA	663	MSXM046ML	701	MTZ022	485
MPT12LA	666	MSXM046ML	701	MTZ022	486
MPT12RA	690	MSXM057ML	701	MTZ022	486
MPT12RA	696	MSXM057ML	701	MTZ022	487
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MPT12RA	703	MSXM068ML	702	MTZ022	488
MPT12RA	723	MSXM080ML	702	MTZ022	488
MPT12RA	729	MSXM080ML	702	MTZ022	489
MPT12RA	731	MSXM099ML	702	MTZ022	489
MPT12RA	734	MSXM108ML	702	MTZ022	490
MPT14LA	627	MSYM009MY	703	MTZ022	490
MPT14LA	631	MSYM012MP	703	MTZ022	491
MPT14LA	663	MSYM014MP	703	MTZ022	491
MPT14LA	666	MSYM018AJ	703	MTZ022	637
MPT14LA	685	MSYM024AJ	702	MTZ022	637
MPT14LA	686	MSYM026AJ	702	MTZ022	640
MPT14LA	698	MSYM026AJ	702	MTZ022	640
MPT14LA	700	MSYM034AJ	702	MTZ022	643
MPT14RA	690	MSYM034AJ	702	MTZ022	643
MPT14RA	696	MTZ018	482	MTZ022	646
MPT14RA	698	MTZ018	482	MTZ022	646
MPT14RA	703	MTZ018	483	MTZ022	649
MPT14RA	723	MTZ018	483	MTZ022	649
MPT14RA	729	MTZ018	484	MTZ022	652
MPT14RA	731	MTZ018	484	MTZ022	652
MPT14RA	734	MTZ018	485	MTZ022	655

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MTZ022	659	MTZ032	637	MTZ040	484
MTZ022	664	MTZ032	637	MTZ040	485
MTZ022	664	MTZ032	640	MTZ040	485
MTZ022	677	MTZ032	640	MTZ040	486
MTZ022-4	670	MTZ032	643	MTZ040	486
MTZ022-5	670	MTZ032	643	MTZ040	487
MTZ028	482	MTZ032	646	MTZ040	487
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MTZ028	483	MTZ032	649	MTZ040	488
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MTZ028	486	MTZ032	659	MTZ040	491
MTZ028	486	MTZ032	659	MTZ040	638
MTZ028	487	MTZ032	664	MTZ040	641
MTZ028	487	MTZ032	664	MTZ040	644
MTZ028	488	MTZ032	678	MTZ040	647
MTZ028	488	MTZ032-4	670	MTZ040	650
MTZ028	489	MTZ032-5	670	MTZ040	653
MTZ028	489	MTZ036	482	MTZ040	656
MTZ028	490	MTZ036	482	MTZ040	660
MTZ028	490	MTZ036	483	MTZ040	664
MTZ028	491	MTZ036	483	MTZ040	678
MTZ028	491	MTZ036	484	MTZ040-4	670
MTZ028	637	MTZ036	484	MTZ044	482
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MTZ028	646	MTZ036	488	MTZ044	485
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MTZ028	649	MTZ036	489	MTZ044	486
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MTZ032	489	MTZ036-5	670	MTZ050	489
MTZ032	489	MTZ040	482	MTZ050	490
MTZ032	490	MTZ040	482	MTZ050	490
MTZ032	490	MTZ040	483	MTZ050	491

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MTZ050	491	MTZ064	644	MTZ080	485
MTZ050	638	MTZ064	644	MTZ080	486
MTZ050	641	MTZ064	647	MTZ080	486
MTZ050	644	MTZ064	647	MTZ080	487
MTZ050	647	MTZ064	650	MTZ080	487
MTZ050	650	MTZ064	650	MTZ080	488
MTZ050	653	MTZ064	653	MTZ080	488
MTZ050	656	MTZ064	653	MTZ080	489
MTZ050	660	MTZ064	656	MTZ080	489
MTZ050	664	MTZ064	656	MTZ080	490
MTZ050	678	MTZ064	660	MTZ080	490
MTZ050-4	670	MTZ064	660	MTZ080	491
MTZ056	482	MTZ064	664	MTZ080	491
MTZ056	482	MTZ064	664	MTZ080	639
MTZ056	483	MTZ064	677	MTZ080	639
MTZ056	483	MTZ064	678	MTZ080	642
MTZ056	484	MTZ064-4	670	MTZ080	642
MTZ056	484	MTZ064-4	670	MTZ080	645
MTZ056	485	MTZ072	482	MTZ080	645
MTZ056	485	MTZ072	482	MTZ080	648
MTZ056	486	MTZ072	483	MTZ080	648
MTZ056	486	MTZ072	483	MTZ080	651
MTZ056	487	MTZ072	484	MTZ080	651
MTZ056	487	MTZ072	484	MTZ080	654
MTZ056	488	MTZ072	485	MTZ080	654
MTZ056	488	MTZ072	485	MTZ080	657
MTZ056	489	MTZ072	486	MTZ080	657
MTZ056	489	MTZ072	486	MTZ080	661
MTZ056	490	MTZ072	487	MTZ080	661
MTZ056	490	MTZ072	487	MTZ080	664
MTZ056	491	MTZ072	488	MTZ080	664
MTZ056	491	MTZ072	488	MTZ080	677
MTZ056	638	MTZ072	489	MTZ080	678
MTZ056	641	MTZ072	489	MTZ080-4	670
MTZ056	644	MTZ072	490	MTZ080-4	671
MTZ056	647	MTZ072	490	MTZ100	482
MTZ056	650	MTZ072	491	MTZ100	482
MTZ056	653	MTZ072	491	MTZ100	483
MTZ056	656	MTZ072	639	MTZ100	483
MTZ056	660	MTZ072	639	MTZ100	484
MTZ056	664	MTZ072	642	MTZ100	484
MTZ056	678	MTZ072	642	MTZ100	485
MTZ056-4	670	MTZ072	645	MTZ100	485
MTZ064	482	MTZ072	645	MTZ100	486
MTZ064	482	MTZ072	648	MTZ100	486
MTZ064	483	MTZ072	648	MTZ100	487
MTZ064	483	MTZ072	651	MTZ100	487
MTZ064	484	MTZ072	651	MTZ100	488
MTZ064	484	MTZ072	654	MTZ100	488
MTZ064	485	MTZ072	654	MTZ100	489
MTZ064	485	MTZ072	657	MTZ100	489
MTZ064	486	MTZ072	657	MTZ100	490
MTZ064	486	MTZ072	661	MTZ100	490
MTZ064	487	MTZ072	661	MTZ100	491
MTZ064	487	MTZ072	664	MTZ100	491
MTZ064	488	MTZ072	664	MTZ100	639
MTZ064	488	MTZ072	677	MTZ100	642
MTZ064	489	MTZ072	678	MTZ100	645
MTZ064	489	MTZ072-4	670	MTZ100	648
MTZ064	490	MTZ072-4	670	MTZ100	651
MTZ064	490	MTZ080	482	MTZ100	654
MTZ064	491	MTZ080	482	MTZ100	657
MTZ064	491	MTZ080	483	MTZ100	661
MTZ064	638	MTZ080	483	MTZ100	664
MTZ064	638	MTZ080	484	MTZ100	679
MTZ064	641	MTZ080	484	MTZ100-4	671
MTZ064	641	MTZ080	485	MTZ125	482

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MTZ125	483	MTZ160	485	NL6FT	455
MTZ125	483	MTZ160	486	NL6FT	459
MTZ125	484	MTZ160	486	NL7.3CNX.2	471
MTZ125	484	MTZ160	487	NL7.3FT	455
MTZ125	485	MTZ160	487	NL7.3MF	455
MTZ125	485	MTZ160	488	NL7.3MF	459
MTZ125	486	MTZ160	488	NL7.3MF	635
MTZ125	486	MTZ160	489	NL7.3MF	663
MTZ125	487	MTZ160	489	NL7.3MF	668
MTZ125	487	MTZ160	490	NL7CLX	463
MTZ125	488	MTZ160	490	NL7CLX	630
MTZ125	488	MTZ160	491	NL7CLX	663
MTZ125	489	MTZ160	491	NL7CLX	666
MTZ125	489	MTZ160	639	NL7CN	469
MTZ125	490	MTZ160	642	NL7F	455
MTZ125	490	MTZ160	645	NL7FT	457
MTZ125	491	MTZ160	648	NL8.4CLX	463
MTZ125	491	MTZ160	651	NL8.4CLX	630
MTZ125	639	MTZ160	654	NL8.4CLX	663
MTZ125	642	MTZ160	657	NL8.4CLX	666
MTZ125	645	MTZ160	661	NL8.4CNX.2	471
MTZ125	648	MTZ160	664	NL8.4FT	457
MTZ125	651	MTZ160	679	NL8.4MF	457
MTZ125	654	MTZ160-4	671	NL8.4MF	459
MTZ125	657	MYL80Lab	627	NL8.4MF	635
MTZ125	661	MYL80Lab	630	NL8.4MF	636
MTZ125	664			NL8.4MF	663
MTZ125	679			NL8.4MF	663
MTZ125-4	671	N		NL8.4MF	668
MTZ144	482	NBC30RA	634	NL8.4MF	668
MTZ144	482	NBC30RA	662	NL8F	457
MTZ144	483	NBC30RA	667	NL9CLX	463
MTZ144	483	NF5.5CLX	467	NL9CN	469
MTZ144	484	NF5.5FX	461	NL9F	457
MTZ144	484	NF6.1FX.2	461	NL9FT	457
MTZ144	484	NF6FK	461	NL9FT	457
MTZ144	485	NF7.3FX.2	461	NL9FT	459
MTZ144	485	NF7CLX	467	NL10FT	457
MTZ144	486	NF7FK	461	NL10MF	457
MTZ144	486	NF7FX	455	NL10MF	459
MTZ144	487	NF7FX	459	NL11F	457
MTZ144	487	NF7FX	461	NL11MF	457
MTZ144	488	NF7MLX	463	NLE8.0CN	471
MTZ144	488	NF7MLX	465	NLE8.0CNT	469
MTZ144	489	NF7MLX	465	NLE8.8CN	469
MTZ144	489	NF7MLX	658	NLE8.8CN	471
MTZ144	490	NF7MLX	663	NLE9F	457
MTZ144	490	NF7MLX	668	NLE9KTK	473
MTZ144	491	NF8.4FX.2	461	NLE10CN	469
MTZ144	491	NF9FX	455	NLE10CN	471
MTZ144	639	NF9FX	461	NLE10CNT	469
MTZ144	642	NF10FX	455	NLE10 KK.4	473
MTZ144	645	NF10FX	459	NLE10MF	457
MTZ144	648	NF10FX	461	NLE10MF.2	457
MTZ144	651	NF11FX	455	NLE11CNL	469
MTZ144	654	NF11FX	461	NLE11CNL	471
MTZ144	657	NF11FX.2	461	NLE11KK.4	473
MTZ144	661	NL6.1FT	455	NLE11KTK	473
MTZ144	664	NL6.1FT	455	NLE11KTK	475
MTZ144	679	NL6.1MF	455	NLE11KTK	475
MTZ144-4	671	NL6.1MF	459	NLE11KTK.2	473
MTZ160	482	NL6.1MF	635	NLE11MF.2	457
MTZ160	482	NL6.1MF	663	NLE11MN	469
MTZ160	483	NL6.1MF	668	NLE11MN	471
MTZ160	483	NL6.1MLX	463	NLE12.6CNL	469
MTZ160	484	NL6.1MLX	465	NLE12.6MF.2	457
MTZ160	484	NL6.1MLX	465		

