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Easy

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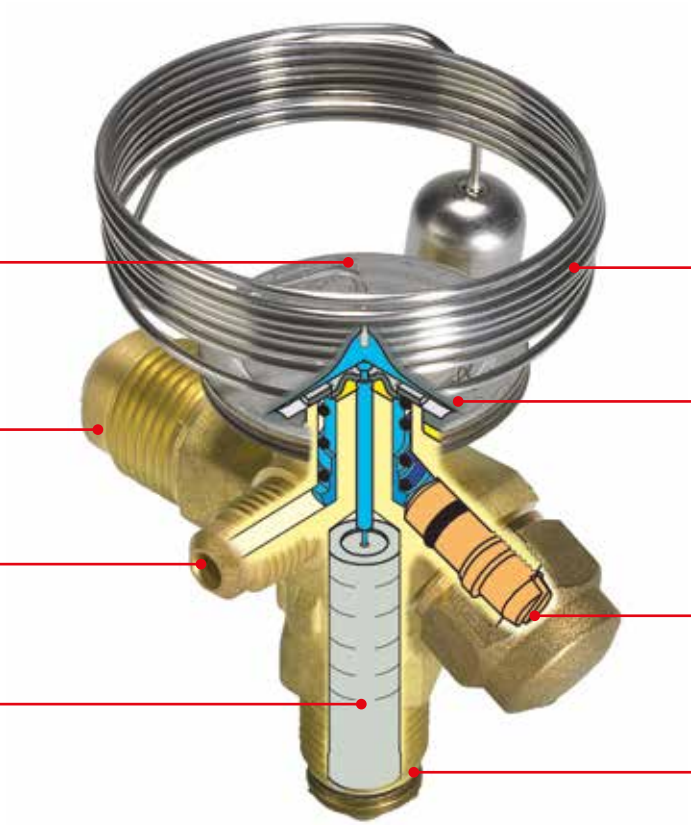
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T2 / TE2 - Thermostatic expansion valves

T2 / TE2 thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems using fluorinated refrigerants e.g. R407C / R22, R134a, R404A / R507, R407C, R407F and R407A.

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.





Laser-welded power element in stainless steel
- long diaphragm life
- high pressure tolerance and working pressure
- high corrosion resistance

Stainless steel capillary tube and bulb:
- high corrosion resistance
- high strength and vibration resistance

Laser-engraved label

Flare or solder outlet

Flare or solder pressure equalization

Easy adjustment of superheat setting

Interchangeable orifice assembly with dirt protection strainer

Flare inlet
Solder adaptor available as an option

Facts

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

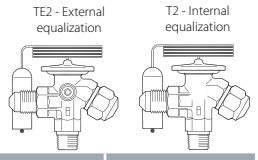
- Large temperature range
- Equally applicable to freezing, refrigeration and air conditioning applications
- Interchangeable orifice assembly
  - easy stocking
  - easy capacity matching
  - better service

- 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*



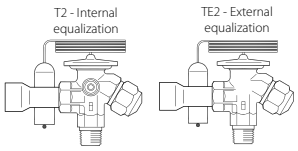
T2 / TE2

Thermostatic element with bulb strap (flare x flare)

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Pressure equalization Flare [in]	Connection flare inlet × outlet		Code no.
							[in]	[mm]	
R22 / R407C	TX2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3206
	TX2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3208
	TX2	-40 – -5	-40 – 25	0	32	–	3/8 × 1/2	10 × 12	068Z3224
	TX2	-40 – -15	-40 – 5	-10	14	–	3/8 × 1/2	10 × 12	068Z3226
	TX2	-60 – -25	-75 – -15	–	–	–	3/8 × 1/2	10 × 12	068Z3207
	TX2	-60 – -25	-75 – -15	-20	-5	–	3/8 × 1/2	10 × 12	068Z3228
	TEX2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3209
	TEX2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3211
	TEX2	-40 – -5	-40 – 25	0	32	1/4	3/8 × 1/2	10 × 12	068Z3225
	TEX2	-40 – -15	-40 – 5	-10	14	1/4	3/8 × 1/2	10 × 12	068Z3227
	TEX2	-60 – -25	-75 – -15	–	–	1/4	3/8 × 1/2	10 × 12	068Z3210
	TEX2	-60 – -25	-75 – -15	-20	-5	1/4	3/8 × 1/2	10 × 12	068Z3229
R407C	TZ2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3496
	TZ2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3516
	TEZ2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3501
	TEZ2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3517
R134a	TN2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3346
	TN2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3347
	TN2	-40 – -5	-40 – 25	0	32	–	3/8 × 1/2	10 × 12	068Z3393
	TN2	-40 – -15	-40 – 5	-10	14	–	3/8 × 1/2	10 × 12	068Z3369
	TEN2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3348
	TEN2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3349
	TEN2	-40 – -5	-40 – 25	0	32	1/4	3/8 × 1/2	10 × 12	068Z3392
	TEN2	-40 – -15	-40 – 5	-10	14	1/4	3/8 × 1/2	10 × 12	068Z3370
R404A / R507	TS2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3400
	TS2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3402
	TS2	-40 – -5	-40 – 25	0	32	–	3/8 × 1/2	10 × 12	068Z3406
	TS2	-40 – -15	-40 – 5	-10	14	–	3/8 × 1/2	10 × 12	068Z3408
	TS2	-60 – -25	-75 – -15	–	–	–	3/8 × 1/2	10 × 12	068Z3401
	TS2	-60 – -25	-75 – -15	-20	-5	–	3/8 × 1/2	10 × 12	068Z3410
	TES2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3403
	TES2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3405
	TES2	-40 – -5	-40 – 25	0	32	1/4	3/8 × 1/2	10 × 12	068Z3407
	TES2	-40 – -15	-40 – 5	-10	14	1/4	3/8 × 1/2	10 × 12	068Z3409
	TES2	-60 – -25	-75 – -15	–	–	1/4	3/8 × 1/2	10 × 12	068Z3404
	TES2	-60 – -25	-75 – -15	-20	-5	1/4	3/8 × 1/2	10 × 12	068Z3411
R407F / R407A	T2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3715
	TE2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3714

Capillary tube: 1.5 m / 59 in

Technical data and ordering



T2 / TE2

Thermostatic element with bulb strap (flare x solder)

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Pressure equalization solder		Connection inlet (Flare) × outlet (Solder)		Code no.
						[in]	[mm]	[in]	[mm]	
R22 / R407C	TX2	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068Z3281
	TX2	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068Z3302
	TX2	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068Z3287
	TX2	-40 – 10	-40 – 50	15	60	–	–	–	10 × 12	068Z3308
	TX2	-60 – -25	-75 – -15	–	–	–	–	3/8 × 1/2	–	068Z3357
	TX2	-60 – -25	-75 – -15	–	–	–	–	–	10 × 12	068Z3361
	TEX2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068Z3284
	TEX2	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068Z3305
	TEX2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068Z3290
	TEX2	-40 – 10	-40 – 50	15	60	–	6	–	10 × 12	068Z3311
	TEX2	-40 – -15	-40 – -5	-10	-15	–	6	–	10 × 12	068Z3367
	TEX2	-60 – -25	-75 – -15	–	–	1/4	–	3/8 × 1/2	–	068Z3359
	TEX2	-60 – -25	-75 – -15	–	–	–	6	–	10 × 12	068Z3363
R407C	TZ2	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068Z3502
	TZ2	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068Z3329
	TZ2	-40 – 10	-40 – 50	15	60	–	–	–	10 × 12	068Z3514
	TEZ2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068Z3446
	TEZ2	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068Z3503
	TEZ2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068Z3447
	TEZ2	-40 – 10	-40 – 50	15	60	–	6	–	10 × 12	068Z3515
R134a	TN2	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068Z3383
	TN2	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068Z3384
	TN2	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068Z3387
	TN2	-40 – 10	-40 – 50	15	60	–	–	–	10 × 12	068Z3388
	TEN2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068Z3385
	TEN2	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068Z3386
	TEN2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068Z3389
	TEN2	-40 – 10	-40 – 50	15	60	–	6	–	10 × 12	068Z3390
R404A / R507	TS2	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068Z3414
	TS2	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068Z3435
	TS2	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068Z3416
	TS2	-40 – 10	-40 – 50	15	60	–	–	–	10×12	068Z3423
	TS2	-40 – -15	-40 – -5	-10	-15	–	–	3/8 × 1/2	–	068Z3429
	TS2	-40 – -15	-40 – -5	-10	-15	–	–	–	10×12	068Z3436
	TS2	-60 – -25	-75 – -15	–	–	–	–	3/8 × 1/2	–	068Z3418
	TS2	-60 – -25	-75 – -15	–	–	–	–	–	10 × 12	068Z3425
	TS2	-60 – -25	-75 – -15	-20	-5	–	–	3/8 × 1/2	–	068Z3420
	TS2	-60 – -25	-75 – -15	-20	-5	–	–	–	10 × 12	068Z3427
	TES2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068Z3415
	TES2	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068Z3422
	TES2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068Z3417
	TES2	-40 – 10	-40 – 50	15	60	–	6	–	10×12	068Z3424
	TES2	-40 – -15	-40 – -5	-10	-15	1/4	–	3/8 × 1/2	–	068Z3430
	TES2	-40 – -15	-40 – -5	-10	-15	–	6	–	10×12	068Z3437
	TES2	-60 – -25	-75 – -15	–	–	1/4	–	3/8 × 1/2	–	068Z3419
	TES2	-60 – -25	-75 – -15	–	–	–	6	–	10 × 12	068Z3426
	TES2	-60 – -25	-75 – -15	-20	-5	1/4	–	3/8 × 1/2	–	068Z3421
	TES2	-60 – -25	-75 – -15	-20	-5	–	6	–	10 × 12	068Z3428
R407F / R407A	T2	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068Z3716
	TE2	-40 – 10	-40 – 50	–	–	1/4		3/8 × 1/2	–	068Z3713

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	R134a		R404A/R507		R407C		R407F		R407A		R22		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
T2 / TE2	0X	0.68	0.19	0.64	0.18	0.92	0.26	1	0.3	0.9	0.2	0.90	0.25	068-2002
	00	1.2	0.34	1.3	0.37	1.8	0.51	2	0.6	1.7	0.5	1.8	0.51	068-2003
	01	2.1	0.59	2.6	0.75	3.5	1	3.9	1.1	3.4	1	3.5	0.99	068-2010
	02	2.5	0.73	3.7	1.1	4.8	1.4	5.4	1.5	4.7	1.3	4.7	1.3	068-2015
	03	4.3	1.2	6.3	1.8	8.1	2.3	9.2	2.6	8	2.3	8	2.3	068-2006
	04	6.4	1.8	9.9	2.8	12.4	3.5	14.3	4.1	12.4	3.5	12.1	3.5	068-2007
	05	8.4	2.3	13	3.7	16.5	4.7	19	5.4	16.3	4.6	16.7	4.8	068-2008
	06	10.1	2.9	15.5	4.4	19.7	5.6	22.9	6.5	19.6	5.6	19.7	5.6	068-2009

The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F

T2 / TE2

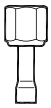


Orifice assembly for solder adapter version
Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice	R134a		R404A/R507		R407C		R407F		R407A		R22		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
T2 / TE2	0X	0.68	0.19	0.64	0.18	0.92	0.26	1	0.3	0.9	0.2	0.90	0.25	068-2089
	00	1.2	0.34	1.3	0.37	1.8	0.51	2	0.6	1.7	0.5	1.8	0.51	068-2090
	01	2.1	0.59	2.6	0.75	3.5	1	3.9	1.1	3.4	1	3.5	0.99	068-2091
	02	2.5	0.73	3.7	1.1	4.8	1.4	5.4	1.5	4.7	1.3	4.7	1.3	068-2092
	03	4.3	1.2	6.3	1.8	8.1	2.3	9.2	2.6	8	2.3	8	2.3	068-2093
	04	6.4	1.8	9.9	2.8	12.4	3.5	14.3	4.1	12.4	3.5	12.1	3.5	068-2094
	05	8.4	2.3	13	3.7	16.5	4.7	19	5.4	16.3	4.6	16.7	4.8	068-2095
	06	10.1	2.9	15.5	4.4	19.7	5.6	22.9	6.5	19.6	5.6	19.7	5.6	068-2096

The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F

Solder adaptor without orifice assembly



Connection – ODF solder	Code no.
¼ in	068-2062
6 mm	068-2063
6 mm	068-4101 [1])
⅜ in	068-2060
10 mm	068-2061
10 mm	068-4100 [1])

[1]) *Including filter.*

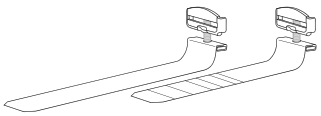
Filter as accessories



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



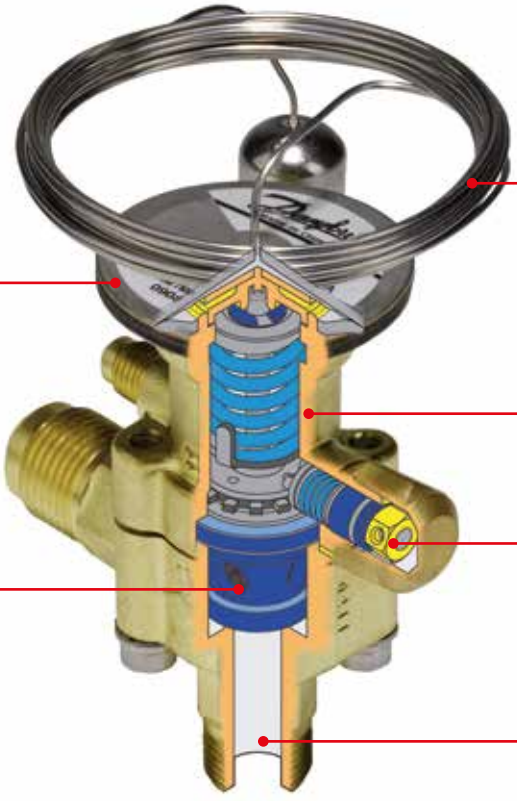
Type	Length	Max. diameter of suction line		Code no.
	[mm]	[in]	[mm]	
T2 / TE2 Accessories	110 mm	1 1/8	28	068U3507
	190 mm	2	50	068U3508

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.
Refrigerants: R22, R134a, R404A, R507, R407A, R407F and R407C.



Features
TE 5 - TE 55



Laser-welded power element in stainless steel
- longer diaphragm life
- high pressure tolerance and working pressure
- high corrosion resistance

Stainless steel capillary tube and bulb
- high corrosion resistance
- high strength and vibration resistance

Large parts programme ensures minimal stocks

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

Easy adjustment of superheat setting

More connection possibilities
- solder × solder
- flare × flare
- flanges
- straightway or angleway

Facts

Applications:
- Traditional refrigeration
- Air conditioning units
- Water chillers

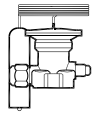
- Interchangeable orifice assembly designed for:
  - easy assembly and mounting
  - optimised capacity matching
  - balanced port (TE 55 only)
- Large temperature range: -60 – 10 °C / -75 – 50 °F

- Available with MOP (Max. Operating Pressure)
- Wide capacity range
- Refrigerants: R22, R134a, R404A, R507, R407A, R407F and R407C
- Maximum Working Pressure PS / MWP: 28 bar / 400 psig

Technical data and ordering



Thermostatic element + Orifice + Valve body



TE 5 – TE 55, R407C

Thermostatic element – including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TEZ 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3278
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3277
TEZ 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3366
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3367
TEZ 20	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067B3371
	-40 – 10	-40 – 50	15	60	1/4	6	5	196	067B3372
TEZ 55	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067G3240
	-40 – 10	-40 – 50	15	60	1/4	6	5	196	067G3241

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

TE 5 – TE 55, R134a

Thermostatic element – including bulb strap

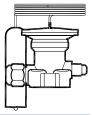
Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TEN 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3297
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3298
TEN 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3232
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3233
	-40 – 10	-40 – 50	0	32	1/4	6	5	196	067B3363
TEN 20	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3292
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3293
	-40 – 10	-40 – 50	0	32	1/4	6	5	196	067B3370
TEN 55	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3222
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067G3223
	-40 – 10	-40 – 50	0	32	1/4	6	5	196	067G3230

TE 5 – TE 55, R404A/R507

Thermostatic element – including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TES 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3342
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3357
	-40 – -15	-40 – 5	-10	15	1/4	6	3	118	067B3358
	-60 – -25	-75 – -15	–	–	1/4	6	3	118	067B3344
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3343
TES 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3347
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3345
	-40 – -15	-40 – 5	-10	15	1/4	6	3	118	067B3348
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3349
	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067B3346
	-60 – -25	-75 – -15	-20	-5	1/4	6	5	196	067B3350
TES 20	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3352
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3351
	-40 – -15	-40 – 5	-10	15	1/4	6	3	118	067B3353
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3354
	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067B3356
	-60 – -25	-75 – -15	-20	-5	1/4	6	5	196	067B3355
TES 55	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3302
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067G3303
	-40 – -15	-40 – 5	-10	15	1/4	6	3	118	067G3304
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067G3305
	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067G3301
	-60 – -25	-75 – -15	-20	-5	1/4	6	5	196	067G3306

Technical data and ordering



TE 5 – TE 55, R22 / R407C

Thermostatic element - including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TEX 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3250
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3267
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3249
	-40 – -15	-40 – 5	-10	-15	1/4	6	3	118	067B3253
	-60 – -25	-75 – -15	–	–	1/4	6	3	118	067B3263
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3251
TEX 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3210
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3227
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3207
	-40 – -15	-40 – 5	-10	-15	1/4	6	3	118	067B3213
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3211
	-40 – 10	-40 – 50	–	–	1/4	6	5	197	067B3209
	-60 – -25	-75 – -15	-20	-5	1/4	6	5	197	067B3212
TEX 20	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3274
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3286
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3273
	-40 – -15	-40 – 5	-10	-15	1/4	6	3	118	067B3275
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3276
	-40 – 10	-40 – 50	–	–	1/4	6	5	197	067B3290
	-60 – -25	-75 – -15	-20	-5	1/4	6	5	197	067B3287
TEX 55	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3205
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067G3220
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067G3206
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067G3207
	-40 – 10	-40 – 50	–	–	1/4	6	5	197	067G3209
	-60 – -25	-75 – -15	-20	-5	1/4	6	5	197	067G3217

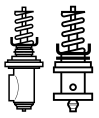
For R407C plants, please select valves from the dedicated R407C program.

TE 5 – TE 55, R407F / R407A

Thermostatic element - including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capilary tube		Code no.
					[in]	[mm]	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3501
	-40 – 10	-40 – 50	–	–	1/4 (ODF solder)	6 (ODF solder)	3	118	067B3504
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3502
	-40 – -15	-40 – 25	-10	15	1/4	6	3	118	067B3503
TE 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3532
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3531
	-40 – -15	-40 – 25	-10	15	1/4	6	3	118	067B3533
TE 20	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3561
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3560
	-40 – -15	-40 – 25	-10	15	1/4	6	3	118	067B3562

Technical data and ordering



TE 5 – TE 55

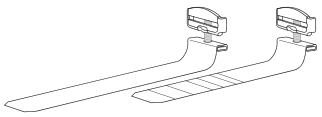
Orifice assembly

Rated capacity. Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice	R407F		R407A		R134a		R404A/R507		R407C		R22		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TE 5	0.5	11.1	3.14	10.3	2.92	6.68	1.9	8.17	2.32	10.7	3.04	10.4	2.96	067B2788
	01	20.3	5.76	18.8	5.35	12.2	3.47	14.9	4.24	19.6	5.57	19.1	5.43	067B2789
	02	28.1	8	25.9	7.37	17	4.83	20.5	5.83	27.2	7.73	26.3	7.48	067B2790
	03	35.8	10.2	33.3	9.48	21.8	6.2	26.3	7.48	34.8	9.9	33.8	9.61	067B2791
	04	49	13.9	45.3	12.9	29.7	8.45	35.7	10.2	47.4	13.5	46	13.1	067B2792
TE 12	05	71	20.3	56	16.1	37.7	10.7	50	14.4	55	15.9	57	16.3	067B2708
	06	95	27.1	75	21.4	50	14.2	64	18.2	73	21	76	21.7	067B2709
	07	115	32.7	96	27.5	65	18.7	81	23.1	94	26.8	97	27.8	067B2710
TE 20	08	141	40	126	36	77	22.1	87	24.8	118	33.6	128	36.4	067B2771
	09	161	45.9	148	42.1	92	26.2	102	29	136	38.7	150	42.7	067B2773
TE 55 [1])	9B	124	35.3	112	31.8	77	21.9	84	24,1	112	38.1	113	32.1	067G2705
TE 55	10	173	49.1	166	47.4	111	31.6	128	36.4	161	45.8	169	48.1	067G2701
	11	188	53	181	52	122	34.7	138	39.2	175	49.8	184	52	067G2704
	12	207	59	199	57	134	38.1	152	43.2	191	54	202	57	067G2707
	13	250	71	242	69	166	47.2	182	51	232	66	245	69	067G2710

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

[1]) *For specifications, please contact Danfoss.*



Bulb strap (delivered with the element)

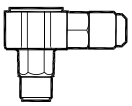
Type	Length		Max. diameter of suction line		Code no.
	[mm]	[in]	[in]	[mm]	
TE 20 / TE 55	350	13.77	3 1/8	78	067N0559

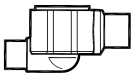
Technical data and ordering

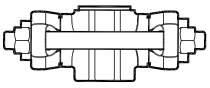
TE 5 – TE 55

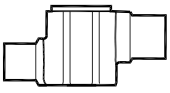
Valve body

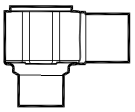
Type	Version	Connection Type	Connection inlet × outlet		Code no.
			[in]	[mm]	
TE 5	Flare angleway	–	1/2 × 5/8	12 × 16	067B4013
	Solder angleway	ODF × ODF	1/2 × 5/8	–	067B4009
	Solder angleway	ODF × ODF	1/2 × 7/8	–	067B4010
	Solder angleway	ODF × ODF	5/8 × 7/8	–	067B4011
	Solder angleway	ODF × ODM	7/8 × 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 × 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	–	16 × 22	067B4016
	Solder flanges	ODF × ODF	5/8 × 7/8	22 × 25	067B4025
	Solder flanges	ODF × ODF	7/8 × 1	22 × 28	067B4026
	Solder flanges	ODF × ODF	–	22 × 28	067B4027
	Solder flanges	ODF × ODF	–	–	067B4015
TE 20	Solder angleway	ODF × ODM	7/8 × 1 1/8	22 × 28	067B4023
	Solder angleway	ODF × ODM	7/8 × 1 1/8	–	067B4017
	Solder straightway	ODF × ODM	7/8 × 1 1/8	–	067B4021
	Solder straightway	ODF × ODM	–	22 × 28	067B4016
TE 55	Solder angleway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4004
	Solder angleway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4002
	Solder straightway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4003
	Solder straightway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4001











ODF = internal diameter
ODM = External diameter

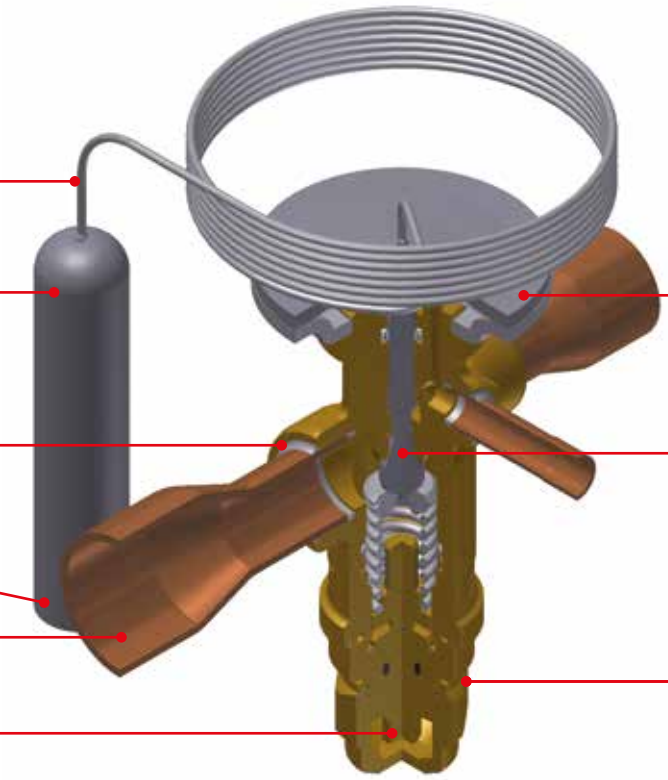
Quick Selection Notes:

TGE - Thermostatic expansion valves

TGE is an innovatively designed series of thermostatic expansion valves for fluorinated refrigerants.
TGE has copper connections upgraded for high-pressure applications with hermetically tight soldering, and is available with a wide variety of connection types such as solder, flare, MIO, and ORFS, and a wide variety of connection sizes.



Features
TGE



Facts

Applications:
- Water chillers
- Bus A/C
- Rooftop units
- Heat pumps
- Refrigerated containers
- Others A/C and refrigeration system

- Refrigerants: R410A, R22, R134a, R407F, R407A, R404A, R507, R407C, R32 and R290
- Capacity range: 3.5 – 52 TR / 12 – 182 kW for R410A
- Balance port design
- Biflow with expansion in both directions
- Low hysteresis
- Long lifetime for heat pump applications
- Mechanical connections types solder ODF, flare, MIO, ORFS are available
- Laser welded, stainless steel power element, capillary tube, and bulb

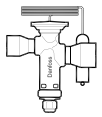
- MOP (Max. Operating Pressure) function is available
- Optional bleed function
- PS / MWP (maximum working pressure): 46 bar/ 667 psig
- Straightway flow
- Adjustable superheat setting
- Cylindrical bulb and patented bulb strap design
- Compliance with ATEX hazard zone 2
- UL certified

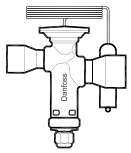
Technical data and ordering

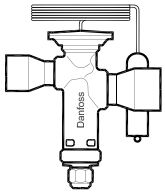
TGE - R22 / R407C

Thermostatic expansion valve with bulb strap
Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Rated capacity [1]		Connections solder ODF Inlet x Outlet		Pressure equalization		Code no. Multi pack
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	
TGE 10	3	10	3	3/8 x 5/8	–	1/4	–	067N2150
TGE 10	3	10	3	1/2 x 5/8	–	1/4	–	067N2151
TGE 10	4	14	4	1/2 x 7/8	–	1/4	–	067N2152
TGE 10	6	20	6	1/2 x 5/8	–	1/4	–	067N2153
TGE 10	6	20	6	1/2 x 7/8	–	1/4	–	067N2154
TGE 10	6	20	6	–	12 × 22	–	6	067N2194
TGE 10	6	20	6	–	16 × 16	–	6	067N2263
TGE 10	6	20	6	5/8 x 7/8	–	1/4	–	067N2155
TGE 10	8	27	7.5	5/8 x 7/8	–	1/4	–	067N2156
TGE 10	8	27	7.5	–	16 × 22	–	6	067N2196
TGE 10	9	32	9	5/8 x 7/8	–	1/4	–	067N2460
TGE 10	9	32	9	–	16 x 22	–	6	067N2281
TGE 10	11	38	11	5/8 x 7/8	–	1/4	–	067N2157
TGE 10	11	38	11	–	16 × 22	–	6	067N2197
TGE 10	11	38	11	5/8 x 1 1/8	–	1/4	–	067N2158
TGE 10	11	38	11	–	16 × 28	–	6	067N2198
TGE 10	12.5	43	12	5/8 x 7/8	–	1/4	–	067N2720
TGE 10	16	50	14	5/8 x 1 1/8	–	1/4	–	067N2721
TGE 10	16	50	14	7/8 x 1 1/8	–	1/4	–	067N2722
TGE 20	12.5	43	12	5/8 x 7/8	–	1/4	–	067N2159
TGE 20	12.5	43	12	5/8 x 1 1/8	–	1/4	–	067N2160
TGE 20	12.5	43	12	–	16 × 28	–	6	067N2200
TGE 20	16	54	15	5/8 x 7/8	–	1/4	–	067N2255
TGE 20	16	54	15	5/8 x 1 1/8	–	1/4	–	067N2161
TGE 20	16	54	15	7/8 x 1 1/8	–	1/4	–	067N2162
TGE 20	20	63	18	7/8 x 1 1/8	–	1/4	–	067N2163
TGE 20	20	63	18	7/8 x 1 3/8	–	1/4	–	067N2164
TGE 40	26	92	26	7/8 x 1 1/8	–	1/4	–	067N2251
TGE 40	26	92	26	7/8 x 1 3/8	–	1/4	–	067N2165
TGE 40	30	104	30	7/8 x 1 3/8	–	1/4	–	067N2167
TGE 40	30	104	30	1 1/8 x 1 3/8	–	1/4	–	067N2168
TGE 40	40	134	38	1 1/8 x 1 3/8	–	1/4	–	067N2169
TGE 40	42	148	42	1 1/8 x 1 3/8	–	1/4	–	067N2283







[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

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

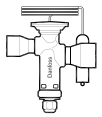
Technical data and ordering

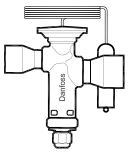
TGE - R22 / R407C

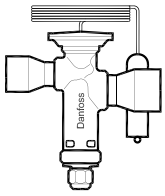
Thermostatic expansion valve with bulb strap

Range: - 25 – 10 °C / -15 – 50 °F with MOP 100 psig / 6.9 bar abs

Type	Orifice no.	Rated capacity [1]		Connections solder ODF		Code no. Multi pack
		[kW]	[TR]	Inlet x Outlet [in]	Pressure equalization [mm]	
TGE 10	3	10	3	3/8 x 5/8	1/4	067N2000
TGE 10	3	10	3	1/2 x 5/8	1/4	067N2001
TGE 10	4	14	4	1/2 x 7/8	1/4	067N2002
TGE 10	6	20	6	1/2 x 5/8	1/4	067N2003
TGE 10	6	20	6	5/8 x 7/8	1/4	067N2005
TGE 10	8	27	7.5	5/8 x 7/8	1/4	067N2006
TGE 10	9	32	9	5/8 x 7/8	1/4	067N2415
TGE 10	11	38	11	5/8 x 7/8	1/4	067N2007
TGE 10	11	38	11	5/8 x 1 1/8	1/4	067N2008
TGE 10	12.5	43	12	5/8 x 7/8	1/4	067N2700
TGE 10	16	50	14	7/8 x 1 1/8	1/4	067N2701
TGE 20	12.5	43	12	5/8 x 7/8	1/4	067N2009
TGE 20	12.5	43	12	5/8 x 1 1/8	1/4	067N2010
TGE 20	16	54	15	5/8 x 1 1/8	1/4	067N2011
TGE 20	16	54	15	7/8 x 1 1/8	1/4	067N2012
TGE 20	20	63	18	7/8 x 1 1/8	1/4	067N2013
TGE 20	20	63	18	7/8 x 1 3/8	1/4	067N2014
TGE 40	26	92	26	7/8 x 1 3/8	1/4	067N2015
TGE 40	26	92	26	1 1/8 x 1 3/8	1/4	067N2016
TGE 40	30	104	30	7/8 x 1 3/8	1/4	067N2017
TGE 40	30	104	30	1 1/8 x 1 3/8	1/4	067N2018
TGE 40	40	134	38	1 1/8 x 1 3/8	1/4	067N2019







[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Liquid temperature t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

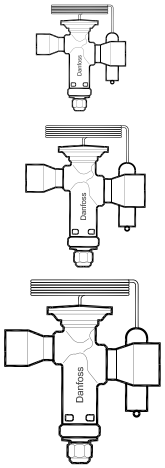
For R407C plants, please select valves from the dedicated R407C program.

Technical data and ordering

TGE - R22 / R407C

Thermostatic expansion valve with bulb strap
Range MAH = -30 – 15 °C / -22 – 60 °F

Type	Orifice no.	Rated capacity [1]		Connections solder ODF		Code no. Multi pack
		[kW]	[TR]	Inlet x Outlet [in]	Pressure equalization [mm]	
TGE 10	6	20	6	1/2 x 7/8	1/4	067N9404
TGE 10	8	27	7.5	5/8 x 7/8	1/4	067N9406
TGE 10	11	38	11	5/8 x 1 1/8	1/4	067N9407
TGE 20	12.5	43	12	5/8 x 7/8	1/4	067N9409
TGE 20	16	54	15	7/8 x 1 1/8	1/4	067N9412
TGE 20	20	63	18	7/8 x 1 3/8	1/4	067N9413
TGE 40	26	92	26	7/8 x 1 3/8	1/4	067N9415
TGE 40	30	104	30	1 1/8 x 1 3/8	1/4	067N9418
TGE 40	40	134	38	1 1/8 x 1 3/8	1/4	067N9419



[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Liquid temperature t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

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

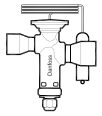
Technical data and ordering

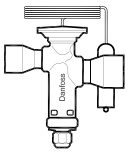
TGE - R134a

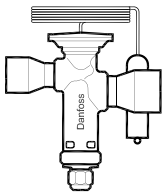
Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Rated capacity [1]		Connections solder ODF				Code no. Multi pack
				Inlet x Outlet		Pressure equalization		
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	
TGE 10	3	6	1.5	3/8 x 5/8	–	1/4	–	067N5150
TGE 10	3	6	1.5	–	12 × 16	–	6	067N5191
TGE 10	4	8	2.5	1/2 x 7/8	–	1/4	–	067N5152
TGE 10	4	8	2.5	–	12 × 22	–	6	067N5192
TGE 10	6	12	3.5	1/2 x 5/8	–	1/4	–	067N5153
TGE 10	6	12	3.5	1/2 x 7/8	–	1/4	–	067N5154
TGE 10	6	12	3.5	–	16 × 22	–	6	067N5195
TGE 10	8	17	4.5	5/8 x 7/8	–	1/4	–	067N5156
TGE 10	8	17	4.5	–	16 × 22	–	6	067N5196
TGE 10	9	20	5.5	5/8 x 7/8	–	1/4	–	067N5260
TGE 10	11	24	7	5/8 x 7/8	–	1/4	–	067N5157
TGE 10	12.5	29	8	5/8 x 7/8	–	1/4	–	067N5720
TGE 10	16	35	9.5	7/8 x 1 1/8	–	1/4	–	067N5721
TGE 20	12.5	29	8	5/8 x 7/8	–	1/4	–	067N5159
TGE 20	16	37	10	5/8 x 1 1/8	–	1/4	–	067N5161
TGE 20	16	37	10	7/8 x 1 1/8	–	1/4	–	067N5162
TGE 20	20	44	12	7/8 x 1 1/8	–	1/4	–	067N5163
TGE 40	26	61	17	7/8 x 1 3/8	–	1/4	–	067N5165
TGE 40	26	61	17	1 1/8 x 1 3/8	–	1/4	–	067N5166
TGE 40	30	70	20	7/8 x 1 3/8	–	1/4	–	067N5167
TGE 40	30	70	20	1 1/8 x 1 3/8	–	1/4	–	067N5168
TGE 40	40	87	25	1 1/8 x 1 3/8	–	1/4	–	067N5169







[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

Technical data and ordering

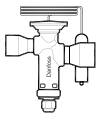
TGE - R134a

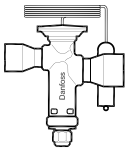
Thermostatic expansion valve with bulb strap

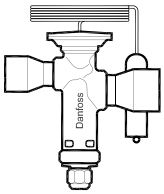
Range: -25 – 10 °C / -15 – 50 °F with MOP 55 psig / 5 bar abs

Type	Orifice no.	Rated capacity [1]		Connections solder ODF				Code no. Multi pack
				Inlet x Outlet		Pressure equalization		
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	
TGE 10	3	6	1.5	3/8 x 5/8	–	1/4	–	067N5000
TGE 10	4	8	2.5	1/2 x 7/8	–	1/4	–	067N5002
TGE 10	6	12	3.5	1/2 x 5/8	–	1/4	–	067N5003
TGE 10	6	12	3.5	–	12 × 16	–	6	067N5043
TGE 10	6	12	3.5	5/8 x 7/8	–	1/4	–	067N5005
TGE 10	8	17	4.5	5/8 x 7/8	–	1/4	–	067N5006
TGE 10	11	24	7	5/8 x 7/8	–	1/4	–	067N5007
TGE 10	11	24	7	–	16 × 22	–	6	067N5047
TGE 10	11	24	7	5/8 x 1 1/8	–	1/4	–	067N5008
TGE 10	12.5	29	8	5/8 x 7/8	–	1/4	–	067N5700
TGE 20	12.5	29	8	5/8 x 7/8	–	1/4	–	067N5009
TGE 20	16	37	10	5/8 x 1 1/8	–	1/4	–	067N5011
TGE 20	20	44	12	7/8 x 1 1/8	–	1/4	–	067N5013
TGE 40	26	61	17	7/8 x 1 3/8	–	1/4	–	067N5015
TGE 40	30	70	20	1 1/8 x 1 3/8	–	1/4	–	067N5018
TGE 40	40	87	25	1 1/8 x 1 3/8	–	1/4	–	067N5019

[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F







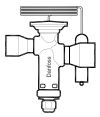
Technical data and ordering

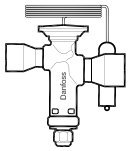
TGE - R134a

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Rated capacity [1]		Connections flare / MIO				Code no. Multi pack
		[kW]	[TR]	Inlet x Outlet [in]		Pressure equalization [in]		
				Flare	MIO	Flare	MIO	
TGE 10	3	6	1.5	–	1/2 × 5/8	–	1/4	067N7150
TGE 10	4	8	2.5	–	3/8 × 1/2	1/4	–	067N7153
TGE 10	4	8	2.5	3/8 x 1/2	–	1/4	–	067N7154
TGE 10	6	12	3.5	–	1/2 × 5/8	–	1/4	067N7171
TGE 10	6	12	3.5	1/2 x 5/8	–	1/4	–	067N7157
TGE 10	6	12	3.5	–	3/8 × 1/2	1/4	–	067N7158
TGE 10	6	12	3.5	3/8 x 1/2	–	1/4	–	067N7160
TGE 10	6	12	3.5	–	3/8 × 1/2	–	1/4	067N7177
TGE 10	8	17	4.5	–	3/8 × 1/2	–	1/4	067N7176
TGE 10	8	17	4.5	–	1/2 × 5/8	–	1/4	067N7161
TGE 10	8	17	4.5	1/2 × 5/8	–	1/4	–	067N7163
TGE 10	8	17	4.5	–	3/8 × 1/2	1/4	–	067N7164
TGE 10	8	17	4.5	–	5/8 × 3/4	–	1/4	067N7165
TGE 10	9	20	5.5	–	5/8 × 3/4	–	1/4	067N7181
TGE 10	11	24	7	–	5/8 × 3/4	–	1/4	067N7166
TGE 10	12.5	29	8	–	5/8 × 3/4	–	1/4	067N7200
TGE 10	16	35	9.5	–	5/8 × 3/4	–	1/4	067N7201
TGE 10	16	35	9.5	5/8 x 3/4	–	1/4	–	067N7203
TGE 20	12.5	29	8	–	5/8 × 3/4	–	1/4	067N7167
TGE 20	16	37	10	–	5/8 × 3/4	–	1/4	067N7169
TGE 20	16	37	10	5/8 x 3/4	–	1/4	–	067N7168
TGE 20	20	44	12	–	5/8 × 3/4	–	1/4	067N7174





[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

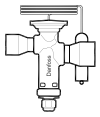
MIO: Male inserts O-ring

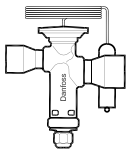
TGE - R134a

Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 55 psig / 5 bar abs

Type	Orifice no.	Rated capacity [1]		Connections flare / MIO				Code no. Multi pack
		[kW]	[TR]	Inlet x Outlet [in]		Pressure equalization [in]		
				Flare	MIO	Flare	MIO	
TGE 10	4	8	2.5	–	1/2 × 5/8	–	1/4	067N7002
TGE 10	6	12	3.5	3/8 × 1/2	–	1/4	–	067N7003
TGE 10	6	12	3.5	1/2 × 5/8	–	1/4	–	067N7004
TGE 10	8	17	4.5	–	1/2 × 5/8	–	1/4	067N7010
TGE 10	8	17	4.5	1/2 × 5/8	–	1/4	–	067N7008
TGE 10	8	17	4.5	–	5/8 × 3/4	–	1/4	067N7012
TGE 10	8	17	4.5	5/8 × 3/4	–	1/4	–	067N7013
TGE 10	9	20	5.5	–	5/8 × 3/4	–	1/4	067N7046
TGE 10	11	24	7	–	5/8 × 3/4	–	1/4	067N7015
TGE 10	11	24	7	5/8 × 3/4	–	1/4	–	067N7016
TGE 10	12.5	29	8	–	5/8 × 3/4	–	1/4	067N7210
TGE 10	12.5	29	8	5/8 × 3/4	–	1/4	–	067N7212
TGE 10	16	35	9.5	–	5/8 × 3/4	–	1/4	067N7211
TGE 20	12.5	29	8	–	5/8 × 3/4	–	1/4	067N7017
TGE 20	12.5	29	8	5/8 × 3/4	–	1/4	–	067N7018
TGE 20	16	37	10	–	5/8 × 3/4	–	1/4	067N7019
TGE 20	16	37	10	5/8 × 3/4	–	1/4	–	067N7020
TGE 20	20	44	12	5/8 × 3/4	–	1/4	–	067N7021





[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

MIO: Male inserts O-ring.