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NLE12.6MN	469	NRV 6s	293	NTZ048	492
NLE13KK.4	475	NRV 6s 3)	293	NTZ048	492
NLE13KTK	475	NRV 10	293	NTZ048	493
NLE13KTK.2	475	NRV 10s	293	NTZ048	493
NLE15KK.4	475	NRV 10s 3)	293	NTZ048	628
NLE15KTK.2	475	NRV 10s H	294	NTZ048	628
NLE15MKK	475	NRV 12	293	NTZ048	632
NLU8.0 KK.1	473	NRV 12s	293	NTZ048	632
NLU8.8KK.1	473	NRV 12s 3)	293	NTZ048	664
NLU8.8KK.1	473	NRV 16	293	NTZ048	664
NLU10 KK.1	473	NRV 16s	293	NTZ048	677
NLU11KK.1	473	NRV 16s 3)	293	NTZ048-4	685
NLU13KK.1	475	NRV 19	293	NTZ048-4	686
NLU13KTK.1	475	NRV 19s	293	NTZ048-4	698
NLU15KK.1	475	NRV 19s 3)	293	NTZ048-4	699
NLU15KTK.1	475	NRV 22s	293	NTZ048-4	719
NLX8.0 KK.2	473	NRV 22s 3)	293	NTZ048-4	720
NLX8.8KK.2	473	NRV 28s	293	NTZ048-4	731
NLX10 KK.1	473	NRV 28s 3)	293	NTZ048-4	732
NLX10 KK.2	473	NRV 35s	293	NTZ048-4B	669
NLX11KK.2	475	NRV 35s 3)	293	NTZ048-5	685
NLX11KK.3	473	NRVA 15	297	NTZ048-5	686
NLX13KK.1	475	NRVA 15	297	NTZ048-5	698
NLX13KK.2	475	NRVA 15	297	NTZ048-5	699
NLX13KK.3	475	NRVA 15 / 20	297	NTZ048-5	719
NLX15KK.1	475	NRVA 20	297	NTZ048-5	720
NLX15KK.2	475	NRVA 20	297	NTZ048-5	731
NLX15KK.3	475	NRVA 20	297	NTZ048-5	732
NLY10CN	471	NRVA 25	297	NTZ048-5B	669
NLY12RAb	634	NRVA 25	297	NTZ068	481
NLY12RAb	662	NRVA 25	297	NTZ068	481
NLY12RAb	667	NRVA 25 / 32	297	NTZ068	492
NLY45Lab	626	NRVA 32	297	NTZ068	492
NLY45Lab	662	NRVA 32	297	NTZ068	493
NLY45Lab	665	NRVA 32	297	NTZ068	493
NLY45RAb	634	NRVA 40	297	NTZ068	628
NLY45RAb	662	NRVA 40	297	NTZ068	628
NLY45RAb	667	NRVA 40	297	NTZ068	632
NLY60Lab	626	NRVA 40 / 50	297	NTZ068	632
NLY60Lab	662	NRVA 50	297	NTZ068	632
NLY60Lab	665	NRVA 50	297	NTZ068	664
NLY60RAb	634	NRVA 50	297	NTZ068	664
NLY60RAb	662	NRVA 65	297	NTZ068	678
NLY60RAb	667	NRVA 65	297	NTZ068-4	685
NLY80Lab	626	NRVA 65	297	NTZ068-4	686
NLY80Lab	662	NRVA 65	297	NTZ068-4	698
NLY80Lab	665	NRVH 6s 3)	294	NTZ068-4	699
NLY80RAb	634	NRVH 10s	294	NTZ068-4	719
NLY80RAb	662	NRVH 10s 3)	294	NTZ068-4	720
NLY80RAb	667	NRVH 12s	294	NTZ068-4	731
NLY90RAb	634	NRVH 12s 3)	294	NTZ068-4	732
NLY90RAb	662	NRVH 16s	294	NTZ068-4B	669
NLY90RAb	667	NRVH 16s 3)	294	NTZ068-5	685
NPT14RA	634	NRVH 19s	294	NTZ068-5	686
NPT14RA	662	NRVH 19s 3)	294	NTZ068-5	698
NPT14RA	667	NRVH 22s	294	NTZ068-5	699
NPT16LA	626	NRVH 22s 3)	294	NTZ068-5	719
NPT16LA	662	NRVH 28s	294	NTZ068-5	720
NPT16LA	665	NRVH 28s 3)	294	NTZ068-5	731
NPT16RA	634	NRVH 35s	294	NTZ068-5	732
NPT16RA	662	NRVH 35s 3)	294	NTZ068-5B	669
NPT16RA	667	NS34FB	626	NTZ096	481
NPY12Lab	626	NS34FB	662	NTZ096	481
NPY12Lab	662	NS34FB	665	NTZ096	492

NTZ096	492	NTZ271	493	OP-LCNC011NY	662
NTZ096	493	NTZ271	493	OP-LCNC016	626
NTZ096	493	NTZ271	629	OP-LCNC016	665
NTZ096	628	NTZ271	633	OP-LCNC016NP	662
NTZ096	628	NTZ271	664	OP-LCNC023	626
NTZ096	632	NTZ271	679	OP-LCNC023	665
NTZ096	664	NTZ271-4B	669	OP-LCNC023NX	662
NTZ096	664	NX18TBa	634	OP-LCNC034	626
NTZ096	677	NX18TBa	662	OP-LCNC034	665
NTZ096	678	NX18TBa	667	OP-LCNC034NS	662
NTZ096-4	719	NX21TBa	634	OP-LCQC004	627
NTZ096-4	720	NX21TBa	662	OP-LCQC004	630
NTZ096-4	731	NX21TBa	667	OP-LCQC004	666
NTZ096-4	733	NX23FBa	626	OP-LCQC004ML	663
NTZ096-4B	669	NX23FBa	662	OP-LCQC006	627
NTZ096-4B	669	NX23FBa	665	OP-LCQC006	630
NTZ108	481			OP-LCQC006	666
NTZ108	481			OP-LCQC006ML	663
NTZ108	492	O		OP-LCQC008	627
NTZ108	492	OFV 20	181	OP-LCQC008	630
NTZ108	493	OFV 25	181	OP-LCQC008	666
NTZ108	493	OFV – SS 20	181	OP-LCQC008ML	663
NTZ108	493	OFV – SS 25	181	OP-LCQC012	627
NTZ108	629	OP-LCHC004	630	OP-LCQC012	627
NTZ108	629	OP-LCHC004	666	OP-LCQC012	631
NTZ108	633	OP-LCHC004TL	663	OP-LCQC012	631
NTZ108	633	OP-LCHC006	630	OP-LCQC012	666
NTZ108	664	OP-LCHC006	666	OP-LCQC012	666
NTZ108	664	OP-LCHC006FR	663	OP-LCQC012ML	663
NTZ108	677	OP-LCHC007	630	OP-LCQC012MP	663
NTZ108	678	OP-LCHC007	666	OP-LCQC014	627
NTZ108-4B	669	OP-LCHC007NL	663	OP-LCQC014	631
NTZ108-4B	669	OP-LCHC008	630	OP-LCQC014	666
NTZ136	481	OP-LCHC008	666	OP-LCQC014MP	663
NTZ136	481	OP-LCHC008FR	663	OP-LCQC014MP	663
NTZ136	492	OP-LCHC008NL	663	OP-LCQN048	628
NTZ136	492	OP-LCHC012	630	OP-LCQN048	628
NTZ136	493	OP-LCHC012	630	OP-LCQN048	632
NTZ136	493	OP-LCHC012	666	OP-LCQN048	632
NTZ136	629	OP-LCHC012	666	OP-LCQN048	669
NTZ136	629	OP-LCHC0125C	663	OP-LCQN048	669
NTZ136	633	OP-LCHC0125C	663	OP-LCQN048NTA02E	664
NTZ136	633	OP-LCHC015	631	OP-LCQN048NTA02E	677
NTZ136	664	OP-LCHC015	666	OP-LCQN048NTA02G	664
NTZ136	664	OP-LCHC0155C	663	OP-LCQN048NTA02G	677
NTZ136	677	OP-LCHC018	631	OP-LCQN068	628
NTZ136	678	OP-LCHC018	666	OP-LCQN068	628
NTZ136-4	719	OP-LCHC0185C	663	OP-LCQN068	632
NTZ136-4	720	OP-LCHC021	631	OP-LCQN068	632
NTZ136-4	731	OP-LCHC021	666	OP-LCQN068	632
NTZ136-4	733	OP-LCHC0215C	663	OP-LCQN068	669
NTZ136-4B	669	OP-LCHC026	631	OP-LCQN068	669
NTZ136-4B	669	OP-LCHC026	666	OP-LCQN068NTA02E	664
NTZ215	481	OP-LCHC026GS	663	OP-LCQN068NTA02E	678
NTZ215	481	OP-LCHC034	631	OP-LCQN068NTA02G	664
NTZ215	492	OP-LCHC034	666	OP-LCQN068NTA02G	678
NTZ215	492	OP-LCHC034GS	663	OP-LCQN096	628
NTZ215	493	OP-LCNC004	626	OP-LCQN096	669
NTZ215	493	OP-LCNC004	665	OP-LCQN096NTA02E	664
NTZ215	629	OP-LCNC004NY	662	OP-LCQN096NTA02E	678
NTZ215	633	OP-LCNC006	626	OP-LCQN108	629
NTZ215	664	OP-LCNC006	665	OP-LCQN108	633
NTZ215	679	OP-LCNC006NY	662	OP-LCQN108	669
NTZ215-4B	669	OP-LCNC008	626	OP-LCQN108NTA02E	664
NTZ271	481	OP-LCNC008	665	OP-LCQN108NTA02E	678
NTZ271	481	OP-LCNC008NY	662	OP-LCQN136	629
NTZ271	492	OP-LCNC011	626	OP-LCQN136	633
NTZ271	492	OP-LCNC011	665	OP-LCQN136	669

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OP-LCQN136NTA02E	678	OP-LSQM018MP	698	OP-MCGC011	636
OP-LGQN096	628	OP-LSQM026AJ	685	OP-MCGC011	668
OP-LGQN096	632	OP-LSQM026AJ	686	OP-MCGC011FR	663
OP-LGQN096	669	OP-LSQM026AJ	698	OP-MCGC012	636
OP-LGQN096NTA02E	664	OP-LSQM034AJ	685	OP-MCGC012	668
OP-LGQN096NTA02E	677	OP-LSQM034AJ	686	OP-MCGC012SC	663
OP-LGQN108	629	OP-LSQM034AJ	698	OP-MCGC015	636
OP-LGQN108	633	OP-LSQM048NT	685	OP-MCGC015	668
OP-LGQN108	669	OP-LSQM048NT	685	OP-MCGC015SC	663
OP-LGQN108NTA02E	664	OP-LSQM048NT	686	OP-MCGC018	636
OP-LGQN108NTA02E	677	OP-LSQM048NT	686	OP-MCGC018	668
OP-LGQN136	629	OP-LSQM048NT	698	OP-MCGC018SC	663
OP-LGQN136	633	OP-LSQM048NT	698	OP-MCGC021	636
OP-LGQN136	669	OP-LSQM067LL	685	OP-MCGC021	668
OP-LGQN136NTA02E	664	OP-LSQM067LL	686	OP-MCGC021	668
OP-LGQN136NTA02E	677	OP-LSQM067LL	698	OP-MCGC021SC	663
OP-LGQN215	629	OP-LSQM068NT	685	OP-MCGC021SC	663
OP-LGQN215	633	OP-LSQM068NT	685	OP-MCGC026	636
OP-LGQN215	669	OP-LSQM068NT	686	OP-MCGC026	668
OP-LGQN215NTA02E	664	OP-LSQM068NT	686	OP-MCGC026GS	663
OP-LGQN215NTA02E	679	OP-LSQM068NT	698	OP-MCGC034	636
OP-LGQN271	629	OP-LSQM068NT	698	OP-MCGC034	668
OP-LGQN271	633	OP-LSQM074FH	685	OP-MCGC034GS	663
OP-LGQN271	669	OP-LSQM074FH	685	OP-MCHB007NF	663
OP-LGQN271NTA02E	664	OP-LSQM074FH	686	OP-MCHC004	658
OP-LGQN271NTA02E	679	OP-LSQM074FH	686	OP-MCHC004	668
OP-LPQM017MP	719	OP-LSQM074FH	698	OP-MCHC004TL	663
OP-LPQM017MP	720	OP-LSQM074FH	698	OP-MCHC006	658
OP-LPQM017MPP00G	731	OP-LSQM084LL	685	OP-MCHC006	668
OP-LPQM026AJ	719	OP-LSQM084LL	686	OP-MCHC006FR	663
OP-LPQM026AJ	720	OP-LSQM084LL	698	OP-MCHC007	658
OP-LPQM026AJP00G	731	OP-LSQM098LL	685	OP-MCHC007	668
OP-LPQM048NT	719	OP-LSQM098LL	686	OP-MCHC010	658
OP-LPQM048NT	719	OP-LSQM098LL	698	OP-MCHC010	668
OP-LPQM048NT	720	OP-MCGC003	635	OP-MCHC010SC	663
OP-LPQM048NT	720	OP-MCGC003	668	OP-MCHC013	658
OP-LPQM048NTP00E	731	OP-MCGC003TL	663	OP-MCHC013	668
OP-LPQM048NTP00G	731	OP-MCGC004	635	OP-MCHC013SC	663
OP-LPQM068NT	719	OP-MCGC004	668	OP-MCHC015	658
OP-LPQM068NT	719	OP-MCGC004TL	663	OP-MCHC015	668
OP-LPQM068NT	720	OP-MCGC005	635	OP-MCHC015SC	663
OP-LPQM068NT	720	OP-MCGC005	668	OP-MCHC018	658
OP-LPQM068NTP00E	731	OP-MCGC005TL	663	OP-MCHC018SC	663
OP-LPQM068NTP00G	731	OP-MCGC006	635	OP-MCHC021	658
OP-LPQM074FH	719	OP-MCGC006	668	OP-MCHC021	668
OP-LPQM074FH	719	OP-MCGC006	668	OP-MCHC021GS	663
OP-LPQM074FH	720	OP-MCGC006FR	663	OP-MCNC003	634
OP-LPQM074FH	720	OP-MCGC006NL	663	OP-MCNC003	667
OP-LPQM074FHP00E	731	OP-MCGC007	635	OP-MCNC003NB	662
OP-LPQM074FHP00G	731	OP-MCGC007	668	OP-MCNC004	634
OP-LPQM096NT	719	OP-MCGC007	668	OP-MCNC004	667
OP-LPQM096NT	720	OP-MCGC007FR	663	OP-MCNC004NY	662
OP-LPQM096NTP00E	731	OP-MCGC007NL	663	OP-MCNC006	634
OP-LPQM136NT	719	OP-MCGC008	635	OP-MCNC006	667
OP-LPQM136NT	720	OP-MCGC008	635	OP-MCNC006NY	662
OP-LPQM136NTP00E	731	OP-MCGC008	636	OP-MCNC008	634
OP-LPQM215LL	719	OP-MCGC008	668	OP-MCNC008	667
OP-LPQM215LL	720	OP-MCGC008	668	OP-MCNC008NY	662
OP-LPQM215LLP00E	731	OP-MCGC008	668	OP-MCNC009	634
OP-LPQM271LL	719	OP-MCGC008	668	OP-MCNC009	667
OP-LPQM271LL	720	OP-MCGC008FR	663	OP-MCNC009NY	662
OP-LPQM271LLP00E	731	OP-MCGC008NL	663	OP-MCNC011	634
OP-LSQM014MP	685	OP-MCGC008NL	663	OP-MCNC011	667
OP-LSQM014MP	686	OP-MCGC010	636	OP-MCNC011NY	662
OP-LSQM014MP	698	OP-MCGC010	668		
OP-LSQM018MP	685				

OP-MCNC014	634	OP-MCRN048	652	OP-MCRN086	641
OP-MCNC014	667	OP-MCRN048	655	OP-MCRN086	644
OP-MCNC014NP	662	OP-MCRN048	655	OP-MCRN086	647
OP-MCNC016	634	OP-MCRN048	659	OP-MCRN086	650
OP-MCNC016	667	OP-MCRN048	659	OP-MCRN086	653
OP-MCNC016NP	662	OP-MCRN048	670	OP-MCRN086	656
OP-MCNC018	634	OP-MCRN048	670	OP-MCRN086	660
OP-MCNC018	667	OP-MCRN048MTA02E	664	OP-MCRN086	670
OP-MCNC018NX	662	OP-MCRN048MTA02E	678	OP-MCRN086MTA02E	664
OP-MCNC020	634	OP-MCRN048MTA02G	664	OP-MCRN086MTA02E	678
OP-MCNC020	667	OP-MCRN048MTA02G	678	OP-MCRN096	638
OP-MCNC020NX	662	OP-MCRN054	637	OP-MCRN096	641
OP-MCRN030	637	OP-MCRN054	637	OP-MCRN096	644
OP-MCRN030	637	OP-MCRN054	640	OP-MCRN096	647
OP-MCRN030	640	OP-MCRN054	640	OP-MCRN096	650
OP-MCRN030	640	OP-MCRN054	643	OP-MCRN096	653
OP-MCRN030	643	OP-MCRN054	643	OP-MCRN096	656
OP-MCRN030	643	OP-MCRN054	646	OP-MCRN096	660
OP-MCRN030	646	OP-MCRN054	646	OP-MCRN096	670
OP-MCRN030	646	OP-MCRN054	649	OP-MCRN096MTA02E	664
OP-MCRN030	649	OP-MCRN054	649	OP-MCRN096MTA02E	678
OP-MCRN030	649	OP-MCRN054	652	OP-MCRN108	638
OP-MCRN030	652	OP-MCRN054	652	OP-MCRN108	641
OP-MCRN030	652	OP-MCRN054	655	OP-MCRN108	644
OP-MCRN030	655	OP-MCRN054	655	OP-MCRN108	647
OP-MCRN030	655	OP-MCRN054	659	OP-MCRN108	650
OP-MCRN030	659	OP-MCRN054	659	OP-MCRN108	653
OP-MCRN030	659	OP-MCRN054	670	OP-MCRN108	656
OP-MCRN030	670	OP-MCRN054	670	OP-MCRN108	660
OP-MCRN030	670	OP-MCRN054MTA02E	664	OP-MCRN108	670
OP-MCRN030MTA02E	664	OP-MCRN054MTA02E	678	OP-MCRN108MTA02E	664
OP-MCRN030MTA02E	677	OP-MCRN054MTA02G	664	OP-MCRN108MTA02E	678
OP-MCRN030MTA02G	664	OP-MCRN054MTA02G	678	OP-MCRN121	639
OP-MCRN030MTA02G	677	OP-MCRN060	638	OP-MCRN121	642
OP-MCRN038	637	OP-MCRN060	638	OP-MCRN121	645
OP-MCRN038	637	OP-MCRN060	641	OP-MCRN121	648
OP-MCRN038	640	OP-MCRN060	641	OP-MCRN121	651
OP-MCRN038	640	OP-MCRN060	644	OP-MCRN121	654
OP-MCRN038	643	OP-MCRN060	644	OP-MCRN121	657
OP-MCRN038	643	OP-MCRN060	647	OP-MCRN121	661
OP-MCRN038	646	OP-MCRN060	647	OP-MCRN121	670
OP-MCRN038	646	OP-MCRN060	650	OP-MCRN121MTA02E	664
OP-MCRN038	649	OP-MCRN060	650	OP-MCRN121MTA02E	678
OP-MCRN038	649	OP-MCRN060	653	OP-MCRN136	639
OP-MCRN038	652	OP-MCRN060	653	OP-MCRN136	642
OP-MCRN038	652	OP-MCRN060	656	OP-MCRN136	645
OP-MCRN038	655	OP-MCRN060	656	OP-MCRN136	648
OP-MCRN038	655	OP-MCRN060	660	OP-MCRN136	651
OP-MCRN038	659	OP-MCRN060	660	OP-MCRN136	654
OP-MCRN038	659	OP-MCRN060	670	OP-MCRN136	657
OP-MCRN038	670	OP-MCRN060	670	OP-MCRN136	661
OP-MCRN038	670	OP-MCRN060MTA02E	664	OP-MCRN136M	670
OP-MCRN038MTA02E	664	OP-MCRN060MTA02E	678	OP-MCRN136MTA02E	664
OP-MCRN038MTA02E	677	OP-MCRN060MTA02G	664	OP-MCRN136MTA02E	678
OP-MCRN038MTA02G	664	OP-MCRN060MTA02G	678	OP-MGRN108	638
OP-MCRN038MTA02G	677	OP-MCRN068	638	OP-MGRN108	641
OP-MCRN048	637	OP-MCRN068	641	OP-MGRN108	644
OP-MCRN048	637	OP-MCRN068	644	OP-MGRN108	647
OP-MCRN048	640	OP-MCRN068	647	OP-MGRN108	650
OP-MCRN048	640	OP-MCRN068	650	OP-MGRN108	653
OP-MCRN048	643	OP-MCRN068	653	OP-MGRN108	656
OP-MCRN048	643	OP-MCRN068	656	OP-MGRN108	660
OP-MCRN048	646	OP-MCRN068	660	OP-MGRN108	670
OP-MCRN048	646	OP-MCRN068	670	OP-MGRN108MTA02E	664
OP-MCRN048	649	OP-MCRN068MTA02E	664	OP-MGRN108MTA02E	677
OP-MCRN048	649	OP-MCRN068MTA02E	678	OP-MGRN121	639
OP-MCRN048	652	OP-MCRN086	638	OP-MGRN121	642