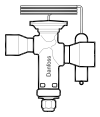
Technical data and ordering

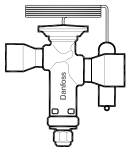
TGE - R407C

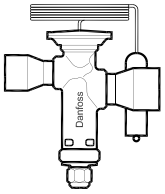
Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Rated capacity [1]		Connections solder ODF				Code no. Multi pack
		[kW]	[TR]	Inlet x Outlet		Pressure equalization		
				[in]	[mm]	[in]	[mm]	
TGE 10	3	9	2.5	1/2 × 5/8	–	1/4	–	067N4151
TGE 10	3	9	2.5	–	12 × 16	–	6	067N4191
TGE 10	4	13	3.5	1/2 × 7/8	–	1/4	–	067N4152
TGE 10	4	13	3.5	–	12 × 22	–	6	067N4192
TGE 10	6	19	5	1/2 × 5/8	–	1/4	–	067N4153
TGE 10	6	19	5	–	12 × 16	–	6	067N4193
TGE 10	8	25	7	1/2 × 5/8	–	1/4	–	067N4236
TGE 10	8	25	7	5/8 × 7/8	–	1/4	–	067N4156
TGE 10	8	25	7	–	16 × 22	–	6	067N4196
TGE 10	11	36	10	5/8 × 7/8	–	1/4	–	067N4157
TGE 10	11	36	1	–	16 × 22	–	6	067N4197
TGE 10	12.5	39	11	5/8 × 7/8	–	1/4	–	067N4410
TGE 10	16	49	14	7/8 × 1 1/8	–	1/4	–	067N4411
TGE 20	12.5	42	12	5/8 × 7/8	–	1/4	–	067N4159
TGE 20	16	53	15	5/8 × 1 1/8	–	1/4	–	067N4161
TGE 20	16	53	15	7/8 × 1 1/8	–	1/4	–	067N4162
TGE 20	20	62	18	7/8 × 1 1/8	–	1/4	–	067N4163
TGE 40	26	84	24	7/8 × 1 3/8	–	1/4	–	067N4165
TGE 40	30	95	27	7/8 × 1 3/8	–	1/4	–	067N4167
TGE 40	40	121	34	1 1/8 × 1 3/8	–	1/4	–	067N4169







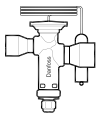
[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

TGE - R407C

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Rated capacity [1]		Connections MIO		Code no. Multi pack
		[kW]	[TR]	Inlet x Outlet	Pressure equalization	
				[in]	[in]	
TGE 10	4	13	3.5	1/2 x 5/8 MIO	1/4 MIO	067N7400
TGE 10	6	19	5	1/2 x 5/8 MIO	1/4 MIO	067N7401
TGE 10	8	25	7	5/8 x 3/4 MIO	1/4 MIO	067N7402
TGE 10	11	36	10	5/8 x 3/4 MIO	1/4 MIO	067N7403



[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

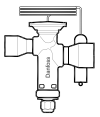
Technical data and ordering

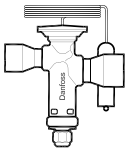
TGE - R407C

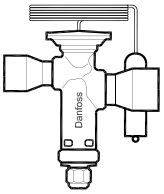
Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 95 psig / 6.6 bar abs

Type	Orifice no.	Rated capacity [1]		Connections solder ODF				Code no. Multi pack
				Inlet x Outlet		Pressure equalization		
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	
TGE 10	3	9	2.5	3/8 x 5/8	–	1/4	–	067N4000
TGE 10	3	9	2.5	–	12 × 16	–	6	067N4041
TGE 10	4	13	3.5	1/2 x 7/8	–	1/4	–	067N4002
TGE 10	6	19	5	1/2 x 5/8	–	1/4	–	067N4003
TGE 10	6	19	5	1/2 x 7/8	–	1/4	–	067N4004
TGE 10	8	25	7	5/8 x 7/8	–	1/4	–	067N4006
TGE 10	8	25	7	–	16 × 22	–	6	067N4046
TGE 10	11	36	10	5/8 x 7/8	–	1/4	–	067N4007
TGE 10	11	36	10	–	16 × 22	–	6	067N4047
TGE 10	12.5	39	11	5/8 x 1 1/8	–	1/4	–	067N4400
TGE 10	16	49	14	5/8 x 1 1/8	–	1/4	–	067N4401
TGE 20	12.5	42	12	5/8 x 7/8	–	1/4	–	067N4009
TGE 20	12.5	42	12	5/8 x 1 1/8	–	1/4	–	067N4010
TGE 20	16	53	15	5/8 x 1 1/8	–	1/4	–	067N4011
TGE 20	20	62	18	7/8 x 1 1/8	–	1/4	–	067N4013
TGE 40	26	84	24	7/8 x 1 3/8	–	1/4	–	067N4015
TGE 40	30	95	27	7/8 x 1 3/8	–	1/4	–	067N4017
TGE 40	40	121	34	1 1/8 x 1 3/8	–	1/4	–	067N4019







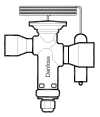
[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

TGE - R407F / R407A

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F with MOP 95 psig / 6.6 bar abs

Type	Orifice no.	Rated capacity [1]				Connections solder ODF		Code no. Multi pack
		R407F		R407A		Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[kW]	[TR]	[in]	[in]	
TGE 10	4	14	4	12	3.5	1/2 x 7/8	1/4	067N4700
TGE 10	6	20	6	17	5	5/8 x 7/8	1/4	067N4701
TGE 10	8	27	7.5	23	6.5	5/8 x 7/8	1/4	067N4702
TGE 10	9	32	9	28	8	5/8 x 7/8	1/4	067N4703
TGE 10	11	40	11	34	10	5/8 x 1 1/8	1/4	067N4704



[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

On systems charged with R407F, SS = 4.0°C / 7.2 °F,
On systems charged with R407A, SS = 2.7 °C / 4.9 °F.

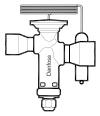
Technical data and ordering

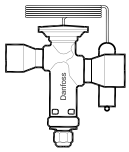
Only solder versions, connection size smaller than 25 mm / 7/8 in are approved for flammable refrigerants.
This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance with standard EN13463-3.

TGE - R410A / R32

Thermostatic expansion valve with bulb strap
Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity [1]				Connections solder ODF		Code no. Multi pack
		R410A		R32		Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[kW]	[TR]	[in]	[in]	
TGE 10	3	12	3.5	18	5	3/8 x 5/8	1/4	067N3150
TGE 10	3	12	3.5	18	5	1/2 x 5/8	1/4	067N3151
TGE 10	4	16	4.5	24	7	1/2 x 7/8	1/4	067N3152
TGE 10	6	24	6.5	35	10	1/2 x 5/8	1/4	067N3153
TGE 10	6	24	6.5	35	10	1/2 x 7/8	1/4	067N3154
TGE 10	6	24	6.5	35	10	5/8 x 7/8	1/4	067N3155
TGE 10	8	32	9	47	13	1/2 x 5/8	1/4	067N3293
TGE 10	8	32	9	47	13	5/8 x 7/8	1/4	067N3156
TGE 10	9	37	11	54	15	5/8 x 7/8	1/4	067N3296
TGE 10	11	45	13	68	19	5/8 x 7/8	1/4	067N3157
TGE 10	12.5	50	14	74	21	5/8 x 7/8	1/4	067N3410
TGE 20	12.5	54	15	81	23	5/8 x 7/8	1/4	067N3159



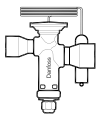


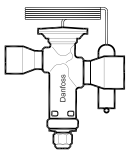
[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

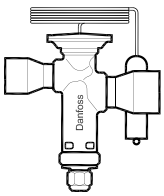
TGE - R410A

Thermostatic expansion valve with bulb strap
Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity [1]		Connections solder ODF		Code no.
				Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[in]	[in]	
TGE 10	11	45	13	5/8 x 1 1/8	1/4	067N3158
TGE 10	16	60	17	7/8 x 1 1/8	1/4	067N3411
TGE 20	12.5	54	15	5/8 x 1 1/8	1/4	067N3160
TGE 20	12.5	54	15	7/8 x 7/8	1/4	067N3231
TGE 20	12.5	54	15	7/8 x 1 1/8	1/4	067N3232
TGE 20	16	68	19	5/8 x 1 1/8	1/4	067N3161
TGE 20	16	68	19	7/8 x 1 1/8	1/4	067N3162
TGE 20	20	79	23	7/8 x 1 1/8	1/4	067N3163
TGE 20	20	79	23	7/8 x 1 3/8	1/4	067N3164
TGE 40	26	110	31	7/8 x 1 3/8	1/4	067N3165
TGE 40	26	110	31	1 1/8 x 1 3/8	1/4	067N3166
TGE 40	30	125	35	1 1/8 x 1 3/8	1/4	067N3168
TGE 40	40	161	46	1 1/8 x 1 3/8	1/4	067N3169
TGE 40	42	182	52	1 1/8 x 1 3/8	1/4	067N3400







[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

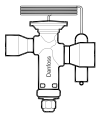
Technical data and ordering

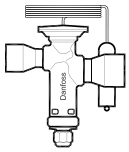
TGE - R410A

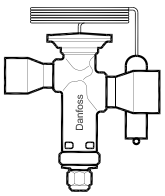
Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 165 psig / 11.5 bar abs

Type	Orifice no.	Nominal capacity [1]		Connections solder ODF		Code no.
				Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[in]	[in]	
TGE 10	3	12	3.5	3/8 x 5/8	1/4	067N3000
TGE 10	3	12	3.5	1/2 x 5/8	1/4	067N3001
TGE 10	4	16	4.5	1/2 x 7/8	1/4	067N3002
TGE 10	6	24	6.5	1/2 x 5/8	1/4	067N3003
TGE 10	6	24	6.5	5/8 x 7/8	1/4	067N3005
TGE 10	8	32	9	5/8 x 7/8	1/4	067N3006
TGE 10	9	37	11	5/8 x 7/8	1/4	067N3340
TGE 10	11	45	13	5/8 x 7/8	1/4	067N3007
TGE 10	11	45	13	5/8 x 1 1/8	1/4	067N3008
TGE 10	12.5	50	14	5/8 x 1 1/8	1/4	067N3402
TGE 10	16	60	17	5/8 x 1 1/8	1/4	067N3401
TGE 20	12.5	54	15	5/8 x 7/8	1/4	067N3009
TGE 20	12.5	54	15	5/8 x 1 1/8	1/4	067N3010
TGE 20	16	68	19	5/8 x 1 1/8	1/4	067N3011
TGE 20	16	68	19	7/8 x 1 1/8	1/4	067N3012
TGE 20	20	79	23	7/8 x 1 1/8	1/4	067N3013
TGE 40	26	110	31	7/8 x 1 1/8	1/4	067N3135
TGE 40	26	110	31	7/8 x 1 3/8	1/4	067N3015
TGE 40	30	125	35	1 1/8 x 1 3/8	1/4	067N3018
TGE 40	40	161	46	1 1/8 x 1 3/8	1/4	067N3019
TGE 40	42	182	52	1 1/8 x 1 3/8	1/4	067N3341







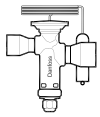
[1]) *The rated capacity is based on:*
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

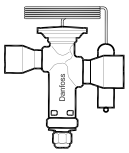
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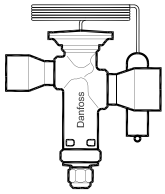
TGE - R410A

Thermostatic expansion valve with bulb strap
Range MAH: -30 – 15 °C / -22 – 60 °F

Type	Orifice no.	Rated capacity [1]		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[in]	
TGE 10	3	12	3.5	1/2 x 5/8	1/4	067N9201
TGE 10	4	16	4.5	1/2 x 7/8	1/4	067N9202
TGE 10	6	24	6.5	1/2 x 5/8	1/4	067N9203
TGE 10	6	24	6.5	5/8 x 7/8	1/4	067N9200
TGE 10	8	32	9	5/8 x 7/8	1/4	067N9206
TGE 10	9	37	11	5/8 x 7/8	1/4	067N9287
TGE 10	11	45	13	5/8 x 7/8	1/4	067N9207
TGE 10	12.5	50	14	5/8 x 7/8	1/4	067N9509
TGE 10	16	60	17	7/8 x 1 1/8	1/4	067N9512
TGE 20	12.5	54	15	5/8 x 7/8	1/4	067N9209
TGE 20	12.5	54	15	5/8 x 1 1/8	1/4	067N9210
TGE 20	16	68	19	7/8 x 1 1/8	1/4	067N9212
TGE 20	20	79	23	7/8 x 1 1/8	1/4	067N9213
TGE 40	26	110	31	7/8 x 1 3/8	1/4	067N9215
TGE 40	26	110	31	1 1/8 x 1 3/8	1/4	067N9216
TGE 40	30	125	35	1 1/8 x 1 3/8	1/4	067N9218
TGE 40	40	161	46	1 1/8 x 1 3/8	1/4	067N9219
TGE 40	42	182	52	1 1/8 x 1 3/8	1/4	067N9289







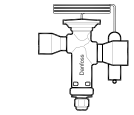
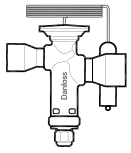
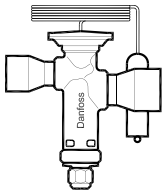
[1]) *The rated capacity is based on:*
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Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

Technical data and ordering

TGE - R404A/R507

Thermostatic expansion valve with bulb strap
Range: -40 – 10 °C / -40 –50 °F

Type	Orifice no.	Rated capacity [1]		Connections solder ODF		Code no.
				Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[in]	[in]	
TGE 10	3	7	2	3/8 × 5/8	1/4	067N6170
TGE 10	4	9	2.5	1/2 × 7/8	1/4	067N6172
TGE 10	6	14	4	1/2 × 5/8	1/4	067N6173
TGE 10	6	14	4	1/2 × 7/8	1/4	067N6151
TGE 10	8	18	5	1/2 × 5/8	1/4	067N6175
TGE 10	8	18	5	5/8 × 7/8	1/4	067N6150
TGE 10	9	21	6	5/8 × 7/8	1/4	067N6167
TGE 10	11	26	7.5	5/8 × 7/8	1/4	067N6154
TGE 10	12.5	31	9	5/8 × 7/8	1/4	067N6300
TGE 10	16	35	10	5/8 × 11/8	1/4	067N6301
TGE 20	12.5	31	9	5/8 × 7/8	1/4	067N6158
TGE 20	16	39	11	5/8 × 11/8	1/4	067N6155
TGE 20	16	39	11	11/8 × 13/8	1/4	067N6188
TGE 20	16	39	11	7/8 × 11/8	1/4	067N6181
TGE 20	20	45	13	7/8 × 11/8	1/4	067N6162
TGE 40	26	64	18	7/8 × 13/8	1/4	067N6161
TGE 40	30	72	21	11/8 × 13/8	1/4	067N6186

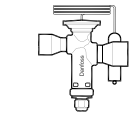
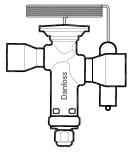
[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Liquid temperature t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

Only solder versions, connection size smaller than 25 mm / 7/8 in are approved for flammable refrigerants.
This product is approved for R290, R600, R600a and R1270 by ignition source assessment in accordance with standard EN13463-3.

TGE - R290

Thermostatic expansion valve with bulb strap
Range: -40 – 10 °C / -40 – 50 °F

Valve type	Orifice no.	Rated capacity [1]		Connections solder ODF		Code no. Multi pack
				Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[in]	[in]	
TGE 10	6	19	5	5/8 × 7/8	1/4	067N9100
TGE 10	11	36	10	5/8 × 7/8	1/4	067N9103
TGE 20	12.5	44	12	5/8 × 7/8	1/4	067N9104
TGE 20	16	54	15	7/8 × 7/8	1/4	067N9105
TGE 20	20	63	18	7/8 × 7/8	1/4	067N9106

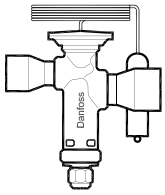
[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

SS = 5K / 9°F (except 067N9100, 067N9103)

TGE - R290

Thermostatic expansion valve with bulb strap
Range: -25 – 10 °C / -15 – 50 °F

Valve type	Orifice no.	Rated capacity [1]		Connections solder ODF		Code no. Multi pack
				Inlet x Outlet	Pressure equalization	
		[kW]	[TR]	[in]	[in]	
TGE 40	26	92	26	7/8 × 7/8	1/4	067N9107
TGE 40	40	133	38	7/8 × 7/8	1/4	067N9109



[1]) The rated capacity is based on:
Evaporating temperature t_e = 4.4 °C / 40 °F
Condensing temperature t_c = 38 °C / 100 °F
Refrigerant temperature ahead of valve t_l = 37 °C / 98 °F
Opening superheat OS = 4 K / 7.2 °F

SS = 5K / 9°F (except 067N9100, 067N9103)

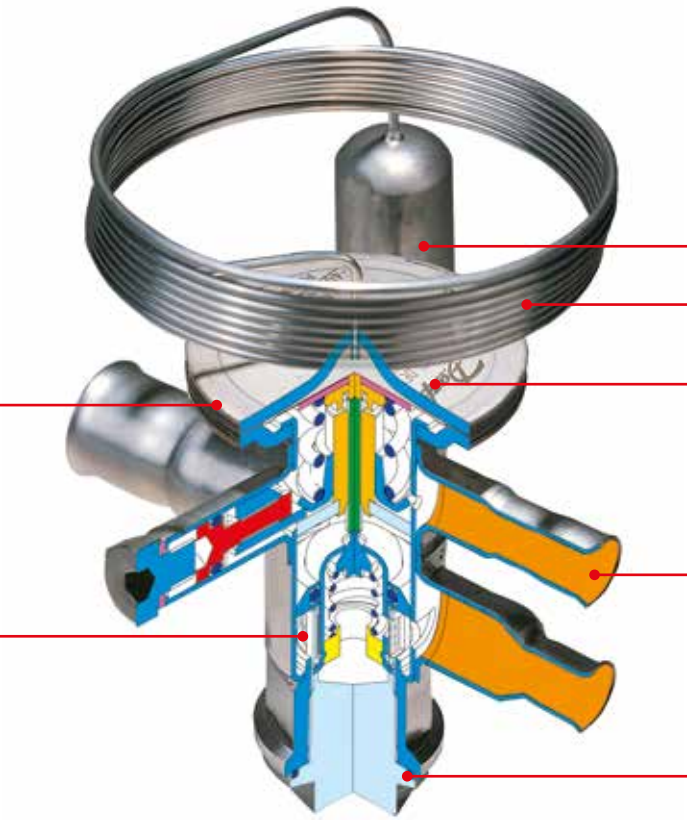
Quick Selection Notes:

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 using flourinated refrigerants e.g. R134a, R404A, R407C, R22, R507 and R410A. TUA / TUAE / TCAE valves are compact in design, light weight and have steel/copper bi-metal connections for fast soldering. TUA / TUAE / TCAE valves 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.



Features
TUA / TUAE / TCAE



Stainless steel capillary tube and bulb:
- high corrosion resistance
- high strength and vibration resistance

Laser-engraved label

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

Separate strainer, mounted on the orifice assembly for easy maintenance and cleaning

Orifice assembly with an unmatched hermetic seal

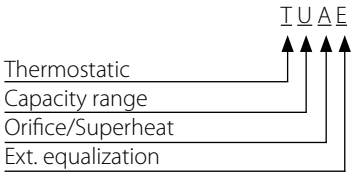
Facts

Applications:
- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Ice cube machines
- Transport refrigeration

- 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

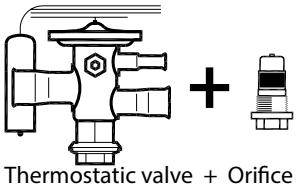


Orifice/Superheat

	Interchangeable	Adjustable
A	YES	YES
B	NO	YES
C	NO	NO

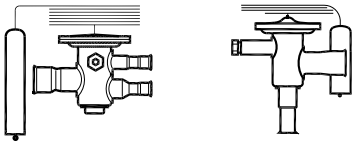
N = -40 °C – 10 °C / -40 – 50 °F
NM = -40 °C – -5 °C MOP 0 °C / -40 – 25 °F MOP 32 °F
NL = -40 °C – -15 °C with MOP - 10 °C / -40 – 5 °F MOP 14 °F
B = -60 °C – -25 °C / -75 – -15 °F

TUA
TUAE
TCAE



Thermostatic valve + Orifice

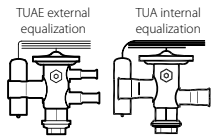
TUB
TUBE
TUC
TUCE
TCBE
TCCE



Thermostatic valve including Orifice

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

Technical data and ordering



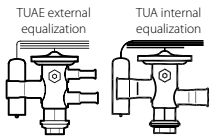
TUA / TUAE - Solder

Thermostatic element with bulb strap

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Solder connections inlet × outlet		Code no.
						[in]	[mm]	[in]	[mm]	
R407C / R22	TUA	-40 – 10	-40 – 50	–	–	–	–	1/4 × 1/2	–	068U2234
	TUA	-40 – 10	-40 – 50	–	–	–	–	–	6 × 12	068U2230
	TUA	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068U2235
	TUA	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068U2231
	TUAE	-40 – 10	-40 – 50	–	–	1/4	–	1/4 × 1/2	–	068U2236
	TUAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068U2237
	TUAE	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068U2233
	TUAE	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068U2245
	TUAE	-40 – 10	-40 – 50	15	60	–	6	–	10 × 12	068U2241
R134a	TUA	-40 – 10	-40 – 50	–	–	–	–	1/4 × 1/2	–	068U2204
	TUA	-40 – 10	-40 – 50	–	–	–	–	–	6 × 12	068U2200
	TUA	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068U2205
	TUA	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068U2201
	TUA	-40 – 10	-40 – 50	15	60	–	–	1/4 × 1/2	–	068U2212
	TUA	-40 – 10	-40 – 50	15	60	–	–	–	6 × 12	068U2208
	TUA	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068U2213
	TUAE	-40 – 10	-40 – 50	–	–	1/4	–	1/4 × 1/2	–	068U2206
	TUAE	-40 – 10	-40 – 50	–	–	–	6	–	6 × 12	068U2202
	TUAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068U2207
	TUAE	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068U2203
	TUAE	-40 – 10	-40 – 50	15	60	1/4	–	1/4 × 1/2	–	068U2214
	TUAE	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068U2215
	TUAE	-40 – 10	-40 – 50	15	60	–	6	–	10 × 12	068U2211
R404A / R507	TUA	-40 – 10	-40 – 50	–	–	–	–	1/4 × 1/2	–	068U2284
	TUA	-40 – 10	-40 – 50	–	–	–	–	–	6 × 12	068U2280
	TUA	-40 – 10	-40 – 50	–	–	–	–	3/8 × 1/2	–	068U2285
	TUA	-40 – 10	-40 – 50	–	–	–	–	–	10 × 12	068U2281
	TUA	-40 – 10	-40 – 50	15	60	–	–	1/4 × 1/2	–	068U2292
	TUA	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068U2293
	TUA	-60 – -25	-75 – -15	–	–	–	–	1/4 × 1/2	–	068U2308
	TUA	-60 – -25	-75 – -15	–	–	–	–	3/8 × 1/2	–	068U2309
	TUA	-40 – -5	-40 – 25	0	32	–	–	1/4 × 1/2	–	068U2300
	TUA	-40 – -5	-40 – 25	0	32	–	–	–	6 × 12	068U2296
	TUA	-60 – -25	-75 – -15	-20	-5	–	–	1/4 × 1/2	–	068U2316
	TUA	-60 – -25	-75 – -15	-20	-5	–	–	–	6 × 12	068U2312
	TUA	-60 – -25	-75 – -15	-20	-5	–	–	3/8 × 1/2	–	068U2317
	TUAE	-40 – 10	-40 – 50	–	–	1/4	–	1/4 × 1/2	–	068U2286
	TUAE	-40 – 10	-40 – 50	–	–	–	6	–	6 × 12	068U2282
	TUAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 1/2	–	068U2287
	TUAE	-40 – 10	-40 – 50	–	–	–	6	–	10 × 12	068U2283
	TUAE	-40 – 10	-40 – 50	15	60	1/4	–	3/8 × 1/2	–	068U2295
	TUAE	-40 – -5	-40 – 25	0	32	1/4	–	3/8 × 1/2	–	068U2303
	TUAE	-40 – -5	-40 – 25	0	32	–	6	–	10 × 12	068U2299
	TUAE	-60 – -25	-75 – -15	-20	-5	1/4	–	1/4 × 1/2	–	068U2318
	TUAE	-60 – -25	-75 – -15	-20	-5	1/4	–	3/8 × 1/2	–	068U2319
	TUAE	-60 – -25	-75 – -15	-20	-5	–	6	–	10 × 12	068U2315

Capillary tube: 1.5 m / 59 in

Technical data and ordering

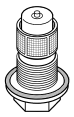


TUA / TUAE - Solder

Thermostatic element with bulb strap

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Solder connections inlet × outlet		Code no.
						[in]	[mm]	[in]	[mm]	
R407C	TUA	-40 – 10	-40 – 50	15	60	–	–	1/4 × 1/2	–	068U2332
	TUA	-40 – 10	-40 – 50	15	60	–	–	3/8 × 1/2	–	068U2333
	TUA	-50 – 10	-50 – 50	–	–	–	–	1/4 × 1/2	–	068U2324
	TUA	-50 – 10	-50 – 50	–	–	–	–	–	6 × 12	068U2320
	TUA	-50 – 10	-50 – 50	–	–	–	–	3/8 × 1/2	–	068U2325
	TUA	-50 – 10	-50 – 50	–	–	–	–	–	10 × 12	068U2321
	TUAE	-50 – 10	-50 – 50	–	–	1/4	–	1/4 × 1/2	–	068U2326
	TUAE	-50 – 10	-50 – 50	–	–		6	–	6 × 12	068U2322
	TUAE	-50 – 10	-50 – 50	–	–	1/4		3/8 × 1/2	–	068U2327
	TUAE	-50 – 10	-50 – 50	–	–	–	6	–	10 × 12	068U2323
	TUAE	-50 – 10	-50 – 50	15	60	–	6	–	6 × 12	068U2330
	TUAE	-50 – 10	-50 – 50	15	60	1/4	–	3/8 × 1/2	–	068U2335
	TUAE	-50 – 10	-50 – 50	15	60	–	6	–	10 × 12	068U2331
R410A	TUA	-50 – 10	-50 – 50	–	–	–	–	3/8 × 1/2	–	068U2414
	TUAE	-50 – 10	-50 – 50	–	–	1/4	–	3/8 × 1/2	–	068U1714
	TUAE	-50 – 10	-50 – 50	–	–		6	–	10 × 12	068U2780
R404A / R507	TUA	-50 – 10	-50 – 50	–	–	–	–	1/4 × 1/2	–	068U2308
	TUA	-50 – 10	-50 – 50	–	–	–	–	3/8 × 1/2	–	068U2309
	TUA	-60 – -25	-75 – -15	-20	-5	–	–	1/4 × 1/2	–	068U2316
	TUA	-60 – -25	-75 – -15	-20	-5	–	–	–	6 × 12	068U2312
	TUA	-60 – -25	-75 – -15	-20	-5	–	–	3/8 × 1/2	–	068U2317
	TUAE	-60 – -25	-75 – -15	-20	-5	1/4	–	1/4 × 1/2	–	068U2318
	TUAE	-60 – -25	-75 – -15	-20	-5	1/4	–	3/8 × 1/2	–	068U2319
	TUAE	-60 – -25	-75 – -15	-20	-5	–	6	–	10 × 12	068U2315

Capillary tube: 1.5 m / 59 in



TUA / TUAE

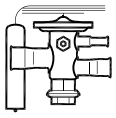
Orifice assembly with filter and gasket

Valve	Orifice no.	Bleed [%]	R134a		R404A/R507		R407C		R22		R410A		Code no.
			[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	0.63	0.18	0.99	0.28	068U1030
	1	–	0.61	0.18	0.71	0.20	0.94	0.27	0.92	0.26	1.3	0.38	068U1031
	1	15	0.61	0.18	0.71	0.20	0.94	0.27	0.92	0.26	1.3	0.38	068U1131
	2	–	0.72	0.21	0.87	0.25	1.1	0.32	1.1	0.32	1.7	0.48	068U1032
	2	15	0.72	0.21	0.87	0.25	1.1	0.32	1.1	0.32	1.7	0.48	068U1132
	3	–	0.94	0.27	1.1	0.32	1.5	0.42	1.4	0.41	2.1	0.60	068U1033
	3	15	0.94	0.27	1.1	0.32	1.5	0.42	1.4	0.41	2.1	0.60	068U1133
	4	–	1.6	0.46	2	0.57	2.5	0.72	2.5	0.72	4.1	1.2	068U1034
	4	15	1.6	0.46	2	0.57	2.5	0.72	2.5	0.72	4.1	1.2	068U1134
	5	–	2.1	0.61	2.7	0.76	3.4	0.96	3.4	0.96	5.3	1.5	068U1035
	5	15	2.1	0.61	2.7	0.76	3.4	0.96	3.4	0.96	5.3	1.5	068U1135
	6	–	3.4	0.95	4.2	1.1	5.3	1.5	5.3	1.5	8.5	2.4	068U1036
	6	15	3.4	0.95	4.2	1.1	5.3	1.5	5.3	1.5	8.5	2.4	068U1136
	7	–	4.4	1.3	5.6	1.6	7	2	7	2	11.2	3.2	068U1037
	7	15	4.4	1.3	5.6	1.6	7	2	7	2	11.2	3.2	068U1137
	8	–	6.5	1.9	8	2.3	10.2	2.9	10.1	2.9	15.8	4.5	068U1038
	8	15	6.5	1.9	8	2.3	10.2	2.9	10.1	2.9	15.8	4.5	068U1138
	9 [1])	–	9	2.6	11.3	3.2	14	4	14.1	4	23.1	6.6	068U1039
	9 [1])	15	9	2.6	11.3	3.2	14	4	14.1	4	23.1	6.6	068U1139

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

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

Technical data and ordering



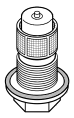
TCAE

Thermostatic element, with bulb strap

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Solder connection inlet × outlet		Code no.
						[in]	[mm]	[in]	[mm]	
R407C / R22	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 5/8	–	068U4280
	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	1/2 × 5/8	–	068U4281
	TCAE	-40 – 10	-40 – 50	15	59	1/4	–	1/2 × 5/8	–	068U4283
	TCAE	-40 – 10	-40 – 50	0	32	–	6	–	12 × 16	068U4291
R134a	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 5/8	–	068U4292
	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	1/2 × 5/8	–	068U4293
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	10 × 16	068U4296
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	12 × 16	068U4297
	TCAE	-40 – 10	-40 – 50	15	59	1/4	–	1/2 × 5/8	–	068U4295
	TCAE	-40 – 10	-40 – 50	15	59	–	6	–	12 × 16	068U4299
R404A / R507	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 5/8	–	068U4304
	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	1/2 × 5/8	–	068U4305
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	10 × 16	068U4308
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	12 × 16	068U4309
	TCAE	-40 – 10	-40 – 50	15	59	1/4	–	1/2 × 5/8	–	068U4307
	TCAE	-40 – 10	-40 – 50	15	59	–	6	–	10 × 16	068U4310
	TCAE	-40 – -5	-40 – 25	0	32	1/4	–	1/2 × 5/8	–	068U4313
	TCAE	-40 – -5	-40 – 25	0	32	–	6	–	10 × 16	068U4314
	TCAE	-40 – -5	-40 – 25	0	32	–	6	–	12 × 16	068U4315
	TCAE	-60 – -25	-75 – -15	–	–	1/4	–	1/2 × 5/8	–	068U4317
	TCAE	-60 – -25	-75 – -15	–	–	–	6	–	12 × 16	068U4321
	TCAE	-60 – -25	-75 – -15	-20	68	1/4	–	1/2 × 5/8	–	068U4319
	TCAE	-60 – -25	-75 – -15	-20	68	–	6	–	10 × 16	068U4322
R407C	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 5/8	–	068U4324
	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	1/2 × 5/8	–	068U4325
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	10 × 16	068U4328
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	12 × 16	068U4329
	TCAE	-40 – 10	-40 – 50	15	59	1/4	–	3/8 × 5/8	–	068U4326
	TCAE	-40 – 10	-40 – 50	15	59	1/4	–	1/2 × 5/8	–	068U4327
	TCAE	-40 – 10	-40 – 50	15	59	–	6	–	12 × 16	068U4331
R410A	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	3/8 × 5/8	–	068U4336
	TCAE	-40 – 10	-40 – 50	–	–	1/4	–	1/2 × 5/8	–	068U4337
	TCAE	-40 – 10	-40 – 50	–	–	–	6	–	12 × 16	068U4341
	TCAE	-40 – 10	-40 – 50	15	59	1/4	–	1/2 × 5/8	–	068U4339
	TCAE	-40 – 10	-40 – 50	15	59	–	6	–	12 × 16	068U4343

Capillary tube: 1.5 m / 59 in

Technical data and ordering



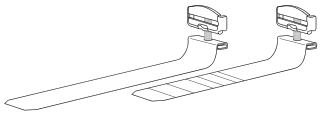
TCAE

Orifice assembly with filter and gasket

Type	Orifice no.	Bleed [%]	R134a		R404A/R507		R407C		R22		R410A		Code no.
			[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TCAE	1	–	13	3.7	13	3.7	17.8	5.1	18.3	5.2	21.2	6	068U4100
	1	15	13	3.7	13	3.7	17.8	5.1	18.3	5.2	21.2	6	068U4097
	2	–	14.9	4.3	15.1	4.3	20.4	5.8	21.2	6	24.5	7	068U4101
	2	15	14.9	4.3	15.1	4.3	20.4	5.8	21.2	6	24.5	7	068U4098
	3 [1])	–	18.6	5.3	18.9	5.4	25.2	7.2	26.7	7.6	30.6	8.7	068U4102
	3 [1])	15	18.6	5.3	18.9	5.4	25.2	7.2	26.7	7.6	30.6	8.7	068U4099

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

[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 Accessories	110	4 5/16	28	1 1/8	068U3507
	190	7 3/8	50	2	068U3508

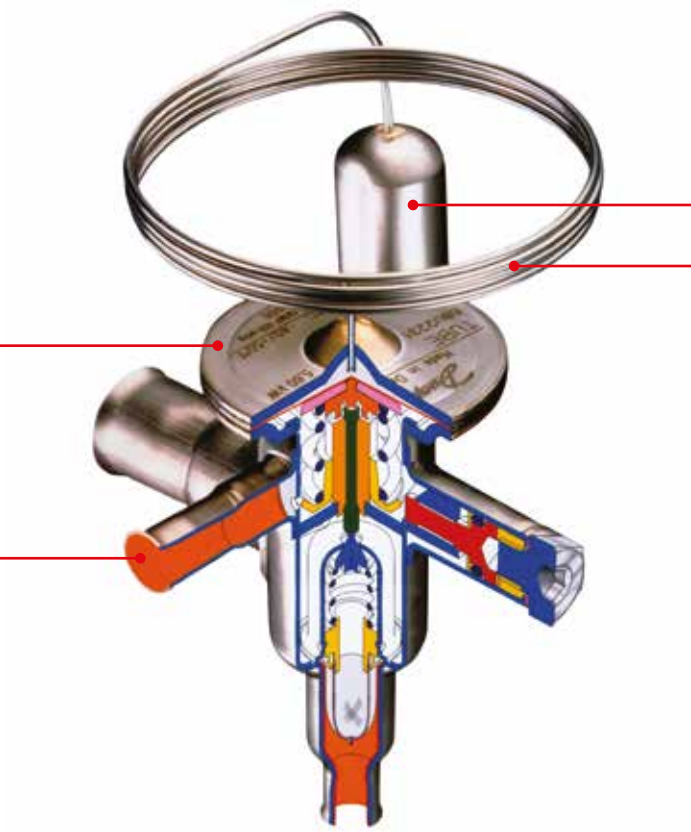
TUB / TUBE / TCBE - Thermostatic expansion valves

TUB / TUBE / TCBE stainless steel thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems using fluorinated refrigerants e.g. R134a, R404A, R407C, R22, R507 and R410A.

TUB / TUBE / TCBE 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.



Features
TUB / TUBE / TCBE



Stainless steel capillary tube and bulb:
- high corrosion resistance
- high strength and vibration resistance

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

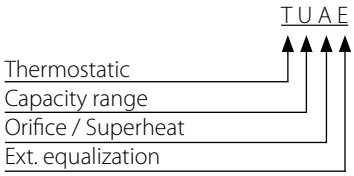
Facts

Applications:
- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Ice cube machines
- Transport refrigeration

- 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

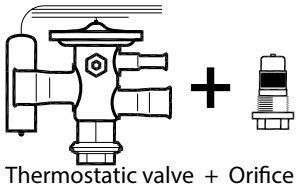


Orifice/Superheat

	Interchangeable	Adjustable
A	YES	YES
B	NO	YES
C	NO	NO

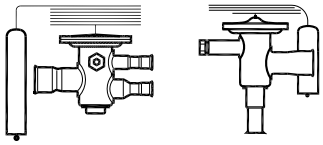
Range N = -40 – 10 °C / -40 – 50 °F
Range NM = -40 – -5 °C with MOP / -40 – 25 °F with MOP
Range NL = -40 – -15 °C with MOP / -40 °C – 5 °F with MOP
Range B = -60 – -25 °C with MOP / -75 – -15 °F with MOP

TUA
TUAE
TCAE



Thermostatic valve + Orifice

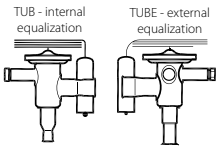
TUB
TUBE
TUC
TUCE
TCBE
TCCE



Thermostatic valve including Orifice

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

Technical data and ordering



TUB / TUBE

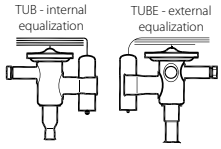
Thermostatic element, angle way, with bulb strap

Refrigerant	Type	Orifice no. [2]	Range [°C]	Range [°F]	Rated capacity $Q_{nom.}$ [1]		Ext. pressure equalization		Connection inlet × outlet		Code no.
					[kW]	[TR]	[in]	[mm]	[in]	[mm]	
R22 / R407C	TUB	1	-40 – 10	-40 – 50	0.92	0.26	–	–	1/4 × 1/2	–	068U2057
	TUB	2	-40 – 10	-40 – 50	1.1	0.32	–	–	1/4 × 1/2	–	068U2058
	TUB	3	-40 – 10	-40 – 50	1.4	0.41	–	–	1/4 × 1/2	–	068U2059
	TUB	4	-40 – 10	-40 – 50	2.5	0.72	–	–	1/4 × 1/2	–	068U2060
	TUB	5	-40 – 10	-40 – 50	3.4	0.96	–	–	1/4 × 1/2	–	068U2061
	TUB	6	-40 – 10	-40 – 50	5.3	1.5	–	–	1/4 × 1/2	–	068U2062
	TUB	7	-40 – 10	-40 – 50	7	2	–	–	3/8 × 1/2	–	068U2063
	TUB	8	-40 – 10	-40 – 50	10.1	2.9	–	–	3/8 × 1/2	–	068U2064
	TUBE	5	-40 – 10	-40 – 50	3.4	0.96	1/4	–	1/4 × 1/2	–	068U2071
	TUBE	6	-40 – 10	-40 – 50	5.3	1.5	1/4	–	1/4 × 1/2	–	068U2072
	TUBE	7	-40 – 10	-40 – 50	7	2	1/4	–	3/8 × 1/2	–	068U2073
	TUBE	8	-40 – 10	-40 – 50	10.1	2.9	1/4	–	3/8 × 1/2	–	068U2074
	TUBE	9	-40 – 10	-40 – 50	14.1	4	1/4	–	3/8 × 1/2	–	068U2075
R407C	TUB	1	-40 – 10	-40 – 50	0.94	0.27	–	–	–	6 × 12	068U1901
	TUB	3	-40 – 10	-40 – 50	1.5	0.42	–	–	–	6 × 12	068U1903
	TUB	4	-40 – 10	-40 – 50	2.5	0.72	–	–	–	6 × 12	068U1904
	TUB	5	-40 – 10	-40 – 50	3.4	0.96	–	–	–	6 × 12	068U1905
	TUB	6	-40 – 10	-40 – 50	5.3	1.5	–	–	–	6 × 12	068U1906
	TUB	7	-40 – 10	-40 – 50	7	2	–	–	–	10 × 12	068U1907
	TUB	8	-40 – 10	-40 – 50	10.2	2.9	–	–	–	10 × 12	068U1908
	TUB	9	-40 – 10	-40 – 50	14	4	–	–	–	10 × 12	068U1909
	TUBE	2	-40 – 10	-40 – 50	1.1	0.32	–	6	–	6 × 12	068U1912
	TUBE	3	-40 – 10	-40 – 50	1.5	0.42	–	6	–	6 × 12	068U1913
	TUBE	4	-40 – 10	-40 – 50	2.5	0.72	–	6	–	6 × 12	068U1914
	TUBE	5	-40 – 10	-40 – 50	3.4	0.96	1/4	–	1/4 × 1/2	–	068U1935
	TUBE	5	-40 – 10	-40 – 50	3.4	0.96	–	6	–	6 × 12	068U1915
	TUBE	6	-40 – 10	-40 – 50	5.3	1.5	1/4	–	1/4 × 1/2	–	068U1936
	TUBE	6	-40 – 10	-40 – 50	5.3	1.5	–	6	–	6 × 12	068U1916
	TUBE	7	-40 – 10	-40 – 50	7	2	1/4	–	3/8 × 1/2	–	068U1937
	TUBE	7	-40 – 10	-40 – 50	7	2	–	6	–	10 × 12	068U1917
	TUBE	8	-40 – 10	-40 – 50	10.2	2.9	1/4	–	3/8 × 1/2	–	068U1938
	TUBE	8	-40 – 10	-40 – 50	10.2	2.9	–	6	–	10 × 12	068U1918
	TUBE	9	-40 – 10	-40 – 50	14	4	1/4	–	3/8 × 1/2	–	068U1939
	TUBE	9	-40 – 10	-40 – 50	14	4	–	6	–	10 × 12	068U1919
R410A	TUB	1	-40 – 10	-40 – 50	1.34	0.38	–	–	1/4 × 1/2	–	068U1958
	TUB	2	-40 – 10	-40 – 50	1.7	0.48	–	–	1/4 × 1/2	–	068U1959
	TUB	3	-40 – 10	-40 – 50	2.1	0.60	–	–	1/4 × 1/2	–	068U1960
	TUB	4	-40 – 10	-40 – 50	4.1	1.2	–	–	1/4 × 1/2	–	068U1961
	TUB	5	-40 – 10	-40 – 50	5.3	1.5	–	–	1/4 × 1/2	–	068U1962
	TUB	6	-40 – 10	-40 – 50	8.5	2.4	–	–	1/4 × 1/2	–	068U1963
	TUBE	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
	TUBE	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 °C / 40 °F
Condensing temperature: t_c = 38 °C / 100 °F
Liquid temperature: t_l = 37 °C / 98 °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