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OP-MGRN121	645	OP-MPLM035	747	OP-MPXM068ML	722
OP-MGRN121	648	OP-MPLM044	747	OP-MPXM068ML	722
OP-MGRN121	651	OP-MPPM028	747	OP-MPXM068ML	724
OP-MGRN121	654	OP-MPPM028VVV	748	OP-MPXM068ML	724
OP-MGRN121	657	OP-MPPM028VVV	749	OP-MPXM068ML	727
OP-MGRN121	661	OP-MPPM028VVV	750	OP-MPXM068ML	727
OP-MGRN121	670	OP-MPPM028VVV	751	OP-MPXM068ML	728
OP-MGRN121MTA02E	664	OP-MPPM035	747	OP-MPXM068ML	728
OP-MGRN121MTA02E	677	OP-MPPM035VVV	748	OP-MPXM068ML	730
OP-MGRN136	639	OP-MPPM035VVV	749	OP-MPXM068ML	730
OP-MGRN136	642	OP-MPPM035VVV	750	OP-MPXM068MLP00E	725
OP-MGRN136	645	OP-MPPM035VVV	751	OP-MPXM068MLP00E	731
OP-MGRN136	648	OP-MPPM044	747	OP-MPXM068MLP00G	725
OP-MGRN136	651	OP-MPPM044VVV	748	OP-MPXM068MLP00G	731
OP-MGRN136	654	OP-MPPM044VVV	749	OP-MPXM080ML	721
OP-MGRN136	657	OP-MPPM044VVV	750	OP-MPXM080ML	721
OP-MGRN136	661	OP-MPPM044VVV	751	OP-MPXM080ML	722
OP-MGRN136M	671	OP-MPXM034ML	721	OP-MPXM080ML	722
OP-MGRN136MTA02E	664	OP-MPXM034ML	721	OP-MPXM080ML	724
OP-MGRN136MTA02E	677	OP-MPXM034ML	722	OP-MPXM080ML	724
OP-MGRN171	639	OP-MPXM034ML	722	OP-MPXM080ML	727
OP-MGRN171	642	OP-MPXM034ML	723	OP-MPXM080ML	727
OP-MGRN171	645	OP-MPXM034ML	723	OP-MPXM080ML	728
OP-MGRN171	648	OP-MPXM034ML	725	OP-MPXM080ML	728
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OP-MGRN171	654	OP-MPXM034ML	727	OP-MPXM080ML	730
OP-MGRN171	657	OP-MPXM034ML	727	OP-MPXM080MLP00E	726
OP-MGRN171	661	OP-MPXM034ML	728	OP-MPXM080MLP00E	731
OP-MGRN171	671	OP-MPXM034ML	728	OP-MPXM080MLP00G	726
OP-MGRN171MTA02E	664	OP-MPXM034ML	729	OP-MPXM080MLP00G	731
OP-MGRN171MTA02E	679	OP-MPXM034ML	729	OP-MPXM108ML	721
OP-MGRN215	639	OP-MPXM034ML	723	OP-MPXM108ML	722
OP-MGRN215	642	OP-MPXM034MLP00E	731	OP-MPXM108ML	724
OP-MGRN215	645	OP-MPXM034MLP00G	731	OP-MPXM108ML	727
OP-MGRN215	648	OP-MPXM046ML	721	OP-MPXM108ML	728
OP-MGRN215	651	OP-MPXM046ML	721	OP-MPXM108ML	730
OP-MGRN215	654	OP-MPXM046ML	722	OP-MPXM108MLP00E	726
OP-MGRN215	657	OP-MPXM046ML	722	OP-MPXM108MLP00E	731
OP-MGRN215	661	OP-MPXM046ML	723	OP-MPXM125ML	721
OP-MGRN215	661	OP-MPXM046ML	723	OP-MPXM125ML	722
OP-MGRN215	671	OP-MPXM046ML	725	OP-MPXM125ML	722
OP-MGRN215MTA02E	664	OP-MPXM046ML	725	OP-MPXM125ML	724
OP-MGRN215MTA02E	679	OP-MPXM046ML	725	OP-MPXM125ML	724
OP-MGRN242	639	OP-MPXM046ML	727	OP-MPXM125ML	727
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OP-MGRN242	648	OP-MPXM046ML	728	OP-MPXM125MLP00E	726
OP-MGRN242	651	OP-MPXM046ML	729	OP-MPXM125MLP00E	731
OP-MGRN242	654	OP-MPXM046ML	729	OP-MPXM162ML	721
OP-MGRN242	654	OP-MPXM046ML	729	OP-MPXM162ML	721
OP-MGRN242	657	OP-MPXM046MLP00E	731	OP-MPXM162ML	722
OP-MGRN242	661	OP-MPXM046MLP00G	731	OP-MPXM162ML	724
OP-MGRN242	661	OP-MPXM057ML	721	OP-MPXM162ML	727
OP-MGRN242	671	OP-MPXM057ML	721	OP-MPXM162ML	728
OP-MGRN242MTA02E	664	OP-MPXM057ML	722	OP-MPXM162ML	730
OP-MGRN242MTA02E	679	OP-MPXM057ML	722	OP-MPXM162MLP00E	726
OP-MGRN271	639	OP-MPXM057ML	724	OP-MPXM162MLP00E	731
OP-MGRN271	642	OP-MPXM057ML	724	OP-MPYM008MY	723
OP-MGRN271	645	OP-MPXM057ML	724	OP-MPYM008MY	729
OP-MGRN271	648	OP-MPXM057ML	727	OP-MPYM008MYP00G	731
OP-MGRN271	648	OP-MPXM057ML	727	OP-MPYM009MY	723
OP-MGRN271	651	OP-MPXM057ML	727	OP-MPYM009MY	729
OP-MGRN271	651	OP-MPXM057ML	728	OP-MPYM009MY	729
OP-MGRN271	654	OP-MPXM057ML	728	OP-MPYM009MYP00G	731
OP-MGRN271	654	OP-MPXM057ML	728	OP-MPYM012MP	723
OP-MGRN271	657	OP-MPXM057ML	730	OP-MPYM012MP	729
OP-MGRN271	661	OP-MPXM057ML	730	OP-MPYM012MPP00G	731
OP-MGRN271	661	OP-MPXM057MLP00E	730	OP-MPYM014MP	723
OP-MGRN271	671	OP-MPXM057MLP00E	725	OP-MPYM014MP	729
OP-MGRN271MTA02E	664	OP-MPXM057MLP00E	731	OP-MPYM014MPP00G	731
OP-MGRN271MTA02E	679	OP-MPXM057MLP00G	725	OP-MPYM018AJ	723
OP-MPGM033AJ	721	OP-MPXM057MLP00G	731		
OP-MPGM033AJP00G	731	OP-MPXM068ML	721		
OP-MPLM028	747	OP-MPXM068ML	721		

OP-MPYM018AJ	725	OP-MSXM046ML	687	OP-MSXM099ML	693
OP-MPYM018AJ	729	OP-MSXM046ML	687	OP-MSXM099ML	694
OP-MPYM018AJP00G	731	OP-MSXM046ML	689	OP-MSXM099ML	695
OP-MPYM024AJ	723	OP-MSXM046ML	689	OP-MSXM099ML	697
OP-MPYM024AJ	725	OP-MSXM046ML	690	OP-MSXM099ML	698
OP-MPYM024AJ	729	OP-MSXM046ML	691	OP-MSXM108ML	688
OP-MPYM024AJP00G	731	OP-MSXM046ML	692	OP-MSXM108ML	689
OP-MPYM026AJ	723	OP-MSXM046ML	692	OP-MSXM108ML	691
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OP-MPYM026AJ	725	OP-MSXM046ML	694	OP-MSXM108ML	694
OP-MPYM026AJ	725	OP-MSXM046ML	695	OP-MSXM108ML	695
OP-MPYM026AJ	729	OP-MSXM046ML	695	OP-MSXM108ML	697
OP-MPYM026AJ	729	OP-MSXM046ML	696	OP-MSXM108ML	698
OP-MPYM026AJP00E	731	OP-MSXM046ML	697	OP-MSYM009MY	690
OP-MPYM026AJP00G	731	OP-MSXM046ML	698	OP-MSYM009MY	696
OP-MPYM034AJ	723	OP-MSXM046ML	698	OP-MSYM009MY	698
OP-MPYM034AJ	723	OP-MSXM057ML	687	OP-MSYM012MP	690
OP-MPYM034AJ	725	OP-MSXM057ML	688	OP-MSYM012MP	696
OP-MPYM034AJ	725	OP-MSXM057ML	689	OP-MSYM012MP	698
OP-MPYM034AJ	729	OP-MSXM057ML	689	OP-MSYM014MP	690
OP-MPYM034AJ	729	OP-MSXM057ML	691	OP-MSYM014MP	696
OP-MPYM034AJP00E	731	OP-MSXM057ML	691	OP-MSYM014MP	698
OP-MPYM034AJP00G	731	OP-MSXM057ML	692	OP-MSYM018AJ	690
OP-MSGM012SC	687	OP-MSXM057ML	693	OP-MSYM018AJ	692
OP-MSGM012SC	698	OP-MSXM057ML	694	OP-MSYM018AJ	696
OP-MSGM015SC	687	OP-MSXM057ML	694	OP-MSYM018AJ	698
OP-MSGM015SC	698	OP-MSXM057ML	695	OP-MSYM024AJ	690
OP-MSGM018SC	687	OP-MSXM057ML	695	OP-MSYM024AJ	692
OP-MSGM018SC	698	OP-MSXM057ML	697	OP-MSYM024AJ	696
OP-MSGM021SC	687	OP-MSXM057ML	697	OP-MSYM024AJ	698
OP-MSGM021SC	698	OP-MSXM057ML	698	OP-MSYM026AJ	690
OP-MSGM026AJ	687	OP-MSXM057ML	698	OP-MSYM026AJ	690
OP-MSGM026AJ	698	OP-MSXM068ML	688	OP-MSYM026AJ	692
OP-MSGM033AJ	687	OP-MSXM068ML	688	OP-MSYM026AJ	692
OP-MSGM033AJ	698	OP-MSXM068ML	689	OP-MSYM026AJ	696
OP-MSXM034ML	687	OP-MSXM068ML	689	OP-MSYM026AJ	696
OP-MSXM034ML	687	OP-MSXM068ML	691	OP-MSYM026AJ	698
OP-MSXM034ML	689	OP-MSXM068ML	691	OP-MSYM026AJ	698
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OP-MSXM034ML	692	OP-MSXM068ML	695	OP-MSYM034AJ	696
OP-MSXM034ML	694	OP-MSXM068ML	695	OP-MSYM034AJ	696
OP-MSXM034ML	694	OP-MSXM068ML	697	OP-MSYM034AJ	698
OP-MSXM034ML	695	OP-MSXM068ML	697	OP-MSYM034AJ	698
OP-MSXM034ML	695	OP-MSXM068ML	698	Optyma™ Plus	718
OP-MSXM034ML	696	OP-MSXM068ML	698	OUB 1	357
OP-MSXM034ML	696	OP-MSXM080ML	688	OUB 1s 1)	357
OP-MSXM034ML	698	OP-MSXM080ML	688	OUB 1s 2)	357
OP-MSXM034ML	698	OP-MSXM080ML	689	OUB 4	357
OP-MSXM044ML	687	OP-MSXM080ML	689		
OP-MSXM044ML	687	OP-MSXM080ML	691		
OP-MSXM044ML	689	OP-MSXM080ML	691	P	
OP-MSXM044ML	689	OP-MSXM080ML	693	PHE B3-030	361
OP-MSXM044ML	690	OP-MSXM080ML	693	PHE B3-030	361
OP-MSXM044ML	690	OP-MSXM080ML	694	PHE B3-030	361
OP-MSXM044ML	692	OP-MSXM080ML	694	PHE B3-030	361
OP-MSXM044ML	692	OP-MSXM080ML	694	PHE B3-052	361
OP-MSXM044ML	692	OP-MSXM080ML	695	PHE B3-052	361
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OP-MSXM044ML	696	OP-MSXM080ML	698	PHE B3-095	361
OP-MSXM044ML	696	OP-MSXM080ML	698	PHE B3-095	361
OP-MSXM044ML	696	OP-MSXM099ML	688	PHE B3-095	361
OP-MSXM044ML	698	OP-MSXM099ML	689	PHE B3-210	361
OP-MSXM044ML	698	OP-MSXM099ML	691	PHE B3-210	361

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PHE B-3030	361	PSH039	590	REG-SA / SB 10	286
PL20F	455	PSH039-4	584	REG-SA / SB 15	286
PL30F	461	PSH039-4	585	REG-SA / SB 15	286
PL35F	455	PSH039-4	586	REG-SA / SB 20	286
PL35G	455	PSH039-4	587	REG-SA / SB 20	286
PL35G	459	PSH046	590	REG-SA / SB 25	287
PL50F	455	PSH052	590	REG-SA / SB 25	287
PL50F	455	PSH060	590	REG-SA / SB 32	287
PL50F	461	PSH068	590	REG-SA / SB 32	287
PLE35K	473	PSH078	590	REG-SA / SB 40	287
PLE50F	455			REG-SA / SB 40	287
PSH019	583	Q		REG-SA / SB 40	287
PSH019	583	QDV 15 1/2 in FPT	271	REG-SA / SB 50	282
PSH019	583	QDV 15 1/2 in FPT + SVA-ST SOC 1/2	271	REG-SA / SB 50	282
PSH019	583	QDV 15 3/4 in FPT	271	REG-SA / SB 50	287
PSH019	590	QDV 15 DN 15	271	REG-SA / SB 65	282
PSH019	590	QDV 15 DN 15 + SVA-ST DN 15	271	REG-SA / SB 65	282
PSH019-4	584			REG-SA / SB 65	288
PSH019-4	585	R		REG-SA / SB 65	288
PSH019-4	586	R134a	361	REG-SA / SB /	
PSH019-4	587	R407C	361	LA / LB 15	280
PSH023	583	Rated capacity [kW] – Hot gasSI units	79	REG-SA / SB /	
PSH023	583	REG-LA 15	280	LA / LB 15	280
PSH023	583	REG-LA 20	281	REG-SA SS 15	291
PSH023	583	REG-LA 25	281	REG-SA SS 15	291
PSH023	590	REG-LA 32	281	REG-SA SS 20	291
PSH023	590	REG-LA 40	282	REG-SA SS 20	291
PSH023-4	584	REG-LB 15	280	REG-SA SS 25	291
PSH023-4	585	REG-LB 20	281	REG-SA SS 25	291
PSH023-4	586	REG-LB 25	281	REG-SA SS 32	291
PSH023-4	587	REG-LB 32	281	REG-SA SS 32	291
PSH026	583	REG-LB 40	282	REG-SA SS 40	291
PSH026	583	REG-SA 10	278	REG-SA SS 40	291
PSH026	583	REG-SA 10	278	REG-SB 10	279
PSH026	583	REG-SA 10	280	REG-SB 10	279
PSH026	590	REG-SA 10	286	REG-SB 10	280
PSH026	590	REG-SA 15	278	REG-SB 10	286
PSH026-4	584	REG-SA 15	278	REG-SB 15	279
PSH026-4	585	REG-SA 15	280	REG-SB 15	279
PSH026-4	586	REG-SA 15	286	REG-SB 15	280
PSH026-4	587	REG-SA 20	278	REG-SB 15	286
PSH030	583	REG-SA 20	278	REG-SB 15	291
PSH030	583	REG-SA 20	281	REG-SB 20	279
PSH030	583	REG-SA 20	286	REG-SB 20	279
PSH030	583	REG-SA 25	278	REG-SB 20	281
PSH030	590	REG-SA 25	278	REG-SB 20	286
PSH030	590	REG-SA 25	281	REG-SB 20	291
PSH030-4	584	REG-SA 25	287	REG-SB 25	279
PSH030-4	585	REG-SA 32	278	REG-SB 25	279
PSH030-4	586	REG-SA 32	278	REG-SB 25	281
PSH030-4	587	REG-SA 32	281	REG-SB 25	287
PSH034	583	REG-SA 32	287	REG-SB 25	291
PSH034	583	REG-SA 40	278	REG-SB 32	279
PSH034	583	REG-SA 40	278	REG-SB 32	279
PSH034	583	REG-SA 40	282	REG-SB 32	281
PSH034	590	REG-SA 40	287	REG-SB 32	287
PSH034	590	REG-SA / SB /	281	REG-SB 32	291
PSH034-4	584	REG-SA / SB /	281	REG-SB 40	279
PSH034-4	585	REG-SA / SB /	281	REG-SB 40	279
PSH034-4	586	REG-SA / SB /	281	REG-SB 40	282
PSH034-4	587	REG-SA / SB /	281	REG-SB 40	287
PSH038	590	REG-SA / SB /	281	REG-SB 40	291
PSH039	583	REG-SA / SB /	282	REG-SB 50	279
PSH039	583	REG-SA / SB /	282	REG-SB 50	279
PSH039	583	REG-SA / SB 10	280	REG-SB 50	279
PSH039	583	REG-SA / SB 10	280	REG-SB 50	282
PSH039	590	REG-SA / SB 10	286	REG-SB 50	287

REG-SB 65	279	SC10/10CL	463	SC12MLX	467
REG-SB 65	279	SC10/10DL	463	SC12MLX	658
REG-SB 65	282	SC10/10DL	467	SC12MLX	663
REG-SB 65	288	SC10CL	463	SC12MLX	668
REG-SB SS 15	291	SC10CL	467	SC12MNX	469
REG-SB SS 20	291	SC10CLX	463	SC15/15CL	463
REG-SB SS 25	291	SC10CLX	465	SC15/15DL	463
REG-SB SS 32	291	SC10CLX	465	SC15/15DL	467
REG-SB SS 40	291	SC10CNX	469	SC15/15G	457
RGE-X3R4-7DS	371	SC10CNX.2	471	SC15CL	631
RGE-X3R6-7DS	371	SC10DL	463	SC15CLX	465
RGE-Z1N4-7DS	371	SC10DL	467	SC15CLX	663
RGE-Z1N6-7DS	371	SC10G	457	SC15CLX	666
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RGE-Z1P6-7DS	371	SC10G	636	SC15CLX.2	463
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RGE-Z1Q6-7DS	371	SC10GH	459	SC15CLX.2	467
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RGE-Z3T4-7DS	371	SC10GX	668	SC15CNX.2	469
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RT 6AS	108	SC12/12DL	463	SC15G	461
RT 6AW	108	SC12/12DL	467	SC15G	636
RT 6B	108	SC12/12G	457	SC15G	687
RT 6S	108	SC12CL	463	SC15G	698
RT 6W	108	SC12CL	467	SC15G	703
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RT 8	125	SC12CLX	465	SC15GH	459
RT 8L	125	SC12CLX	630	SC15GX	663
RT 9	125	SC12CLX	666	SC15GX	668
RT 11	125	SC12CLX.2	463	SC15MFX	457
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RT 13	125	SC12CLX.2	465	SC15MLX	467
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RT 14L	125	SC12CLX.2	467	SC15MLX	663
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RT 101L	125	SC12G	457	SC18CLX	631
RT 102	125	SC12G	459	SC18CLX	666
RT 107	125	SC12G	459	SC18CLX.2	463
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RT 117L	107	SC12G	636	SC18CLX.2	467
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RT 140L	125	SC12G	698	SC18CNX.2	469
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RT 262 AL	108	SC12GX	668	SC18G	459
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SC18G	698	SCA-X 32	311	SFA 15-50 T 216	321
SC18G	703	SCA-X 32	311	SFA 15-50 T 217	320
SC18GH	457	SCA-X 32	311	SFA 15-50 T 217	321
SC18GH	457	SCA-X 40	299	SFA 15-50 T 218	320
SC18GH	459	SCA-X 40	302	SFA 15-50 T 218	321
SC18MFX	457	SCA-X 40	302	SFA 15-50 T 219	320
SC18MFX	459	SCA-X 40	302	SFA 15-50 T 219	321
SC18MLX	463	SCA-X 40	310	SFA 15-50 T 220	320
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SC18MLX	467	SCA-X 40	310	SFA 15-50 T 221	320
SC18MLX	658	SCA-X 40	311	SFA 15-50 T 221	321
SC18MLX	663	SCA-X 40	311	SFA 15-50 T 222	320
SC18MLX	668	SCA-X 40	311	SFA 15-50 T 222	321
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SC18MNX	469	SCA-X 50	302	SFA 15-50 T 223	321
SC18MNX	471	SCA-X 50	302	SFA 15-50 T 224	320
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SC21CL	631	SCA-X 50	310	SFA 15-50 T 226	320
SC21CL	663	SCA-X 65	299	SFA 15-50 T 226	321
SC21CL	666	SCA-X 65	302	SFA 15-50 T 227	320
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SC21F	457	SCA-X 65	302	SFA 15-50 T 228	320
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SC21FTX	459	SCA-X 65	310	SFA 15-50 T 229	320
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SC21G	459	SCA-X 80	303	SFA 15-50 T 230	321
SC21G	636	SCA-X 80	303	SFA 15-50 T 231	320
SC21G	668	SCA-X 80	303	SFA 15-50 T 231	321
SC21G	687	SCA-X 80	310	SFA 15-50 T 232	320
SC21G	698	SCA-X 80	310	SFA 15-50 T 232	321
SC21G	703	SCA-X 80	310	SFA 15-50 T 233	320
SC21GX	663	SCA-X 100	299	SFA 15-50 T 233	321
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SC21MF	663	SCA-X 100	303	SFA 15-50 T 234	321
SC21MF	668	SCA-X 100	303	SFA 15-50 T 235	320
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SNV-ST 3/8FPT-3/8FPT	273	SVA-L 15	262	SVA-S 32	257
SNV-ST 3/8FPT-3/8FPT	273	SVA-L 20	254	SVA-S 32	263
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SVA-S 65	264	SVA-S SS 40	267	SZ100	571
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SVA-S / L 15	262	SY/SZ760	580	SZ170	579
SVA-S / L 20	257	SY/SZ760	580	SZ170	579
SVA-S / L 20	257	SY / SZ900	579	SZ175	567
SVA-S / L 20	262	SY/SZ900	580	SZ175	568
SVA-S / L 20	262	SY/SZ900	580	SZ175	569
SVA-S / L 25	257	SY / SZ1140	579	SZ175	570
SVA-S / L 25	257	SY/SZ1140	580	SZ175	571
SVA-S / L 25	263	SY/SZ1140	580	SZ175	572
SVA-S / L 25	263	SZ084	567	SZ175	573
SVA-S / L 32	257	SZ084	568	SZ180	570
SVA-S / L 32	257	SZ084	569	SZ180	571
SVA-S / L 32	263	SZ084	570	SZ180	572
SVA-S / L 32	263	SZ084	571	SZ180	573
SVA-S / L 40	258	SZ084	572	SZ180	579
SVA-S / L 40	258	SZ084	573	SZ180	579
SVA-S / L 40	263	SZ090	567	SZ185	567
SVA-S / L 40	263	SZ090	568	SZ185	568
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SZ200	571	SZ322	579	TE2	8
SZ200	572	SZ350	570	TE2	8
SZ200	573	SZ350	571	TE2	8
SZ200	579	SZ350	572	TE2	8
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SZ220	570	SZ350	579	TE 5	12
SZ220	571	SZ350	579	TE 5	12
SZ220	572	SZ350	579	TE 5	13
SZ220	573	SZ370	570	TE 5	13
SZ220	579	SZ370	571	TE 5	13
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SZ240	573	SZ380	572	TE 12	12
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SZ242	572	SZ483	579	TE 12	13
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SZ242	579			TE 12	15
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SZ268	571	T2	7	TE 20	13
SZ268	572	T2	7	TE 20	13
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SZ268	579	T2	8	TE 20	13
SZ268	579	T2	8	TE 20	15
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SZ285	572	TAJ4517Z	725	TFH2511Z	686
SZ290	570	TAJ4517Z	729	TFH2511Z	698
SZ290	572	TAJ4517Z	731	TFH2511Z	700
SZ294	573	TAJ4517Z	734	TFH2511Z	719
SZ296	570	TAJ4519Z	690	TFH2511Z	720
SZ296	571	TAJ4519Z	692	TFH2511Z	731
SZ296	572	TAJ4519Z	696	TFH2511Z	733
SZ296	573	TAJ4519Z	698	TFS4.5CLX	467
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SZ296	579	TAJ4519Z	723	TFS4.5FT	461
SZ300	570	TAJ4519Z	725	TFS4F	461
SZ300	571	TAJ4519Z	729	TL2.5F	455
SZ300	572	TAJ4519Z	731	TL2.5F	461
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SZ322	570	TE2	7	TL3F	461

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TL3G	635	TLY4KK.3	473	VTZ038-J	498
TL3G	668	TLY5.7KK.3	473	VTZ038-J	499
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TL5G	668	VLZ028TGA	748	VTZ171-G	500
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TLES5F	455	VLZ035TGA	597	VZH028	603
TLES5KTK	473	VLZ035TGA	598	VZH028	604
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TLES6.5FT.3	459	VLZ035TGA	748	VZH028	621
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TLES8.7KK.3	473	VLZ044TGA	595	VZH028CJ	609
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TLS4FT	455	VLZ044TGA	749	VZH035	621
TLS5F	455	VLZ044TGA	750	VZH035	621
TLS5FT	455	VLZ044TGA	751	VZH035	621
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VZH044	621	VZH170AG	614
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034G7073	42	040B0010 + 2 × 040B0134	357	042N8230	83
034G7073	46	040B0010 + 2 × 040B0136	357	042N8233	83
034G7073	154	040B0010 + 2 × 040B0140	357	042N8236	83
034G7074	30	040B0010 + 2 × 040B0142	357	042N8651	82
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034G7074	42	040B0023	357	042N8686	83
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034G7074	154	040B0040	357	042N8696	83
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034G7602	30	040B0040 + 2 × 040B0268	357	060-1090	129
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068U2011	26	068U2285	18	068U4101	21
068U2012	26	068U2286	18	068U4102	21
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080G3295	372	080Z0161	411	084B7250	372
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114X4293	735	114X4414	730	114X5728	652