TUB / TUBE

Thermostatic element, angle way, with bulb strap

Refrigerant	Type	Orifice no. [2]	Range [°C]	Range [°F]	Rated capacity $Q_{nom.}$ [1]		Ext. pressure equalization		Connection inlet × outlet		Code no.
					[kW]	[TR]	[in]	[mm]	[in]	[mm]	
R134a	TUB	0	-40 – 10	-40 – 50	0.42	0.12	–	–	1/4 × 1/2	–	068U2660
	TUB	1	-40 – 10	-40 – 50	0.61	0.17	–	–	1/4 × 1/2	–	068U2027
	TUB	1	-40 – 10	-40 – 50	0.61	0.17	–	–	–	6 × 12	068U2000
	TUB	2	-40 – 10	-40 – 50	0.72	0.20	–	–	1/4 × 1/2	–	068U2028
	TUB	2	-40 – 10	-40 – 50	0.72	0.20	–	–	–	6 × 12	068U2001
	TUB	3	-40 – 10	-40 – 50	0.95	0.27	–	–	1/4 × 1/2	–	068U2029
	TUB	3	-40 – 10	-40 – 50	0.95	0.27	–	–	–	6 × 12	068U2002
	TUB	4	-40 – 10	-40 – 50	1.6	0.46	–	–	1/4 × 1/2	–	068U2030
	TUB	4	-40 – 10	-40 – 50	1.6	0.46	–	–	–	6 × 12	068U2003
	TUB	5	-40 – 10	-40 – 50	2.1	0.61	–	–	1/4 × 1/2	–	068U2031
	TUB	5	-40 – 10	-40 – 50	2.1	0.61	–	–	–	6 × 12	068U2004
	TUB	6	-40 – 10	-40 – 50	3.4	0.95	–	–	1/4 × 1/2	–	068U2032
	TUB	6	-40 – 10	-40 – 50	3.4	0.95	–	–	–	6 × 12	068U2005
	TUBE	1	-40 – 10	-40 – 50	0.61	0.17	–	6	–	6 × 12	068U2009
	TUBE	2	-40 – 10	-40 – 50	0.72	0.20	–	6	–	6 × 12	068U2010
	TUBE	3	-40 – 10	-40 – 50	0.95	0.27	1/4	–	1/4 × 1/2	–	068U2020
	TUBE	3	-40 – 10	-40 – 50	0.95	0.27	–	6	–	6 × 12	068U2011
	TUBE	4	-40 – 10	-40 – 50	1.6	0.46	1/4	–	1/4 × 1/2	–	068U2021
	TUBE	4	-40 – 10	-40 – 50	1.6	0.46	–	6	–	6 × 12	068U2012
	TUBE	5	-40 – 10	-40 – 50	2.1	0.61	1/4	–	1/4 × 1/2	–	068U2022
	TUBE	5	-40 – 10	-40 – 50	2.1	0.61	–	6	–	6 × 12	068U2013
	TUBE	6	-40 – 10	-40 – 50	3.4	0.95	1/4	–	1/4 × 1/2	–	068U2023
	TUBE	6	-40 – 10	-40 – 50	3.4	0.95	–	6	–	6 × 12	068U2014
	TUBE	7	-40 – 10	-40 – 50	4.4	1.3	1/4	–	3/8 × 1/2	–	068U2024
	TUBE	7	-40 – 10	-40 – 50	4.4	1.3	–	6	–	10 × 12	068U2015
	TUBE	8	-40 – 10	-40 – 50	6.5	1.9	1/4	–	3/8 × 1/2	–	068U2025
	TUBE	8	-40 – 10	-40 – 50	6.5	1.9	–	6	–	10 × 12	068U2016
	TUBE	9	-40 – 10	-40 – 50	9	2.6	1/4	–	3/8 × 1/2	–	068U2026
	TUBE	9	-40 – 10	-40 – 50	9	2.6	–	6	–	10 × 12	068U2017
R404A / R507	TUB	1	-40 – 10	-40 – 50	0.71	0.20	–	–	1/4 × 1/2	–	068U2094
	TUB	1	-40 – 10	-40 – 50	0.71	0.20	–	–	–	6 × 12	068U2076
	TUB	2	-40 – 10	-40 – 50	0.87	0.25	–	–	1/4 × 1/2	–	068U2095
	TUB	2	-40 – 10	-40 – 50	0.87	0.25	–	–	–	6 × 12	068U2077
	TUB	3	-40 – 10	-40 – 50	1.1	0.32	–	–	1/4 × 1/2	–	068U2096
	TUB	3	-40 – 10	-40 – 50	1.1	0.32	–	–	–	6 × 12	068U2078
	TUB	4	-40 – 10	-40 – 50	2	0.57	–	–	1/4 × 1/2	–	068U2097
	TUB	4	-40 – 10	-40 – 50	2	0.57	–	–	–	6 × 12	068U2079
	TUB	5	-40 – 10	-40 – 50	2.7	0.76	–	–	1/4 × 1/2	–	068U2098
	TUB	5	-40 – 10	-40 – 50	2.7	0.76	–	6	–	6 × 12	068U2080
	TUB	6	-40 – 10	-40 – 50	4.2	1.2	–	–	1/4 × 1/2	–	068U2099
	TUBE	1	-40 – 10	-40 – 50	0.71	0.20	1/4	–	1/4 × 1/2	–	068U2103
	TUBE	2	-40 – 10	-40 – 50	0.87	0.25	1/4	–	1/4 × 1/2	–	068U2104
	TUBE	2	-40 – 10	-40 – 50	0.87	0.25	–	6	–	6 × 12	068U2086
	TUBE	3	-40 – 10	-40 – 50	1.1	0.32	1/4	–	1/4 × 1/2	–	068U2105
	TUBE	3	-40 – 10	-40 – 50	1.1	0.32		6	–	6 × 12	068U2087
	TUBE	4	-40 – 10	-40 – 50	2	0.57	1/4	–	1/4 × 1/2	–	068U2106
	TUBE	4	-40 – 10	-40 – 50	2	0.57	–	6	–	6 × 12	068U2088
	TUBE	5	-40 – 10	-40 – 50	2.7	0.76	1/4	–	1/4 × 1/2	–	068U2107
	TUBE	5	-40 – 10	-40 – 50	2.7	0.76	–	6	–	6 × 12	068U2089
	TUBE	6	-40 – 10	-40 – 50	4.2	1.2	1/4	–	1/4 × 1/2	–	068U2108
	TUBE	6	-40 – 10	-40 – 50	4.2	1.2	1/4	6	–	6 × 12	068U2090
	TUBE	7	-40 – 10	-40 – 50	5.6	1.6	1/4	6	3/8 × 1/2	–	068U2109
	TUBE	7	-40 – 10	-40 – 50	5.6	1.6	–	6	–	10 × 12	068U2091
	TUBE	8	-40 – 10	-40 – 50	8	2.3	1/4	–	3/8 × 1/2	–	068U2110
	TUBE	8	-40 – 10	-40 – 50	8	2.3	–	6	–	10 × 12	068U2092
	TUBE	9	-40 – 10	-40 – 50	11.3	3.2	1/4	–	3/8 × 1/2	–	068U2111
	TUBE	9	-40 – 10	-40 – 50	11.3	3.2	–	6	–	10 × 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

Technical data and ordering



TCBE

Thermostatic element, Straight way, with bulb strap

Refrigerant	Type	Orifice no.	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Rated capacity $Q_{nom.}$ [1]		Pressure equalization		Connection inlet × outlet		Code no.
							[kW]	[TR]	[in]	[mm]	[in]	[mm]	
R22/R407C	TCBE	1	-40 – 10	-40 – 50	–	–	18.3	5.2	1/4	–	1/2 × 5/8	–	068U4201
	TCBE	1	-40 – 10	-40 – 50	15	60	18.3	5.2	1/4	–	3/8 × 5/8	–	068U4204
	TCBE	1	-40 – 10	-40 – 50	15	60	18.3	5.2	1/4	–	1/2 × 5/8	–	068U4205
	TCBE	1	-40 – 10	-40 – 50	15	60	18.3	5.2	–	6	–	12 × 16	068U4213
	TCBE	2	-40 – 10	-40 – 50	–	–	21.2	6	1/4	–	1/2 × 5/8	–	068U4202
	TCBE	3	-40 – 10	-40 – 50	15	60	26.7	7.6	1/4	–	1/2 × 5/8	–	068U4207
R134a	TCBE	1	-40 – 10	-40 – 50	–	–	13	3.7	1/4	–	1/2 × 5/8	–	068U4217
	TCBE	2	-40 – 10	-40 – 50	–	–	14.9	4.3	1/4	–	1/2 × 5/8	–	068U4218
	TCBE	3	-40 – 10	-40 – 50	–	–	18.6	5.3	1/4	–	1/2 × 5/8	–	068U4219
R404A/ R507	TCBE	1	-40 – 10	-40 – 50	–	–	13	3.7	–	6	–	12 × 16	068U4225
	TCBE	1	-40 – 10	-40 – 50	15	60	13	3.7	–	6	–	10 × 16	068U4244
	TCBE	2	-40 – 10	-40 – 50	–	–	15.1	4.3	1/4	–	1/2 × 5/8	–	068U4234
	TCBE	2	-40 – 10	-40 – 50	–	–	15.1	4.3	–	6	–	12 × 16	068U4226
	TCBE	2	-40 – 10	-40 – 50	15	60	15.1	4.3	–	6	–	12 × 16	068U4246
	TCBE	3	-40 – 10	-40 – 50	–	–	19.8	5.4	1/4	–	1/2 × 5/8	–	068U4235
	TCBE	3	-40 – 10	-40 – 50	–	–	19.8	5.4	–	6	–	12 × 16	068U4231
	TCBE	3	-40 – 10	-40 – 50	15	60	19.8	5.,4	–	6	–	12 × 16	068U4247
R407C	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	1/4	–	3/8 × 5/8	–	068U4248
	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	1/4	–	1/2 × 5/8	–	068U4249
	TCBE	1	-40 – 10	-40 – 50	15	60	17.8	5.1	1/4	–	1/2 × 5/8	–	068U4253
	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	–	6	–	10 × 16	068U4256
	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	–	6	–	12 × 16	068U4257
	TCBE	1	-40 – 10	-40 – 50	15	60	17.8	5.1	–	6	–	10 × 16	068U4260
	TCBE	1	-40 – 10	-40 – 50	15	60	17.8	5.1	–	6	–	12 × 16	068U4261
	TCBE	2	-40 – 10	-40 – 50	–	–	20.4	5.8	1/4	–	1/2 × 5/8	–	068U4250
	TCBE	2	-40 – 10	-40 – 50	15	60	20.4	5.8	1/4	–	1/2 × 5/8	–	068U4254
	TCBE	2	-40 – 10	-40 – 50	–	–	20.4	5.8	–	6	–	12 × 16	068U4258
	TCBE	2	-40 – 10	-40 – 50	15	60	20.4	5.8	–	6	–	12 × 16	068U4262
	TCBE	3	-40 – 10	-40 – 50	–	–	25.2	7.2	1/4	–	1/2 × 5/8	–	068U4251
	TCBE	3	-40 – 10	-40 – 50	–	–	25.2	7.2	–	6	–	12 × 16	068U4259
	TCBE	3	-40 – 10	-40 – 50	15	60	25.2	7.2	–	6	–	12 × 16	068U4263
R410A	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	1/4	–	3/8 × 5/8	–	068U4264
	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	1/4	–	1/2 × 5/8	–	068U4265
	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	–	6	–	12 × 16	068U4273
	TCBE	2	-40 – 10	-40 – 50	–	–	24.5	7	1/4	–	1/2 × 5/8	–	068U4266
	TCBE	2	-40 – 10	-40 – 50	15	–	24.5	7	1/4	–	1/2 × 5/8	–	068U4270
	TCBE	2	-40 – 10	-40 – 50	–	–	24.5	7	–	6	–	12 × 16	068U4274
	TCBE	3	-40 – 10	-40 – 50	–	–	30.6	8.7	1/4	–	1/2 × 5/8	–	068U4267
	TCBE	3	-40 – 10	-40 – 50	–	–	30.6	8.7	–	6	–	12 × 16	068U4275
	TCBE	3	-40 – 10	-40 – 50	15	–	30.6	8.7	–	6	–	12 × 16	068U4279

[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

Capillary tube: 0.8 m / 31 in

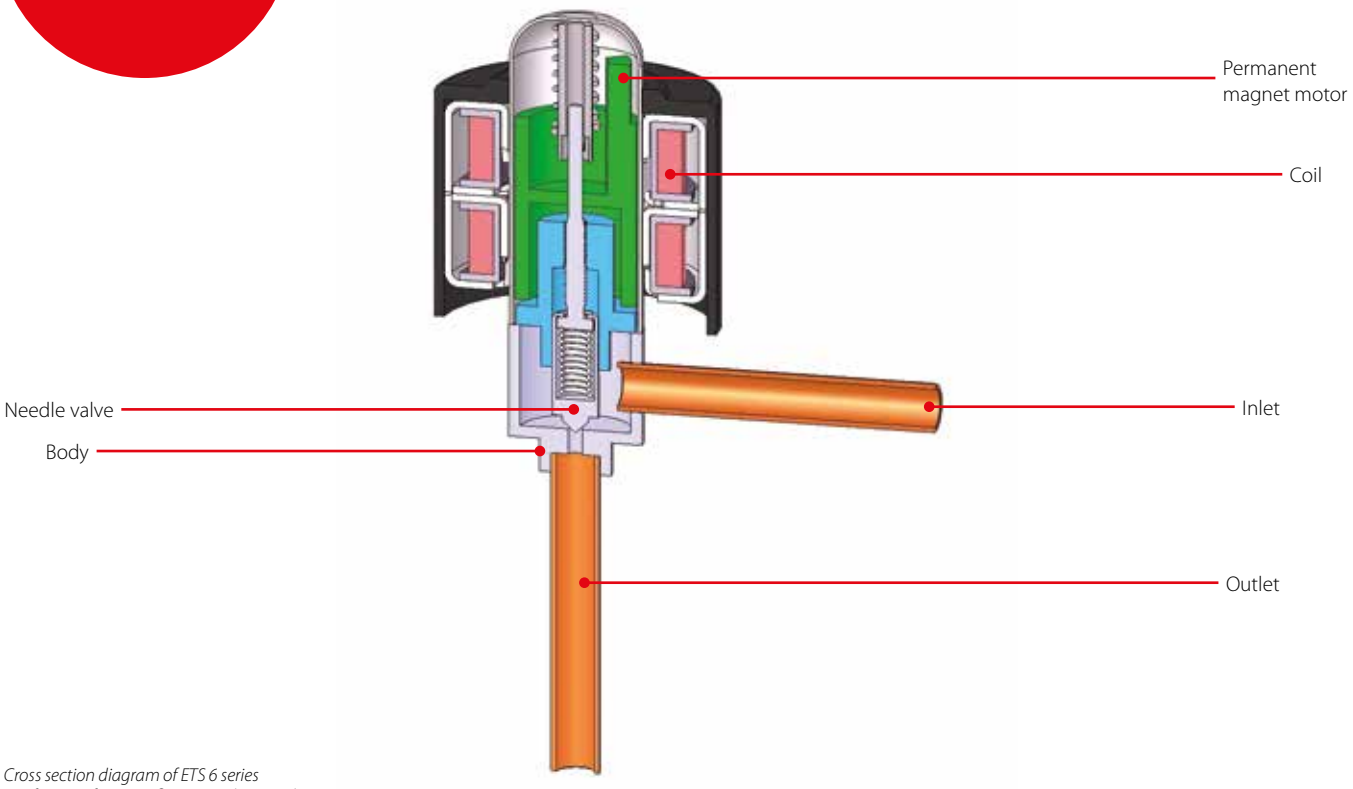
Quick Selection Notes:

ETS 6 - Electric expansion valve

ETS 6 are compact and lightweight electric expansion valves for all common refrigerants: R410A, R407C, R404A, R134a, R22.
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 EKD 316 and EIM 336 (current drivers) and an AKS sensor, an accuracy better than ± 0.5 K can be obtained.





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

- 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
- ETS 6 are designed for: R410A, R407C, R404A, R507, R134a, R22 and other refrigerants, for other refrigerants, please contact your local Danfoss representative
- Controller: Danfoss supplies electronic controller (EKD 316), temperature sensors and transmitters

Technical data and ordering

ETS 6

Technical data

Maximum working pressure	47 bar / 681 psig
Compatible refrigerants	R410A, R407C, R404A, R507, R134a, R22. For other refrigerants, please contact your local Danfoss representative.
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 Liquid line solenoid valve	With coil on the upper side and the valve / coil assembly within ±15°of the vertical axis. 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	CE, UL, RoHS, CQC

ETS 6 - Valve excl. coil



Valve ordering

Type	Orifice no.	Nominal Capacity [kW]					Connection (solder)		Valve tube configuration	MWP	MOPD	Max. Reverse Pressure [1]	Flow direction charact.	Code no.
		R22	R134a	R404A / R507	R407C	R410A	A [mm]	B [mm]		[bar]	[bar]	[bar]		
ETS 6 – 10	10	2.6	2	1.8	2.7	3.1	7.94	7.94	90°	47	35	35	Bi-flow	034G5005
ETS 6 – 14	14	5.8	4.5	4.1	5.9	6.8	7.94	7.94	90°	47	35	20	Bi-flow	034G5015
ETS 6 – 18	18	10.3	8.1	7.3	10.6	12.1	6.35	6.35	90°	47	35	28	Bi-flow	034G5026
ETS 6 – 25	25	19.6	15.3	13.8	20.1	23	7.94	7.94	90°	47	35	22	Bi-flow	034G5035
ETS 6 – 32	32	28.8	22.5	20.3	29.6	33.9	7.94	7.94	90°	47	28	12 [2]	Bi-flow	034G5055
ETS 6 – 40	40	39.1	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	MOPD	Max. Reverse Pressure [1]	Flow direction charact.	Code no.
		R22	R134a	R404A / R507	R407C	R410A	A [in]	B [in]		[psig]	[psig]	[psig]		
ETS 6 – 10	10	0.74	0.57	0.51	0.77	0.88	7.94	7.94	90°	681	507	507	Bi-flow	034G5005
ETS 6 – 14	14	1.65	1.28	1.16	1.68	1.93	7.94	7.94	90°	681	507	290	Bi-flow	034G5015
ETS 6 – 18	18	2.93	2.30	2.07	3.01	3.44	6.35	6.35	90°	681	507	406	Bi-flow	034G5026
ETS 6 – 25	25	5.57	4.35	3.92	5.72	6.54	7.94	7.94	90°	681	507	319	Bi-flow	034G5035
ETS 6 – 32	32	8.19	6.40	5.77	8.42	9.64	7.94	7.94	90°	681	406	174 [2]	Bi-flow	034G5055
ETS 6 – 40	40	11.12	8.70	7.85	11.43	13.08	7.94	7.94	90°	681	305	102	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.

Coil for ETS 6



Ordering

Model No.	Voltage (current)	Enclosure	Insulation class	Cable length [m]	Connector	Code no.
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
	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))	0.7	JST XHP-5	034G5115
	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))	1.5	JST XHP-5	034G5145
	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))	3.0	JST XHP-5	034G5135

Related products

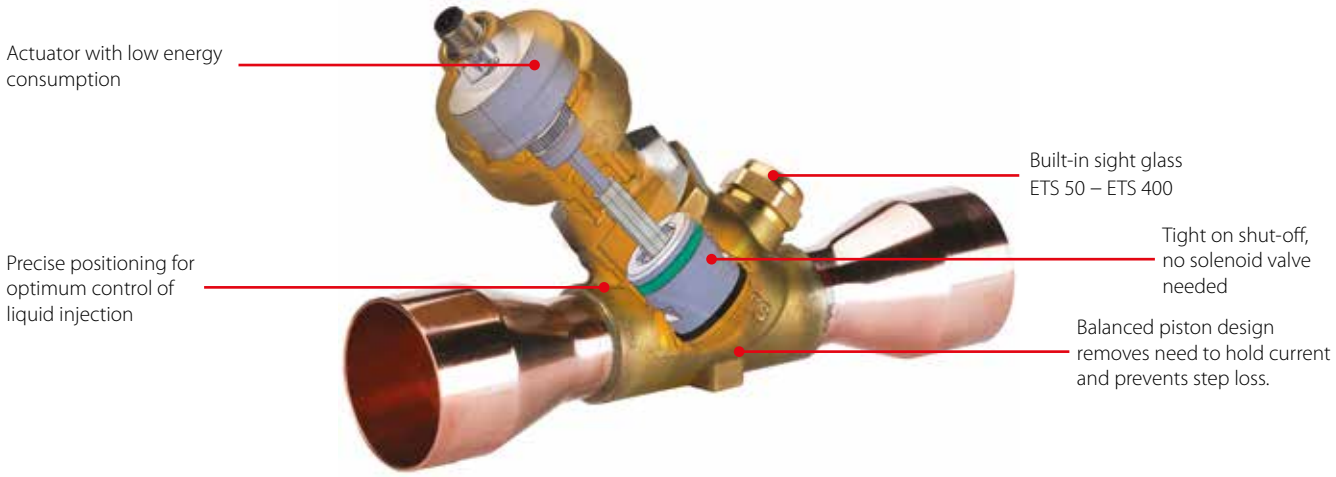
Electronic control
Type EKD 316 and EIM 336 (current drivers)
Temperature sensors and pressure transmitters
Type AKS

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 EKC 316A, EKC 312 or EKD 316.
ETS valve is compatible with all common refrigerant such as R410A, R407C, R404A, R134a, R22 and R507.
Special ETS versions for systems with R744 (CO_2) are available.





Facts

Applications:
- Heat pumps
- Refrigeration
- Air conditioning
- Chillers

- 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
- ETS valve is compatible with all common refrigerant such as R410A, R407C, R404A, R134a, R22 and R507 Special ETS versions for systems with R744 (CO_2) are available
- 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
- EKC 316A and EKD 316 are examples of Danfoss controllers with drivers matching ETS requirements
- Equipped with M12 connector for cable connection (cable and connector assemblies as accessories)

Technical data and ordering

ETS 12.5 – ETS 400

Technical data

Compatibie refrigerants	R410A, R407C, R404A, R507, R134a, R22 and other refrigerants (special valves for R744 (CO_2) are available) For other refrigerants, please contact your local Danfoss representative
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

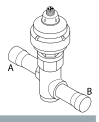
ETS 12.5 – ETS 400

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 ETS 100 ETS 250, ETS 400	2625 (160 / 0) steps 3530 (160 / 0) steps 3810 (160 / 0) steps
Full travel time	ETS 12.5, ETS 25, ETS 50 ETS 100 ETS 250 and ETS 400	17 / 8.5 seconds (voltage / current) 23 / 11.5 seconds (voltage / current) 25.4 / 12.7 seconds (voltage / current)
Lifting height	ETS 12.5, ETS 25, ETS 50 ETS 100 ETS 250 and ETS 400	16 mm / 0.63 in 16 mm / 0.63 in 17.2 mm / 0.68 in
Reference position	Overdriving against the full close position	
Electrical connection	M12 connector	

Technical data and ordering

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

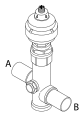


Ordering

Type	Rated capacity [1]										Connection		
	R410A		R407C		R22		R134a		R404A		ODF × ODF (A × B)		Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	
Straightway, Single pack													
ETS 12.5	70	20	63	18	57	16	45	13	43	12	1/2 × 1/2	–	034G4209
	70	20	63	18	57	16	45	13	43	12	–	12 × 12	034G4208
	70	20	63	18	57	16	45	13	43	12	5/8 × 5/8	16 × 16	034G4210
	70	20	63	18	57	16	45	13	43	12	7/8 × 7/8	22 × 22	034G4211
ETS 25	144	41	129	37	117	34	93	27	88	25	1/2 × 1/2	–	034G4201
	144	41	129	37	117	34	93	27	88	25	–	12 × 12	034G4200
	144	41	129	37	117	34	93	27	88	25	5/8 × 5/8	16 × 16	034G4202
	144	41	129	37	117	34	93	27	88	25	7/8 × 7/8	22 × 22	034G4203
Angleway, Single pack													
ETS 12.5	70	20	63	18	57	16	45	13	43	12	1/2 × 1/2	–	034G4213
	70	20	63	18	57	16	45	13	43	12	–	12 × 12	034G4212
	70	20	63	18	57	16	45	13	43	12	5/8 × 5/8	16 × 16	034G4214
	70	20	63	18	57	16	45	13	43	12	7/8 × 7/8	22 × 22	034G4215
ETS 25	144	41	129	37	117	34	93	27	88	25	1/2 × 1/2	–	034G4205
	144	41	129	37	117	34	93	27	88	25	–	12 × 12	034G4204
	144	41	129	37	117	34	93	27	88	25	5/8 × 5/8	16 × 16	034G4206
	144	41	129	37	117	34	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)

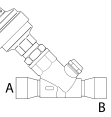


Ordering

Type	Rated capacity [1]										Connection		
	R410A		R407C		R22		R134a		R404A		ODF × ODF (A × B)		Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	Single pack
ETS 50	262	75	240	69	215	62	170	48	161	46	7/8 × 7/8	22 × 22	034G1708
	262	75	240	69	215	62	170	48	161	46	7/8 × 1 1/8	22 × 28	034G1705
	262	75	240	69	215	62	170	48	161	46	1 1/8 × 1 1/8	28 × 28	034G1706
	262	75	240	69	215	62	170	48	161	46	1 1/8 × 1 3/8	28 × 35	034G1704
ETS 100	488	140	447	128	400	115	316	91	300	86	1 1/8 × 1 1/8	28 × 28	034G0507
	488	140	447	128	400	115	316	91	300	86	1 1/8 × 1 3/8	28 × 35	034G0501
	488	140	447	128	400	115	316	91	300	86	1 3/8 × 1 3/8	35 × 35	034G0508
	488	140	447	128	400	115	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 °F5
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)

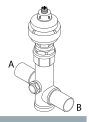


Ordering

Type	Rated capacity [1]								Connection		
	R407C		R22		R134a		R404A		ODF × ODF (A × B)		Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	Single pack
ETS 250	1212	349	1106	319	874	252	828	239	1 1/8 × 1 1/8	28 × 28	034G2600
	1212	349	1106	319	874	252	828	239	1 3/8 × 1 3/8	35 × 35	034G2601
	1212	349	1106	319	874	252	828	239	1 5/8 × 1 5/8	–	034G2602
	1212	349	1106	319	874	252	828	239	–	42 × 42	034G2611
ETS 400	1933	556	1764	509	1394	402	1320	381	1 5/8 × 1 5/8	–	034G3500
	1933	556	1764	509	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



ETS for R744 (CO_2)

Ordering

Type	Connection	Code no. Single pack
	ODF × ODF (A × B) [in]	
ETS 12.5	7/8 × 7/8	034G4220
ETS 25	7/8 × 7/8	034G4219
ETS 50	1 1/8 × 1 1/8	034G1714
ETS 100	1 1/8 × 1 1/8	034G0515

ETS 50 and ETS 100 have integrated sight glass.
ETS for R744 can be used for expansion as well as gas bypass.
ETS for R744 applications (PS / MWP 45.5 bar / 660 psig).
For capacities please contact Danfoss.

M12 Female - Connector Cable

Ordering

Cable quality	Temperature range	Cable length (L)		Design	Code no.
	[°C] / [°F]	[m]	[ft]		
Single pack					
Jacket: PVC	-50 – 80 / -58 – 176	2	6.6	M12 actuator connector to 4 flying wires for driver connection	034G2201
	-50 – 80 / -58 – 176	8	26.2		034G2200
Jacket: CPE	-40 – 80 / -40 – 176	2	6.6		034G2202
	-40 – 80 / -40 – 176	3	9.8		034G2203
	-40 – 80 / -40 – 176	5	16.4		034G2205
Industrial pack (20 pcs)					
Jacket: PVC	-50 – 80 / -58 – 176	2	6.6	M12 actuator connector to 4 flying wires for driver connection	034G2330
	-50 – 80 / -58 – 176	8	26.2		034G2323
Jacket: CPE	-40 – 80 / -40 – 176	2	6.6		034G2331

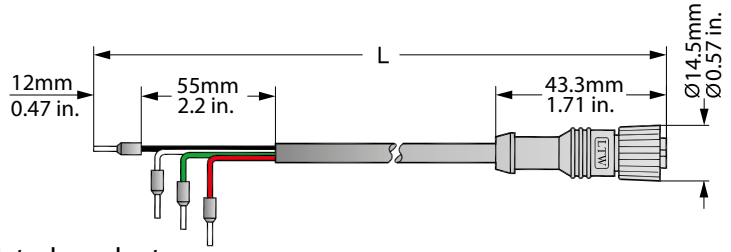
Accessory

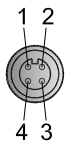
Type	Description	Type designation	Code no. Multi pack (20 pcs)
Cable	Cable filter for ETS valve	AKA 211	084B2238

Cable specifications

Type	Jacket	Colour	UV resistant	Insulation	Connection 4 wires		Outer diameter		M12 connector	Special
					[mm²]	[AWG]	[mm]	[in]		
PVC cables	Half Matt PVC	Black	Yes	SR-PVC	0.33	22	5.0	13/64	PU (polyurethane)	UL VW-1
CPE cables	CPE	Gray	Yes	EPR	0.5	20	6.3	1/4	PU (polyurethane)	Resistant to gear oil, diesel oil, ethylene glycol, propylene glycol

⚠ CPE cables are recommended for outdoor application.





1. Red
2. Green
3. White
4. Black

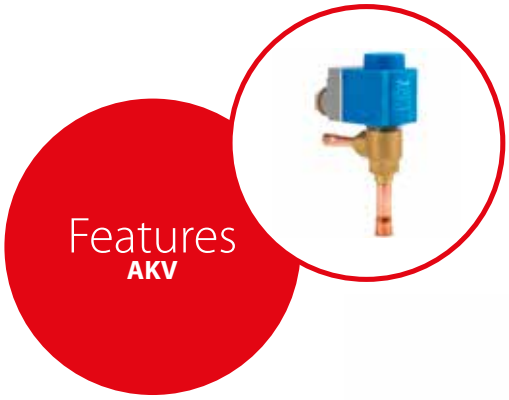
Related products

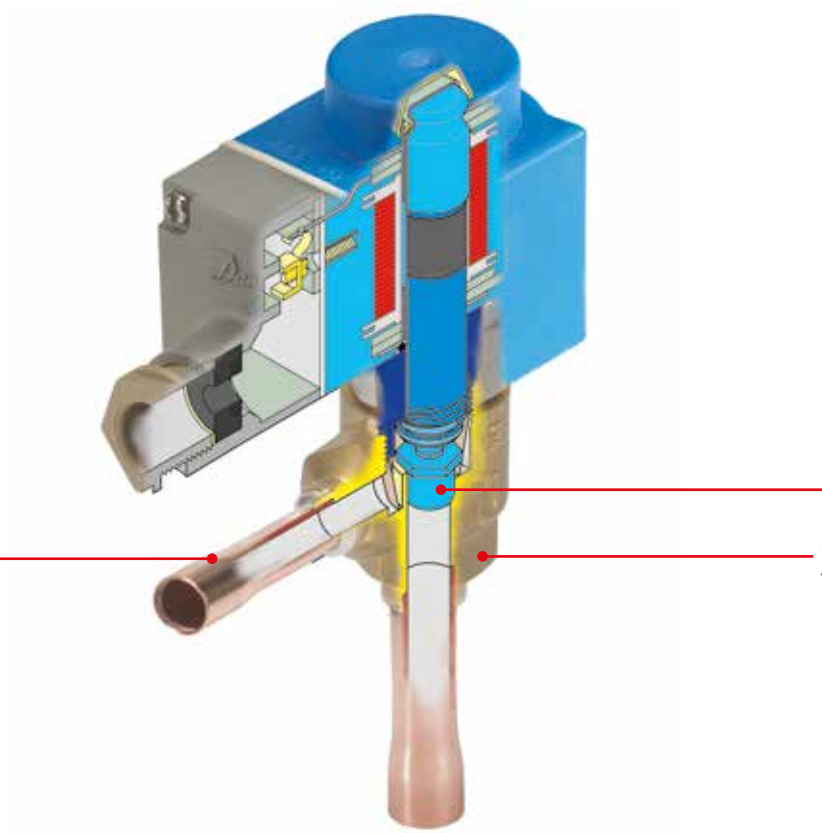
Electronic control
Type EKC 316A, EKC 312 or EKD 316
Temperature sensors and pressure transmitters
Type AKS

AKV - Electric expansion valve

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. Refrigerants: R744, R22 / R407C, R404A / R507, R410A, R134a, R407A, R23.





Facts

Applications:
- Traditional refrigeration
- Cold rooms
- Water chillers

- 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 10 valves cover a capacity range from 0.6 – 14 kW / 0.17 – 3.98 TR (404A / R507) and are divided into 7 capacity ranges
- 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
- The AKV valves can be used for the following refrigerants: R744, R22 / R407C, R404A / R507, R410A, R134a, R407A, R23. For other refrigerants, please contact Danfoss

Technical data and ordering

AKV

Technical data

Valve type	AKV 10	AKV 15	AKV 20
Tolerance of coil voltage	10% / -15%	10% / -15%	10% / -15%
Enclosure to IEC 529	IP67	IP67	IP67
Working principle	PWM	PWM	PWM
Recommended period of time	6 Seconds	6 Seconds	6 Seconds
Capacity (404A / R507)	0.6 – 14 kW / 0.17 – 3.98 TR	14 – 85 kW / 3.98 – 24.1 TR	56 – 530 kW / 15.9 – 150 TR
Regulation range (Capacity range)	10 – 100%	10 – 100%	10 – 100%
Connection	Solder	Solder	Solder or weld
Evaporating temperature	-50 – 60 °C / -58 – 140 °F	-50 – 60 °C / -58 – 140 °F	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 120 °F	-40 – 120 °F / -40 – 50 °C	-40 – 120 °F / -40 – 50 °C
Leak of valve seat	<0.02% of K_V value / C_V value	<0.02% of K_V value / C_V value	<0.02% of K_V value / C_V value
MOPD	18 bar / 260 psig	22 bar / 318 psig	18 bar / 260 psig
Filter, replaceable	Internal 100 µm	External 100 µm	External 100 µm
Max. working pressure	AKV 10 – 1 – 6 PS / MWP = 52 bar g / 754 psig AKV 10 – 7 PS / MWP = 42 bar g / 610 psig	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 10 - Valve excluded coil

Valve type	Rated capacity [1]								K_V value	C_V value	Connections Solder ODF	
	R22 / R407C		R134a		R404A / R507		R407C					
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[m³/h]	[gpm]	Inlet × outlet [in]	Code no.
Solder ODF [in]												
AKV 10 – 1	1.0	0.28	0.9	0.25	0.8	0.22	1.1	0.31	0.01	0.01	3/8 × 1/2	068F1161
AKV 10 – 2	1.6	0.45	1.4	0.39	1.3	0.36	1.7	0.48	0.01	0.02	3/8 × 1/2	068F1164
AKV 10 – 3	2.6	0.73	2.1	0.59	2.0	0.56	2.5	0.71	0.02	0.02	3/8 × 1/2	068F1167
AKV 10 – 4	4.1	1.16	3.4	0.96	3.1	0.88	4.0	1.13	0.04	0.05	3/8 × 1/2	068F1170
AKV 10 – 5	6.4	1.81	5.3	1.50	4.9	1.39	6.4	1.81	0.06	0.07	3/8 × 1/2	068F1173
AKV 10 – 6	10.2	2.90	8.5	2.41	7.8	2.21	10.1	2.87	0.11	0.13	3/8 × 1/2	068F1176
AKV 10 – 7	16.3	4.63	13.5	3.83	12.5	3.55	17.0	4.83	0.20	0.20	3/8 × 1/2	068F1179
Solder ODF [mm]												
AKV 10 – 1	1.0	0.28	0.9	0.25	0.8	0.22	1.1	0.31	0.01	0.01	10 × 12	068F1162
AKV 10 – 2	1.6	0.45	1.4	0.39	1.3	0.36	1.7	0.48	0.01	0.02	10 × 12	068F1165
AKV 10 – 3	2.6	0.73	2.1	0.59	2.0	0.56	2.5	0.71	0.02	0.02	10 × 12	068F1168
AKV 10 – 4	4.1	1.16	3.4	0.96	3.1	0.88	4.0	1.13	0.04	0.05	10 × 12	068F1171
AKV 10 – 5	6.4	1.81	5.3	1.50	4.9	1.39	6.4	1.81	0.06	0.07	10 × 12	068F1174
AKV 10 – 6	10.2	2.90	8.5	2.41	7.8	2.21	10.1	2.87	0.11	0.13	10 × 12	068F1177
AKV 10 – 7	16.3	4.63	13.5	3.83	12.5	3.55	17.0	4.83	0.20	0.24	12 × 16	068F1180

AKV 15 - Valve excluded coil

Solder ODF [in]												
AKV 15 – 1	25.5	7.25	21.2	6.02	19.6	5.57	25.2	7.16	0.25	0.28	3/4 × 3/4	068F5000
AKV 15 – 2	40.8	11.6	33.8	9.61	31.4	8.92	40.4	11.4	0.40	0.46	3/4 × 3/4	068F5005
AKV 15 – 3	64	18.2	53	15.1	49.4	14.0	63	18.1	0.63	0.72	7/8 × 7/8	068F5010
AKV 15 – 4	102	29.0	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	25.5	7.25	21.2	6.02	19.6	5.57	25.2	7.16	0.25	0.28	18 × 18	068F5001
AKV 15 – 2	40.8	11.6	33.8	9.61	31.4	8.92	40.4	11.4	0.40	0.46	18 × 18	068F5006
AKV 15 – 3	64	18.2	53	15.1	49.4	14.0	63	18.1	0.63	0.72	22 × 22	068F5010
AKV 15 – 4	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	28 × 28	068F5016

AKV 20 - Valve excluded coil

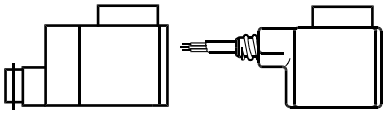
Solder ODF [in]												
AKV 20 – 1	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	1 3/8 × 1 3/8	042H2020
AKV 20 – 2	163	46.3	135	38.3	125	35.5	170	48.3	1.6	1.85	1 3/8 × 1 3/8	042H2022
AKV 20 – 3	255	72	212	60	196	55	252	71	2.5	2.89	1 5/8 × 1 5/8	042H2024
AKV 20 – 4	408	116	338	96	314	89	404	114	4.0	4.62	2 1/8 × 2 1/8	042H2027
AKV 20 – 5	643	182	533	151	494	140	637	181	6.3	7.28	2 1/8 × 2 1/8	042H2029
Solder ODF [mm]												
AKV 20 – 1	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	35 × 35	042H2020
AKV 20 – 2	163	46.3	135	38.3	125	35.5	170	48.3	1.6	1.85	35 × 35	042H2022
AKV 20 – 3	255	72	212	60	196	55	252	71	2.5	2.89	42 × 42	042H2025
AKV 20 – 4	408	116	338	96	314	89	404	114	4.0	4.62	54 × 54	042H2027
AKV 20 – 5	643	182	533	151	494	140	637	181	6.3	7.28	54 × 54	042H2029
Weld [in]												
AKV 20 – 1	102	29.0	84.6	24.0	78	22.2	101	28.7	1.0	1.15	1 1/4 × 1 1/4	042H2021
AKV 20 – 2	163	46.3	135	38.3	125	35.5	170	48.3	1.6	1.85	1 1/4 × 1 1/4	042H2023
AKV 20 – 3	255	72	212	60	196	55	252	71	2.5	2.89	1 1/4 × 1 1/4	042H2026
AKV 20 – 4	408	116	338	96	314	89	404	114	4.0	4.62	1 1/2 × 1 1/2	042H2028
AKV 20 – 5	643	182	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



Terminal box | Cable | DIN spade + cap

DC coils	Connection	Valve size and orifice no.						Code no.
		AKV 10 – 1 AKV 10 – 2 AKV 10 – 3 AKV 10 – 4 AKV 10 – 5	AKV 10 – 6	AKV 10 – 7	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	
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.