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114X5729	643	114X5739	678	114X5750	657
114X5729	646	114X5740	638	114X5750	661
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114X5729	655	114X5740	647	114X5753	639
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114X5739	641	114X5749	671	114X5768	633
114X5739	644	114X5749	677	114X5768	669

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114X5771	633	114X7066	698	114X7084	696
114X5771	669	114X7066	701	114X7084	698
114X5771	677	114X7067	688	114X7084	702
114X5772	629	114X7067	689	114X7085	685
114X5772	633	114X7067	691	114X7085	686
114X5772	669	114X7067	693	114X7085	698
114X5772	678	114X7067	694	114X7085	699
114X5774	629	114X7067	695	114X7086	685
114X5774	633	114X7067	697	114X7086	686
114X5774	669	114X7067	698	114X7086	698
114X5774	679	114X7067	701	114X7086	699
114X5776	629	114X7068	688	114X7087	685
114X5776	633	114X7068	689	114X7087	686
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114X7061	694	114X7068	702	114X7089	685
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114X7102	703	114X7161 114X7211	690	114X7191	702
114X7103	687	114X7161 114X7211	692	114X7192	690
114X7103	698	114X7161 114X7211	694	114X7192	692
114X7103	703	114X7161 114X7211	695	114X7192	696
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114X7106	685	114X7162 114X7212	687	114X7193	692
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114X7136	690	114X7190	690	114X7199	698

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114X7200	701	114X7211	698	117-7114	471
114X7201	688	114X7211	701	117-7114	471
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114X7206	697	117-7070	457	117-7117 2)	473
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114X7207	703	117-7073	465	117-7118	471

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118U3493	701	118U3717	669	118U3720	734
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118U5197	739	120F0242	481	120G0124	603

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148B3745	221	148B5101	252	148B5242	218
148B3745	232	148B5102	278	148B5243	218
148B3745	237	148B5103	279	148B5244	218
148B3745	273	148B5104	278	148B5245	218
148B3746	273	148B5105	279	148B5246	218
148B3747	273	148B5106	278	148B5247	218
148B3750	273	148B5107	279	148B5248	218
148B3768	274	148B5110	253	148B5249	218
148B3769	274	148B5111	253	148B5250	255
148B3778**)	274	148B5112	280	148B5251	255
148B4177	273	148B5113	280	148B5252	222
148B4179	273	148B5116	278	148B5252	256
148B4180	273	148B5117	279	148B5252	280
148B4181	273	148B5120	252	148B5252	301
148B4184	255	148B5121	252	148B5252	304
148B4210	274	148B5122	256	148B5253	222
148B4211	274	148B5122	280	148B5253	256
148B4216	273	148B5123	256	148B5253	280
148B4218	274	148B5123	280	148B5253	301
148B4219	274	148B5124	256	148B5253	304
148B4223	273	148B5124	280	148B5254	222
148B4223	274	148B5125	256	148B5254	256
148B4224	273	148B5125	280	148B5254	280
148B4225	273	148B5130	253	148B5254	301
148B4226	273	148B5131	253	148B5254	304
148B4227	273	148B5134	256	148B5255	222
148B4228	273	148B5134	280	148B5255	256
148B4229	273	148B5135	256	148B5255	280
148B4230	273	148B5135	280	148B5255	301
148B4232	274	148B5200	252	148B5255	304
148B4233	273	148B5201	252	148B5256	222
148B4245	255	148B5202	278	148B5256	256
148B4263	274	148B5203	279	148B5256	280
148B4264	274	148B5204	278	148B5256	301
148B4265	274	148B5205	279	148B5256	304
148B4266	274	148B5206	278	148B5257	222
148B4495	274	148B5207	279	148B5257	256
148B4564	273	148B5208	299	148B5257	280
148B4565	273	148B5209	299	148B5257	301
148B4566	273	148B5210	253	148B5257	304
148B4567	274	148B5211	253	148B5258	222
148B4568	273	148B5212	278	148B5258	256
148B4570	274	148B5213	279	148B5258	280
148B4572	273	148B5214	278	148B5258	301
148B4581	274	148B5215	279	148B5258	304
148B4582	274	148B5216	278	148B5259	222
148B4771	273	148B5217	279	148B5259	256
148B4772	273	148B5220	252	148B5259	280
148B5000	252	148B5221	252	148B5259	301
148B5001	252	148B5222	252	148B5259	304
148B5002	256	148B5223	252	148B5260	254
148B5003	256	148B5224	252	148B5261	254
148B5004	256	148B5225	252	148B5262	254
148B5005	256	148B5226	278	148B5263	254
148B5010	253	148B5227	279	148B5264	254
148B5011	253	148B5228	278	148B5265	254
148B5012	256	148B5229	279	148B5270	255
148B5013	256	148B5230	253	148B5271	255
148B5013	256	148B5231	253	148B5272	255
148B5014	256	148B5232	253	148B5273	255

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148B5274	255	148B5340	254	148B5380	267
148B5275	255	148B5341	254	148B5381	317
148B5276	256	148B5342	218	148B5382	317
148B5276	257	148B5343	218	148B5383	236
148B5277	256	148B5344	218	148B5384	236
148B5277	257	148B5345	218	148B5385	291
148B5278	256	148B5346	218	148B5386	291
148B5278	257	148B5347	218	148B5387	291
148B5279	256	148B5348	218	148B5388	291
148B5279	257	148B5349	218	148B5389	291
148B5280	280	148B5350	255	148B5390	291
148B5280	281	148B5351	255	148B5391	222
148B5281	280	148B5352	222	148B5391	256
148B5281	281	148B5352	257	148B5391	280
148B5282	301	148B5352	281	148B5391	301
148B5282	301	148B5352	301	148B5391	304
148B5283	304	148B5352	304	148B5392	222
148B5283	304	148B5353	222	148B5392	256
148B5284	222	148B5353	257	148B5392	280
148B5284	222	148B5353	281	148B5392	301
148B5289	267	148B5353	301	148B5392	304
148B5290	267	148B5353	304	148B5393	222
148B5291	267	148B5354	222	148B5393	257
148B5292	267	148B5354	257	148B5393	281
148B5293	317	148B5354	281	148B5393	301
148B5294	317	148B5354	301	148B5393	304
148B5295	236	148B5354	304	148B5394	222
148B5296	236	148B5355	222	148B5394	257
148B5297	291	148B5355	257	148B5394	281
148B5298	291	148B5355	281	148B5394	301
148B5299	291	148B5355	301	148B5394	304
148B5300	252	148B5355	304	148B5395	267
148B5301	252	148B5356	222	148B5396	267
148B5302	278	148B5356	257	148B5397	267
148B5303	279	148B5356	281	148B5398	267
148B5304	278	148B5356	301	148B5399	267
148B5305	279	148B5356	304	148B5400	252
148B5306	278	148B5357	222	148B5401	252
148B5307	279	148B5357	257	148B5402	278
148B5308	299	148B5357	281	148B5403	279
148B5309	299	148B5357	301	148B5404	278
148B5310	253	148B5357	304	148B5405	279
148B5311	253	148B5358	222	148B5406	278
148B5312	278	148B5358	257	148B5407	279
148B5313	279	148B5358	281	148B5408	299
148B5314	278	148B5358	301	148B5409	299
148B5315	279	148B5358	304	148B5410	253
148B5316	278	148B5359	222	148B5411	253
148B5317	279	148B5359	257	148B5412	278
148B5320	252	148B5359	281	148B5413	279
148B5321	252	148B5359	301	148B5414	278
148B5322	252	148B5359	304	148B5415	279
148B5323	252	148B5360	254	148B5416	278
148B5324	252	148B5361	254	148B5417	279
148B5325	252	148B5362	254	148B5420	252
148B5326	278	148B5363	254	148B5421	252
148B5327	279	148B5364	254	148B5422	252
148B5328	278	148B5365	254	148B5423	252
148B5329	279	148B5370	255	148B5424	252
148B5330	253	148B5371	255	148B5425	252
148B5331	253	148B5372	255	148B5426	278
148B5332	253	148B5373	255	148B5427	279
148B5333	253	148B5374	255	148B5428	278
148B5334	253	148B5375	255	148B5429	279
148B5335	253	148B5377	267	148B5430	253
148B5336	299	148B5378	267	148B5431	253
148B5337	299	148B5379	267	148B5432	253

148B5433	253	148B5474	255	148B5520	252
148B5434	253	148B5475	255	148B5521	252
148B5435	253	148B5476	257	148B5522	252
148B5436	299	148B5476	257	148B5523	252
148B5437	299	148B5476	258	148B5524	252
148B5440	254	148B5477	257	148B5525	252
148B5441	254	148B5477	257	148B5526	279
148B5442	218	148B5477	258	148B5527	278
148B5443	218	148B5478	257	148B5528	278
148B5444	218	148B5478	257	148B5529	279
148B5445	218	148B5478	258	148B5530	253
148B5446	218	148B5479	257	148B5531	253
148B5447	218	148B5479	257	148B5532	253
148B5448	218	148B5479	258	148B5533	253
148B5449	218	148B5480	281	148B5534	253
148B5450	255	148B5480	281	148B5535	253
148B5451	255	148B5480	282	148B5536	299
148B5452	222	148B5481	281	148B5537	299
148B5452	257	148B5481	281	148B5539	299
148B5452	281	148B5481	282	148B5540	254
148B5452	301	148B5482	301	148B5541	254
148B5452	304	148B5482	302	148B5543	218
148B5453	222	148B5482	302	148B5544	219
148B5453	257	148B5483	304	148B5545	218
148B5453	281	148B5483	305	148B5546	218
148B5453	301	148B5483	305	148B5547	218
148B5453	304	148B5484	222	148B5548	219
148B5454	222	148B5484	223	148B5549	219
148B5454	257	148B5484	223	148B5550	255
148B5454	281	148B5486	267	148B5551	255
148B5454	301	148B5487	267	148B5552	219
148B5454	304	148B5488	267	148B5560	254
148B5455	222	148B5489	267	148B5561	254
148B5455	257	148B5490	317	148B5562	254
148B5455	281	148B5491	317	148B5563	254
148B5455	301	148B5492	236	148B5564	254
148B5455	304	148B5493	236	148B5565	254
148B5456	222	148B5494	291	148B5566	267
148B5456	257	148B5495	291	148B5567	267
148B5456	281	148B5496	291	148B5568	267
148B5456	301	148B5497	291	148B5569	267
148B5456	304	148B5498	257	148B5570	255
148B5457	222	148B5498	281	148B5571	255
148B5457	257	148B5498	301	148B5572	255
148B5457	281	148B5498	304	148B5573	255
148B5457	301	148B5499	257	148B5574	255
148B5457	304	148B5499	281	148B5575	255
148B5458	222	148B5499	301	148B5576	223
148B5458	257	148B5499	304	148B5576	257
148B5458	281	148B5500	252	148B5576	281
148B5458	301	148B5501	252	148B5576	302
148B5458	304	148B5502	278	148B5576	305
148B5459	222	148B5503	279	148B5577	223
148B5459	257	148B5504	278	148B5577	257
148B5459	281	148B5505	279	148B5577	281
148B5459	301	148B5506	278	148B5577	302
148B5459	304	148B5507	279	148B5577	305
148B5460	254	148B5508	299	148B5578	223
148B5461	254	148B5509	299	148B5578	257
148B5462	254	148B5510	253	148B5578	281
148B5463	254	148B5511	253	148B5578	302
148B5464	254	148B5512	278	148B5578	305
148B5465	254	148B5513	279	148B5579	223
148B5470	255	148B5514	278	148B5579	257
148B5471	255	148B5515	279	148B5579	281
148B5472	255	148B5516	278	148B5579	302
148B5473	255	148B5517	279	148B5579	305