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
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

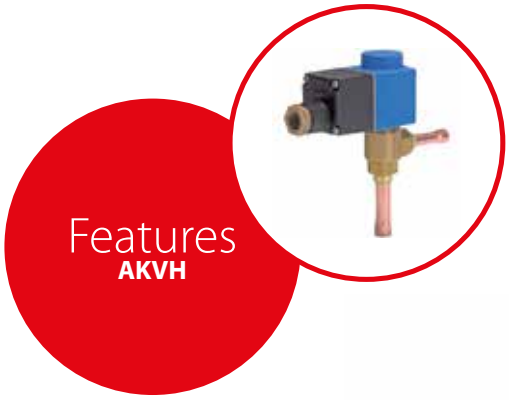
Related products

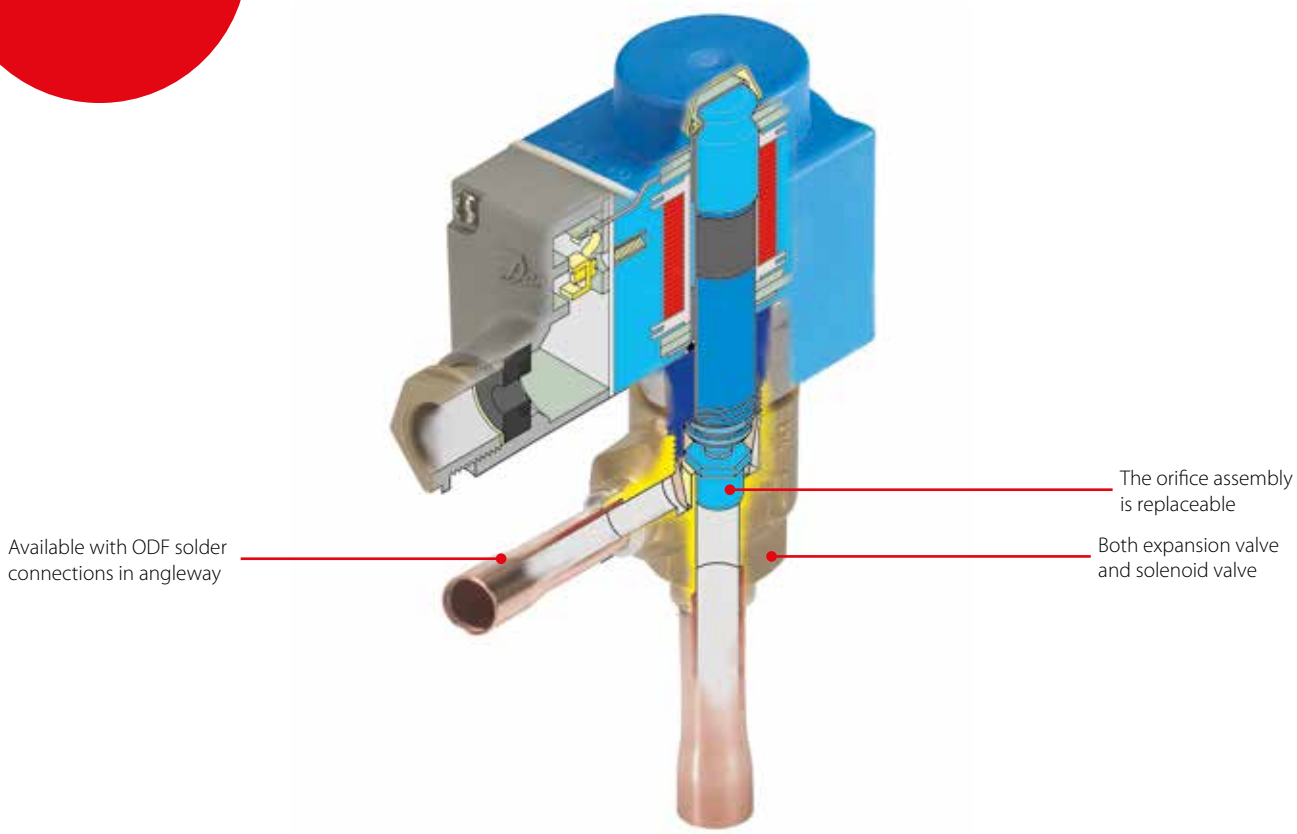
Electric suction modulating valves
Type AK-CC 550 / EKC 315 / EKC 414A
Temperature sensors and pressure transmitters
Type AKS

Quick Selection Notes:

AKVH - Electric expansion valve

AKVH are electrically operated expansion valves designed for refrigeration plants using R744 refrigerant.
The AKVH valves are designed for use with a controller from Danfoss range of ADAP- KOOL® controllers.
The AKVH valves are supplied as a parts programme with separate valve body and coil with electronic controller, for lower valve noise level and power consumption, higher valve MOPD, and longer valve lifetime.
AKVH has an exchangeable orifice.
The AKVH 10 valves cover a capacity ranges:
0.4 – 11 kW / 0.11 – 3.12 TR in refrigeration applications
0.8 – 22 kW / 0.82 – 6.26 TR in freezing applications





Facts

Applications:
- Traditional refrigeration using R744 (CO_2) as refrigerant
- Cold rooms
- Water chillers

- The AKV valves are supplied as a parts programme, as follows:
  - separate valve incl. exchangeable orifice
  - separate coil
- The valve requires no adjustment
- Coil with electronic coil controller for lower valve noise level, energy saving, higher valve MOPD and longer valve lifetime

- The AKVH 10 valve covers a capacity range from 0.4 – 11 kW / 0.11 – 3.13 TR (refrigeration) and 0.8 – 22 kW / 0.23 – 6.26 TR (for freezing) and is divided into 7 capacity ranges
- The AKVH is used for R744 (CO_2) refrigerant

Technical data and ordering

AKVH

Technical data

Valve type	AKVH 10
Tolerance of coil voltage	10 / -15%
Enclosure to IEC 529	IP67
Working principle	PWM
Recommended period of time	6 seconds
Capacity (R744)	0.4 – 11 kW / 0.11 – 3.13 TR
Freezing capacity (R744)	0.8 – 22 kW / 0.23 – 6.26 TR
Regulation range (Capacity range)	10 – 100%
Connection	Solder
Evaporating temperature	-60 – 60 °C / -76 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 120 °F
Leak of valve seat	<0.02% of K_V value / C_V value
MOPD	35 bar / 505 psig
Filter, replaceable	Internal 100 µm
Max. working pressure	AKVH10-0 to 6 PS = 90 barg / 1305 psig [3]

[1] Refrigeration
[2] Freezing
[3] 90 barg under stand still conditions, but under normal operating conditions, there must be liquid to the inlet of the valve.

Coil with electronic coil controller

Technical data

Noise level	Minimum 5 dB
Soft start	Yes
Nominal voltage	208 – 240 V AC 50 / 60 Hz
Power	4 W
Ambient temperature	During operation: -20 – 55 °C / -4 – 131 °F
Enclosure to IEC 529	IP67
Wire dimension	1 – 1.5 mm² / 16 AWG
Approvals	CE: Low voltage and EMC directives
Neutral, phase and earth in socket	Yes

Coil must only be used together with electronic coil controller.
Tolerance of supply voltage: 10 – -15%.

AKVH 10 - Valve excl. coil

Rated capacity and Ordering

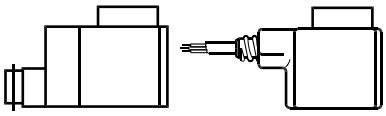
Valve type / orifice no.	Rated capacity (R744)				K_V value [1]	C_V value [1]	Code no.
	[kW]	[TR]	[kW]	[TR]			
	Refrigeration		Freezing		[m³/h]	[gpm]	
Connections, Solder ODF, Single pack 1 valve each, ⅜ × ½ [inch.]							
AKVH 10 – 0	0.4	0.1	0.8	0.2	0.003	0.132	068F4078
AKVH 10 – 1	1.1	0.3	2.2	0.6	0.010	0.044	068F4079
AKVH 10 – 2	1.7	0.5	3.5	1.0	0.017	0.074	068F4080
AKVH 10 – 3	2.6	0.7	5.4	1.5	0.025	0.110	068F4081
AKVH 10 – 4	4.3	1.2	8.7	2.5	0.046	0.202	068F4082
AKVH 10 – 5	6.7	1.9	13.6	3.8	0.064	0.282	068F4083
AKVH 10 – 6	10.7	3.0	21.7	6.1	0.114	0.502	068F4084
Connections, Solder ODF, Single pack 1 valve each, 10 × 12 [mm]							
AKVH 10 – 0	0.4	0.1	0.8	0.2	0.003	0.132	068F4088
AKVH 10 – 1	1.1	0.3	2.2	0.6	0.010	0.044	068F4089
AKVH 10 – 2	1.7	0.5	3.5	1.0	0.017	0.074	068F4090
AKVH 10 – 3	2.6	0.7	5.4	1.5	0.025	0.110	068F4091
AKVH 10 – 4	4.3	1.2	8.7	2.5	0.046	0.202	068F4092
AKVH 10 – 5	6.7	1.9	13.6	3.8	0.064	0.282	068F4093
AKVH 10 – 6	10.7	3.0	21.7	6.1	0.114	0.502	068F4094

[1] The K_V / C_V value is the water flow in [m³/h] / [gph] at a pressure drop across valve of 1 bar / 14.5 psi.

Technical data and ordering

Coils for AKVH valves

Ordering



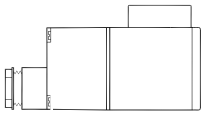
Terminal box | Cable | DIN spade + cap

		Valve size and orifice no.				
		18 bar		35 bar [2]		
		AKVH 10 – 1 AKVH 10 – 2 AKVH 10 – 3 AKVH 10 – 4 AKVH 10 – 5	AKVH 10 – 6	AKVH 10 – 0 AKVH 10 – 1 AKVH 10 – 2 AKVH 10 – 3 AKVH 10 – 4 AKVH 10 – 5	AKVH 10 – 6	
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 + 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]
AC coils	**Connection**					**Code no.**
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 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

[1]) Recommended for commercial refrigeration plant.
[2]) If operated consistently at or near MOPD, the service interval will decrease.

For voltage supply of 208 – 240 V AC always use coil with electronic coil

EEC - Coil with electronic coil controller



Ordering

AC coil	18 bar		35 bar [2]		Code no.
208 – 240 VAC, 50 / 60 Hz, 4 W	+	+	+	+	018F6783

Coil with electronic coil controller type EEC is delivered as multipack.
[1]) If operated consistently at or near MOPD, the service interval will decrease.

AKVH 10 - Spare parts

Ordering

Orifice no.	Contents	Code no.
0	4 pc. orifice - 4 pc. gasket	068F5283
1	4 pc. orifice - 4 pc. gasket	068F5283
2	4 pc. orifice - 4 pc. gasket	068F5283
3	4 pc. orifice - 4 pc. gasket	068F5283
4	3 pc. orifice - 3 pc. gasket	068F5284
5	3 pc. orifice - 3 pc. gasket	068F5284
6	3 pc. orifice - 3 pc. gasket	068F5284

Capacities

R744

Valve type	Capacity in [kW] with pressure drop across valve Δp [bar] [1]								
	2	4	6	8	10	12	14	16	18
AKVH 10 – 0	0.33	0.44	0.53	0.59	0.65	0.70	0.73	0.76	0.78
AKVH 10 – 1	0.9	1.2	1.5	1.6	1.8	1.9	2.0	2.1	2.1
AKVH 10 – 2	1.4	2.0	2.3	2.6	2.8	3.1	3.2	3.3	3.4
AKVH 10 – 3	2.2	3.1	3.7	4.1	4.4	4.8	5.0	5.2	5.4
AKVH 10 – 4	3.6	4.9	5.8	6.5	7.1	7.7	8.0	8.3	8.5
AKVH 10 – 5	5.6	7.7	9.2	10.2	11.1	12.0	12.6	13.0	13.5
AKVH 10 – 6	9.0	12.3	14.6	16.3	17.6	19.1	20.0	20.8	21.5

R744

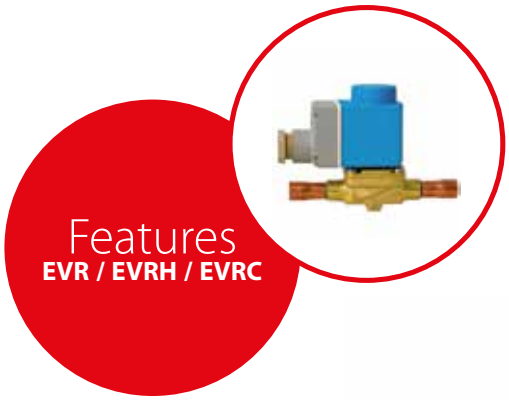
Valve type	Capacity in [kW] with pressure drop across valve Δp [bar] [1]								
	20	22	24	26	28	30	32	34	35
AKVH 10 – 0	0.80	0.81	0.82	0.84	0.85	0.85	0.86	0.87	0.87
AKVH 10 – 1	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4
AKVH 10 – 2	3.5	3.6	3.7	3.7	3.8	3.8	3.8	3.8	3.8
AKVH 10 – 3	5.5	5.6	5.7	5.8	5.9	5.9	6.0	6.0	6.0
AKVH 10 – 4	8.8	8.9	9.1	9.3	9.4	9.5	9.5	9.6	9.6
AKVH 10 – 5	13.8	14.1	14.4	14.6	14.8	14.9	15.0	15.0	15.0
AKVH 10 – 6	22.0	22.4	22.9	23.3	23.5	23.7	23.9	23.9	24.0

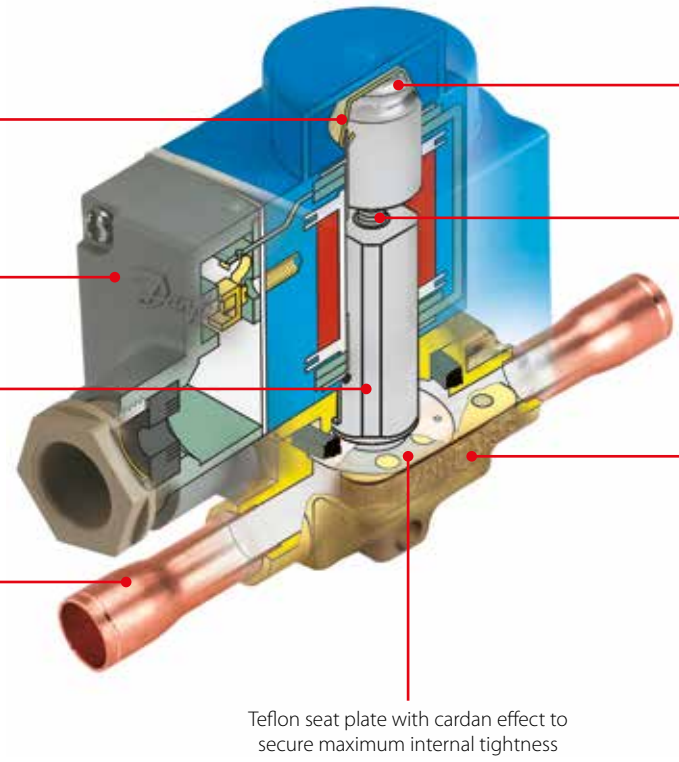
[1]) *Rated capacities are based on:*
Subcooling: t_{sub} *= 4 K*
Evaporating temperature: t_e *= -25 °C*
Superheating: t_{sup} *=5 K*

EVR / EVRH / EVRC - Solenoid valves

EVR / EVRH solenoid valves are direct or servo-operated solenoid valves for liquid, suction and hot gas lines. They are suitable for condensing units and power packs in all refrigeration, freezing and air conditioning applications and are compatible with fluorinated refrigerants R22 / R407C, R404A / R507, R410A, R134a and R407C. Versions are also available for high pressure refrigerants such as R410A and R744 (CO_2) with a max working pressure of 45 bar g. EVR 2 – EVR 20 with solder connections and without manual stem are suitable for the flammable refrigerants R32, R290, R600 and R600a.

The valves can be delivered as normally open or normally closed valves and with or without manual operation. EVR valves are available with flare, solder or flange connections. EVRC is a servo operated solenoid valve for use in liquid lines in refrigeration plant. EVRC allows flow in both directions and can therefore be used in liquid lines in refrigeration plant with hot gas or gas defrost. During the refrigeration period EVRC works as a normal solenoid valve, while during the defrost it allows the condensed liquid to return to the liquid manifold.





Facts

Application:
- Traditional refrigeration
- 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
- Can be used for all fluorinated refrigerants (CFC, HCFC and HFC)
- Temperature range: -40 – 105 °C / -40 – 221 °F

- Max. working pressure (PS / MWP): 32 bar / 460 psi (EVR 2 / EVR 6: 45.2 bar / 655 psi EVR 10: 35 bar / 500 psi EVR 15 / EVR 40: 32 bar / 460 psi EVRH 10 / EVRH 40: 45.2 bar / 655 psi)
- MOPD up to 25 bar / 365 psi with 12 W AC coil
- 100% test of functionality, internal / external leakage and electrical characteristics

Technical data and ordering

EVR

Technical data

Type	Opening differential pressure with standard coil Δp [bar]				Temperature of medium [°C]
	Min.	Max. (= MOPD) liquid [1]			
		10 W AC	12 W AC	20 W DC	
EVR 2	0.00	25	–	18	-40 – 105
EVR 3	0.00	21	25	18	-40 – 105
EVR 6	0.05	21	25	18	-40 – 105
EVR 6 NO	0.05	21	21	21	-40 – 105
EVR 10	0.05	21	25	18	-40 – 105
EVR 10 NO	0.05	21	21	21	-40 – 105
EVR 15	0.05	21	25	18	-40 – 105
EVR 15 NO	0.05	21	21	21	-40 – 105
EVR 20 with AC coil	0.05	21	25	13	-40 – 105
EVR 20 with DC coil	0.05	–	–	16	-40 – 105
EVR 20 NO	0.05	19	19	19	-40 – 105
EVR 22	0.05	21	25	13	-40 – 105
EVR 22 NO	0.05	19	19	19	-40 – 105
EVR 25 [2]	0.20	21	25	18	-40 – 105
EVR 32 [2]	0.20	21	25	18	-40 – 105
EVR 40 [2]	0.20	21	25	18	-40 – 105

[1] MOPD (Max. Opening Pressure Differential) for media in gas form is approx. 1 bar greater.
[2] Min. diff. pressure 0.07 bar is needed to stay open.

Technical data and capacities

EVR

Rated capacity [kW] – Liquid

Type	R22 / R407C	R134a	R404A / R507	R32	R290	R600	R600a
EVR 2	3.22	2.98	2.18	4.51	3.58	4.06	3.61
EVR 3	5.43	5.02	3.68	7.61	6.05	6.84	6.09
EVR 6	16.09	14.89	10.9	22.55	17.91	20.28	18.04
EVR 10	38.22	35.36	25.88	53.55	42.54	48.15	42.84
EVR 15	52.3	48.38	35.41	73.28	58.22	65.89	58.62
EVR 20	100.57	93.04	68.1	140.92	111.96	126.72	112.74
EVR 22	120.68	111.65	81.72	–	–	–	–
EVR 25	152.42	141.01	103.21	–	–	–	–
EVR 32	243.83	225.57	165.11	–	–	–	–
EVR 40	380.9	352.39	257.92	–	–	–	–

Rated capacity [kW] – Suction vapour

Type	R22 / R407C	R134a	R404A / R507	R32	R290	R600	R600a
EVR 2	0.35	0.26	0.31	0.57	0.44	0.2	0.24
EVR 3	0.6	0.44	0.52	0.96	0.74	0.34	0.41
EVR 6	1.8	1.3	1.6	2.86	2.18	0.99	1.21
EVR 10	4.3	3.1	3.9	6.79	5.18	2.36	2.86
EVR 15	5.9	4.2	5.3	9.29	7.09	3.23	3.92
EVR 20	11.4	8.1	10.2	17.87	13.64	6.21	7.53
EVR 22	13.7	9.7	12.2	–	–	–	–
EVR 25	22.8	16.3	20.4	–	–	–	–
EVR 32	36.5	26.1	32.6	–	–	–	–
EVR 40	57	40.8	51	–	–	–	–

Rated capacity [kW] – Hot gas

Type	R22 / R407C	R134a	R404A / R507	R32	R290	R600	R600a
EVR 2	1.48	1.17	1.21	2.32	1.64	0.88	0.99
EVR 3	2.49	1.98	2.03	3.91	2.77	1.48	1.68
EVR 6	7.4	5.86	6.02	11.58	8.2	4.39	4.97
EVR 10	17.5	13.9	14.3	27.5	19.48	10.43	11.82
EVR 15	24	19	19.6	37.63	26.66	14.27	16.17
EVR 20	46.2	36.6	37.7	72.37	51.26	27.44	31.09
EVR 22	55.4	43.9	45.2	–	–	–	–
EVR 25	92.3	73.2	75.3	–	–	–	–
EVR 32	148	117	120	–	–	–	–
EVR 40	231	183	188	–	–	–	–

Rated liquid and suction vapour capacity is based on:
evaporating temperature t_e = -10 °C / 50 °F
liquid temperature ahead of valve t_l = 25 °C / 77 °F
pressure drop in valve Δp = 0.15 bar / 2.18 psi

Rated hot gas capacity is based on:
condensing temperature t_c = 40 °C / 104 °F
pressure drop across valve Δp = 0.8 bar / 11.6 psi
hot gas temperature t_h = 65 °C / 149 °F
subcooling of refrigerant Δt_{sub} = 4 K

Technical data and capacities

EVRH

Rated capacity [kW]

Type	Liquid	Suction vapour	Hot gas
	R410A [1])	R410A	R410A
EVRH 10	36.92	5.31	20.97
EVRH 15	50.52	7.27	28.69
EVRH 20	97.15	13.98	55.51
EVRH 25	194.31	27.96	110.35
EVRH 32	310.89	44.74	176.55
EVRH 40	485.77	69.90	275.86

[1]) Calculated values.
Rated liquid and suction vapour is based on evaporating temperature t_c = -10 °C / 50 °F, liquid temperature ahead of valve t_l = 25 °C / 77 °F, pressure drop in valve Δp = 0.15 bar / 2.18 psi. Rated hot gas capacity is based on condensing temperature t_c = 40 °C / 104 °F, pressure drop across valve Δp = 0.8 bar / 11.6 psi, hot gas temperature t_h = 25 °C / 77 °F, and subcooling of refrigerant Δt_{sub} = 4 K.

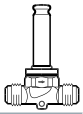
EVRC

Rated capacity [kW]

Type	Rated capacity with normal flow direction [1]) [kW]				Opening differential pressure with standard coil Δp [bar]			
						Max. (= MOPD) liquid		
	R22/R407C	R134A	R507	R407C	Min.	10 W AC	12 W AC	20 W DC
EVRC 10	38.2	35.3	26.7	35.9	0.05	21	25	18
EVRC 15	52.3	48.3	36.5	49.2	0.05	21	25	18
EVRC 20	94.6	87.2	66.1	88.9	0.05	21	25	13

[1]) Rated capacity is based on evaporating temperature t_e = -10 °C / 50 °F, liquid temperature ahead of valve t_l = 25 °C / 77 °F, and pressure drop across valve Δp = 0.15 bar / 2.18 psi.

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



Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K_v value [m^3/h]	C_v value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 2	AC	6	1/4	No	45.2	655	0.16	0.19	032F8056
EVR 3	AC / DC	6	1/4	No	45.2	655	0.27	0.32	032F8107
	AC / DC	10	3/8	No	45.2	655	0.27	0.32	032F8116
EVR 6	AC / DC	10	3/8	No	45.2	655	0.80	0.92	032F8072
	AC / DC	12	1/2	No	45.2	655	0.80	0.92	032F8079
EVR 10	AC / DC	12	1/2	No	35	500	1.9	2.2	032F8095
	AC / DC	16	5/8	No	35	500	1.9	2.2	032F8098
EVR 15	AC / DC	16	5/8	No	32	460	2.6	3.0	032F8101
	AC / DC	16	5/8	Yes	32	460	2.6	3.0	032F8100

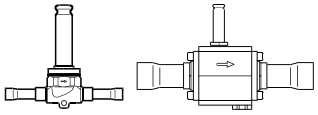
EVR flare connections, Normally Open (NO) - separate valve bodies

Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K_v value [m^3/h]	C_v value [gal/min]	Code no.
		[in]	[mm]		[bar]	[psi]			
EVR 6	AC / DC	3/8	10	No	45.2	655	0.80	0.92	032F8085
EVR 10	AC / DC	1/2	12	No	35	500	1.9	2.2	032F8090

Technical data and ordering

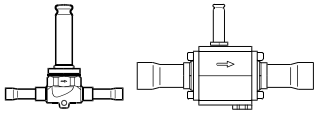
EVR solder connections, Normally Closed (NC) - separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K_v value [m^3/h]	C_v value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 2	AC	–	1/4	No	45.2	655	0.16	0.19	032F1201
	AC	6	–	No	45.2	655	0.16	0.19	032F1202
EVR 3	AC / DC	–	1/4	No	45.2	655	0.27	0.32	032F1206
	AC / DC	–	3/8	No	45.2	655	0.27	0.32	032F1204
	AC / DC	6	–	No	45.2	655	0.27	0.32	032F1207
	AC / DC	10	–	No	45.2	655	0.27	0.32	032F1208
EVR 6	AC / DC	–	1/2	No	45.2	655	0.80	0.92	032F1209
	AC / DC	–	3/8	No	45.2	655	0.80	0.92	032F1212
	AC / DC	10	–	No	45.2	655	0.80	0.92	032F1213
	AC / DC	12	–	No	45.2	655	0.80	0.92	032F1236
EVR 10	AC / DC	–	1/2	No	35	500	1.9	2.2	032F1217
	AC / DC	12	–	No	35	500	1.9	2.2	032F1218
	AC / DC	16	5/8	No	35	500	1.9	2.2	032F1214
EVR 15	AC / DC	22	7/8	No	32	460	2.6	3.0	032F1225
	AC / DC	16	–	Yes	32	460	2.6	3.0	032F1227
	AC / DC	16	5/8	No	32	460	2.6	3.0	032F1228
EVR 20	AC	22	7/8	No	32	460	5.0	5.8	032F1240
	AC	–	7/8	Yes	32	460	5.0	5.8	032F1254
	AC	–	1 1/8	No	32	460	5.0	5.8	032F1244
	AC	28	–	No	32	460	5.0	5.8	032F1245
	DC	22	7/8	No	32	460	5.0	5.8	032F1264
	DC	–	7/8	Yes	32	460	5.0	5.8	032F1274
EVR 22	AC	35	1 3/8	No	32	460	6.0	6.9	032F3267
EVR 25	AC / DC	–	1 1/8	Yes	32	460	10.0	11.6	032F2200
	AC / DC	–	1 1/8	No	32	460	10.0	11.6	032F2201
	AC / DC	28	–	Yes	32	460	10.0	11.6	032F2205
	AC / DC	28	–	No	32	460	10.0	11.6	032F2206
	AC / DC	–	1 3/8	Yes	32	460	10.0	11.6	032F2207
	AC / DC	–	1 3/8	No	32	460	10.0	11.6	032F2208
EVR 32	AC / DC	–	1 5/8	Yes	32	460	16.0	18.5	042H1103
	AC / DC	–	1 5/8	No	32	460	16.0	18.5	042H1104
	AC / DC	35	–	Yes	32	460	16.0	18.5	042H1105
	AC / DC	35	–	No	32	460	16.0	18.5	042H1106
	AC / DC	42	–	Yes	32	460	16.0	18.5	042H1107
	AC / DC	42	–	No	32	460	16.0	18.5	042H1108
EVR 40	AC / DC	–	1 5/8	Yes	32	460	25.0	28.9	042H1109
	AC / DC	–	1 5/8	No	32	460	25.0	28.9	042H1110
	AC / DC	–	2 1/8	Yes	32	460	25.0	28.9	042H1111
	AC / DC	–	2 1/8	No	32	460	25.0	28.9	042H1112
	AC / DC	42	–	Yes	32	460	25.0	28.9	042H1113
	AC / DC	42	–	No	32	460	25.0	28.9	042H1114

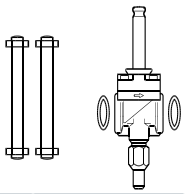
EVR solder connections, Normally Open (NO) - separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K_v value [m^3/h]	C_v value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 6	AC / DC	–	3/8	No	45.2	655	0.80	0.92	032F1290
	AC / DC	10	–	No	45.2	655	0.80	0.92	032F1295
EVR 10	AC / DC	–	1/2	No	35	500	1.9	2.2	032F1291
	AC / DC	12	–	No	35	500	1.9	2.2	032F1296
EVR 15	AC / DC	16	–	No	32	460	2.6	3.0	032F1299
	AC / DC	–	7/8	No	32	460	2.6	3.0	032F3270
EVR 20	AC / DC	–	7/8	No	32	460	5.0	5.8	032F1260
	AC / DC	–	1 1/8	No	32	460	5.0	5.8	032F1269
	AC / DC	28	–	No	32	460	5.0	5.8	032F1279
EVR 22	AC	–	1 3/8	No	32	460	6.0	6.9	032F3268

Technical data and ordering



EVR flange connection, Normally Closed (NC)

Ordering

Type	Current type	Connection	Manual operation	Code no. Valve body + gaskets + bolts; without coil and flanges
EVR 15	AC / DC	Flanges	yes	032F1234
	AC / DC	Flanges	no	032F1224
EVR 20	AC	Flanges	yes	032F1253
	AC	Flanges	no	032F1243
	DC	Flanges	yes	032F1273

EVR- Flange sets

Ordering

Type	Connection size		Connection type			Code no.
	[mm]	[in]	Solder [mm]	Solder [in]	Weld [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

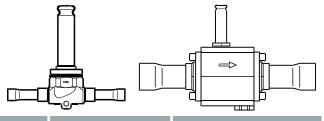
Example:
EVR 15 without manual operation - code no. ***032F1224****. - 1/2 in weld flange set. - code no.* ***027N1115****. - + coil with terminal box, 220 V, 50 Hz, - code no.* ***018F6701****.*
See separate data sheet for coils.

EVR

Accessories – Ordering

Description	Code no.
Mounting bracket for EVR 2, EVR 3, EVR 6 and EVR 10	032F0197
Strainer FA for direct mounting	See "FA"

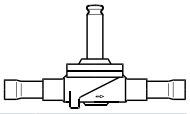
EVRH – Normally closed (NC)
Soldering ODF without manual stem – separate valve bodies



Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K_v value [m^3/h]	C_v value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVRH 10	AC / DC	–	1/2	No	45.2	655	1.9	2.2	032G1054
	AC / DC	12	–	No	45.2	655	1.9	2.2	032G1055
EVRH 15	AC / DC	16	5/8	No	45.2	655	2.6	3.0	032G1056
EVRH 20	AC	22	7/8	No	45.2	655	5.0	5.8	032G1057
	DC	22	7/8	No	45.2	655	5.0	5.8	032G1058
EVRH 25	AC / DC	–	1 1/8	No	45.2	655	10.0	11.6	032G1059
EVRH 32	AC / DC	35	–	No	45.2	655	16.0	18.5	032G1081
EVRH 40	AC / DC	–	1 5/8	No	45	650	25.0	28.9	032G1062

EVRC – Normally closed (NC)
Soldering ODF without manual stem – separate valve bodies



Ordering

Type	Required current type	Connection Solder		Max. working pressure		K_v value [m^3/h]		C_v value [gal/min]		Code no.
		[mm]	[in]	[bar]	[psi]	Flow in arrow direction	Flow against arrow direction	Flow in arrow direction	Flow against arrow direction	Valve housing without coil
EVRC 10	AC DC	–	1/2	35	500	1.9	1.1	2.2	1.3	032F1216
EVRC 15		16	5/8	32	460	2.6	1.2	3.0	1.4	032F1255
EVRC 20		22	7/8	32	460	5.0	4.7	5.8	5.4	032F1258

Technical data and ordering

EVR, UL listed

Technical data

Type	Opening differential pressure Δp [PSI]			Medium Temperature	Maximum working pressure MWP
	Min.	Max. (= MOPD) liquid [1]			
		AC	DC	[°F]	[psig]
EVR 2	0.0	350	260	-40 – 220	665
EVR 3	0.0	300	260	-40 – 220	665
EVR 4	0.7	300	260	-40 – 220	665
EVR 6	0.7	300	260	-40 – 220	665
EVR 6 NO	0.7	300	300	-40 – 220	665
EVR 8	0.7	300	260	-40 – 220	665
EVR 10	0.7	300	260	-40 – 220	500
EVR 10 NO	0.7	300	300	-40 – 220	500
EVR 15	0.7	300	260	-40 – 220	460
EVR 15 NO	0.7	300	300	-40 – 220	460
EVR 18	0.7	300	260	-40 – 220	460
EVR 20	0.7	300	190	-40 – 220	460
EVR 20	0.7	275	190	-40 – 220	460
EVR 22	0.7	275	190	-40 – 220	460
EVR 25	1.0	300	260	-40 – 220	460
EVR 32	1.0	300	260	-40 – 220	460
EVR 40	1.0	300	260	-40 – 220	460

[1]) *MOPD (Max. Opening Pressure Differential) for media in gas form is approx. 14 psi greater.*

Technical data and capacities

EVR, UL listed

Rated capacity [TR] - Liquid

Type	R22 / R407C	R134a	R404A / R507
EVR 2	1.17	0.89	0.80
EVR 3	2.03	1.55	1.40
EVR 4	4.15	3.16	2.86
EVR 6	5.83	4.43	4.01
EVR 8	8.01	6.09	5.52
EVR 10	13.8	10.5	9.53
EVR 15	18.9	14.4	13.0
EVR 18	24.6	18.7	17.0
EVR 20	36.4	27.7	25.1
EVR 22	43.7	33.3	30.1
EVR 25	72.8	55.4	50.2
EVR 32	116.5	88.7	80.3
EVR 40	182.0	138.5	125.4

Rated capacity [TR] - Suction vapour

Type	R22 / R407C	R134a	R404A / R507
EVR 2	0.10	0.07	0.09
EVR 3	0.17	0.13	0.15
EVR 4	0.34	0.26	0.30
EVR 6	0.48	0.37	0.43
EVR 8	0.66	0.51	0.58
EVR 10	1.15	0.88	1.01
EVR 15	1.57	1.20	1.38
EVR 18	2.04	1.56	1.80
EVR 20	3.02	2.31	2.66
EVR 22	3.62	2.78	3.19
EVR 25	6.04	4.63	5.32
EVR 32	9.66	7.40	8.51
EVR 40	16.1	11.6	13.3

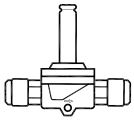
Rated capacity [TR] - Hot gas

Type	R22 / R407C	R134a	R404A / R507
EVR 2	0.22	0.18	0.17
EVR 3	0.38	0.31	0.30
EVR 4	0.77	0.63	0.62
EVR 6	1.08	0.88	0.87
EVR 8	1.49	1.21	1.19
EVR 10	2.57	2.10	2.06
EVR 15	3.52	2.87	2.82
EVR 18	4.57	3.73	3.67
EVR 20	6.76	5.51	5.43
EVR 22	8.11	6.62	6.52
EVR 25	13.5	11.0	10.9
EVR 32	21.6	17.7	17.4
EVR 40	33.8	27.6	27.2

¹) Rated liquid and suction vapor capacity are based on:
Evaporating temperature te= 40 °F
Liquid temperature ahead of valve tl= 100 °F
Pressure drop Δp across valve
– with liquid Δp = 3 psi
– with suction vapor Δp = 1 psi (EVR 25, 32, 40 = 2 psi)

Technical data and ordering

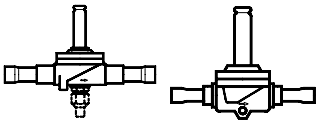
EVR flare connections, Normally Closed (NC) - separate valve bodies, UL listed



Ordering

Type	Connection [in]	Port size [in]	Manual stem	C_v value [gal/min]	Code nos. valve body excl. coil
EVR 3	1/4	1/8	No	0.32	032F8106
EVR 3	3/8	1/8	No	0.32	032F8115
EVR 6	3/8	15/64	No	0.93	032F8071

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



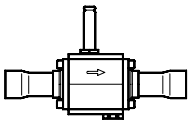
Ordering

Type	Connection [in]	Port size [in]	Manual stem	C_v value [gal/min]	Code nos. valve body excl. coil
EVR 2	1/4	3/32	No	0.19	032F7100
EVR 3	1/4	1/8	No	0.32	032F7105
	3/8	1/8	No	0.32	032F1157
EVR 4	3/8	5/32	No	0.66	032F7110
EVR 6	3/8	15/64	No	0.93	032F7115
	3/8	15/64	Yes	0.93	032F7116
	1/2	15/64	No	0.93	032F1162
	1/2	15/64	No	0.93	032F7144
	5/8	15/64	No	0.93	032F7117
EVR 8	1/2	5/16	No	1.3	032F7121
	1/2	5/16	Yes	1.3	032F7148
	5/8	5/16	No	1.3	032F7122
EVR 10	3/8	3/8	No	2.2	032F7125
	1/2	3/8	No	2.2	032F1166
	1/2	3/8	Yes	2.2	032F1188
	5/8	3/8	No	2.2	032F1168
	5/8	3/8	Yes	2.2	032F7149
EVR 15	5/8	9/16	No	3.0	032F1171
	5/8	9/16	Yes	3.0	032F1172
	7/8	9/16	No	3.0	032F7130
EVR 18	7/8	19/32	Yes	3.9	032F1004
EVR 20	7/8	7/8	No	5.8	032F1176
	7/8	7/8	Yes	5.8	032F1177
EVR 22	1 1/8	15/16	No	6.9	032F7145
	1 1/8	15/16	Yes	6.9	032F7137
	1 3/8	15/16	No	6.9	032F7146

Metric conversions

1 psi = 0.07 bar
5/9 (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW
1 in = 25.4 mm
US gal/min = 0.86 m^3/h

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



Ordering

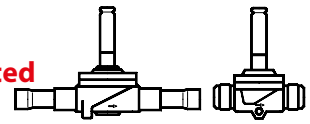
Type	Connection [in]	Port size [in]	Manual stem	C_v value [gal/min]	Code nos. valve body excl. coil
EVR 25	1 1/8	1	No	12.0	032F1189
	1 1/8	1	Yes	12.0	032F1190
	1 3/8	1	No	12.0	032F1193
	1 3/8	1	Yes	12.0	032F1194
EVR 32	1 3/8	7/8	No	18.0	042H1176
	1 3/8	7/8	Yes	18.0	042H1177
	1 5/8	7/8	No	18.0	042H1178
	1 5/8	7/8	Yes	18.0	042H1179
	2 1/8	7/8	No	18.0	042H1180
	2 1/8	7/8	Yes	18.0	042H1181
EVR 40	2 1/8	1	Yes	29.0	042H1188

Metric conversions

1 psi = 0.07 bar *1 TR = 3.5 kW* *US gal/min = 0.86 m³/h*

5/9 (t_1 °F - 32) = t_2 °C *1 in = 25.4 mm*

EVR solder ODF connections, Normally Open (NO) - separate valve bodies, UL listed



Ordering

Type	Connection [in]	Port size [in]	C_v value [gal/min]	Code nos. valve body excl. coil
EVR 6	3/8	1/4	0.93	032F1164
EVR 10	1/2	3/8	2.2	032F1169
EVR 15	5/8	9/16	3.0	032F1174

Metric conversions

1 psi = 0.07 bar *1 TR = 3.5 kW* *US gal/min = 0.86 m³/h*

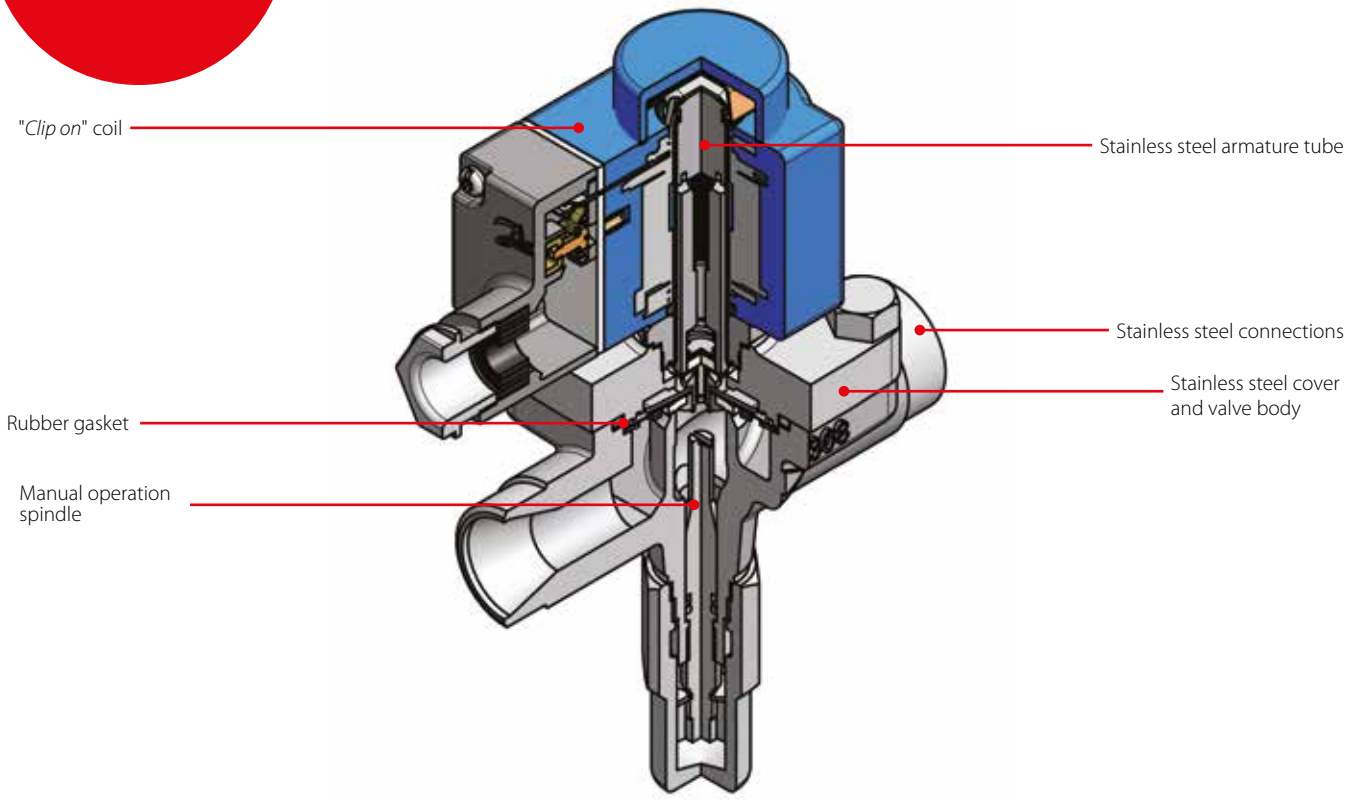
5/9 (t_1 °F - 32) = t_2 °C *1 in = 25.4 mm*

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 with HCFC, HFC, R717 (Ammonia) or R744 (CO_2) refrigerants.

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 CO_2 subcritical)
- Applicable to HCFC, HFC, R717 (Ammonia) and R744 (CO_2)
- 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] [m³/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, ρ = 1000 kg/m³.

EVRS / EVRST solenoid valves, Normally Closed (NC)

Technical data

Type	Rated capacity [1] [kW]														
	Liquid					Suction vapour					Hot gas [2]				
	R717	R22	R134a	R404A/ R507	R410A	R717	R22	R134a	R404A/ R507	R410A	R717	R22	R134a	R404A/ R507	R410A
EVRS 3	21.8	4.6	4.3	3.2	4.5	–	–	–	–	–	6.5	2.1	1.7	1.7	2.3
EVRS / EVRST 10	142.0	30.2	27.8	21.1	29.7	9.0	3.4	2.5	3.1	4.3	42.6	13.9	11.0	11.3	14.9
EVRS / EVRST 15	256.0	54.4	50.1	38.0	53.5	16.1	6.2	4.4	5.5	7.7	76.7	24.9	19.8	20.3	26.7
EVRS / EVRST 20	426.0	90.6	83.5	63.3	89.1	26.9	10.3	7.3	9.2	12.0	128.0	41.5	32.9	33.9	44.5

[1]) Rated liquid and suction vapour capacity is based on evaporating temperature t_e = -10 °C, liquid temperature ahead of valve t_l = 25 °C, and pressure drop across valve Δp = 0.15 bar.
[2]) Rated hot gas capacity is based on condensing temperature t_c = 40 °C, pressure drop across valve Δp = 0.8 bar, hot gas temperature t_h = 60 °C, and subcooling of refrigerant Δt_{sub} = 4 K.

EVRS / EVRST solenoid valves, Normally Closed (NC)

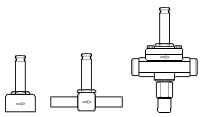
Technical data

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 °C, liquid temperature ahead of the valve t_l = -8 °C and pressure drop across the valve Δp = 0.15 bar.

EVRS / EVRST solenoid valves, Normally Closed (NC)

Ordering



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

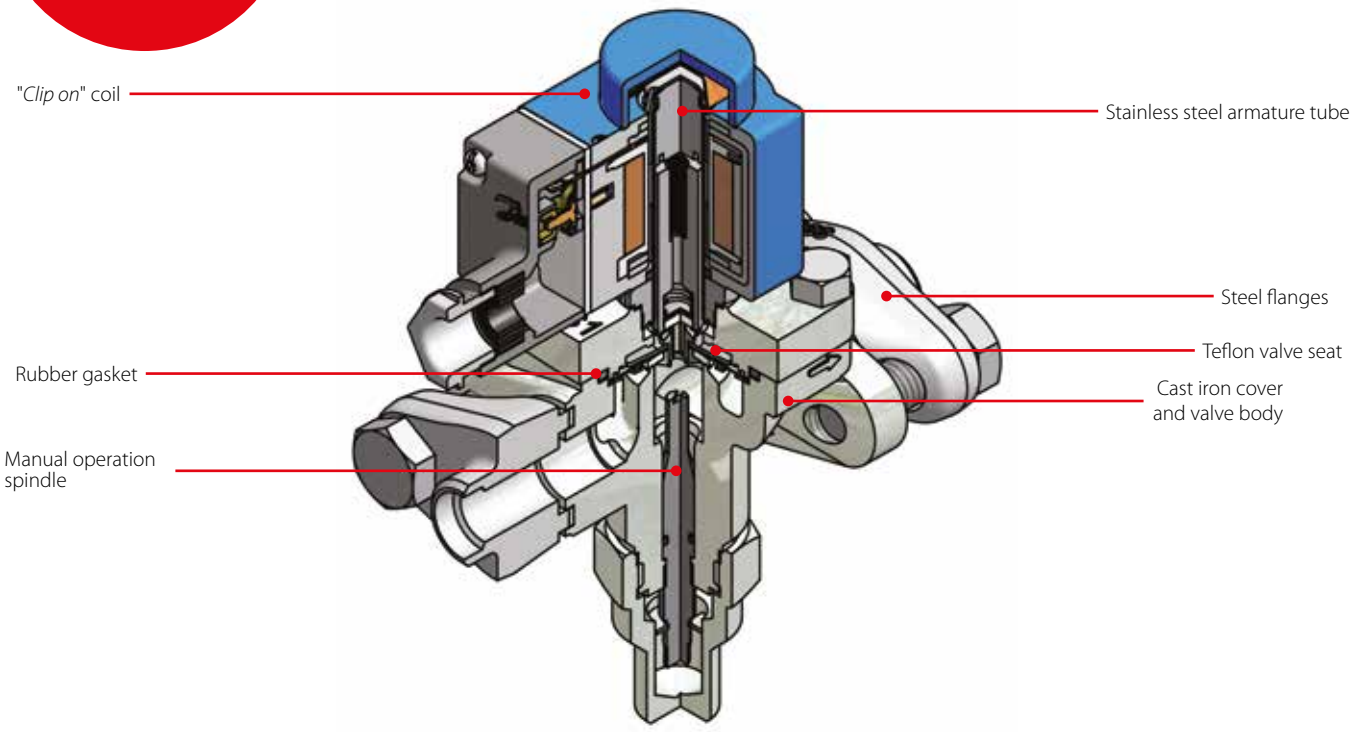
EVRA / EVRAT - Solenoid valves

EVRA and EVRAT are solenoid valves for liquid, suction and hot gas lines with HCFC, HFC or R717 (Ammonia). 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.



Features
EVRA / EVRAT



Facts

- EVRA and EVRAT valves are applicable to HCFC, HFC and R717 (Ammonia)
- 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 10W AC [bar]	Max OPD 20W DC [bar]	Coil type	Coil connection	Supply voltage [V] AC	Frequency [Hz]	Power consumption [W]	Singlepack/ Multipack (12 pcs.)	Code number
EVRA 3	No	Flange*	3	21	14	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Multipack	032F310231
EVRA 3	No	Flange*	3	21	14	BE230AS	Connection Box	220 – 230	50	10	Multipack	032F310331
EVRA 3	No	Flange*	3	21	14	BE230CS	Connection Box	220 – 230	50 / 60	10	Multipack	032F310332
EVRA 10	No	Flange*	10	21	18	BE230AS	Connection Box	220 – 230	50	10	Multipack	032F620831
EVRA 10	Yes	Flange*	10	21	18	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Singlepack	032F621231
EVRA 10	Yes	Flange*	10	21	18	BE230AS	Connection Box	220 – 230	50	10	Singlepack	032F621331
EVRA 10	Yes	Flange*	10	21	18	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F621332
EVRA 15	No	Flange*	15	21	18	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Singlepack	032F621731
EVRA 15	No	Flange*	15	21	18	BF230CS	Cable (1 m/3.3 ft)	220 – 230	50 / 60	10	Singlepack	032F621732
EVRA 15	No	Flange*	15	21	18	BE230AS	Connection Box	220 – 230	50	10	Singlepack	032F621831
EVRA 15	No	Flange*	15	21	18	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F621832
EVRA 20	No	Flange*	20	21	13	BF230AS	Cable (1 m/3.3 ft)	220 – 230	50	10	Singlepack	032F622231
EVRA 20	No	Flange*	20	21	13	BE230AS	Connection Box	220 – 230	50	10	Singlepack	032F622331
EVRA 20	No	Flange*	20	21	13	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F622332
EVRA 25	Yes	Flange*	25	21	14	BE230CS	Connection Box	220 – 230	50 / 60	10	Singlepack	032F803432



EVRA / EVRAT Solenoid valves

Ordering valve with coil

Type	Manual Stem	Inlet connection type	Inlet size [in]	Orifice size [mm]	Max OPD 10W AC [bar]	Max OPD 12W AC [bar]	Max OPD 20W DC [bar]	Required coil type**	Singlepack/ Multipack (12 pcs.)	Code number
EVRA 3	No	Flange*	–	3	21	25	14	AC / DC	Multipack	032F3050
EVRA 10	Yes	Flange*	–	10	21	25	18	AC / DC	Singlepack	032F6210
EVRA 10	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
EVRA 20	Yes	Flange*	–	20	19	21	16	AC / DC	Singlepack	032F6221
EVRA 25	Yes	Flange*	–	25	21	25	14	AC / DC	Singlepack	032F6225
EVRA 25	No	Flange*	–	25	21	25	14	AC / DC	Singlepack	032F6226
EVRA 32	Yes	Butt weld DIN	1¼	22.2	21	25	14	AC / DC	Singlepack	042H1126
EVRA 32	No	Butt weld DIN	1¼	22.2	21	25	14	AC / DC	Singlepack	042H1127
EVRA 40	Yes	Butt weld DIN	1½	25.4	21	25	14	AC / DC	Singlepack	042H1128
EVRA 40	No	Butt weld DIN	1½	25.4	21	25	14	AC / DC	Singlepack	042H1129
EVRA 32	Yes	Butt weld DIN	1½	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	1¼	22.2	21	25	14	AC / DC	Singlepack	042H1140
EVRA 32	Yes	Butt weld ANSI 36.10	1½	22.2	21	25	14	AC / DC	Singlepack	042H1141
EVRA 40	Yes	Butt weld ANSI 36.10	1½	25.4	21	25	14	AC / DC	Singlepack	042H1142
EVRA 40	Yes	Butt weld ANSI 36.10	2	25.4	21	25	14	AC / DC	Singlepack	042H1143

* For ordering flanges; please downlad the data sheet DKRCI.PY.000.B from www.danfoss.com
** For ordering coils; please download the data sheet DKRCC.PD.BS0.F from www.danfoss.com

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.





Clip-on system for easy and fast mounting and demounting

Many voltage and frequency combinations for flexible installation worldwide

Many power versions for high MOPD performance on different valve types

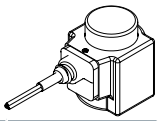
Terminal box, DIN plug or cable for flexible electrical installation

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

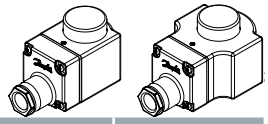
Solenoid coil with 1m 3 - core cable IP67



Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BF	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	24	–	018F6257
			50	220 / 230	–	018F6251
			50	240	–	018F6252
			50	380 / 400	–	018F6253
			60	24	–	018F6265
			60	115	–	018F6260
			60	220	–	018F6264
			50/60	110	–	018F6280
			50/60	220 / 230	–	018F6282

Solenoid coil with terminal box IP67



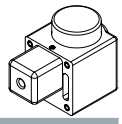
Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BE	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	12	–	018F6706
			50	24	–	018F6707
			50	42	–	018F6708
			50	48	–	018F6709
			50	115	–	018F6711
			50	220 / 230	–	018F6701
			50	240	–	018F6702
			50	380 / 400	–	018F6703
			50	420	–	018F6704
			60	24	–	018F6715
			60	115	–	018F6710
			60	220	–	018F6714
			60	240	–	018F6713
			50 / 60	110	–	018F6730
			50 / 60	220 / 230	–	018F6732
BG	EVR 3 – EVR 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC / NO)	Holding: 12 W 26 VA Inrush: 55 VA	50	24	–	018F6807
			50	48	–	018F6809
			50	110	–	018F6811
			50	220 / 230	–	018F6801
			50	240	–	018F6802
			50	380 / 400	–	018F6803
			60	24	–	018F6815
			60	110	–	018F6813
			60	220	–	018F6814
	EVR 2 – EVR 15 (NC) EVR 25 – EVR 40 (NC/NO) EVR 6 – EVR 15 (NO) EVRC 10 – EVRC 15 EVRA 3 – EVRA 15 (NC) EVRA 25 – EVRA 40 (NC) EVRAT 10 – EVRAT 15 (NC) EVRS / EVRST 3 – EVRS 15 EVM (NC / NO)	20 W	–	–	12	018F6856
			–	–	24	018F6857
			–	–	48	018F6859
			–	–	110	018F6860
			–	–	115	018F6861
			–	–	220	018F6851
	EVR 20 – EVR 22 (NC / NO) EVRC 20 EVRA 20 EVRAT 20 EVRST 20	20 W	–	–	12	018F6886
			–	–	24	018F6887
			–	–	48	018F6889
			–	–	110	018F6890
			–	–	220	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.

Technical data and ordering

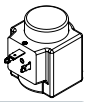
Solenoid coil with DIN spade and protection cap IP20



Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BE	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	24	–	018F6182
			50	220 / 230	–	018F6176
			50	240	–	018F6177
			50	420	–	018F6179
			60	115	–	018F6185
			60	220	–	018F6189
			50/60	110	–	018F6192
			50/60	220 / 230	–	018F6193

Solenoid coil with DIN spade IP00*)

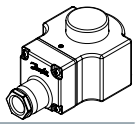


Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BB	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	24	–	018F7358
			50	115	–	018F7361
			50	220 / 230	–	018F7351
			50	240	–	018F7352
			50 / 60	110	–	018F7360
			50 / 60	220 / 230	–	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.*

Special solenoid coil with terminal box IP67

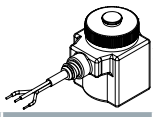


Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BN	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 4 – EVR 40 EVRC / EVRA / EVRAT / EVRS / EVRST / EVM (NC)	Holding: 20 W 45 VA Inrush: 65 VA	50	24	–	018F6903 [1])
			60	24	–	018F6906 [1])
			50	230	–	018F6905 [1])

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

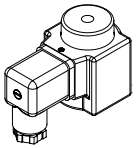
Solenoid coils with ATEX (Zone 2) approval IP65



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 EVRS / EVRST EVM (NC / NO)	Holding: 11 W 21 VA Inrush: 44 VA	50	24	018Z6120
			50	110	018Z6121
			50	230	018Z6122
			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



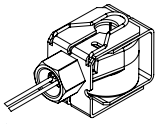
BJ coils - Junction box NEMA 2 ~ (UL listed) IP12 – IP32

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 15	50 / 60 60	110 120	7	18	018F4110
		14 17	60 50	208 – 240 230	7	18	018F4120
	AKVH / EVRH	16	60	120	7	18	018F4130
		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 15	50 / 60 60	110 120	18	46	018F4112
					36	91	018F4113
					71	180	018F4114
					98	250	018F4115
		14 17	60 50	208 – 240 230	18	46	018F4122
					98	250	018F4123
	AKVH / EVRH	16	60	120	98	250	018F4131
		16	60	208	98	250	018F4133
		16	60	240	98	250	018F4135

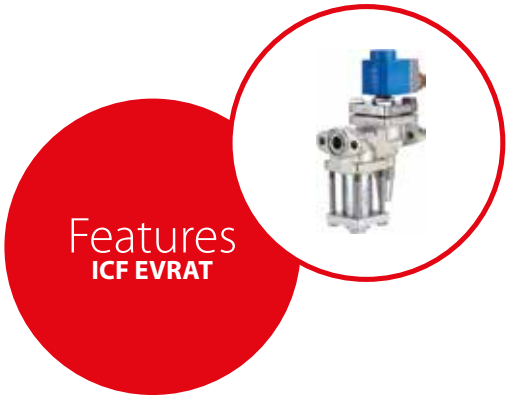
Permissible voltage variation
Alternating current (AC):
50 Hz and 60 Hz: -10% – 15%
50/60 Hz: +/- 10%

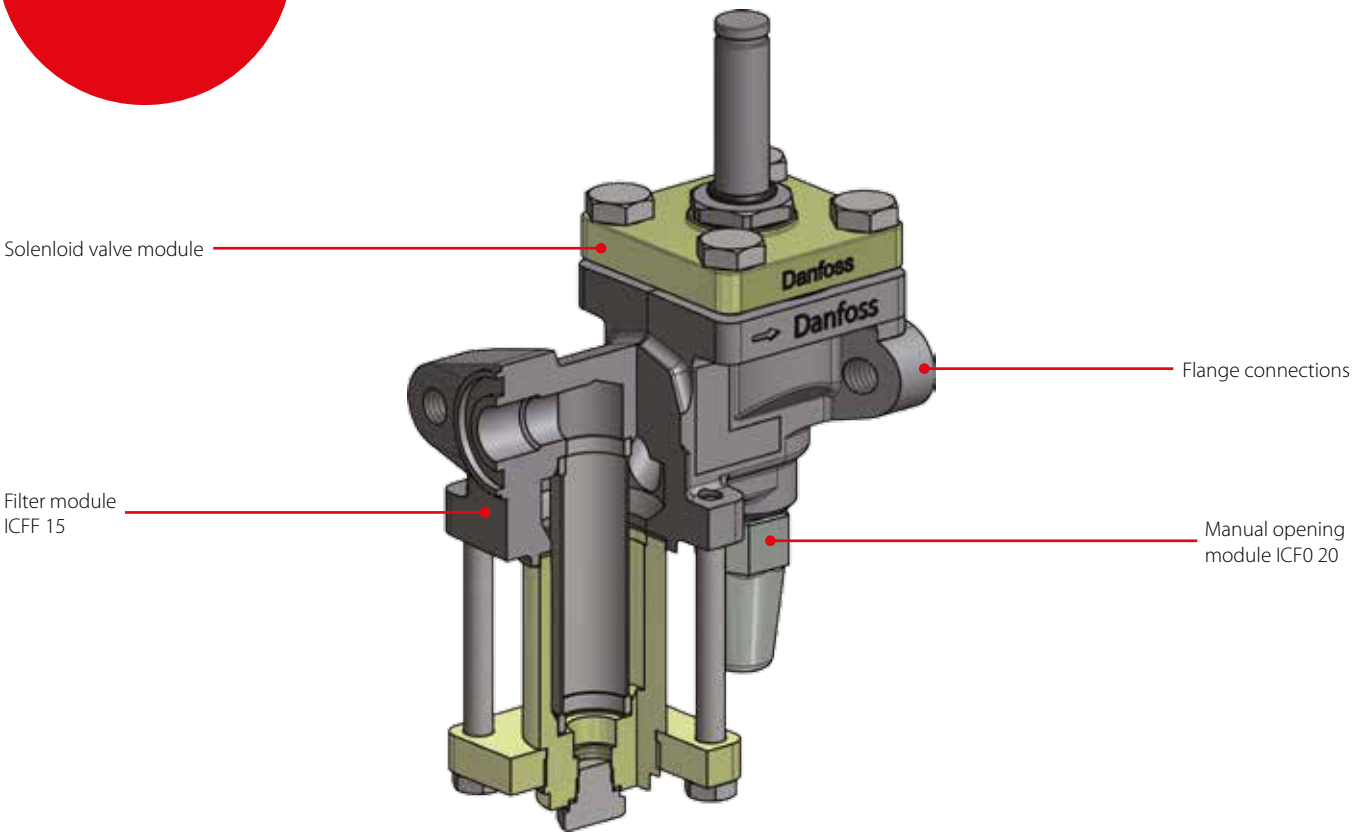
Insulation of coil wire
Class H according to IEC 85
Enclosure. IEC 60529
Ambient temperature:
-40 – 50 °C / -40 – 122 °F

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.

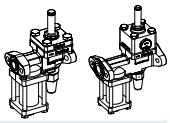




Facts

- Applicable to HCFC, non flammable HFC and R717 (Ammonia)
  The use of ICF EVRAT with flammable hydrocarbons is not recommended
- 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

Refrigerants	Applicable to HCFC, non flammable HFC and R717 (Ammonia). The use of ICF EVRAT with flammable hydrocarbons is not recommended
Temperature range	-40 – 105 °C / -40 – 221 °F
Presssure 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.

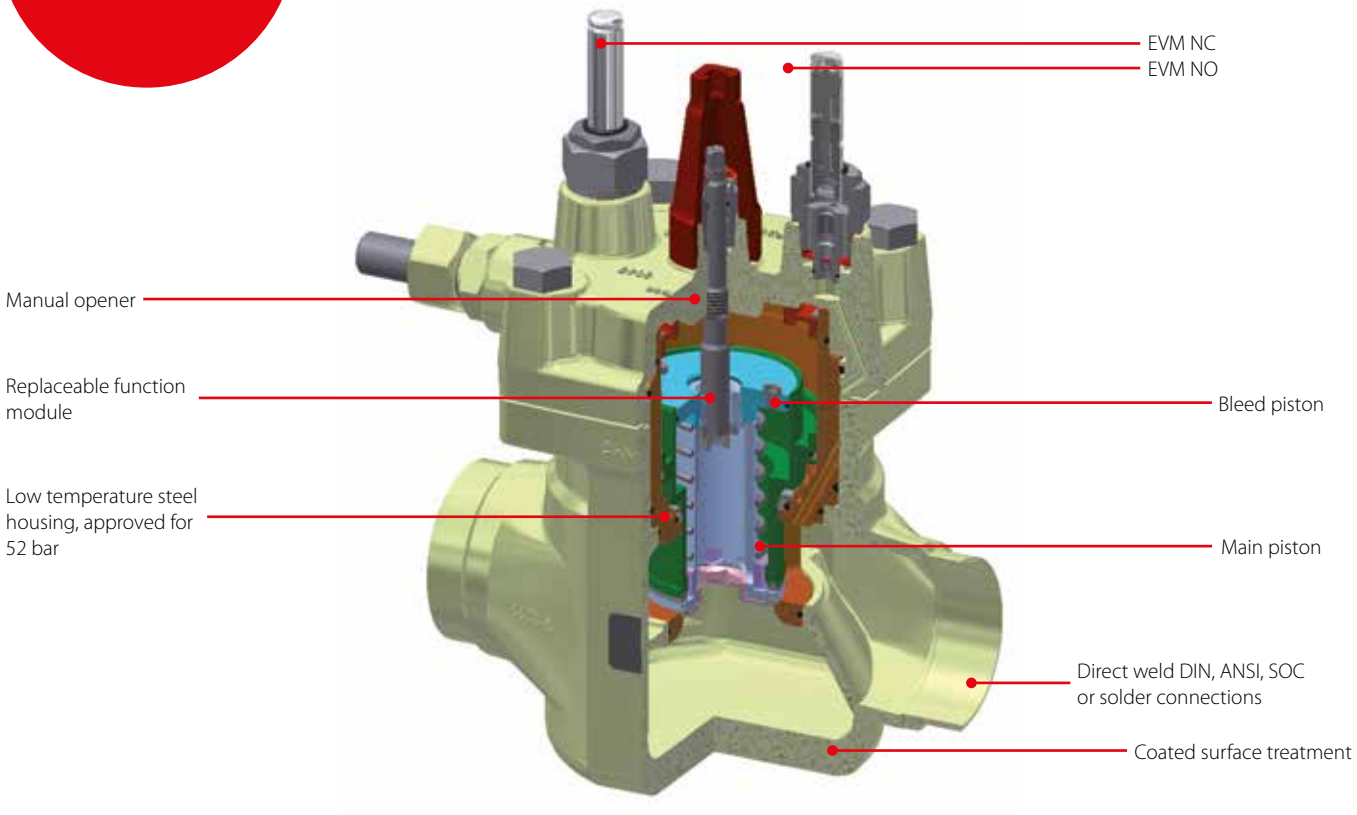
Type	Solenoid	K_v value [m³/h]	C_v value [US gal/min]	Code no.
ICF 15 EVRAT	ICFE 20	2.4	2.8	027L4517
ICF 20 EVRAT	ICFE 20	3.0	3.5	027L4518
ICF 20 EVRAT	ICFE 20H	3.7	4.3	027L4519

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 with ammonia, fluorinated refrigerants or CO_2. 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
- Refrigerants:
  - Applicable to all common refrigerants including R717 and R744 (CO_2) and non-corrosive gases / liquids. Use with flammable hydrocarbons is not recommended; please contact Danfoss
- 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

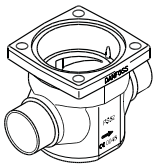
There are seven valve bodies available.



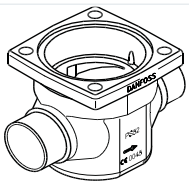
ICV 32



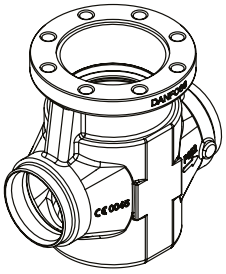
ICV 40



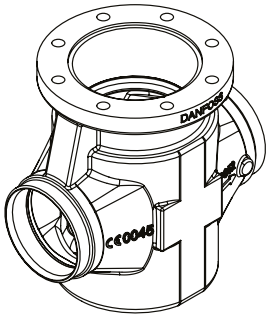
ICV 50



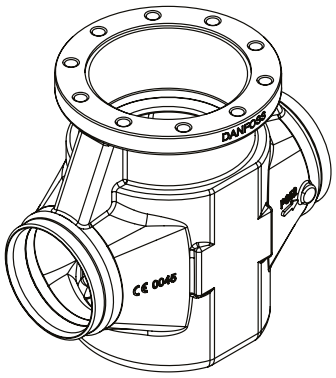
ICV 65



ICV 100



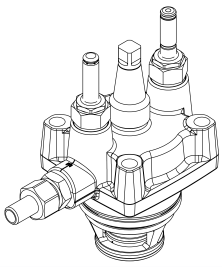
ICV 125



ICV 150

Top / function module

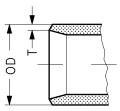
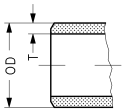
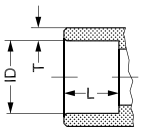
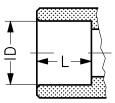
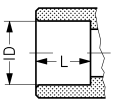
Top covers are fitted with external connector, EVM NC and EVM NO pilots and a complete function module.



Coils

Both coils to be IP67.
EVM NC: 10 W AC (or higher) for MOPD up to 21 bar - EVM NC: 20W 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

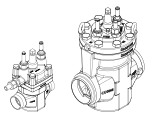
Capacities

	ICLX 32	ICLX 40	ICLX 50	ICLX 65	ICLX 100	ICLX 125	ICLX 150
K_v value [m³/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

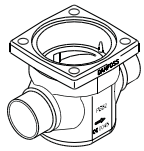


Type	Available connections		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICLX 32	1 ¼	32	Butt weld, EN 10220	D	027H3040
	1 ¼	32	Butt weld, ANSI (B 36.10)	A	027H3041
	1 ¼	32	Socket weld, ANSI (B 16.11)	SOC	027H3042
ICLX 40	1 ½	40	Butt weld, EN 10220	D	027H4040
	1 ½	40	Butt weld, ANSI (B 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

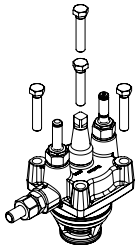
Ordering from the parts programme (valve body + top / function module)

Example:



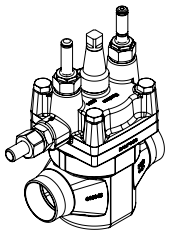
Valve body 50 D (2 in)
027H5120
Table I

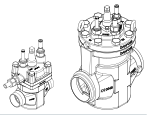
+



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

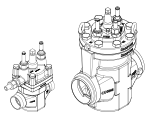
ICLX 50 top / function module [1])

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])

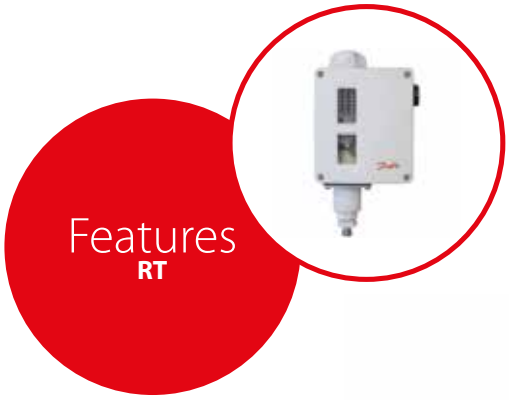
Type		Code no.
ICLX 65		027H6204

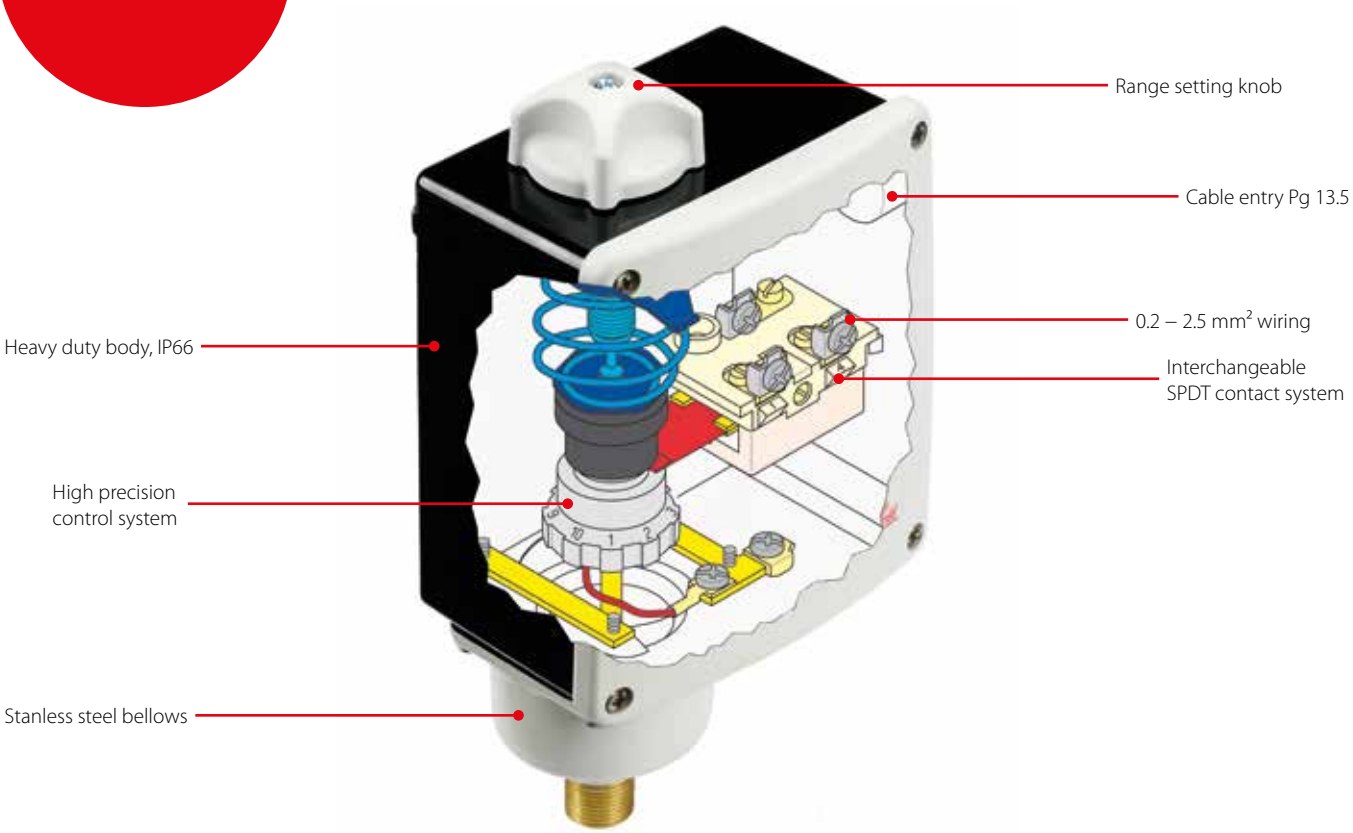
[1]) Top / function module includes external connector, EVM N C and EVM N O pilots, gaskets and O-rings.

Quick Selection Notes:

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. Versions of RT are available for R717, HCFC and non-flammable HFC refrigerants.





Facts

Application:
- General applications within industrial and marine refrigeration

- Pressure switches for fluorinated refrigerants and R717 (NH_3)
- 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 HCFC and non-flammable HFC refrigerants

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 117L	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 R717 (NH_3), HCFC and non-flammable HFC refrigerants

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 safety pressure switches with adjustable neutral zone for R717 (NH_3) *), HCFC and non-flammable HFC refrigerants

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 ø6 mm	017L001666
	Low	-0.8 – 5	0.2	0.2 – 0.9	22	25	G 3/8 A [1] + weld nipple ø6.5 / 10 mm	017L003366
RT 200L	Low	0.2 – 6	0.25	0.25 – 0.7	22	25	G 3/8 A [1] + weld nipple ø6.5 / 10 mm	017L003266
RT 5AL	High	4 – 17	0.35	0.35 – 1.4	22	25	cutting ring ø6 mm	017L001766 [2])
	High	4 – 17	0.35	0.35 – 1.4	22	25	G 3/8 A [1] + weld nipple ø6.5 / 10 mm	017L004066 [2])
RT 117L	High	10 – 30	1	1 – 3	42	47	G 3/8 A [1] + weld nipple ø6.5 / 10 mm	017L004266 [2])

[1]) G external thread, ISO 228-1
[2]) Without nipple
*) Only types with letter A are suitable for R717.

RT differential pressure switches for R 717(NH_3) *), HCFC and non-flammable HFC refrigerants

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 265 [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)
*) Only types with letter A are suitable for R717.

Technical data and ordering

RT differential pressure switches with adjustable neutral zone for R 717(NH_3), HCFC and non-flammable HFC refrigerants

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

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 [2])	High	5 – 25	3	Auto	28 [4])	38	1/4 in / 6 mm flare	017-503166
RT 6B [2])	High	10 – 28	1	Man. (Max.)	28 [4])	38	1/4 in / 6 mm flare	017-503466
RT 6S [2])	High	10 – 28	1	Man. (Max.)	28 [4])	38	1/4 in / 6 mm flare	017-507566
RT30AW [3])	High	1 – 10	0.8	Auto	22	25	G 1/2 A [1])	017-518766
RT30AB [3])	High	1 – 10	0.4	Man. (Max.)	22	25	G 1/2 A [1])	017-518866
RT30AS [3])	High	1 – 10	0.4	Man. (Max.)	22	25	G 1/2 A [1])	017-518966
RT6AW [3])	High	5 – 25	3	Auto	28 [4])	38	cutting ring ø6 mm	017-513166
	High	5 – 25	3	Auto	28 [4])	38	G 3/8 A [1]) + weld nipple ø6.5 / 10 mm	017-503266
RT6AB [3])	High	10 – 28	1.5	Man. (Max.)	28 [4])	38	cutting ring ø6 mm	017-513366
	High	10 – 28	1.5	Man. (Max.)	28 [4])]	38	G 3/8 A [1]) + weld nipple ø6.5 / 10 mm	017-503566
RT6AS [3])	High	10 – 28	1.5	Man. (Max.)	28 [4])	38	cutting ring ø6 mm	017-514666
	High	10 – 28	1.5	Man. (Max.)	28 [4])	38	G 3/8 A [1]) + weld nipple ø6.5 / 10 mm	017-507666

[1]) G external thread, ISO 228-1
[2]) Pressure controls for fluorinated refrigerants
[3]) Pressure controls for HCFC and non-flammable HFC refrigerants
[4]) 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.

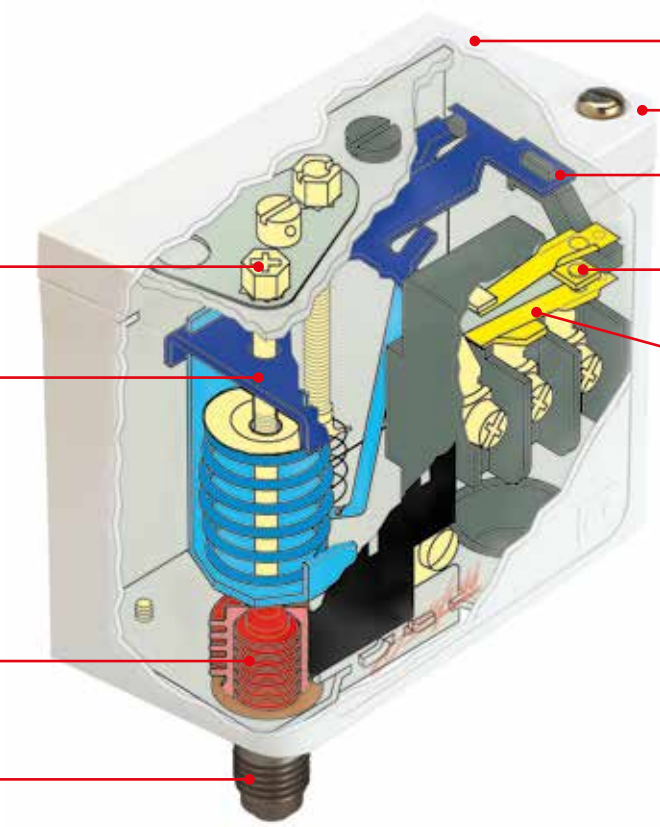
Quick Selection Notes:

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. Versions of KP are available for applications with HCFC and non-flammable HFC refrigerants, ammonia or hydrocarbons.



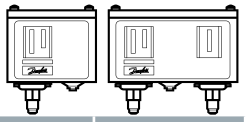


Facts

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
- The KP pressure switches can be used for all HCFC and non-flammable HFC refrigerants
- The KP-A pressure switches can be used for R717 and all above refrigerants
- The KP-E pressure switches can be used for HC, HCFC and HFC refrigerants
- 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 HCFC and non-flammable HFC refrigerants

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	1/4 in / ODF solder	060-111266 [3]
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	6 mm / ODF solder	060-111066 [3]
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-114166 [1] [3]
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1/4 in / 6 mm flare	060-110366
	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 [3]
	Low	-0.2 – 5.0	0.4 – 1.5	–	–	Auto	–	SPDT	6 mm / ODF solder	060-112366 [3]
KP 5	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1/4 in / 6 mm flare	060-117166 [3]
	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1/4 in / ODF solder	060-117966 [3]
	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	6 mm / ODF solder	060-117766 [3]
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-117366
	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 [3]
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 n / ODF solder	060-125466 [3]
	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
	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 [1]
	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
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. [2]	Conv. [2]	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 [3]
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 n / ODF solder	060-129966 [3]
	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
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1/4 n / ODF solder	060-128466
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Conv. [2]	Conv. [2]	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-115466 [3]
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Conv. [2]	Conv. [2]	SPDT+LP and HP signal	1/4 n / ODF solder	060-001066 [3]
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. [2]	Conv. [2]	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-122066
KP 6W [4]	High	–	–	8 – 42	4 – 10	–	Auto	SPDT	1/4 in / 6 mm flare	060-519066 [3]
KP 6B [4]	High	–	–	8 – 42	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-519166
KP 7W [4]	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 [4]	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-119166
KP 7S [4]	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-119266 [3]
KP 7BS [4]	Dual	–	–	8 – 32	4	–	Man. (Max.)	SPST	1/4 in / 6 mm flare	060-120066
KP 17W [4]	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 [4]	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 [4]	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 [4]	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] [5]

[1] Pressure switches with gold-plated contacts
[2] Conv.: optional automatic or manual reset
[3] Enclosure IP44
[4] W = PSH (pressure switch), B = PZH (pressure switch with ext. reset), S = PZHH (pressure switch with int. reset)
[5] Factory setting: LP side: range = 1 bar P_e, diff. = 1 bar; HP side: range = 18 bar P_e, diff. = 4 bar fixed

Technical data and ordering

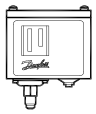
KP pressure switches for R717, HCFC and non-flammable HFC refrigerants

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
	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
	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	Fixed 4	Man. (Max.)	Man. (Max.)	SPST	1 m cap. tube with M10 × 0.75	060-120566

[1]) Conv.: optional automatic or manual reset
[2]) Enclosure IP44

KP pressure switches for HCFC, HFC and HC refrigerants



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 EN12266: 1998*

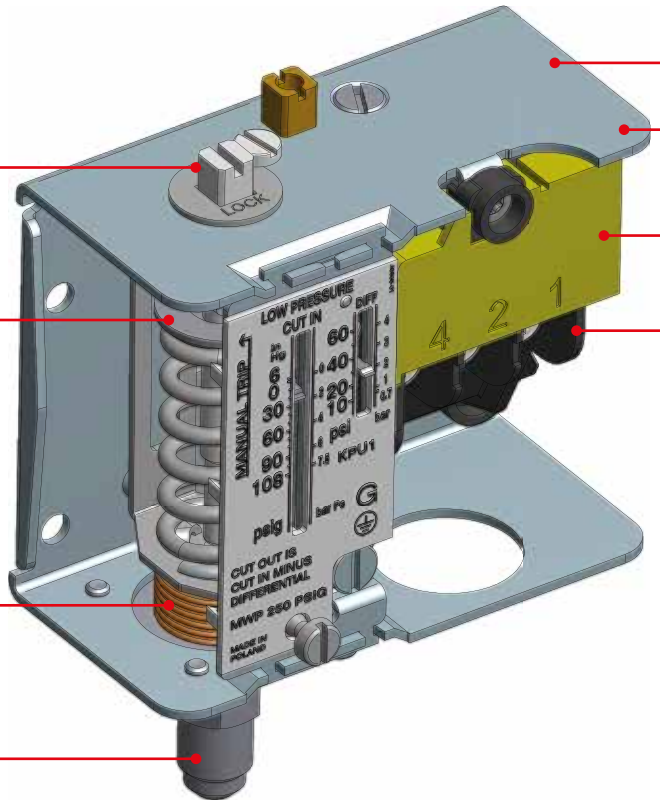
Quick Selection Notes:

KPU - Pressure switch

The KPU pressure switches are designed for use in refrigeration and air-conditioning systems to protect the systems from excessively low suction pressure or too high discharge pressure. They can also be applied to start and stop compressors and the fans of air-cooled condensers.

The KPU pressure switches , in single and dual versions cover a comprehensive range of applications, and are designed for use with HCFC and non-flammable HFC refrigerants.





Range and differential easily adjustable with screw driver

Manual trip function

Bellows without any welding points.

Various pressure connections

Available with manual and automatic reset

Compact design

High contact rating:
FLA = 24 A @ 120 V AC / 240 V AC
LRA = 144 A @ 120 V AC / 240 V AC
LRA is rated for make only

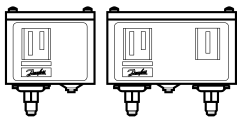
Reliable and fully visible SPDT contact system

Facts

- Snap action electrical contacts minimize chatter, bounce, and wear, and ensure longterm electrical and mechanical reliability
- The fail-safe dual bellows used in KPU 6 and KPU 16 prevent refrigerant loss and enable premature cut-out when a fault occurs
- SPDT or SPST switch a in single control models. SPST or SPDT with high-low pressure signal in dual control models
- Manual trip function (electrical contact function can be tested without the use of tools)
- Easily replaces Johnson Controls and Ranco products
- Wide pressure range: from low pressure KPU 2 with narrow differential to KPU 6 and KPU 16 for high pressure refrigerants (R410A, R744)
- Automatic, manual or convertible reset versions available
- Vibration and shock resistant

Technical data and ordering

KPU pressure switches for HCFC and non-flammable HFC refrigerants



Ordering

Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact type	Connection	Code no.
		Range [inHg] [psig]	Differential [psi]	Range [psig]	Differential [psi]	Low pressure (LP)	High pressure (HP)			
KPU 1	Low	6 in – 108	10 – 60	—	—	Auto	—	A	¼ inch male flare	060-5231
	Low	6 in – 108	10 – 60	—	—	Auto	—	A	36 inch cap. tube w. ¼ inch flare nut	060-5233
	Low	6 in – 108	10 – 60	—	—	Auto	—	B	¼ inch male flare	060-5236
KPU 1B	Low	28 in – 100	10	—	—	Man. (Min.)	—	A	¼ inch male flare	060-5232
	Low	28 in – 100	10	—	—	Man. (Min.)	—	A	36 inch cap. tube w. ¼ inch flare nut	060-5234
KPU 2	Low	6 in – 73	6 – 30	—	—	Auto	—	B	¼ inch male flare	060-5237
	Low	6 in – 73	6 – 30	—	—	Auto	—	B	36 inch cap. tube w. ¼ inch flare nut	060-5235
	Low	6 in – 73	6 – 30	—	—	Auto	—	A	¼ inch male flare	060-5239
	Low	6 in – 73	6 – 30	—	—	Auto	—	A	36 inch cap. tube w. ¼ inch flare nut	060-5240
KPU 5	Fan cycling	—	—	100 – 465	25 – 85	—	Auto	B	¼ inch male flare	060-5241
	Fan cycling	—	—	100 – 465	25 – 85	—	Auto	B	36 inch cap. tube w. ¼ inch flare nut	060-5242
KPU 15	Dual	6 in – 108	10 – 60	100 – 465	60	Auto	Auto	C	¼ inch male flare	060-5247
	Dual	6 in – 108	10 – 60	100 – 465	60	Auto	Auto	C	36 inch cap. tube w. ¼ inch flare nut	060-5248
KPU 15B	Dual	6 in – 108	10 – 60	100 – 465	60	Auto	Man. (Max.)	C	¼ inch male flare	060-5249
	Dual	6 in – 108	10 – 60	100 – 465	60	Auto	Man. (Max.)	C	36 inch cap. tube w. ¼ inch flare nut	060-5250

Technical data and ordering

Fail-safe switches for high pressure refrigerants (R410A, R744) PED 97/23/EC approved according to EN 12263

Ordering

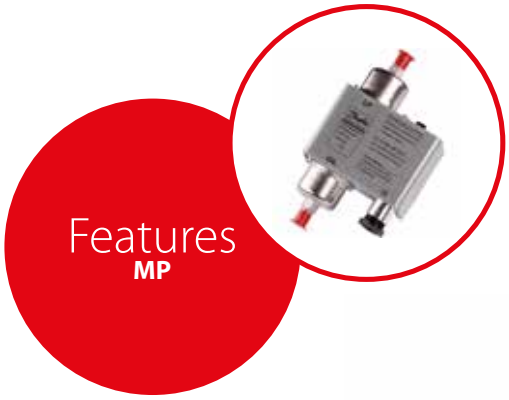
Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Connection type	Code no.
		Regulating range [bar]	Differential Δp [bar]	Regulating range [bar]	Differential Δp [bar]	Low pressure LP	High pressure HP			
KPU 6W	High	–	–			Auto	–	A	1/4 inch male flare	060-5243
	High	–	–			Auto	–	A	36 inch cap. tube w. 1/4 inch flare nut	060-5245
KPU 6B	High	–	–			Man. (Min.)	–	A	1/4 in male flare	060-5244
	High	–	–			Man. (Min.)	–	A	36 inch cap. tube w. 1/4 inch flare nut	060-5246
KPU 16W	Dual					Auto	Auto	D	1/4 inch male flare	060-5251
	Dual					Auto	Auto	D	36 inch cap. tube w. 1/4 inch flare nut	060-5252
KPU 16B	Dual					Conv.	Conv.	D	1/4 inch male flare	060-5253
	Dual					Conv.	Conv.	D	36 inch cap. tube w. 1/4 inch flare nut	060-5254

Quick Selection Notes:

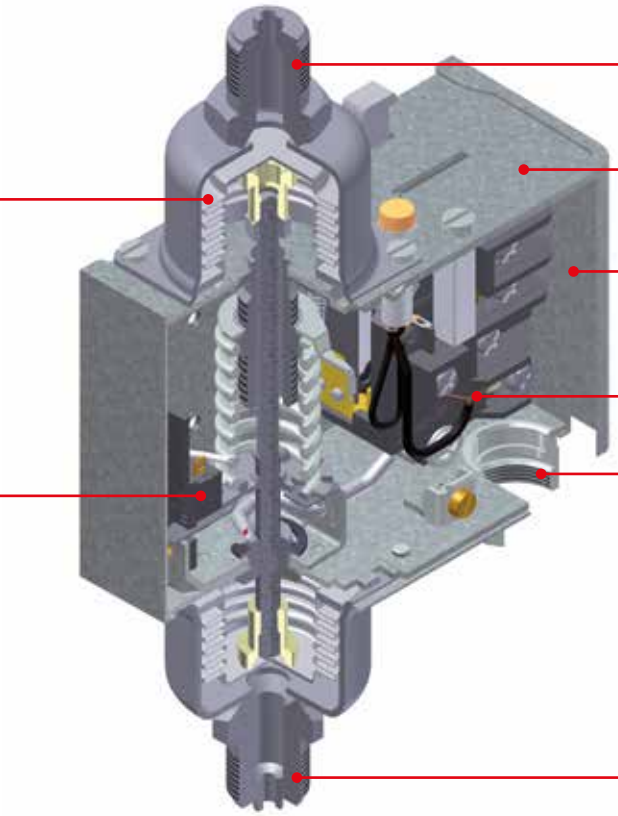
MP - Differential pressure switch

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 and MP 55 are used in refrigerating systems using HCFC and non-flammable HFC refrigerants.