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148B5580	223	148B5633	253	148B5681	302
148B5580	257	148B5636	299	148B5681	305
148B5580	281	148B5637	299	148B5682	223
148B5580	302	148B5640	254	148B5682	258
148B5580	305	148B5641	254	148B5682	282
148B5581	223	148B5642	219	148B5682	302
148B5581	257	148B5643	219	148B5682	305
148B5581	281	148B5644	219	148B5683	267
148B5581	302	148B5645	219	148B5684	267
148B5581	305	148B5646	267	148B5685	291
148B5582	223	148B5647	267	148B5686	291
148B5582	257	148B5648	267	148B5687	317
148B5582	281	148B5649	267	148B5688	317
148B5582	302	148B5650	255	148B5700	252
148B5582	305	148B5651	255	148B5701	252
148B5583	223	148B5652	223	148B5702	299
148B5583	257	148B5652	258	148B5703	299
148B5583	281	148B5652	282	148B5704	299
148B5583	302	148B5652	302	148B5706	279
148B5583	305	148B5652	305	148B5710	253
148B5585	317	148B5653	223	148B5711	253
148B5586	317	148B5653	258	148B5712	219
148B5587	236	148B5653	282	148B5713	219
148B5588	236	148B5653	302	148B5714	219
148B5589	291	148B5653	305	148B5715	219
148B5590	291	148B5654	223	148B5716	219
148B5591	291	148B5654	258	148B5717	219
148B5592	291	148B5654	282	148B5720	252
148B5593	223	148B5654	302	148B5721	252
148B5593	257	148B5654	305	148B5722	252
148B5593	281	148B5655	223	148B5723	252
148B5593	302	148B5655	258	148B5724	279
148B5593	305	148B5655	282	148B5725	279
148B5594	223	148B5655	302	148B5726	279
148B5594	257	148B5655	305	148B5727	279
148B5594	281	148B5656	223	148B5728	258
148B5594	302	148B5656	258	148B5729	258
148B5594	305	148B5656	282	148B5730	253
148B5595	267	148B5656	302	148B5731	253
148B5596	267	148B5656	305	148B5732	253
148B5600	252	148B5657	223	148B5733	253
148B5601	252	148B5657	258	148B5734	282
148B5602	278	148B5657	282	148B5735	302
148B5603	279	148B5657	302	148B5736	299
148B5604	278	148B5657	305	148B5737	299
148B5605	279	148B5660	254	148B5740	299
148B5608	299	148B5661	254	148B5741	223
148B5609	299	148B5662	254	148B5741	258
148B5610	253	148B5663	254	148B5741	282
148B5611	253	148B5664	317	148B5741	302
148B5612	278	148B5665	317	148B5741	305
148B5613	279	148B5666	236	148B5742	223
148B5614	278	148B5667	236	148B5742	258
148B5615	279	148B5670	255	148B5742	282
148B5620	252	148B5671	255	148B5742	302
148B5621	252	148B5672	255	148B5742	305
148B5622	252	148B5673	255	148B5743	223
148B5623	252	148B5674	291	148B5743	258
148B5624	219	148B5675	291	148B5743	282
148B5625	219	148B5676	291	148B5743	302
148B5626	279	148B5677	291	148B5743	305
148B5627	278	148B5678	317	148B5744	223
148B5628	279	148B5679	317	148B5744	258
148B5629	278	148B5680	317	148B5744	282
148B5630	253	148B5681	223	148B5744	302
148B5631	253	148B5681	258	148B5744	305
148B5632	253	148B5681	282	148B5745	223

148B5745	258	148B5784	230	148B5900	252
148B5745	282	148B5785	230	148B5901	252
148B5745	302	148B5786	230	148B5902	299
148B5745	305	148B5787	230	148B5903	299
148B5746	223	148B5788	230	148B5905	219
148B5746	258	148B5789	231	148B5906	219
148B5746	282	148B5800	252	148B5907	219
148B5746	302	148B5801	252	148B5908	219
148B5746	305	148B5802	299	148B5910	253
148B5747	305	148B5803	299	148B5911	253
148B5748	223	148B5806	279	148B5912	224
148B5753	267	148B5809	279	148B5912	224
148B5754	267	148B5810	253	148B5912	259
148B5754	267	148B5811	253	148B5912	259
148B5755	267	148B5812	219	148B5912	303
148B5756	267	148B5813	219	148B5912	303
148B5756	267	148B5814	219	148B5912	306
148B5757	236	148B5815	219	148B5912	306
148B5758	236	148B5816	223	148B5913	224
148B5759	223	148B5816	223	148B5913	224
148B5759	258	148B5816	258	148B5913	259
148B5759	282	148B5816	258	148B5913	259
148B5759	302	148B5816	282	148B5913	303
148B5759	305	148B5816	282	148B5913	303
148B5760	223	148B5816	302	148B5913	306
148B5760	258	148B5816	302	148B5913	306
148B5760	282	148B5816	305	148B5914	224
148B5760	302	148B5816	305	148B5914	259
148B5760	305	148B5817	223	148B5914	303
148B5761	286	148B5817	223	148B5914	306
148B5762	286	148B5817	258	148B5915	224
148B5762	286	148B5817	258	148B5915	259
148B5763	287	148B5817	282	148B5915	303
148B5763	287	148B5817	282	148B5915	306
148B5763	287	148B5817	302	148B5916	259
148B5764	286	148B5817	302	148B5917	259
148B5765	286	148B5817	305	148B5918	303
148B5765	286	148B5817	305	148B5919	306
148B5766	287	148B5818	223	148B5920	252
148B5766	287	148B5818	258	148B5921	252
148B5766	287	148B5818	282	148B5922	224
148B5767	287	148B5818	302	148B5928	267
148B5768	288	148B5818	305	148B5928	267
148B5769	309	148B5819	223	148B5930	253
148B5769	309	148B5819	258	148B5931	253
148B5770	309	148B5819	282	148B5936	299
148B5770	310	148B5819	302	148B5937	299
148B5770	310	148B5819	305	148B6000	252
148B5771	310	148B5820	252	148B6001	252
148B5772	310	148B5821	252	148B6002	299
148B5773	310	148B5822	258	148B6004	299
148B5774	311	148B5823	258	148B6006	219
148B5775	311	148B5824	282	148B6007	219
148B5776	312	148B5825	302	148B6008	219
148B5776	312	148B5826	279	148B6009	219
148B5777	312	148B5827	305	148B6010	253
148B5777	312	148B5830	253	148B6011	253
148B5777	313	148B5831	253	148B6012	259
148B5778	313	148B5832	223	148B6014	224
148B5779	313	148B5837	299	148B6014	259
148B5780	313	148B5838	299	148B6014	303
148B5781	313	148B5847	267	148B6014	306
148B5782	314	148B5848	267	148B6015	224
148B5783	229	148B5849	267	148B6015	259
148B5783	229	148B5850	267	148B6015	303
148B5784	229	148B5851	236	148B6015	306
148B5784	229	148B5852	236	148B6016	224

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148B6016	259	148B6134	224	148B6418	223
148B6016	303	148B6134	259	148B6418	258
148B6016	306	148B6134	303	148B6418	282
148B6017	224	148B6134	306	148B6418	302
148B6017	259	148B6136	299	148B6418	305
148B6017	303	148B6137	299	148B6419	223
148B6017	306	148B6200	252	148B6419	258
148B6018	259	148B6201	252	148B6419	282
148B6019	303	148B6202	219	148B6419	302
148B6020	252	148B6203	219	148B6419	305
148B6021	252	148B6204	219	148B6420	223
148B6022	306	148B6205	219	148B6420	258
148B6024	224	148B6206	219	148B6420	282
148B6030	253	148B6207	219	148B6420	302
148B6031	253	148B6210	253	148B6420	305
148B6032	267	148B6211	253	148B6421	224
148B6033	224	148B6220	252	148B6421	259
148B6033	259	148B6221	252	148B6421	303
148B6033	303	148B6230	253	148B6421	306
148B6033	306	148B6231	253	148B6422	224
148B6034	224	148B6240	252	148B6422	259
148B6034	259	148B6241	252	148B6422	303
148B6034	303	148B6250	253	148B6422	306
148B6034	306	148B6251	253	148B6423	224
148B6035	267	148B6300	252	148B6423	259
148B6036	299	148B6301	252	148B6423	303
148B6037	299	148B6302	219	148B6423	306
148B6100	252	148B6303	219	148B6424	222
148B6101	252	148B6304	219	148B6424	256
148B6102	299	148B6305	219	148B6424	280
148B6103	299	148B6310	253	148B6424	301
148B6105	219	148B6311	253	148B6424	304
148B6106	219	148B6320	252	148B6425	222
148B6107	219	148B6321	252	148B6425	257
148B6108	219	148B6330	253	148B6425	281
148B6110	253	148B6331	253	148B6425	301
148B6111	253	148B6400	274	148B6425	304
148B6112	224	148B6401	280	148B6426	222
148B6112	259	148B6401	281	148B6426	257
148B6112	303	148B6402	280	148B6426	281
148B6112	306	148B6402	281	148B6426	301
148B6113	224	148B6403	281	148B6426	304
148B6113	259	148B6403	281	148B6427	223
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148B6114	303	148B6414	222	148B6428	223
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148B6115	224	148B6414	280	148B6428	282
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148B6120	252	148B6416	222	148B6430	223
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148B6122	224	148B6416	281	148B6430	282
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148B6133	224	148B6417	257	148B6431	259
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148F4025	320	148H3129	220	148H3180	220
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148H6000	426	148H6207	430	192H2096	732
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148H6011	429	148H6217	433	192H2096	735
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195B0202	457	195B0379	465	195B0505	469
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195B0216	455	195B0388	461	195B0526	473
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195B0222	455	195B0396	455	195B0548	668