MP 55A is designed for use in refrigerating systems with R717 (ammonia), and can also be used in systems with HCFC and non-flammable HFC refrigerants.
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.



Features
MP



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
- Can be used for wide range of refrigerants:
  - HCFC and non-flammable HFC refrigerants (MP 54, MP 55)
  - R717, HCFC and non-flammable HFC refrigerants (MP 55A)
  - HCFC, HFC and HC refrigerants (MP 55E)

- 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 HCFC and non-flammable HFC refrigerants



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 HCFC and non-flammable HFC refrigerants

Ordering

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

[1]) *With glow lamp that remains on during normal operation of compressor.*
Note: When time delay is energized which also means that min. permisible oil pressure (differential Δp) is reached, light goes out.
[2]) *Three-wire hook-up.*

MP differential pressure switches for R717, HCFC and non-flammable HFC refrigerants

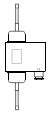
Ordering

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 ø6.5 / 10 mm weld nipple	060B017466
	0.3 – 4.5	-1 – 12	45	M12×1.5 with 6 mm cutting ring	060B018266
	0.3 – 4.5	-1 – 12	60	G 3/8 A supplied with ø6.5 / 10 mm weld nipple	060B017566
	0.3 – 4.5	-1 – 12	60	M12×1.5 with 6 mm cutting ring	060B018366
	0.3 – 4.5	-1 – 12	60	G 3/8 A supplied with ø6.5 / 10 mm weld nipple	060B017966 [1]
	0.3 – 4.5	-1 – 12	90	G 3/8 A supplied with ø6.5 / 10 mm weld nipple	060B017666
	0.3 – 4.5	-1 – 12	90	M12×1.5 with 6 mm cutting ring	060B018466
	0.3 – 4.5	-1 – 12	120	G 3/8 A supplied with ø6.5 / 10 mm weld nipple	060B017766
	0.3 – 4.5	-1 – 12	120	M12×1.5 with 6 mm cutting ring	060B018566
	0.3 – 4.5	-1 – 12	0 [2]	G 3/8 A supplied with ø6.5 / 10 mm weld nipple	060B029866 [2]
	0.3 – 4.5	-1 – 12	0 [2]	M12×1.5 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 HCFC, HFC and HC refrigerants



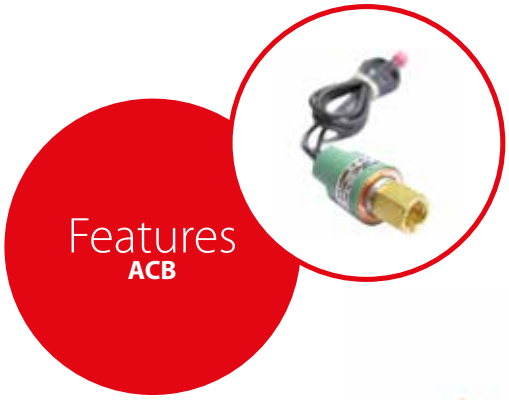
Ordering

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

Quick Selection Notes:

ACB - Cartridge pressure switch

ACB cartridge pressure switches are small diaphragm type pressure switches for use in refrigeration and air conditioning systems.
ACB is as standard equipped with a 6A contact system with automatic or manual reset. ACB is robust and reliable in use, and the small size, lightness and high degree of protection means that it can be mounted directly on the refrigeration system where pressure monitoring is required.
ACB is available in many different versions with different pressure settings and pressure connections.



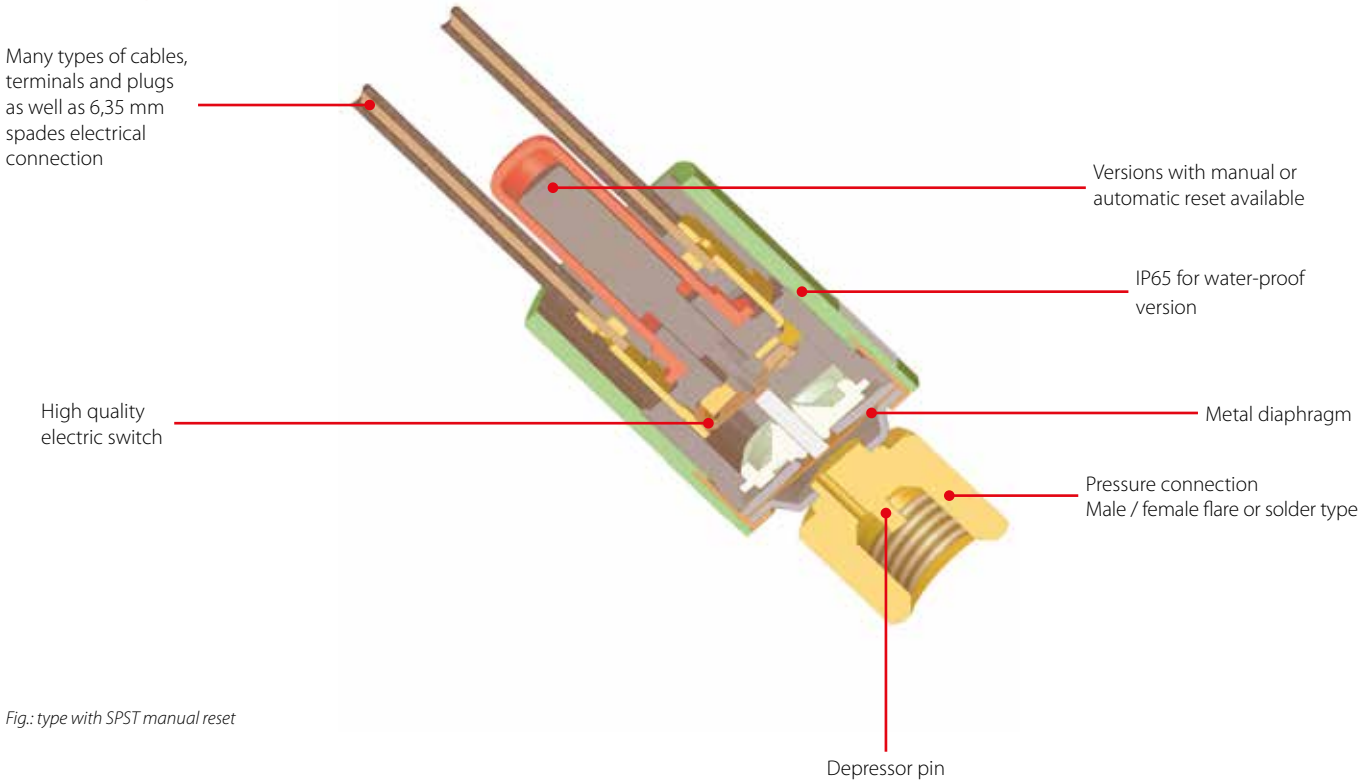


Fig.: type with SPST manual reset

Facts

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

- Refrigerants HFC, but also air, water, oil
- 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 appovals)
- 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 – 48 bar
- Automatic or manual reset
- IP65 (water proof version with cables)

Technical data and ordering

ACB cartridge pressure switches

Technical data

Application	Reset	Cut out [bar]	Cut in [bar]	Contact system	Enclosure type W-waterproof [1] S-with spades [2]	Connection type	Code no.
High pressure cut-out	Auto	18 ± 0.7	13 ± 1.2	SPST-NC	W	6 mm / solder	061F7504
	Auto	18 ± 0.7	13 ± 1.2	SPST-NC	W	1/4 in / solder	061F7505
	Auto	18 ± 0.7	13 ± 1.2	SPST-NC	W	1/4 in / female flare	061F7506
	Auto	18 ± 0.7	13 ± 1.2	SPDT	W	1/4 in / female flare	061F9057
	Auto	20 ± 1.0	16 ± 1.5	SPST-NC	S	1/4 in / solder	061F8710
	Auto	20 ± 1.0	16 ± 1.5	SPST-NC	S	1/4 in / female flare	061F8708
	Auto	23 ± 1.0	19 ± 1.5	SPST-NC	S	1/4 in / solder	061F8707
	Auto	23 ± 0.7	19 ± 1.2	SPST-NC	W	1/4 in / female flare	061F8494
	Auto	23 ± 0.7	19 ± 1.2	SPDT	W	1/4 in / female flare	061F9056
	Manual	23 ± 0.7	19 ± 1.2	SPDT	W	1/4 in / female flare	061F9243
	Auto	26 ± 1.0	20 ± 1.5	SPST-NC	W	6 mm / solder	061F7507
	Auto	26 ± 1.0	20 ± 1.5	SPST-NC	W	1/4 in / solder	061F7508
	Auto	26 ± 1.0	20 ± 1.5	SPST-NC	W	1/4 in / female flare	061F7509
	Auto	26 ± 1.0	20 ± 1.5	SPST-NC	S	1/4 in / solder	061F8705
	Auto	26 ± 1.0	20 ± 1.5	SPST-NC	S	1/4 in / female flare	061F8701
	Auto	26 ± 1.0	20 ± 1.5	SPDT	W	1/4 in / female flare	061F9055
	Manual	26 ± 1.0	20 ± 2.0	SPST-NC	W	6 mm / solder	061F9703
	Manual	26 ± 1.0	20 ± 2.0	SPST-NC	W	1/4 in / solder	061F9714
	Manual	26 ± 1.0	20 ± 2.0	SPST-NC	W	1/4 in / female flare	061F9713
	Auto	28 ± 1.0	21 ± 1.5	SPST-NC	W	6 mm / solder	061F7510
	Auto	28 ± 1.0	21 ± 1.5	SPST-NC	W	1/4 in / solder	061F7513
	Auto	28 ± 1.0	21 ± 1.5	SPST-NC	W	1/4 in / female flare	061F7514
	Auto	28 ± 1.0	21 ± 1.5	SPST-NC	S	1/4 in / solder	061F8704
	Auto	28 ± 1.0	21 ± 1.5	SPST-NC	S	1/4 in / female flare	061F8700
	Auto	28 ± 1.0	21 ± 1.5	SPDT	W	1/4 in / female flare	061F9054
	Manual	28 ± 1.0	21 ± 1.5	SPDT	W	1/4 in / female flare	061F9242
	Manual	28 ± 1.0	21 ± 2.0	SPST-NC	W	1/4 in / female flare	061F9522
	Auto	31 ± 1.0	24 ± 1.5	SPST-NC	W	6 mm / solder	061F8493
	Auto	31 ± 1.0	24 ± 1.5	SPST-NC	W	1/4 in / female flare	061F8492
	Auto	31 ± 1.0	24 ± 1.5	SPST-NC	S	1/4 in / solder	061F8706
	Auto	31 ± 1.0	24 ± 1.5	SPDT	W	1/4 in / female flare	061F9053
	Auto	42 ± 1.2	33 ± 2.0	SPST-NC	W	6 mm / solder	061F7515
	Auto	42 ± 1.2	33 ± 2.0	SPST-NC	W	1/4 in / solder	061F7516
	Auto	42 ± 1.2	33 ± 2.0	SPST-NC	W	1/4 in / female flare	061F7517
	Manual	42 ± 1.2	33 ± 2.0	SPST-NC	W	1/4 in / female flare	061F9575
	Auto	42 ± 1.2	33 ± 2.0	SPDT	W	1/4 in / female flare	061F9052
Low pressure cut-out	Auto	0.5 ± 0.4	1.5 ± 0.3	SPST-NO	W	6 mm / solder	061F7518
	Auto	0.5 ± 0.4	1.5 ± 0.3	SPST-NO	W	1/4 in / solder	061F7519
	Auto	0.5 ± 0.4	1.5 ± 0.3	SPST-NO	W	1/4 in / female flare	061F7520
	Auto	0.5 ± 0.5	1.5 ± 0.5	SPST-NO	S	1/4 in / solder	061F7402
	Auto	0.5 ± 0.5	1.5 ± 0.5	SPST-NO	S	1/4 in / female flare	061F7400
	Auto	0.5 ± 0.5	1.5 ± 0.5	SPDT	S	1/4 in / solder	061F9106
	Auto	0.5 ± 0.5	1.5 ± 0.5	SPDT	S	1/4 in / female flare	061F9102
	Auto	0.7 ± 0.5	1.7 ± 0.4	SPST-NO	W	6 mm / solder	061F7521
	Auto	0.7 ± 0.5	1.7 ± 0.4	SPST-NO	W	1/4 in / solder	061F7522
	Auto	0.7 ± 0.5	1.7 ± 0.4	SPST-NO	W	1/4 in / female flare	061F7523
	Auto	0.7 ± 0.5	1.7 ± 0.4	SPDT	W	1/4 in / female flare	061F9058
	Auto	1.7 ± 0.5	2.7 ± 0.4	SPST-NO	W	6 mm / solder	061F7524
	Auto	1.7 ± 0.5	2.7 ± 0.4	SPST-NO	W	1/4 in / solder	061F7525
	Auto	1.7 ± 0.5	2.7 ± 0.4	SPST-NO	W	1/4 in / female flare	061F7526
Fan Control	Auto	8.5 ± 1.2	11 ± 0.8	SPST-NO	W	6 mm / solder	061F8491
	Auto	8.5 ± 1.2	11 ± 0.8	SPST-NO	W	1/4 in / female flare	061F8490
	Auto	13 ± 1.5	16 ± 1.0	SPST-NO	W	6 mm / solder	061F8334
	Auto	13 ± 1.5	16 ± 1.0	SPST-NO	W	1/4 in / female flare	061F8333

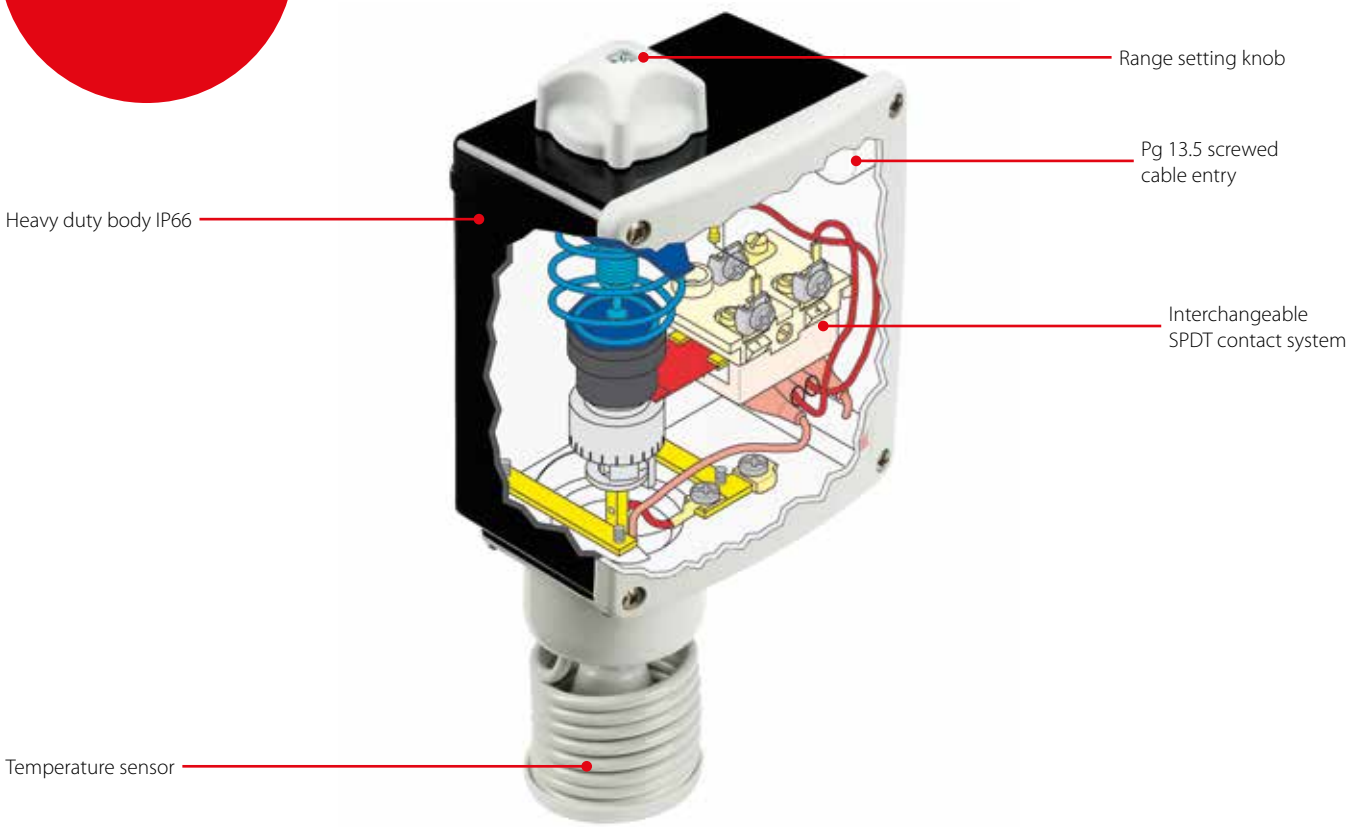
[1]) Waterproof models (IP65) with 1.5 m wires AWG18, packed per 20 pcs.
[2]) Models with spade connectors, packed per 50 pcs.

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

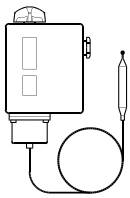
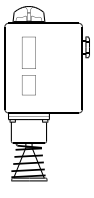
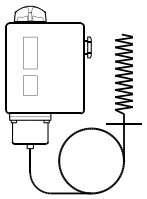
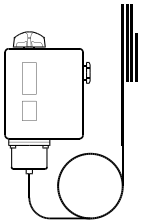
[1] The sensor must be located colder than thermostat housing and capillary tube.
[2] The sensor can be located warmer or colder than thermostat housing.
[3] The sensor must be located warmer than thermostat housing and capillary tube.
[4] With built-in heating coil, reduces the thermal differential.

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

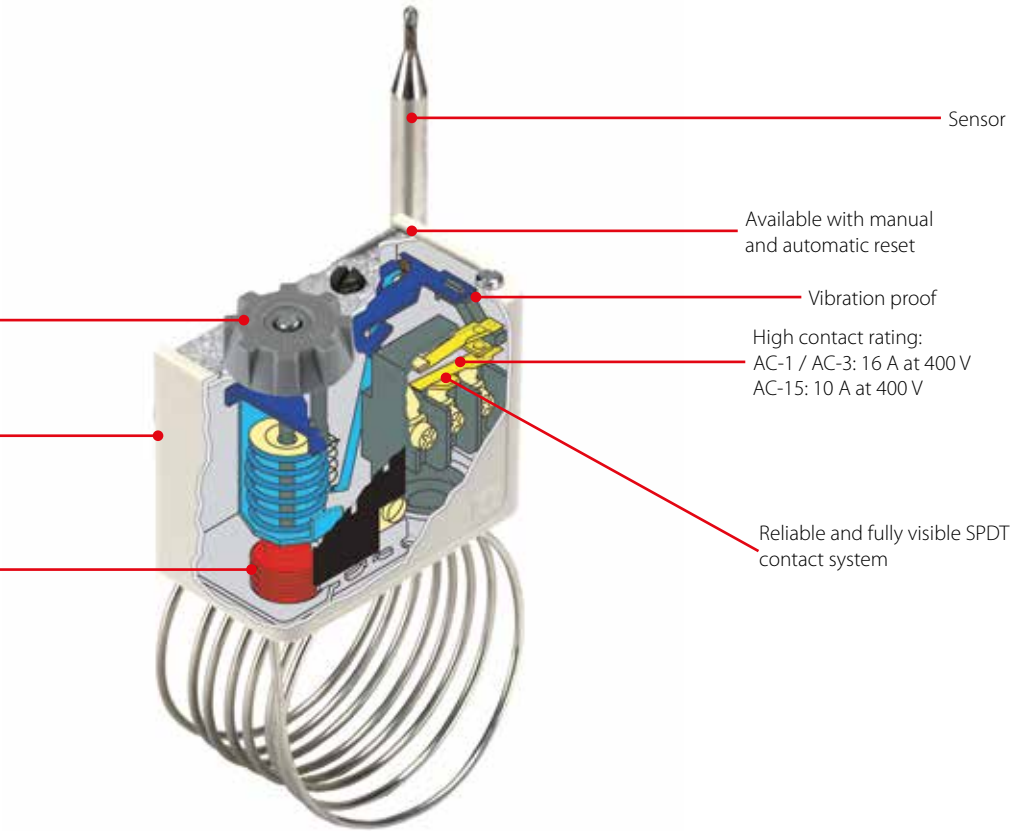
KP - Thermostat

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.



Features
KP



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

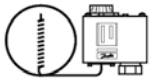
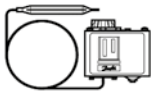
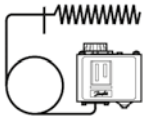
KP thermostats

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
	Vapour [1]	B	-30 – 15	Fixed 6	Fixed 2	Min.	120	2	060L110566
KP 62	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
	Adsorbtion [2]	D 1	-25 – 15	3.5 – 20	3.25 – 18	Auto	80	2	060L114366
KP 75	Adsorbtion [2]	F	0 – 35	3.5 – 16	2.5 – 12	Auto	110	2	060L112066
	Adsorbtion [2]	E 2	0 – 35	3.5 – 16	2.5 – 12	Auto	110	2	060L113766
KP 77	Adsorbtion [2]	E 3	20 – 60	3.5 – 10	3.5 – 10	Auto	130	2	060L112166
	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

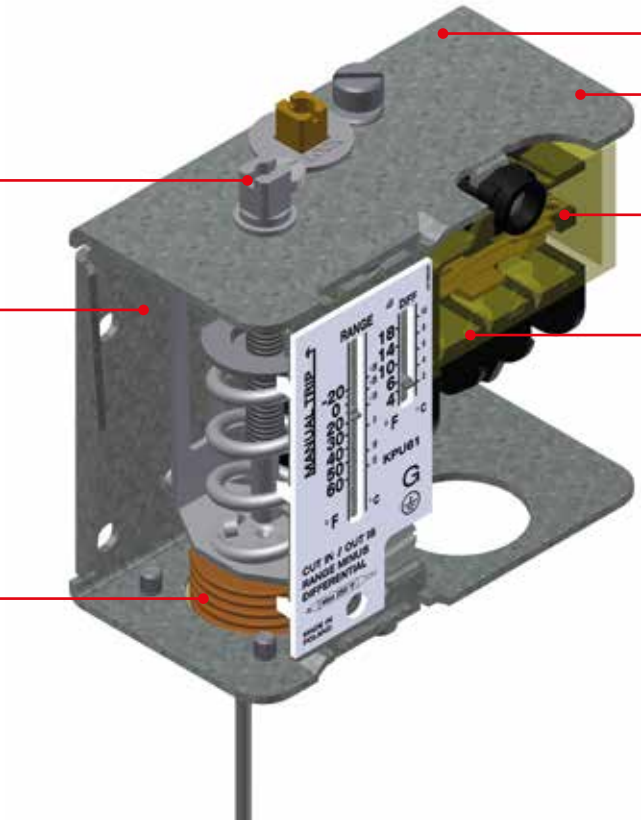
KPU - Thermostat

The KPU Thermostats are temperature controlled electrical switches, which are applied for regulation and safety monitoring of refrigeration and air conditioning systems.
KPU sensors are available with vapor charge or with adsorption charge.

The Thermostats with adsorption charge are widely used to give frost protection, while vapor charged sensors are used where small differential is required.
All KPU Thermostats have a single pole double throw (SPDT) contact system. The position of the switch depends on the thermostat setting and the bulb temperature.



Features
KPU



Available with manual and automatic reset

Vibration proof

Range and differential easily adjustable with screw driver

Reliable and fully visible SPDT contact system

Compact design

High contact rating:
FLA = 24 A @ 120 V AC / 240 V AC
LRA = 144 A @ 120 V AC / 240 V AC
LRA is rated for make only

Bellows without any welding points

Facts

- Wide temperature regulating range allows use in low, medium, and high temperature refrigeration application and air-conditioning systems
- Snap-action electrical contacts minimize chatter, bounce and wear, and ensure long-term electrical and mechanical reliability
- Fingertip manual trip feature allows contact function testing without tools
- Easily replaces other manufacturers' thermostats
- Ultra-short bounce time
- Long operating lifetime
- Vibration and shock resistant
- SPDT switch allows NC or NO function option as well as alarm capability
- Automatic and manual reset versions available

Technical data and ordering

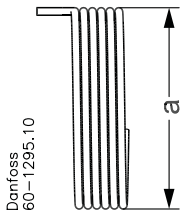
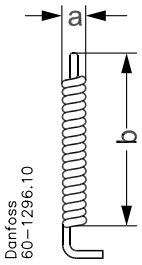
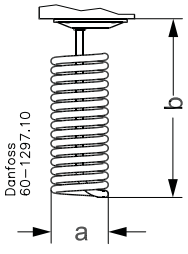
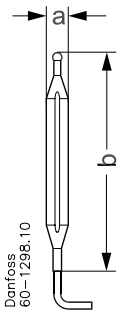
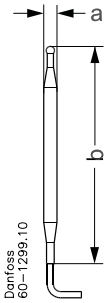
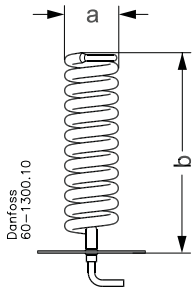
KP thermostats

Ordering

Type	Charge	Bulb type	Range [°F]	Differential		Max. bulb temp. [°F]	Reset function	Capillary tube length [in.]	Code no.
				at lowest temperature setting [°F]	at highest temperature setting [°F]				
KPU 61	Vapour [1]	A	-20 – 60	10 – 40	2.5 – 13	250	auto.	80	060L5201
KPU 61	Vapour [1]	B	-20 – 60	10 – 40	2.5 – 13	250	auto.	80	060L5203
KPU 61B	Vapour [1]	B	-20 – 60	fixed 11	fixed 3.5	250	man. [3]	80	060L5204
KPU 61B	Vapour [1]	B	-20 – 60	fixed 11	fixed 3.5	250	man. [3]	200	060L5205
KPU 62	Vapour [1]	C1	-20 – 60	10 – 40	2.5 – 13	250	auto.	room sensor	060L5206
KPU 61	Vapour [1]	B	-20 – 60	10 – 40	2.5 – 13	250	auto. [4]	80	060L5210
KPU 63	Vapour [1]	A	-60 – 15	18 – 125	5 – 15	250	auto.	80	060L5213
KPU 63	Vapour [1]	B	-60 – 15	18 – 125	5 – 15	250	auto.	80	060L5214
KPU 68	Vapour [1]	C1	25 – 95	8 – 45	3 – 13	250	auto.	room sensor	060L5215
KPU 69	Vapour [1]	B	25 – 95	8 – 45	3 – 13	250	auto.	80	060L5217
KPU 62	Adsorption [2]	C2	-20 – 60	9 – 36	3 – 14	175	auto. [4]	room sensor	060L5207
KPU 73	Adsorption [2]	E3	-15 – 60	6.5 – 32	5 – 50	175	auto.	80	060L5208
KPU 73	Adsorption [2]	E1	-15 – 60	22 – 125	15 – 45	175	auto.	80	060L5209
KPU 73B	Adsorption [2]	E3	-15 – 60	fixed 6	fixed 6	175	man. [3]	80	060L5211
KPU 73	Adsorption [2]	D	-15 – 60	6 – 35	5 – 32	175	auto.	80	060L5212
KPU 71	Adsorption [2]	E2	25 – 70	5.5 – 18	4 – 16	175	auto.	80	060L5218
KPU 71B	Adsorption [2]	E2	25 – 70	fixed 5	fixed 5	175	man. [3]	80	060L5216
KPU 74	Adsorption [2]	E1	0 – 80	9 – 35	9 – 35	175	auto.	80	060L5219
KPU 74B	Adsorption [2]	E1	0 – 80	fixed 10	fixed 10	175	man. [3]	80	060L5220
KPU 75	Adsorption [2]	F	30 – 95	6 – 29	4.5 – 21.5	230	auto.	80	060L5221
KPU 77	Adsorption [2]	E3	60 – 140	6 – 18	6.3 – 18	265	auto.	80	060L5223

[1] Bulb must be installed in colder position than thermostat housing and capillary tube.
[2] Bulb can be placed warmer or colder than thermostat housing and capillary tube, but variations from 70 °F ambient temperature will influence the scale accuracy.
[3] Manual minimum reset. Marked with letter B. Fixed differential. These controls have no hand knob..
[4] With manual switch and top plate.

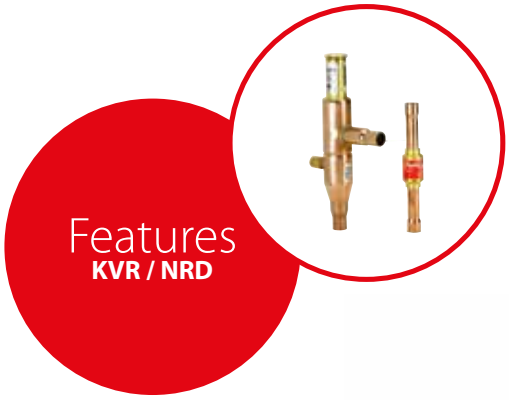
Thermostat sensor types

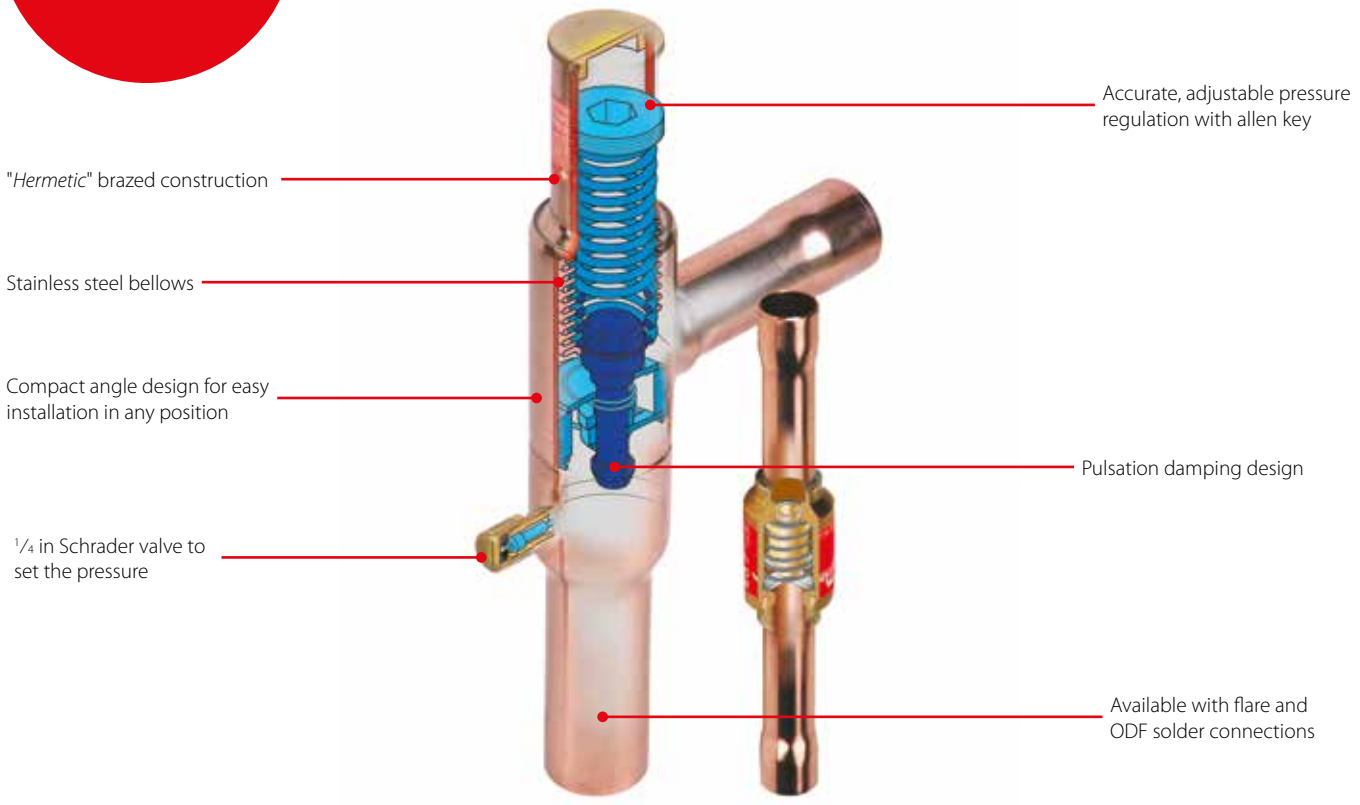
A	B	C	D	E	F
KPU 61 KPU 63 Vapor charge	KPU 61 KPU 69 Vapor charge	KPU 62 KPU 68 Vapor charge KPU 62 Adsorption charge	KPU 73 Adsorption charge	KPU 73, KPU 74 Adsorption charge KPU 71, KPU 75 Adsorption charge KPU 73, KPU 77 Adsorption charge	KPU 75 Adsorption charge
					
Straight capillary tube Sensing length: 15 in a = 3 1/8 in	Remote air coil a = 3/8 in. b = 2 3/4 in.	Room sensor C1 a = 1 1/2 in b = 1 1/4 in Room sensor C2 a = 1 in b = 3 in	Double contact remote bulb a = 3/8 in b = 3 3/8 in NOTE! Can not be used in sensor pocket!	Remote bulb E1 a = 1/4 in b = 3 3/4 in E2 a = 3/8 in b = 4 1/2 in E3 a = 3/8 in b = 3 3/8 in	Remote duct coil a = 1 in b = 3 5/8 in

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.



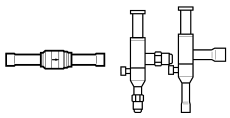


Facts

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: for use with HCFC, HFC and HC
- KVR 12 – 22: compliant with ATEX hazard zone 2
- KVR 28 – 35: for use with HCFC and non flammable HFC
- Maximum working pressure
  KVR: PS / MWP = 28 bar / 406 psig
  NRD: PS / MWP = 46 bar / 667 psig

Technical data and ordering



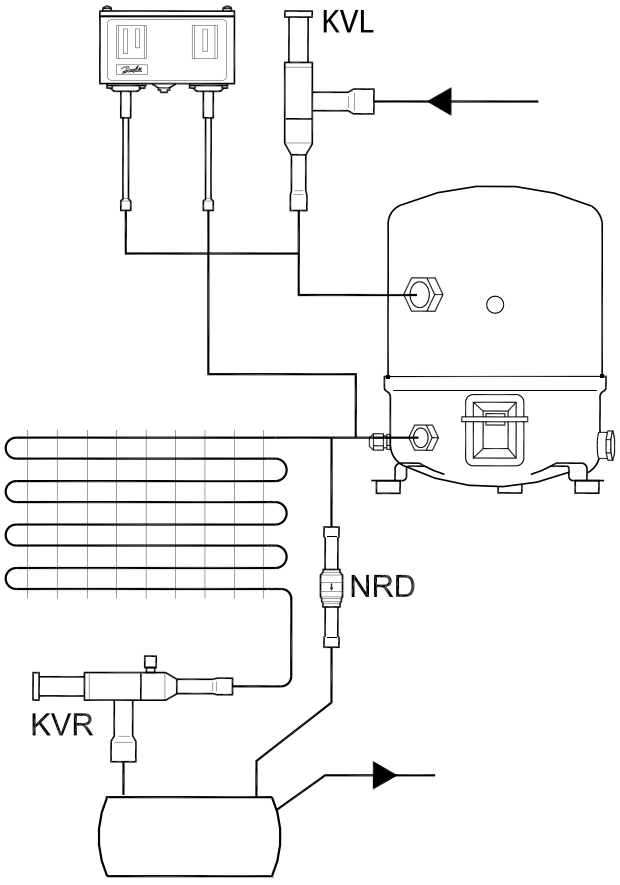
KVR / NRD - Condensing pressure regulator / Differential pressure valve

Ordering

Type	Rated liquid capacity in [kW] / [TR] [1]								Rated hot gas capacity in [kW] / [TR] [1]								Connection type	Connection size		Code no.
	R22		R134a		R404A / R507		R407C		R22		R134a		R404A / R507		R407C					
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]		[in]	[mm]	
KVR 12	50.4	12.7	47.3	11.8	36.6	8.2	54.4	13.8	13.2	4.13	11.6	3.03	12.0	3.27	14.3	4.50	Flare [2] [3]	1/2	12	034L0091
	50.4	12.7	47.3	11.8	36.6	8.2	54.4	13.8	13.2	4.13	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF [3]	1/2	–	034L0093
	50.4	12.7	47.3	11.8	36.6	8.2	54.4	13.8	13.2	4.13	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF [3]	–	12	034L0096
KVR 15	50.4	12.7	47.3	11.8	36.6	8.2	54.4	13.8	13.2	4.13	11.6	3.03	12.0	3.27	14.3	4.50	Flare [2] [3]	5/8	16	034L0092
	50.4	12.7	47.3	11.8	36.6	8.2	54.4	13.8	13.2	4.13	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF [3]	5/8	16	034L0097
KVR 22	50.4	12.7	47.3	11.8	36.6	8.2	54.4	13.8	13.2	4.13	11.6	3.03	12.0	3.27	14.3	4.50	Solder, ODF [3]	7/8	22	034L0094
KVR 28	129	32.6	121	30.2	93.7	20.9	139.3	35.5	34.9	10.93	30.6	8.04	34.9	8.66	37.7	11.91	Solder, ODF [3]	1 1/8	–	034L0095
	129	32.6	121	30.2	93.7	20.9	139.3	35.5	34.9	10.93	30.6	8.04	34.9	8.66	37.7	11.91	Solder, ODF [3]	–	28	034L0099
KVR 35	129	32.6	121	30.2	93.7	20.9	139.3	35.5	34.9	10.93	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 °C / 14 °F
– condensing temperature t_c = 30 °C / 110 °F
– pressure drop across the valve Δp = 0.2 bar / 3 psi for liquid capacity, Δp = 0.4 bar / 6 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, 5/8 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.

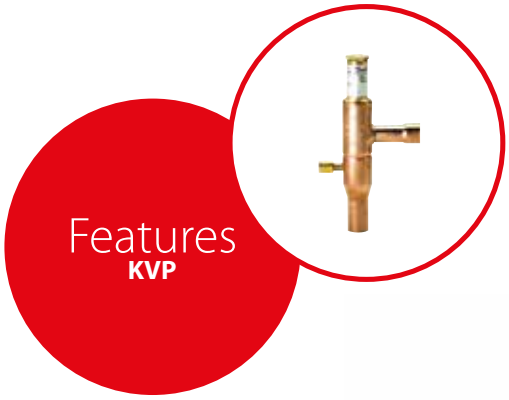
Application example

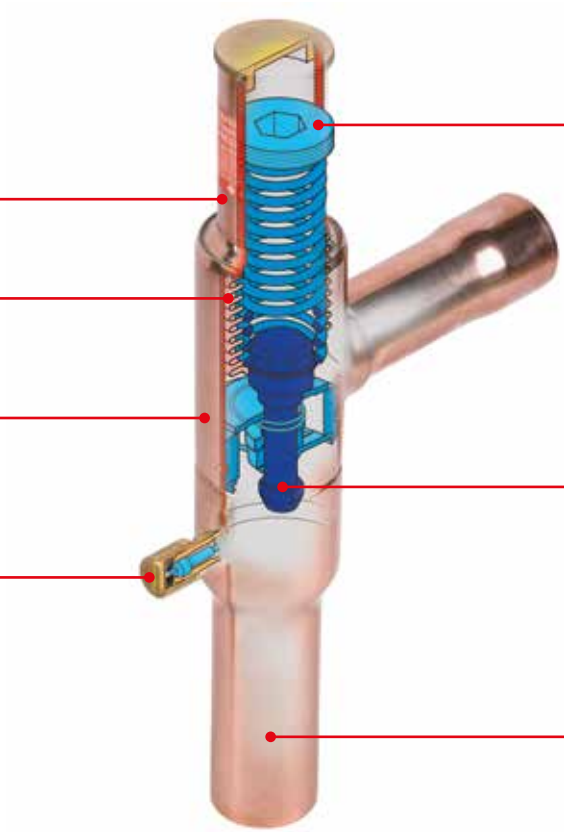


KVP - Evaporator pressure regulator

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

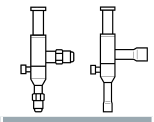
Application:
- Traditional refrigeration
- Air conditioning units
- Cold rooms
- Display cabinets

- 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: for use with HCFC, HFC and HC
- KVP 12 – 22: compliant with ATEX hazard zone 2
- KVP 28 – 35: for use with HCFC and non flammable HFC
- Maximum working pressure: PS / MWP = 18 bar / 260 psig

Technical data and ordering

KVP - Evaporator pressure regulator

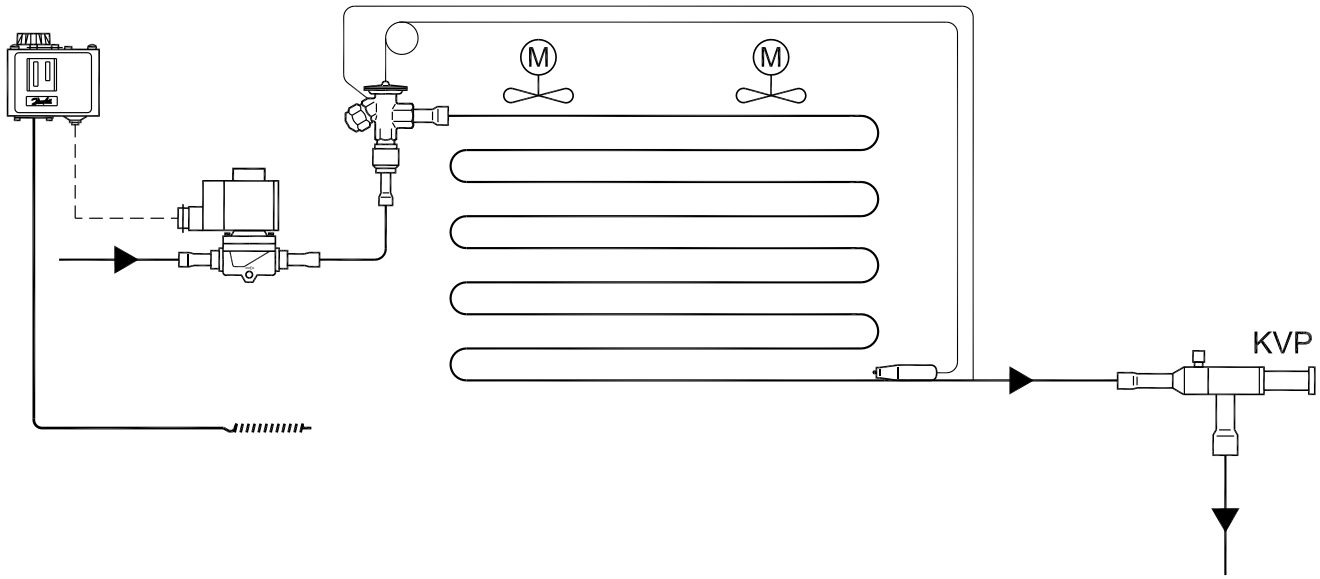


Ordering

Type	Rated capacity in [kW] / [TR] [1]								Connection type	Connection size		Code no.
	R22		R134a		R404A / R507		R407C					
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]		[in]	[mm]	
KVP 12	4.0	1.3	2.8	0.9	3.6	1.2	3.7	1.2	Flare [2] [3]	1/2	12	034L0021
	4.0	1.3	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF [3]	1/2	–	034L0023
	4.0	1.3	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF [3]	–	12	034L0028
KVP 15	4.0	1.3	2.8	0.9	3.6	1.2	3.7	1.2	Flare [2] [3]	5/8	16	034L0022
	4.0	1.3	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF [3]	5/8	16	034L0029
KVP 22	4.0	1.3	2.8	0.9	3.6	1.2	3.7	1.2	Solder, ODF [3]	7/8	22	034L0025
KVP 28	8.6	2.8	6.1	1.9	7.7	2.6	7.9	2.6	Solder, ODF [3]	1 1/8	–	034L0026
	8.6	2.8	6.1	1.9	7.7	2.6	7.9	2.6	Solder, ODF [3]	–	28	034L0031
KVP 35	8.6	2.8	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 °C / 14 °F
– Condensing temperature t_c = 25 °C / 100 °F
– Pressure drop in regulator Δp = 0.2 bar / 2 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.

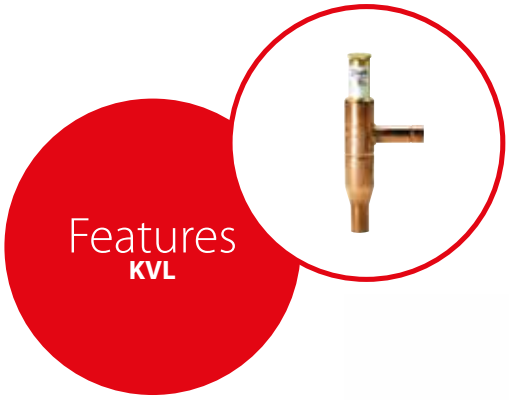
Application example

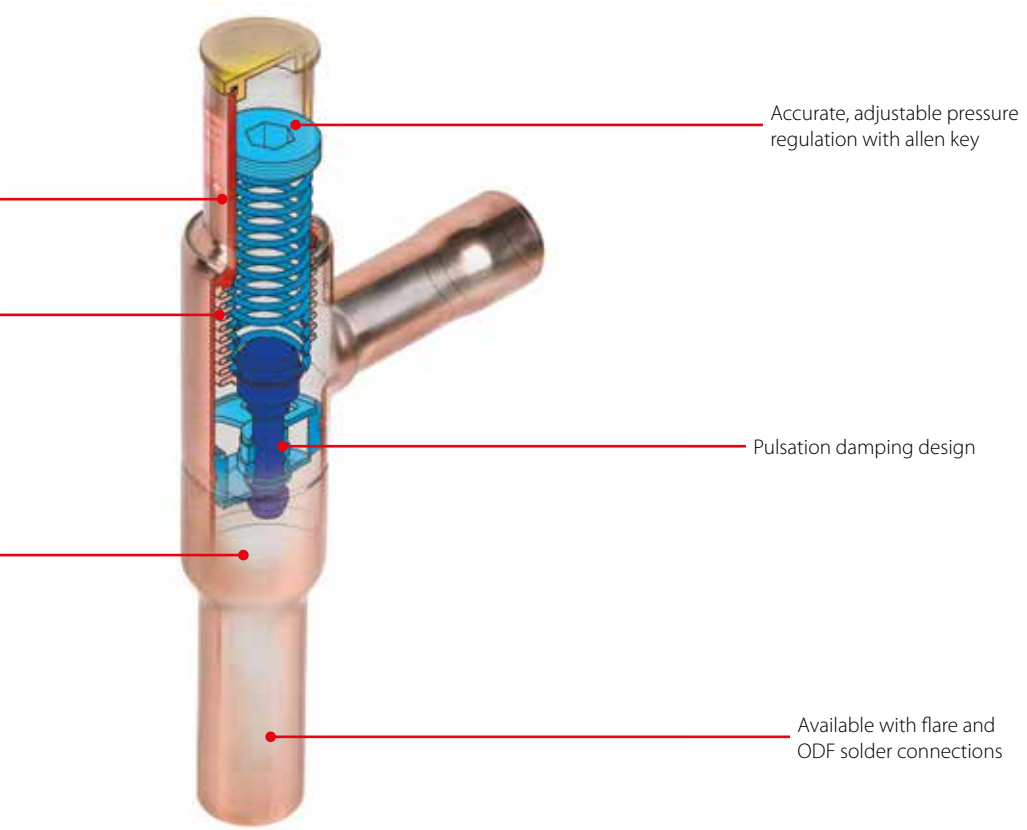


KVL – Crankcase pressure regulator

KVL crankcase pressure regulators 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

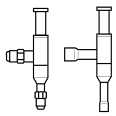
Application:
- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

- 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: for use with HCFC, HFC and HC
- KVL 12 – 22: compliant with ATEX hazard zone 2
- KVL 28 – 35: for use with HCFC and non flammable HFC
- Maximum working pressure: PS / MWP = 18 bar / 261 psig

Technical data and ordering

KVL - Crankcase pressure regulator

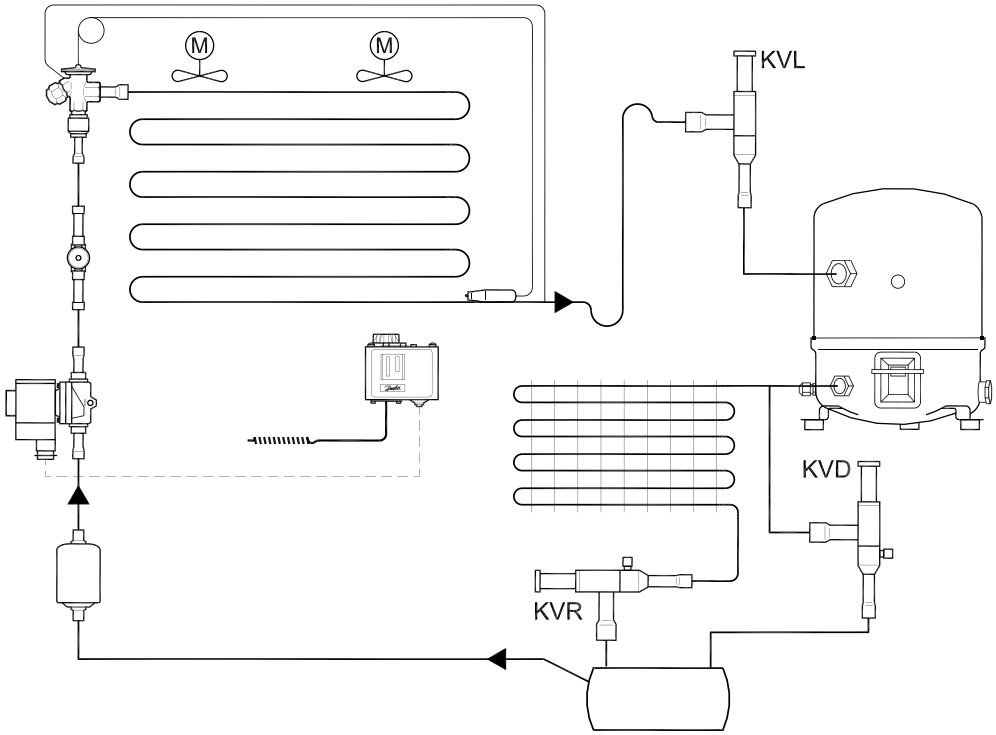


Ordering

Type	Rated capacity in [kW] / [TR] [1]								Connection type	Connection size		Code no.
	R22		R134a		R404A / R507		R407C					
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]		[in]	[mm]	
KVL 12	7.1	1.2	5.3	0.8	6.3	1.0	6.4	1.1	Flare [2][3]	1/2	12	034L0041
	7.1	1.2	5.3	0.8	6.3	1.0	6.4	1.1	Solder, ODF [3]	1/2	–	034L0043
	7.1	1.2	5.3	0.8	6.3	1.0	6.4	1.1	Solder, ODF [3]	–	12	034L0048
KVL 15	7.1	1.2	5.3	0.8	6.3	1.0	6.5	1.1	Flare [2][3]	5/8	16	034L0042
	7.1	1.2	5.3	0.8	6.3	1.0	6.5	1.1	Solder, ODF [3]	5/8	16	034L0049
KVL 22	7.1	1.2	5.3	0.8	6.3	1.0	6.5	1.1	Solder, ODF [3]	7/8	22	034L0045
KVL 28	17.8	4.1	13.2	2.6	15.9	3.4	16.4	3.8	Solder, ODF [3]	1 1/8	–	034L0046
	17.8	4.1	13.2	2.6	15.9	3.4	16.4	3.8	Solder, ODF [3]	–	28	034L0051
KVL 35	17.8	4.1	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 °C / 14 °F
– Condensing temperature t_c = 25 °C / 100 °F
– Pressure drop in regulator Δp = 0.2 bar / 2 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.

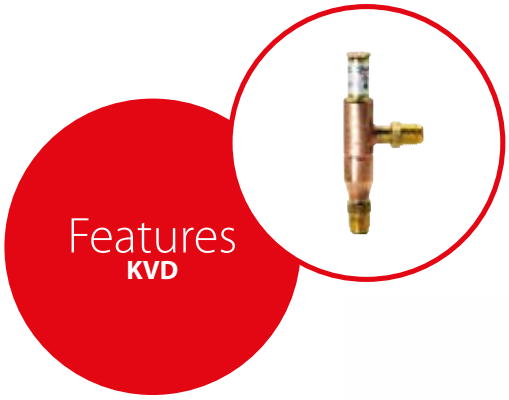
Application example

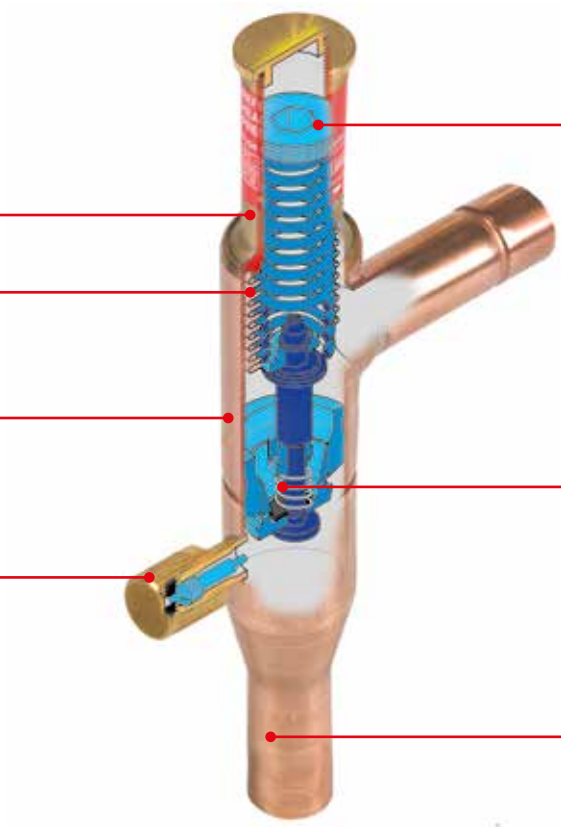


KVD - Receiver pressure regulator

KVD receiver pressure regulators open on falling receiver pressure and bypasses hot gas to maintain the receiver pressure at the regulator setting (adjustable).
KVD is for use with HCFC, HFC and HC refrigerants.

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

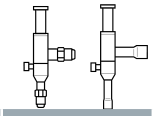
Application:
- Traditional refrigeration
- Air conditioning units
- Commercial refrigeration

- 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
- For use with HCFC, HFC and HC
- Compliant with ATEX hazard zone 2

Technical data and ordering

KVD - Receiver pressure regulator

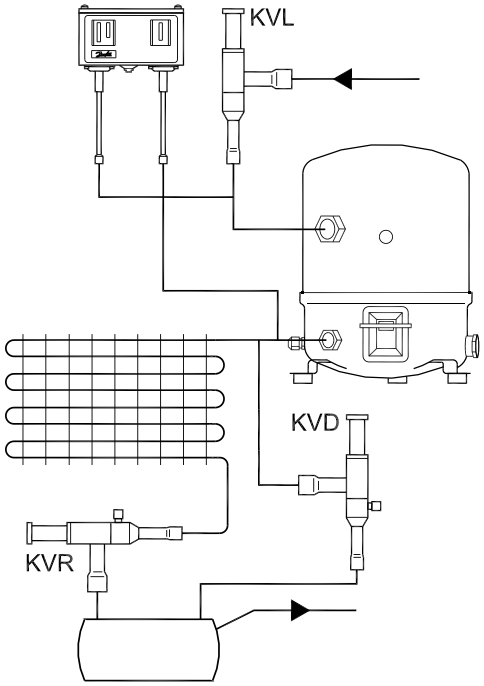


Ordering

Type	K_v value [m^3/h] [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 [m^3/h] at a pressure drop across valve of 1 bar, ρ = 1000 kg / m^3.
[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.

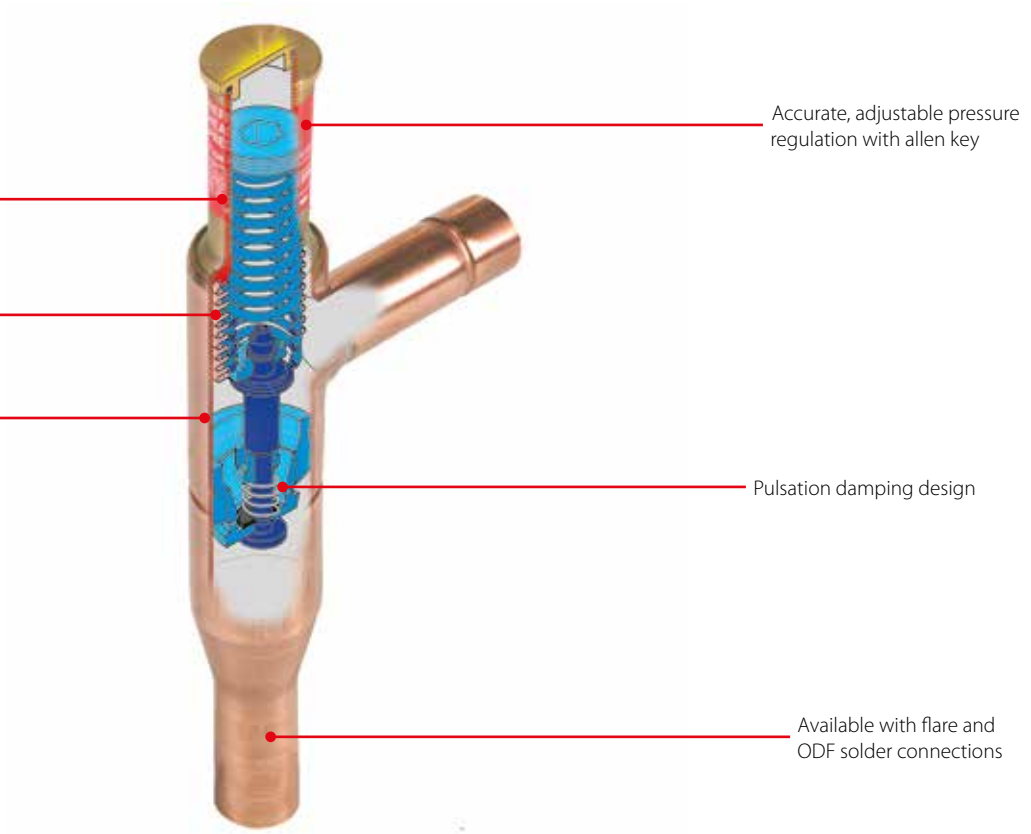
Application example



KVC - Hot gas bypass regulator

KVC are hot gas bypass regulators used for the adaption 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.
KVC is for HCFC, HFC and HC refrigerants.





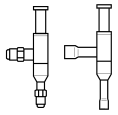
Facts

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
- For use with HCFC, HFC and HC
- Compliant with ATEX hazard zone 2
- Medium temperature: -45 – 130 °C / -49 – 266 °F

Technical data and ordering



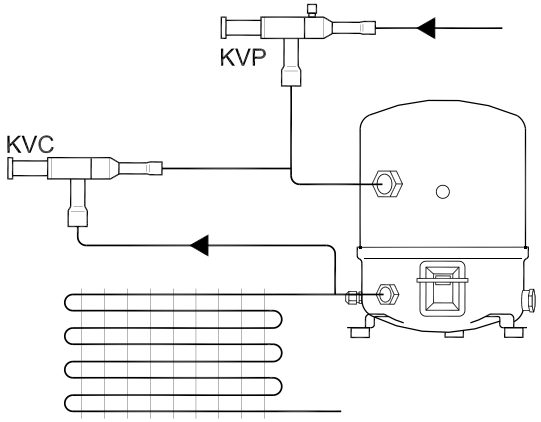
KVC - Hot gas bypass regulator

Ordering

Type	Rated capacity in [kW] / [TR] [4]								Connection type	Connection size		Code no.
	R22		R134a		R404A / R507		R407C					
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]		[in]	[mm]	
KVC 12 [3]	7.6	2.14	4.8	1.36	6.9	2.02	8.4	2.31	Flare [2] [3]	1/2	12	034L0141
	7.6	2.14	4.8	1.36	6.9	2.02	8.4	2.31	Solder, ODF [3]	1/2	–	034L0143
	7.6	2.14	4.8	1.36	6.9	2.02	8.4	2.31	Solder, ODF [3]	–	12	034L0146
KVC 15 [3]	14.9	4.17	9.4	2.65	13.6	3.93	16.4	4.50	Flare [2] [3]	5/8	16	034L0142
	14.9	4.17	9.4	2.65	13.6	3.93	16.4	4.50	Solder, ODF [3]	5/8	16	034L0147
KVC 22 [3]	19.1	5.35	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 °C / 14 °F
– Condensing temperature t_c = 25 °C / 77 °F

Application example

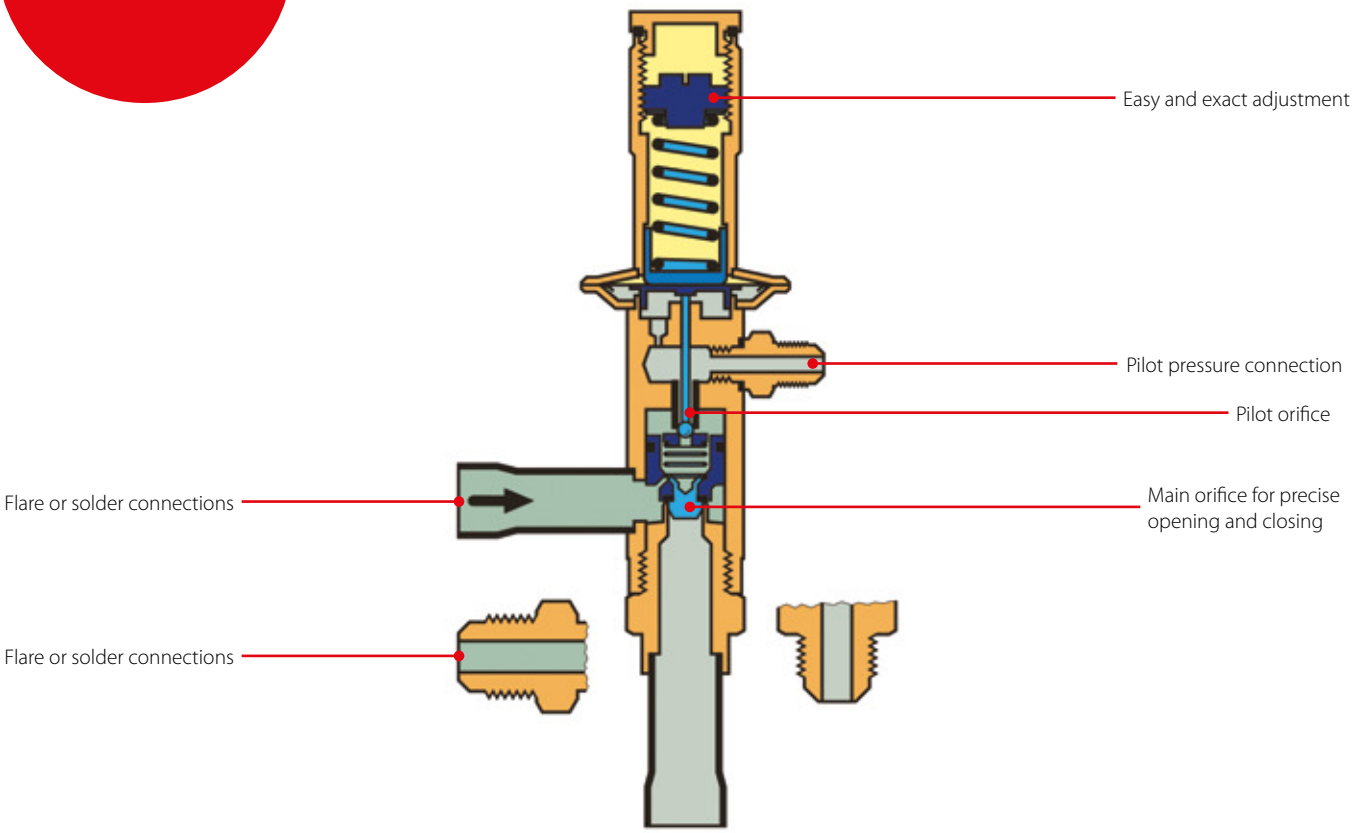


CPCE - Hot gas bypass regulator, LG - Liquid gas mixer (accessory)

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.

CPCE is for HCFC, HFC and HC refrigerants. Injection is through an LG liquid-gas mixer.





Facts

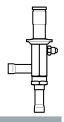
Application:
- Traditional refrigeration
- Air conditioning units
- Commercial refrigeration
- Compressed air dryers
- Transport refrigeration

- 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
- For use with HCFC, HFC and HC
- Complaint with ATEX hazard 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.
	R22		R134a		R404A / R507		R407C					
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]		[in]	[mm]	
CPCE 12	17.4	6.2	7.9	4.3	16.4	6.3	19.0	6.7	Flare [2] [3]	1/2	12	034N0081
	17.4	6.2	7.9	4.3	16.4	6.3	19.0	6.7	Solder, ODF [3]	1/2	12	034N0082
CPCE 15	25.6	9.2	11.6	6.3	24.2	9.1	27.9	9.9	Solder, ODF [3]	5/8	16	034N0083
CPCE 22	34.0	12.2	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 °C / 14 °F
– Condensing temperature t_c = 30 °C / 100 °F
– Reduction of suction temperature / pressure Δt_s = CPCE: 4 K

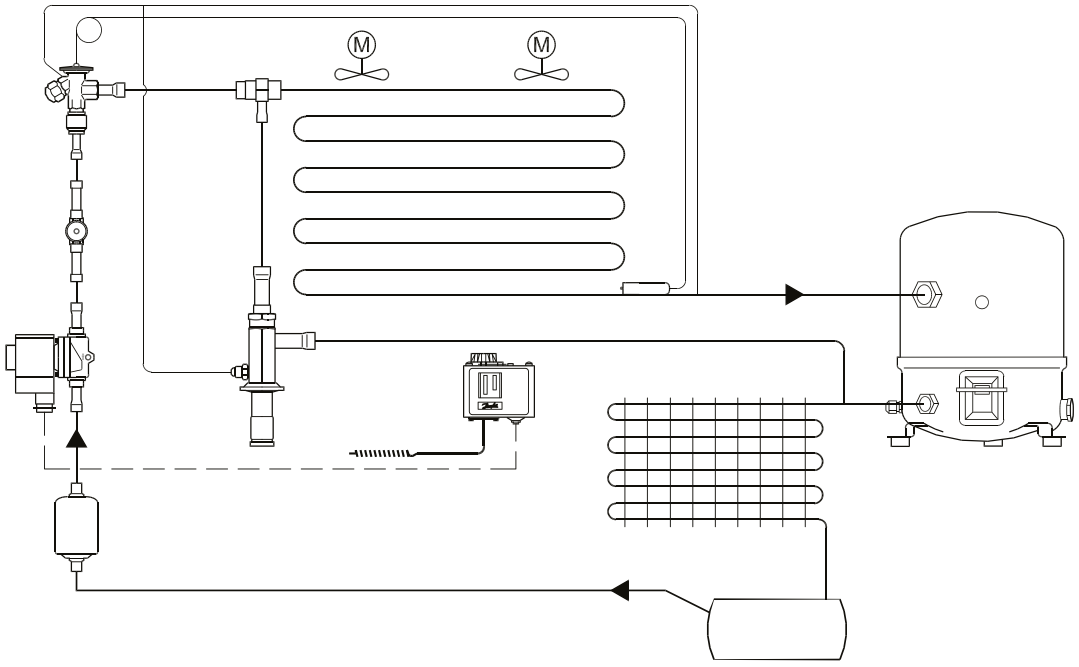
LG - Liquid-gas mixer (accessory)



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

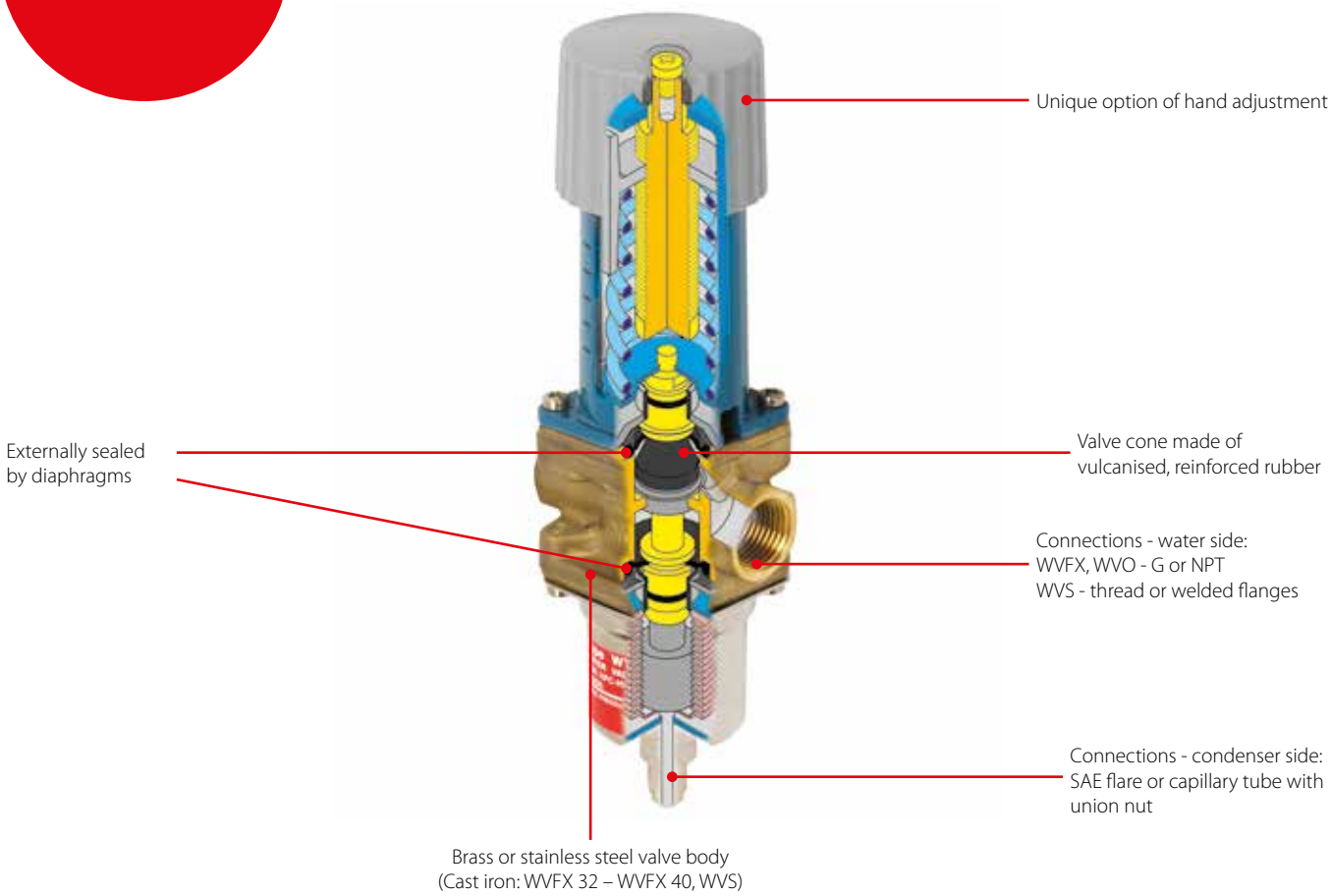


WVFX / WVO / WVS - Pressure operated water valve

WVFX, WVO and WVS pressure operated water valves are used to regulate the flow of water in HCFC, HFC and HC 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.





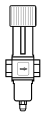
Facts

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
- Version for R410A available
- Very wide media temperature range: -25 – 130 °C
- Versions with capillary tube available on request
- For use with HCFC, HFC and HC
- Compliant with ATEX hazard zone 2

Technical data and ordering



WVFX - Pressure operated water valves, commercial applications

Ordering

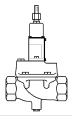
Type	Connection			Range (refrigerant) [bar]	Code no.
	Water side ISO 228-1	Condenser side			
		[in]	[mm]		
WVFX 10	G 3/8	1/4	6 flare	3.5 – 16	003N1100
	G 3/8	1/4	6 flare	4.0 – 23	003N1105
	G 3/8	1/4	6 flare	15.0 – 29.0	003N1410
WVFX 15	G 1/2	1/4	6 flare	3.5 – 16	003N2100
	G 1/2	1/4	6 flare nut	4.0 – 23	003N2205
	G 1/2	1/4	6 flare	4.0 – 23	003N2105
	G 1/2	1/4	6 flare	15.0 – 29.0	003N2410
WVFX 20	G 3/4	1/4	6 flare	3.5 – 16	003N3100
	G 3/4	1/4	6 flare	4.0 – 23	003N3105
	G 3/4	1/4	6 flare nut	4.0 – 23	003N3205
	G 3/4	1/4	6 flare	15.0 – 29.0	003N3410
WVFX 25	G 1	1/4	6 flare	3.5 – 16	003N4100
	G 1	1/4	6 flare	4.0 – 23	003N4105
	G 1	1/4	6 flare	15.0 – 29.0	003N4410
WVFX 32	G 1 1/4	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
	G 3/8	1/4	6 flare	16 – 20	003N5207
WVO 15	G 1/2	1/4	6 flare	14 – 18	003N5216



WVS - Pressure operated water valve parts programme

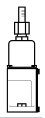
Type	Connection ISO 228-1	Code no.				
		Valve body	Pilot unit [2]	Pilot unit for R410A and R744 (CO_2) [2]	Flange set [3]	Servo spring for differential pressure range: 1 – 10 bar
WVS 32	G 1 1/4	016D5032	016D1017	016D1018	–	016D1327
WVS 40	G 1 1/2	016D5040	016D1017	016D1018	–	016D0575
WVS 50	2 in. weld 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

Technical data



HCFC / HFC / HC

Technical data

Refrigerant	Type	Control press. adjustable closing press. [bar]	Max. working pressure PS [bar]	Max. test pressure PB [bar]	Liquid side: Media	Liquid side: Max. working pressure PS [bar]	Liquid side: Max. test pressure PS [bar]	K_v value [1] [m³/h]
HCFC / HFC / HC	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
		15.0 – 29.0	45.2	60		16	24	1.4
	WVO 15	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
		15.0 – 29.0	45.2	60		16	24	1.9
	WVFX 20	3.5 – 16.0	26.4	29		16	24	3.4
		4.0 – 23.0	26.4	29		16	24	3.4
		15.0 – 29.0	45.2	60		16	24	3.4
	WVFX 25	3.5 – 16.0	26.4	29		16	24	5.5
		4.0 – 23.0	26.4	29		16	24	5.5
		15.0 – 29.0	45.2	60		16	24	5.5
	WVFX 32	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
HCFC / HFC / HC / R717	WVS 32	2.2 – 19.0	26.4	29	Fresh water, neutral brine	10	16	12.5
		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

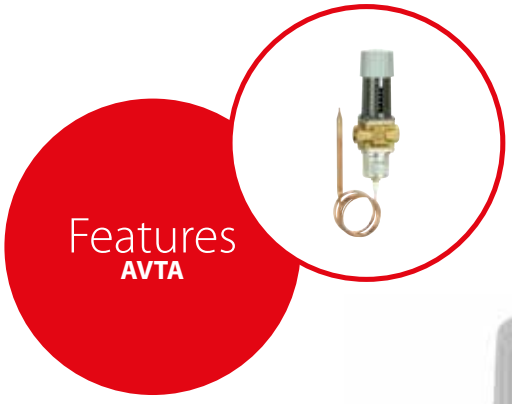
Opening differential pressure
WVO 10 – 25: 0 – 10 bar
WVFX 10 – WVFX 40: 0 – 10 bar
WVS 32 – WVFX 40: 0.5 – 4 bar
WVS 50 – WVS 100: 0.3 – 4 bar

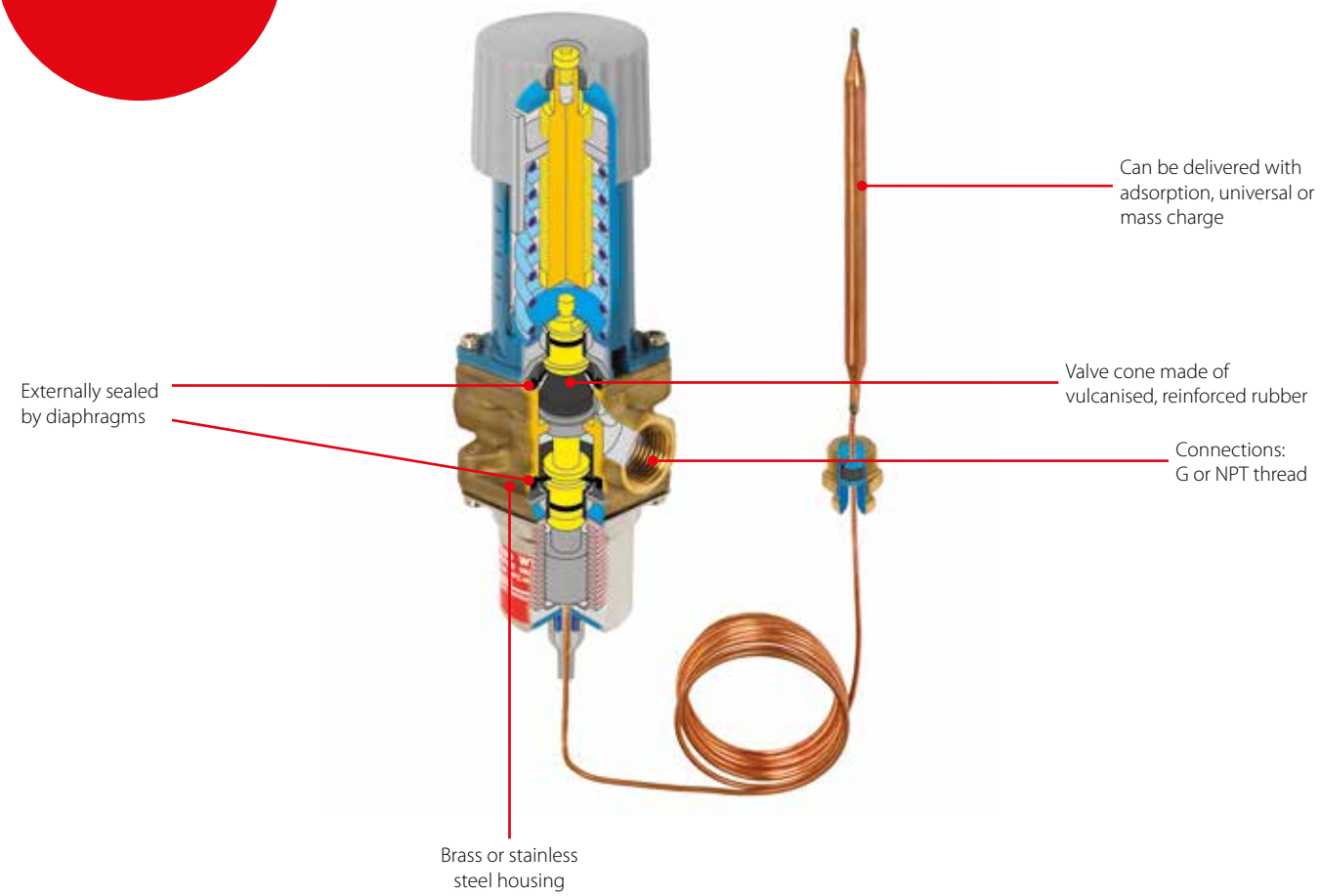
Quick Selection Notes:

AVTA - Pressure operated water valve

AVTA pressure 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.





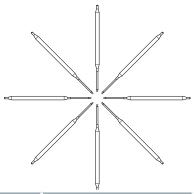
Facts

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

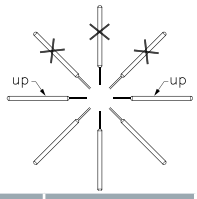


AVTA with adsorption charge (sensor ø9.5 × 150 mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K_v value at Δp = 1 bar [m³/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.

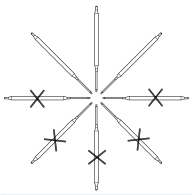


AVTA with universal charge (sensor ø18 × 210 mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K_v value at Δp = 1 bar [m³/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
	G 1/2	25 – 65	90	1.9	2.0 (armoured)	003N0041
AVTA 20	G 3/4	25 – 65	90	3.4	2.0	003N3162
	G 3/4	25 – 65	90	3.4	5.0	003N3165
	G 3/4	25 – 65	90	3.4	2.0 (armoured)	003N0031
AVTA 25	G 1	25 – 65	90	5.5	2.0	003N4162
	G 1	25 – 65	90	5.5	2.0 (armoured)	003N0032
	G 1	25 – 65	90	5.5	5.0	003N4165
AVTA 10	G 3/8	50 – 90	125	1.4	2.0	003N1182
AVTA 15	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.