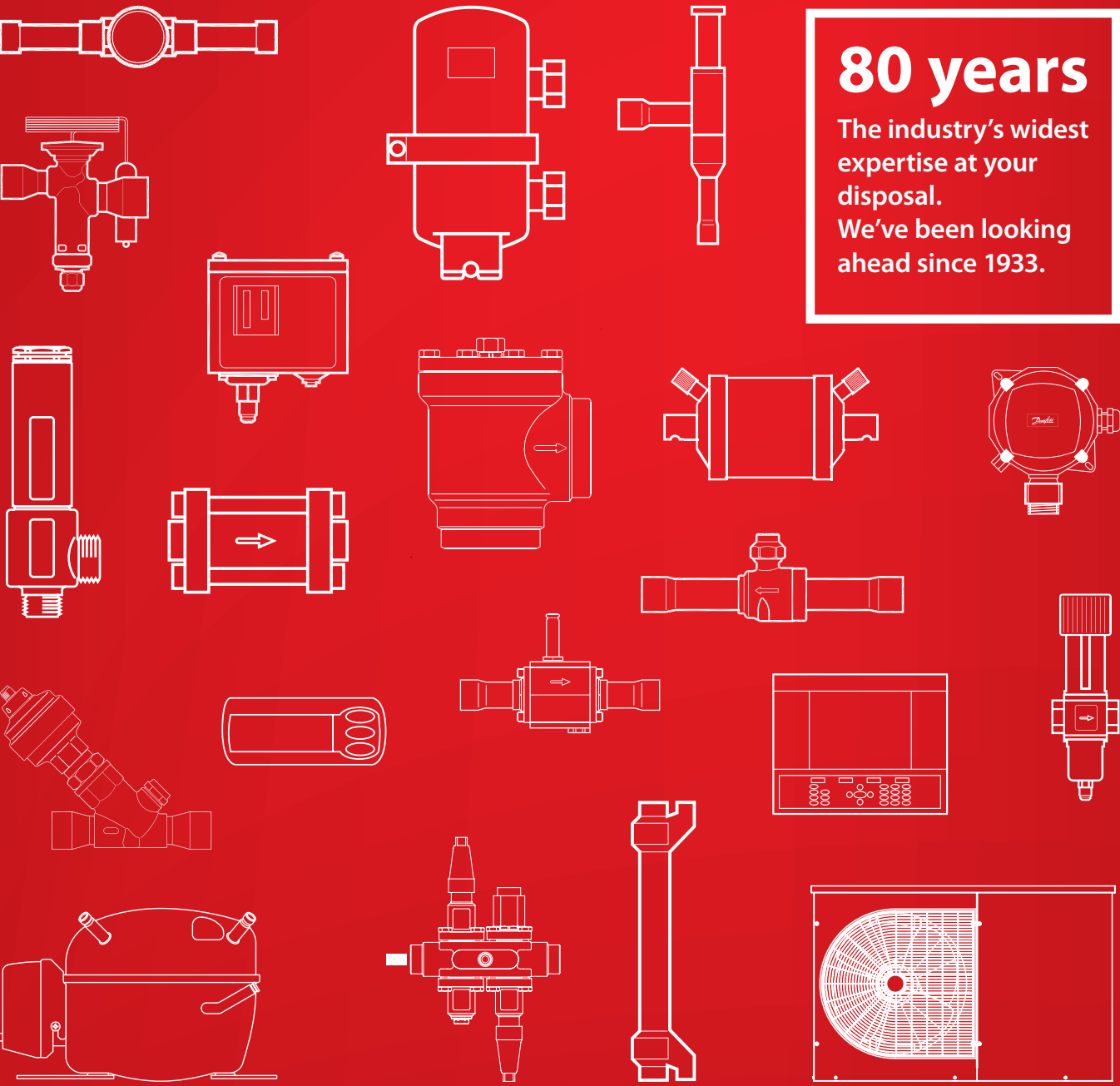
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195B0577	473	195B0751	469	2416+305	324
195B0577	475	195B0752	457	2416+306	324
195B0586	461	195B0752	459	2416+307	324
195B0589	469	2412+183	181	2416+308	324
195B0592	461	2412+184	181	2512+049	215
195B0599	463	2412+185	181	2512+050	215
195B0599	465	2412+186	181	2512+051	215
195B0599	465	2416+150	323	2512+052	215
195B0618	473	2416+151	323	2512+053	215
195B0624	737	2416+152	323	2512+054	215
195B0636	703	2416+153	323	2512+055	215
195B0636	704	2416+154	323	2512+056	215
195B0637	457	2416+155	323	2512+057	215
195B0640	463	2416+160	324	2512+058	215
195B0640	666	2416+161	324	2512+059	215
195B0641	463	2416+162	324	2512+060	215
195B0641	467	2416+163	324	2512+061	215
195B0642	463	2416+164	324	2512+062	215
195B0643	463	2416+165	324	2512+066	215
195B0643	467	2416+183	323	2512+067	215
195B0644	463	2416+184	323	2512+068	215
195B0645	469	2416+186	324	2512+069	215
195B0646	465	2416+187	324	2512+070	215
195B0648	457	2416+241	323	2512+071	215
195B0648	459	2416+242	323	2512+072	215
195B0649	469	2416+254	323	2512+078	215
195B0650	465	2416+255	323	2512+079	215
195B0651	459	2416+256	323	2512+080	215
195B0652	463	2416+257	323	2512+081	215
195B0653	463	2416+258	323	2512+082	215
195B0654	469	2416+259	323	2512+083	215
195B0655	469	2416+260	323	2512+084	215
195B0656	465	2416+261	323	163806	475
195B0659	459	2416+262	323	7701035	738
195B0666	467	2416+263	323	7703251	579
195B0667	467	2416+264	323	7703251	579
195B0673	461	2416+265	323	7703251	579
195B0676	469	2416+266	323	7703371	579
195B0682	457	2416+267	323	7703371	579
195B0692	469	2416+268	323	7703384	579
195B0693	469	2416+269	323	7703384	579
195B0694	461	2416+270	323	7703390	579
195B0695	469	2416+271	323	7703390	579
195B0701	467	2416+272	323	7703390	579
195B0702	467	2416+273	323	7703390	579
195B0706	471	2416+274	323	7703390	579
195B0707	471	2416+275	323	7750009	669
195B0708	471	2416+285	324	7750009	669
195B0709	471	2416+286	324	7750009	669
195B0710	471	2416+287	324	7750009	669
195B0711	471	2416+288	324	7750009	669
195B0716	469	2416+289	324	7750009	669
195B0717	469	2416+290	324	7750009	669
195B0718	469	2416+291	324	7750009	669
195B0721	465	2416+292	324	7750009	669
195B0726	469	2416+293	324	7750009	669
195B0727	469	2416+294	324	7750009	669
195B0728	469	2416+295	324	7750009	669
195B0729	469	2416+296	324	7750009	670
195B0730	469	2416+297	324	7750009	670
195B0737	471	2416+298	324	7750009	670
195B0738	471	2416+299	324	7750009	670
195B0739	471	2416+300	324	7750009	670
195B0740	471	2416+301	324	7750009	670

7750009	670	7777044	564	7968016	669
7750009	670	7777044	564	7968016	669
7750009	670	7777044	590	7968017	670
7750009	670	7777048	557	7968017	670
7750009	670	7777048	564	7968017	670
7750009	670	7777049	565	7968017	670
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7750009	670	7777053	590	7968018	670
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7750009	670	7777063	558	7968018	671
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7765012	579	7968012	670	8168179	669
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7765017	579	7968013	669	8168180	669
7765017	579	7968013	669	8168180	669
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7765027	579	7968013	669	8168181	669
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7777037	557	7968013	670	8168181	669
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7777039	558	7968013	670	8168181	670
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7777039	565	7968013	670	8168183	669
7777039	565	7968013	670	8168183	669
7777040	558	7968013	671	8168183	671
7777040	565	7968014	669	8168183	671
7777040	565	7968014	669	8168183	671
7777040	565	7968014	669	8168183	671
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7777041	557	7968014	669	8173001	699
7777041	557	7968014	669	8173001	699
7777041	557	7968014	669	8173001	702
7777041	564	7968014	670	8173001	704
7777041	564	7968014	670	8173001	704
7777041	564	7968014	670	8173001	732
7777041	564	7968014	670	8173001	732
7777041	564	7968014	670	8173001	732
7777041	564	7968014	670	8173001	736
7777042	564	7968014	670	8173001	737
7777042	564	7968014	671	8173001	737
7777042	564	7968014	671	8173022	706
7777042	564	7968014	671	8173022	732
7777043	564	7968014	671	8173022	732
7777043	564	7968014	671	8173022	739
7777043	564	7968016	669	8173041	699
7777044	564	7968016	669	8173041	699
7777044	564	7968016	669	8173041	704
7777044	564	7968016	669	8173041	732

8173041	732	MTZ44-3VI	482	SZ090-9VI	569
8173041	737	MTZ44-4VI	482	SZ100-3VI	569
8173231	701	MTZ44-6VI	482	SZ100-4VI	569
8173231	706	MTZ44-7VI	482	SZ100-9VI	569
8173231	735	MTZ44-9VI	482	SZ110-3VI	569
8173231	738	MTZ50-1VI	482	SZ110-4VI	569
8173233	701	MTZ50-3VI	482	SZ110-9VI	569
8173233	706	MTZ50-4VI	482	SZ120-3VI	569
8173233	735	MTZ50-4VI	670	SZ120-4VI	569
8173233	738	MTZ50-6VI	482	SZ120-9VI	569
8173234	702	MTZ50-7VI	482	SZ148-3VAI	569
8173234	706	MTZ50-9VI	482	SZ148-4VAI	569
8173234	736	MTZ56-1VI	482	SZ148-9VAI	569
8173234	738	MTZ56-3VI	482	SZ161-3VAI	569
CDO00118	475	MTZ56-4VI	482	SZ161-4VAI	569
CDO00120	475	MTZ56-4VI	670	SZ161-9VAI	569
CDO00135	475	MTZ56-6VI	482	SZ175-4CAI	569
CDO00136	475	MTZ56-7VI	482	SZ175-4RI	569
CDO00137	475	MTZ56-9VI	482	SZ185-3CAI	569
CDO00138	475	MTZ64-1VI	482	SZ185-3RI	569
CP1 and CP3	565	MTZ64-3VI	482	SZ185-4CAI	569
MTZ18-1VI	482	MTZ64-4VI	482	SZ185-4PCI	569
MTZ18-3VI	482	MTZ64-4VI	670	SZ185-4RI	569
MTZ18-4VI	482	MTZ64-4VI	670	SZ185-9CAI	569
MTZ18-4VI	670	MTZ64-6VI	482	SZ185-9RI	569
MTZ18-5VI	482	MTZ64-9VI	482		
MTZ18-5VI	670	MTZ72-3VI	482		
MTZ22-1VI	482	MTZ72-4VI	482		
MTZ22-3VI	482	MTZ72-4VI	670		
MTZ22-4VI	482	MTZ72-4VI	670		
MTZ22-4VI	670	MTZ72-6VI	482		
MTZ22-5VI	482	MTZ72-9VI	482		
MTZ22-5VI	670	MTZ80-3VI	482		
MTZ22-6VI	482	MTZ80-4VI	482		
MTZ22-9VI	482	MTZ80-4VI	670		
MTZ28-1VI	482	MTZ80-4VI	671		
MTZ28-3VI	482	MTZ80-6VI	482		
MTZ28-4VI	482	MTZ80-9VI	482		
MTZ28-4VI	670	MTZ100-3VI	482		
MTZ28-5VI	482	MTZ100-4VI	482		
MTZ28-5VI	670	MTZ100-4VI	671		
MTZ28-6VI	482	MTZ100-6VI	482		
MTZ28-9VI	482	MTZ100-7VI	482		
MTZ32-1VI	482	MTZ100-9VI	482		
MTZ32-3VI	482	MTZ125-3VI	482		
MTZ32-4VI	482	MTZ125-4VI	482		
MTZ32-4VI	670	MTZ125-4VI	671		
MTZ32-5VI	482	MTZ125-6VI	482		
MTZ32-5VI	670	MTZ125-7VI	482		
MTZ32-6VI	482	MTZ125-9VI	482		
MTZ32-7VI	482	MTZ144-3VI	482		
MTZ32-9VI	482	MTZ144-4VI	482		
MTZ36-1VI	482	MTZ144-4VI	671		
MTZ36-3VI	482	MTZ144-7VI	482		
MTZ36-4VI	482	MTZ144-9VI	482		
MTZ36-4VI	670	MTZ160-3VI	482		
MTZ36-5VI	482	MTZ160-4VI	482		
MTZ36-5VI	670	MTZ160-4VI	671		
MTZ36-6VI	482	MTZ160-6VI	482		
MTZ36-7VI	482	MTZ160-7VI	482		
MTZ36-9VI	482	MTZ160-9VI	482		
MTZ40-1VI	482	NA	539		
MTZ40-3VI	482	NA	539		
MTZ40-4VI	482	Not needed	565		
MTZ40-4VI	670	SZ084-4VI	569		
MTZ40-6VI	482	SZ090-3VI	569		
MTZ44-1VI	482	SZ090-4VI	569		

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