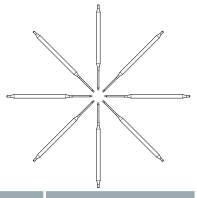


AVTA with mass charge (sensor ø9.5 × 180 mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K_v value at Δp = 1 bar [m³/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
	G 1/2	25 – 65	90	1.9	5.0	003N0034
AVTA 20	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 ø9.5 × 150 mm)

Ordering

Type	Connection ISO 228-1	Regulating range [°C]	Max. temperature sensor [°C]	K_v value at Δp = 1 bar [m³/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

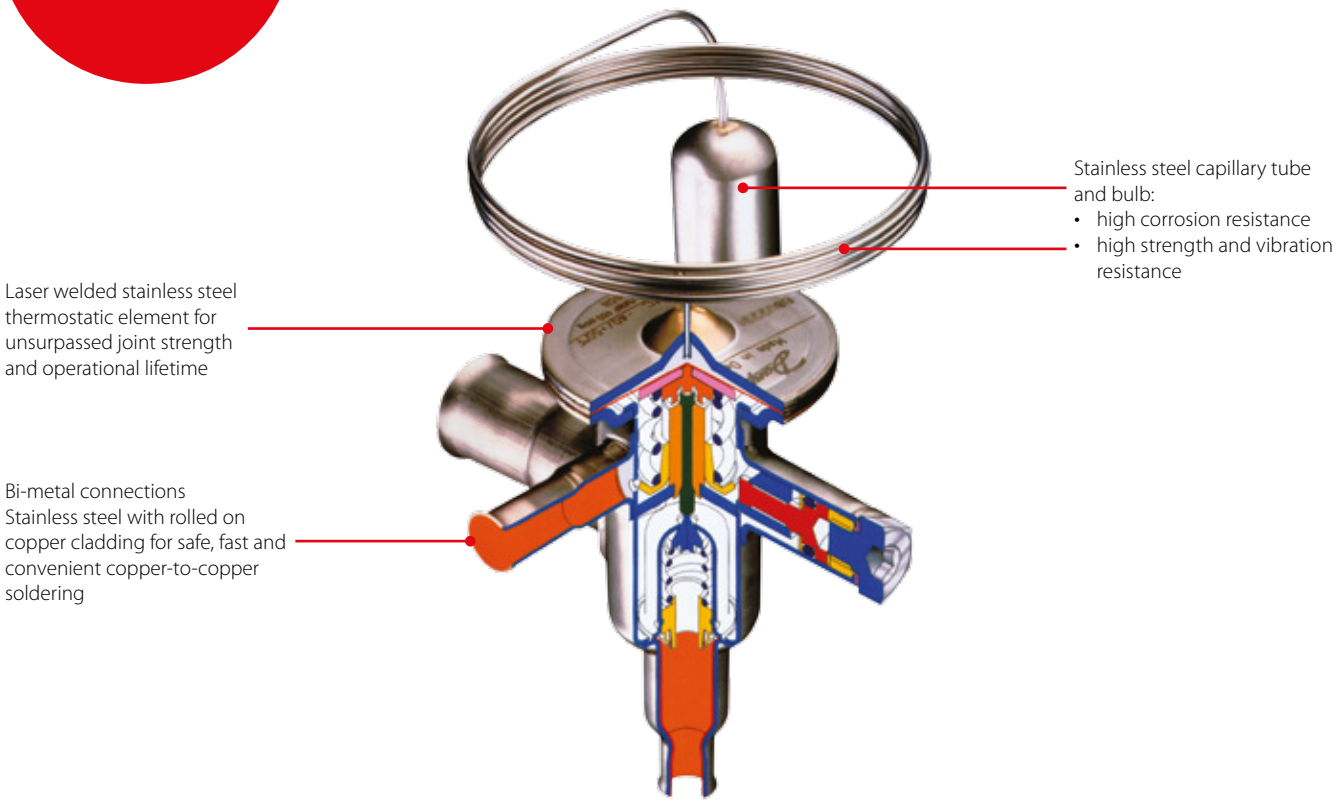
[1]) Code no. covers complete valve including capillary tube gland.

TUH / TCHE - Capacity regulator (hot gas bypass)

TUH / TCHE capacity regulators adapt compressor capacity to actual evaporator load in applications operating at an evaporating temperature of around 0 °C. Fitted in a bypass between the high and low-pressure sides of air-drier systems, TUH / TCHE maintain compressor suction pressure by injecting hot gas / cool gas from the high-pressure side.

TUH has internal pressure equalization and opens when pressure drops at the valve outlet.
TCHE have external pressure equalization and open directly when compressor suction pressure drops.





Facts

Application:
- Air driers and water chillers

- Bimetal connections for TUH and TCHE straightforward and fast soldering (no wet cloth or refrigeration pliers required)

- Refrigerants
  - R410A, R134a, R404A / R507, R407C, R22 and other refrigerants on request.
- Replacement capacities up to 12.9 kW (3.7 TR) for R410A
- Compact design
  - Small dimensions and low weight
- Hermetically tight design
  - Capillary tube joints of high strength and vibration resistance

- Laser-welded, stainless steel diaphragm element
  - Optimum function
  - Long diaphragm life
  - High pressure resistance
- Adjustable setting
  - accurate setting
  - fine tuning possible
- Low p-band
- Low hysteresis

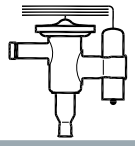
Technical data and ordering

TUH / TCHE - Capacity regulator (hot gas bypass)

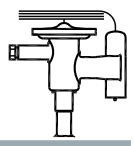
Technical data

Type	Refrigerant	Capillary tube length		Pressure equalization	Max. permissible working pressure		Max. P-band	
		[m]	[ft]		[bar]	[psig]	[bar]	[psig]
TUH	R134a	0.8	2.6	int.	34	500	0.5	7.3
	R22 / R407C	0.8	2.6	int.	34	500	0.5	7.3
	R404A	0.8	2.6	int.	34	500	0.5	7.3
	R410A	0.8	2.6	int.	45.5	660	0.5	7.3
TCHE	R134a	0.9	2.9	ext.	34	500	0.5	7.3
	R22 / R407C	0.9	2.9	ext.	34	500	0.5	7.3
	R404A	0.9	2.9	ext.	34	500	0.5	7.3
	R410A	0.9	2.9	ext.	45.5	660	0.5	7.3

TUH



TCHE



TUH / TCHE - Capacity regulator (hot gas bypass)

Ordering (Supplied with bulb strap)

Type	Refrigerant	Orifice no.	Rated replacement capacity [1]		Adjustment range for start opening		Connection Inlet × Outlet				
			[kW]	[TR]	[°C]	[°F]	[in] [2]	Code no.		[mm] [3]	Code no.	
								Industrial pack	Multi pack		Industrial pack	Multi pack
TUH	R134a	9	1.8	0.5	-1 – 10	30 – 50	3/8 × 1/2	068U2953	068U3748	10 × 12	068U2950	068U3746
	R134a	9	1.8	0.5	-1 – 10	30 – 50	–	–	–	6 × 10	068U2961	068U3751
	R134a	9	1.8	0.5	-6 – 5	-21 – 41	3/8 × 1/2	–	–	10 × 12	068U2966	–
	R404A / R507	9	4.5	1.3	-1 – 12	30 – 54	3/8 × 1/2	068U2954	–	10 × 12	068U2951	068U3747
	R404A / R507	9	4.5	1.3	-42 – -32	30 – 54	3/8 × 1/2	–	–	10 × 12	–	068U2963
	R22 / R407C	9	2.8	0.8	-4 – 8	25 – 46	3/8 × 1/2	068U2959	068U3749	10 × 12	–	–
	R410A	9	7.3	2.1	-1 – 10	30 – 50	3/8 × 1/2	068U2960	068U3750	10 × 12	068U2958	–
TCHE	R134a	3	2.6	0.8	-1 – 12	30 – 54	3/8 × 1/2	068U4540	–	10 × 12	068U4530	068U4578
	R134a	4	3.4	1	-1 – 12	30 – 54	3/8 × 1/2	068U4537	068U4583	10 × 12	068U4534	068U4580
	R134a	4	3.4	1	-5 – 5	30 – 54	3/8 × 1/2	–	–	10 × 12	068U4560	068U4589
	R404A / R507	3	5.9	1.7	0 – 6	32 – 43	3/8 × 1/2	068U4541	–	10 × 12	068U4531	068U4579
	R404A / R507	4	7.6	2.2	0 – 6	32 – 43	3/8 × 1/2	–	–	10 × 12	068U4535	068U4581
	R22 / R407C	3	4.1	1.2	0 – 8	32 – 46	3/8 × 1/2	068U4546	068U4584	10 × 12	–	–
	R22 / R407C	4	5.3	1.5	-1 – 8	30 – 46	3/8 × 1/2	068U4547	–	10 × 12	–	–
	R410A	3	10.0	2.9	-1 – 9	30 – 48	3/8 × 1/2	068U4548	068U4585	10 × 12	068U4528	068U4576
	R410A	4	12.9	3.7	-1 – 9	30 – 48	3/8 × 1/2	068U4549	068U4586	10 × 12	068U4529	068U4577
	R410A	3	10.0	2.9	-5 – 5	23 – 41	3/8 × 1/2	068U4558	068U4587	10 × 12	–	–
	R410A	4	12.9	3.7	-5 – 5	23 – 41	3/8 × 1/2	068U4559	068U4588	10 × 12	–	–

[1] The rated replacement capacity is the regulator capacity at evaporating temperature t_e = -2 °C / 28 °F, condensing temperature t_c = 40 °C / 104 °F, reduction of suction temperature / suction pressure Δt_s = 4 K / 7 °F

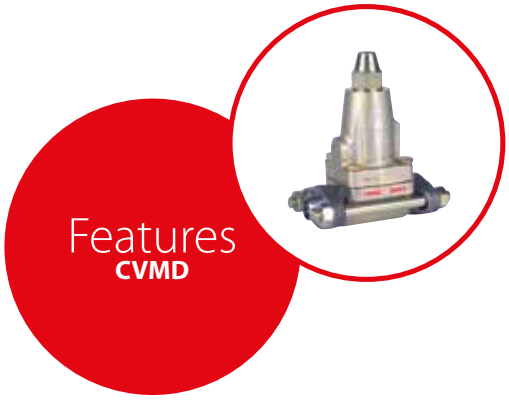
[2] Valves with inch connections have 1/4 in. pressure-equalization.

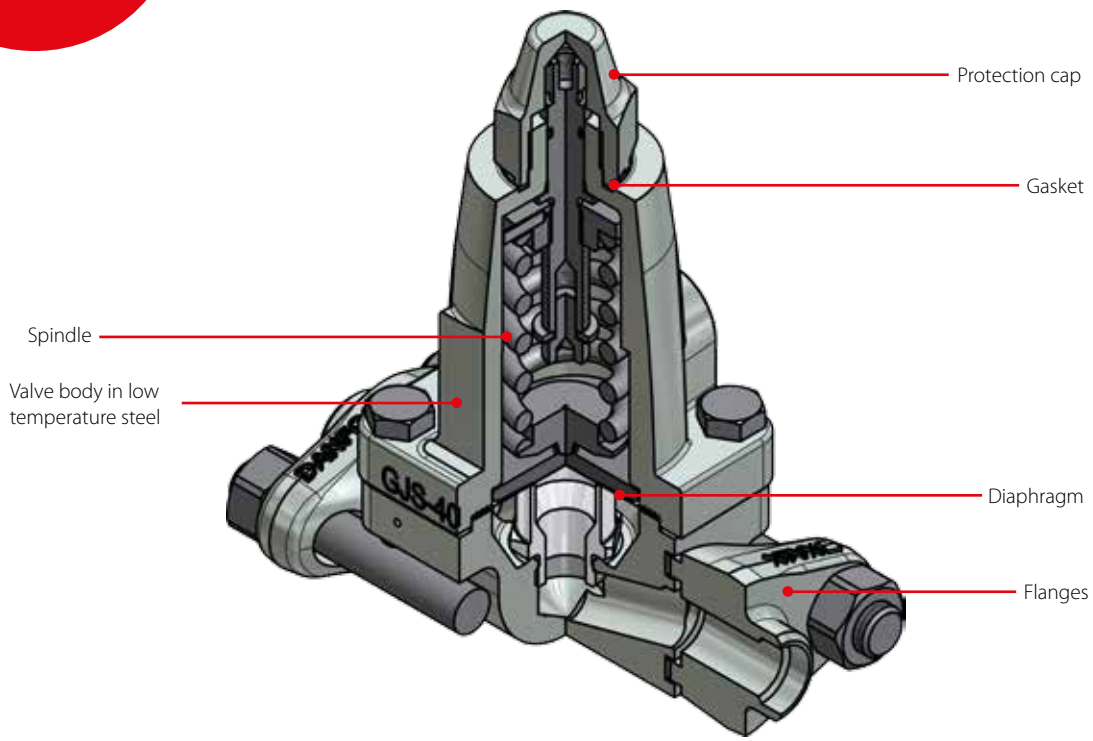
[3] Valves with mm connections have 6 mm pressure-equalization.

CVMD - Constant pressure valve

CVMD is a constant pressure regulator for refrigeration and freezing plant in applications such as:

- hot gas defrosting (drain lines)
- refrigerant pump bypass (to ensure min. flow in refrigerant pumps).





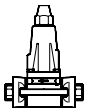
Facts

- Applicable to HCFC, HFC, R717 (Ammonia)
- Pressure range:
  0 – 7 bar / 0 – 102 psi
- Max. working pressure:
  28 bar / 406 psi
- Temperature range:
  -50 – 120 °C / -58 – 248 °F
- K_V value: 1.5 m^3/h
- C_V value: 1.7 gal/min

Ordering

CVMD - Constant pressure valve

Ordering CVMD incl. ½ in weld flange



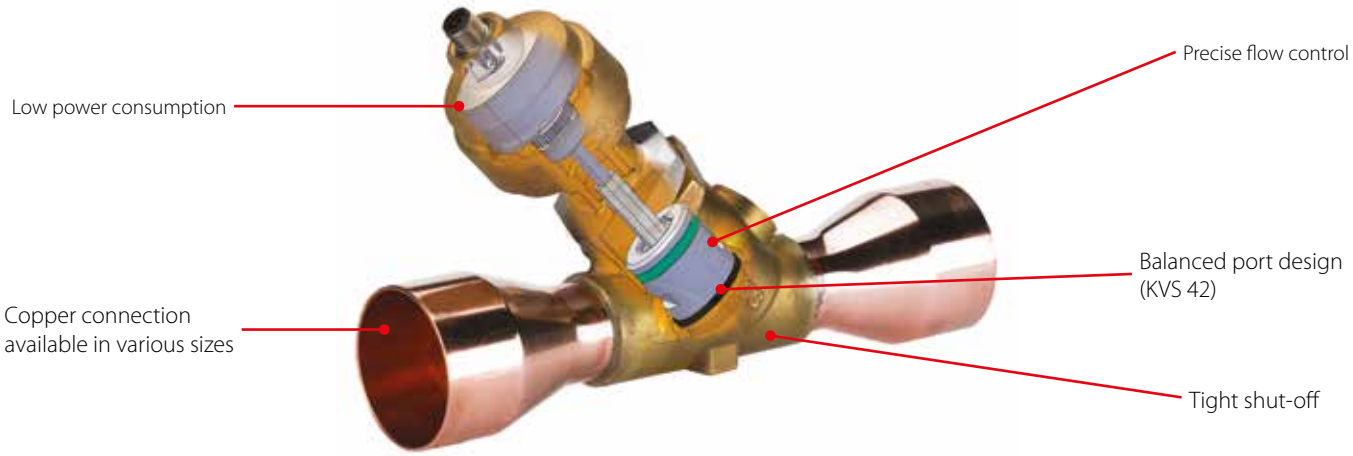
Type	MWP [bar g]	K_V - value [m³/h]	Temperature range [°C]	Pressure range [bar g]	Code no.
CVMD	28	1.5	-50 – 120	0 – 7	027B1038

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 ± 0.5 K / ± 0.9 °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. KVS is compatible with R410A, R407C, R404A, R134a, R507, R22 and other refrigerants.





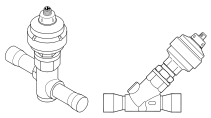
Facts

Application:
- Traditional refrigeration
- Air conditioning units
- Transport refrigeration
- Supermarkets

- Biflow
- High resolution for precise control
- Low power consumption
- Corrosion resistant design external as well as internal
- Solenoid tight shut-off

- KVS is designed for R410A, R407C, R404A, R134a, R507, R22 and other refrigerants
- 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

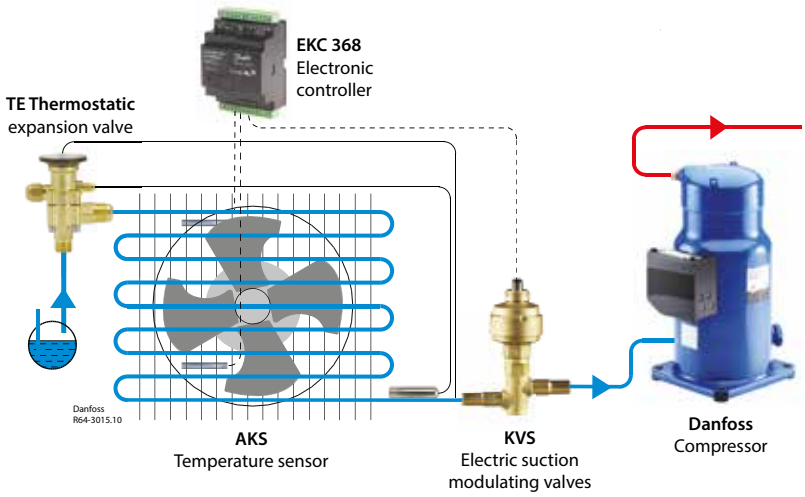
Parameter	KVS 15	KVS 42
Compatible refrigerants	R410A, R407C, R404A, R134a, R507, R22 and other refrigerants	R410A, R407C, R404A, R134a, R507, R22 and other refrigerants
Refrigerant oil	All mineral and ester oils	All mineral and ester oils
CE marking	No	Yes
MOPD	33 bar / 479 psi	33 bar / 479 psi
Max. 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 / 11/16 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

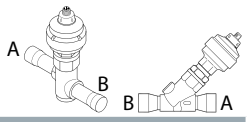
Parameter	KVS 15 and KVS 42
Stepper motor type	Bi-polar - permanent magnet
Step mode	2 phase full step
Phase resistance	52 Ω ± 10%
Phase inductance	85 mH
Holding current	Depends on application. Full current allowed (100% duty cycle).
Step angle	7.5° (motor), 0.9° (lead screw), Gearing ration 8.5:1. (38 / 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



Technical data and ordering

KVS - Electric suction modulating control valve



Ordering, valves in single pack

Type	Rated capacity [1]						KVS valve		
	R22		R134a		R404A/R507		Connection A × B		Code no. single pack
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[mm]	[in]	
KVS 15	5.15	1.31	3.78	0.94	4.58	1.07	16	5/8	034G4252
	5.15	1.31	3.78	0.94	4.58	1.07	22	7/8	034G4253
KVS 42	40.4	11.4	29.3	8.3	35.3	10.0	22	7/8	034G2858
	40.4	11.4	29.3	8.3	35.3	10.0	28	1 1/8	034G2850
	40.4	11.4	29.3	8.3	35.3	10.0	35	1 3/8	034G2851
	40.4	11.4	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 °C / 14 °F
- condensing temperature t_c = 25 °C / 77 °F
- pressure drop across valve Δp = 0.2 bar / 2.9 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

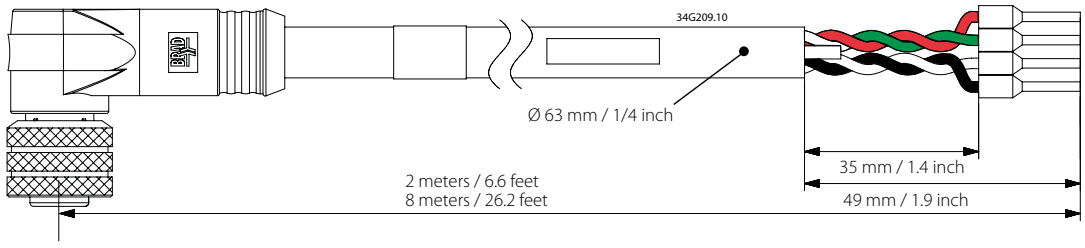
Type	Description	Type designation	Code no. Multipack
Cable filter	Cable filter for KVS valve	AKA 211	084B2238

M12 angle cable

Ordering

Cable	Cable length [ft]	Insulation	Packing format	Code no.
PVC - black	2 m / 6.6	SR-PVC	Single pack	034G7073
PVC - black	8 m / 26.2	SR-PVC	Single pack	034G7074

Dimensions

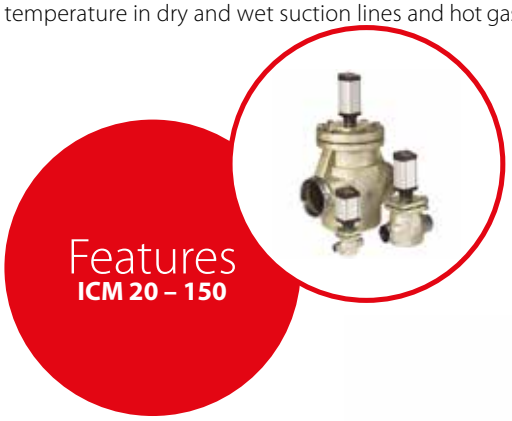


Quick Selection Notes:

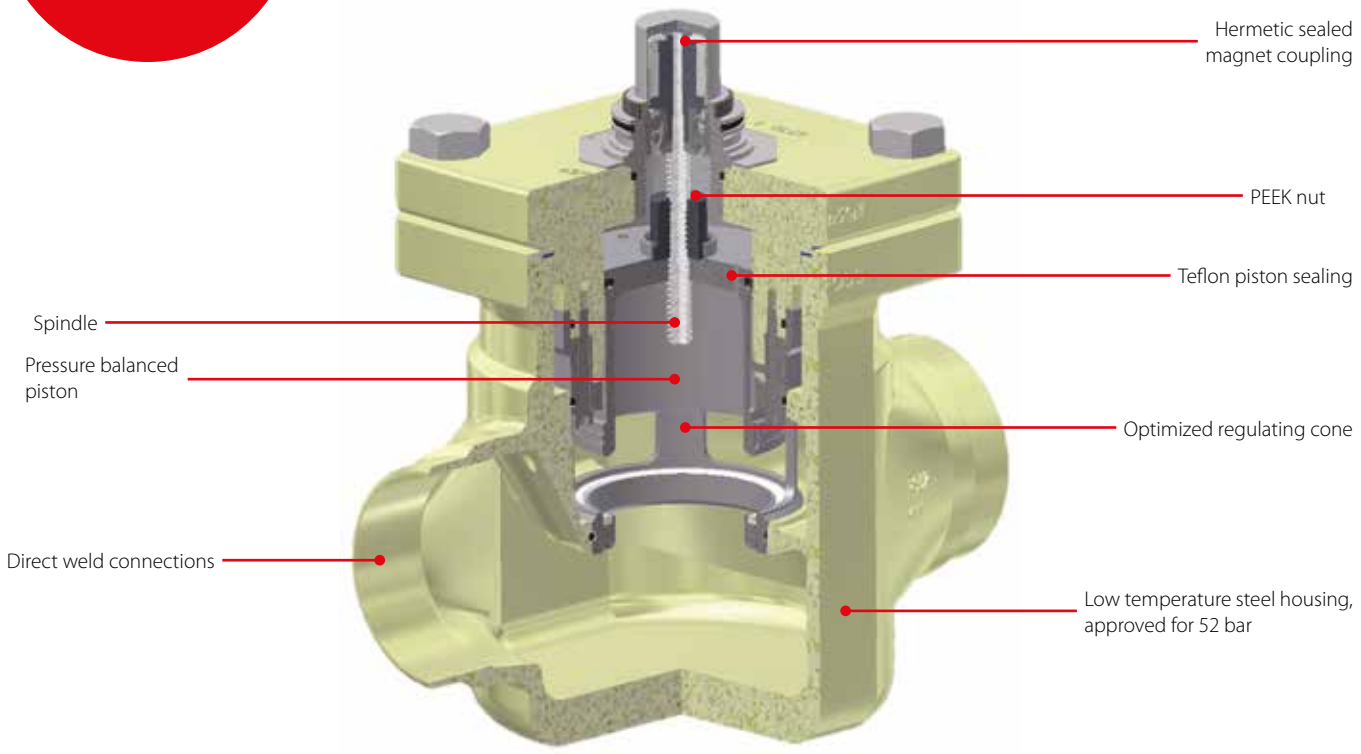
ICM 20-150, Motor operated valve

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.
ICM is for use with HCFC, HFC, R717 (Ammonia) and R744 (CO_2) refrigerants.



Features
ICM 20 – 150



Facts

Application:
- Industrial refrigeration for a maximum working pressure of 52 bar / 754 psig

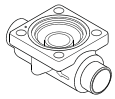
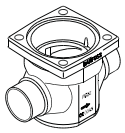
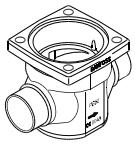
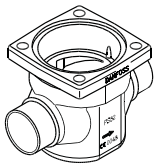
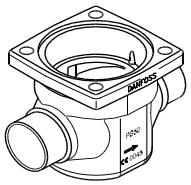
- Modular Concept
  - Each valve body is available with several different connection types and sizes
  - Valve overhaul is performed by replacing the function module
  - Possible to convert ICM motor operated valve to ICS pilot operated servo valve
- Low weight and compact design
- Low temperature steel 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
- Refrigerants: Applicable to HCFC, HFC, R717 (Ammonia) and R744 (CO_2).
  Use with flammable hydrocarbons canot be recommended; please contact Danfoss
- 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

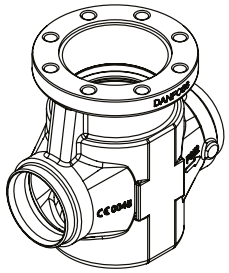
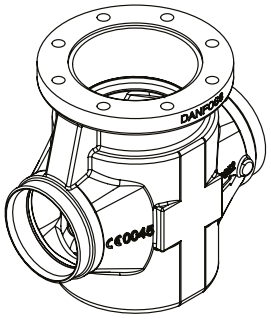
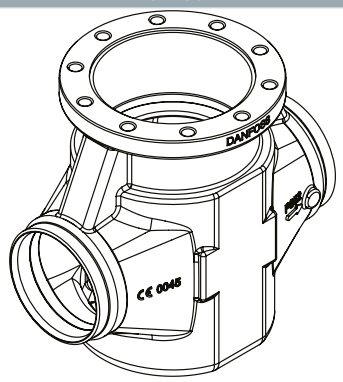
The ICM concept

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.

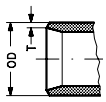
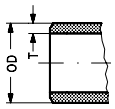
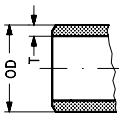
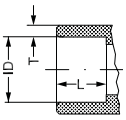
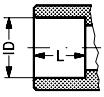
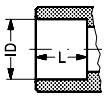
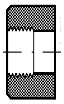
The valve body

There are nine valve bodies available.

ICV 20	ICV 25	ICV 32	ICV 40	ICV 50	ICV 65
					

ICV 100	ICV 125	ICV 150
		

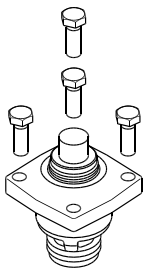
Valve bodies in the sizes ICV 20 – ICV 65 are available with a range of undersizes through oversized connection sizes and types.
ICV 100 – ICV 150 are available in butt-weld DIN and butt-weld ANSI nominal sizes.

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

Type	Valve body size	K_V [m³/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

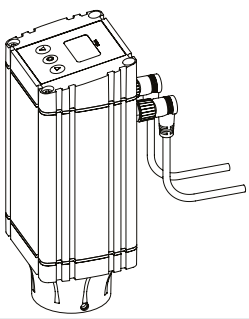
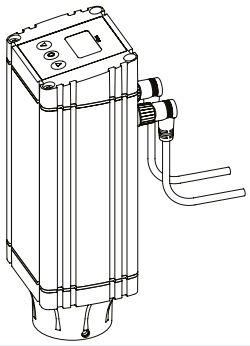
Top / function module

The multiple top / function modules have different capacities.



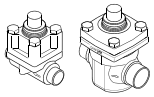
The actuator

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

ICAD 600A	ICAD 1200A
	

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
	1	25	Butt weld, EN 10220	D	027H1020
ICM 20 – B	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
	7/8	22	Solder connection, DIN (2856)	SD	027H1046
	1	25	Butt weld, EN 10220	D	027H1021
ICM 20 – C	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
	1	25	Butt weld, EN 10220	D	027H1022
	1	25	Butt weld, ANSI (B 36.10)	A	027H1025
ICM 25 – A	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
	1 1/2	40	Butt weld, EN 10220	D	027H2016
ICM 25 – B	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
	1 1/8	35	Solder connection, DIN (2856)	SD	027H2015
ICM 32 – A	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
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3008
ICM 32 – B	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
	2	50	Butt weld, EN 10220	D	027H4010
ICM 40 – B	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
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4009
ICM 50 – A	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
	2 1/2	65	Butt weld, EN 10220	D	027H5008
ICM 50 – B	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
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5007
ICM 65 – A	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

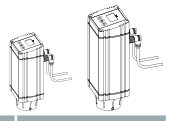
Technical data and ordering

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

Technical data and ordering

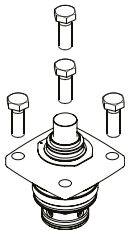
Ordering from the parts programme (valve body + top / function module + actuator)

Example:



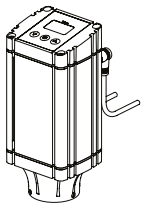
Valve body 32 D (1 ¼ in)
027H2129

+



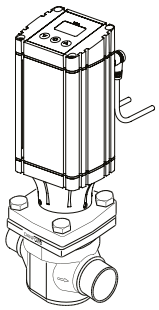
Top / function module
ICM 25-B
027H2181

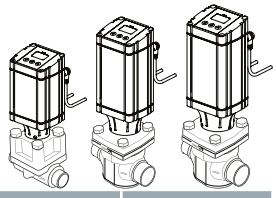
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Actuator
027H9075
(For ICAD code numbers; please see the section "Ordering ICAD actuators)

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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

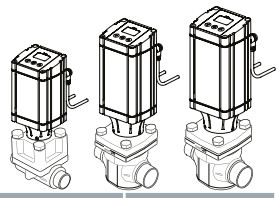
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 25	3/4	20	Butt weld, EN 10220	D	027H2128
	3/4	20	Butt weld, ANSI (B 36.10)	A	027H2131
	3/4	20	Socket weld, ANSI (B 16.11	SOC	027H2132
	3/4	20	Female pipe thread (ANSI/ASME B 1.20.1)	FTP	027H2133
	7/8	22	Solder connection, 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	C_v value [gal/min]	K_v 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	C_v value [gal/min]	K_v 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	C_v value [gal/min]	K_v 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])

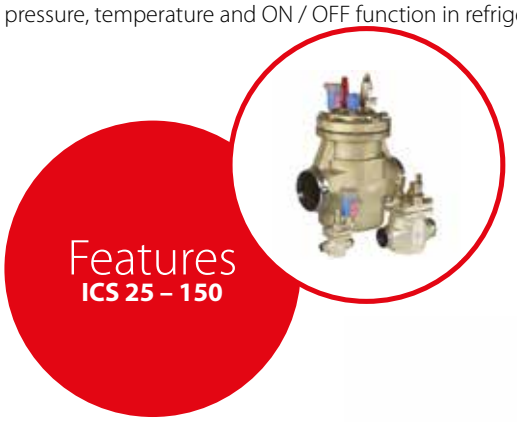
Type	C_v value [gal/min]	K_v value [m^3/h]		Code no.
ICM 65 – A	41	35		027H6180
ICM 65 – B	80	70		027H6181

[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.

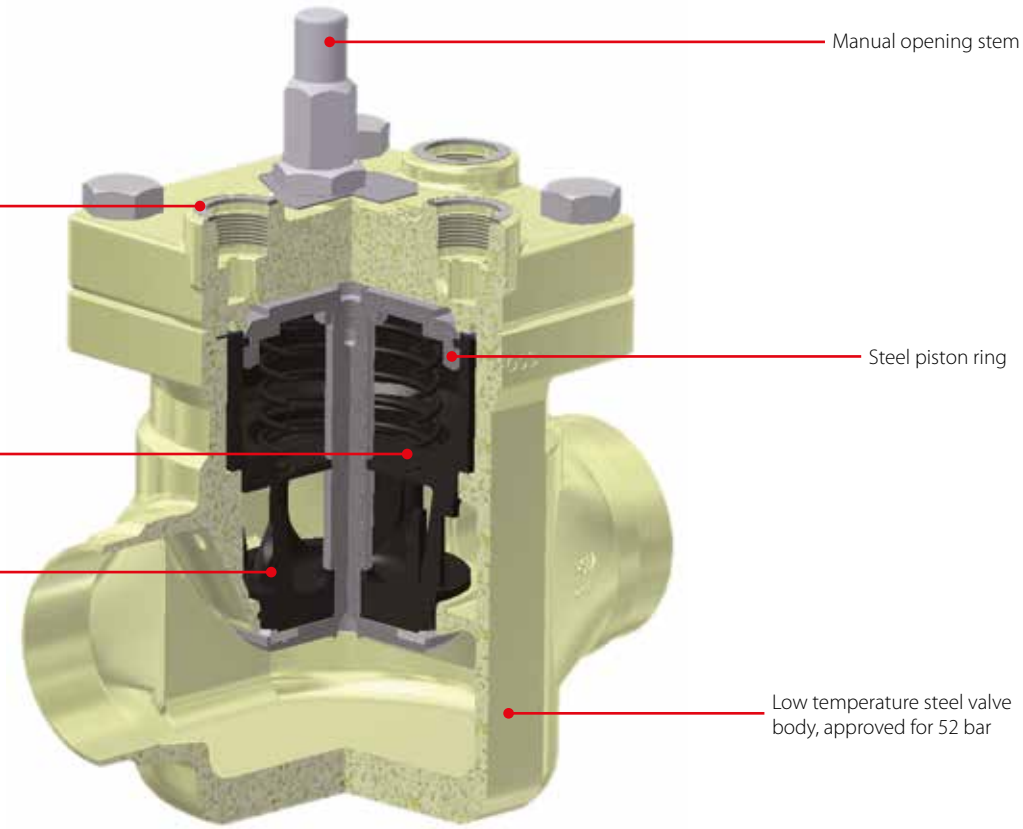
ICS 25-150, Pilot-operated servo valve

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 refrigerants, HCFC, HFC, R717 (Ammonia) and R744 (CO_2).
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.



Features
ICS 25 – 150



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

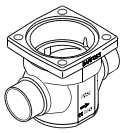
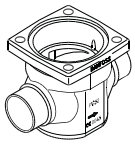
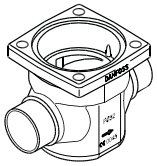
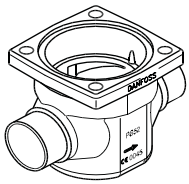
- Refrigerants: Applicable to HCFC, HFC, R717 (Ammonia) and R744 (CO_2). Use with flammable hydrocarbons cannot be recommended; please contact Danfoss
- Temperature range: -60 – 120 °C / -76 – 248 °F
- Surface protection: The external surface is zinc-chromated to provide good corrosion protection
- Max. working pressure: 52 bar g / 754 psig

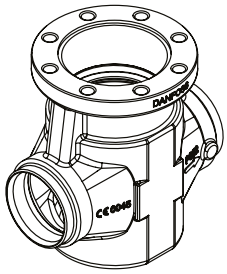
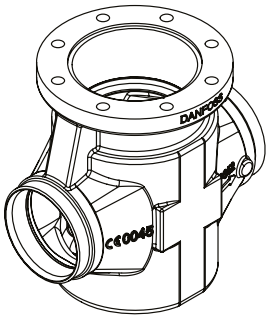
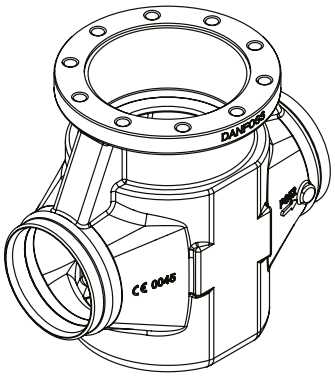
The ICS concept

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.

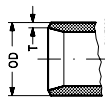
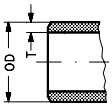
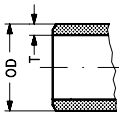
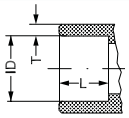
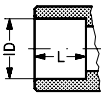
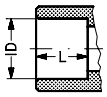
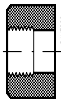
The valve body

There are eight valve bodies available.

ICV 25	ICV 32	ICV 40	ICV 50	ICV 65
				

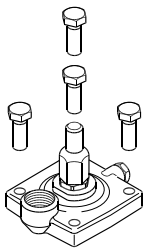
ICV 100	ICV 125	ICV 150
		

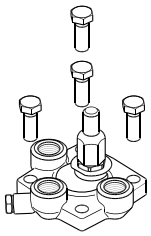
Valve bodies in the sizes ICV 25 – ICV 65 are available with a range of undersizes through oversized connection sizes and types.
ICV 100 – ICV 150 are available in butt-weld DIN and butt-weld ANSI nominal sizes.

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

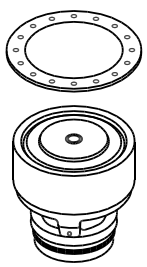
Each valve body may be fitted with a 1 pilot or 3 pilot top cover (except ICS 100 – ICS 150 - only available as 3 pilots version).





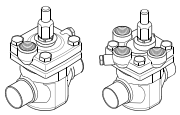
The function module

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



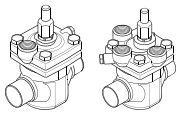
ICS - Pilot-operated servo valve

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

Type		Connection size [in]	Connection size [mm]	Connection type	Connection designation	Code no.
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
		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 pilots [1]	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
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2076
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2074
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
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2036
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2034
	3 pilots [1]	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
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2084
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
		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 pilots [1]	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
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2094
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
		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 pilots [1]	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
		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)

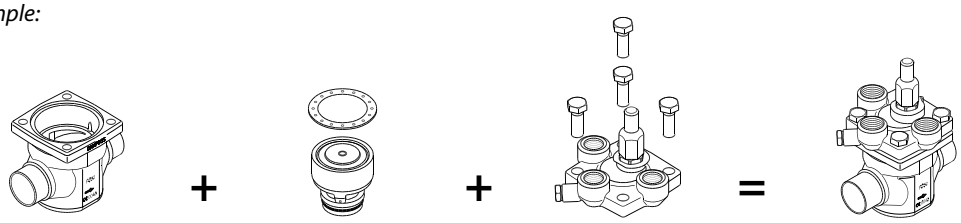
Type		Connection size [in]	Connection size [mm]	Connection type	Connection designation	Code no.
ICS 25 – 25	1 pilot	3/4	20	Butt weld, EN 10220	D	027H2068
		7/8	22	Solder connection, ANSI (B 16.22)	SA	027H2065
		7/8	22	Solder connection, DIN (2856)	SD	027H2063
		1	25	Butt weld, EN 10220	D	027H2060
		1	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
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2064
	3 pilots [1]	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
		1 1/8	28	Solder connection, ANSI (B 16.22)	SA	027H2116
		1 1/8	28	Solder connection, DIN (2856)	SD	027H2114
ICS 32	1 pilot	1 1/4	32	Butt weld, EN 10220	D	027H3020
		1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3021
		1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3022
		1 3/8	35	Solder connection, DIN (2856)	SD	027H3023
	3 pilots [1]	1 1/4	32	Butt weld, EN 10220	D	027H3030
		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
ICS 40	1 pilot	1 1/2	40	Butt weld, EN 10220	D	027H4020
		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
		1 5/8	42	Solder connection, DIN (2856)	SD	027H4023
	3 pilots [1]	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
		1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4034
		1 5/8	42	Solder connection, DIN (2856)	SD	027H4033
ICS 50	1 pilot	2	50	Butt weld, EN 10220	D	027H5020
		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
	3 pilots [1]	2	50	Butt weld, EN 10220	D	027H5030
		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 65	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	76	Solder connection, DIN (2856)	SD	027H6024
	3 pilots [1]	2 1/2	65	Butt weld, EN 10220	D	027H6030
		2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6031
		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	76	Solder connection, DIN (2856)	SD	027H6034
ICS 80	1 pilot	3	80	Butt weld, EN 10220	D	027H8020
		3	80	Butt weld, ANSI (B 36.10)	A	027H8021
	3 pilots [1]	3	80	Butt weld, EN 10220	D	027H8030
		3	80	Butt weld, ANSI (B 36.10)	A	027H8031
ICS 100	3 pilots [2]	4	100	Butt weld, EN 10220	D	027H7120
		4	100	Butt weld, ANSI (B 36.10)	A	027H7121
		4	100	Butt weld, ANSI (B 36.10)	A [2]	027H7122
ICS 125	3 pilots [2]	5	125	Butt weld, EN 10220	D	027H7140
		5	125	Butt weld, ANSI (B 36.10)	A	027H7141
		5	125	Butt weld, ANSI (B 36.10)	A [2]	027H7142
ICS 150	3 pilots [2]	6	150	Butt weld, EN 10220	D	027H7160
		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).*

Ordering

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

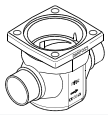
Example:



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	1 Pilot	027H2172 [2]
	3 Pilots	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	1 Pilot	027H3172 [2]
	3 Pilots	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]

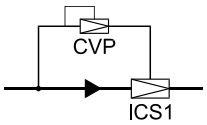
[1]) Including gasket and O-rings.
[2]) Including bolts.
[3]) Including bolts and one blanking plug.
Note: Converting old PM valve to new ICV solution (ICS, ICM or ICLX) can be done with the ICV PM flanged valve housing.
The ICV PM flanged valve housing is designed for a max. working pressure of 28 bar 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

There are several combination possibilities; here you will see an overview of the most important ICS application possibillities.

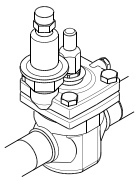
Example no. 1–1

Constant pressure regulation
-0.66 – 7 bar g
(19.5 in Hg – 102 psig)



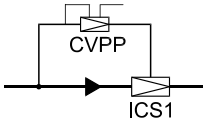
Products

1 × ICS 1 Pilot
1 × CVP (LP)



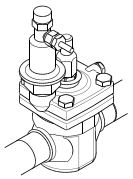
Example no. 1–2

Differential pressure regulation
0 – 7 bar g / 0 – 102 psig



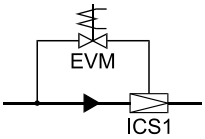
Products

1 × ICS 1 Pilot
1 × CVPP (LP)



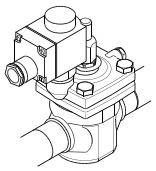
Example no. 1–3

On/off regulation
(solenoid valve)



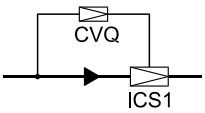
Products

1 × ICS 1 Pilot
1 × EVM
1 × coil



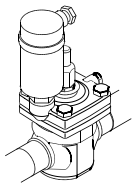
Example no. 1–9

Electronically controlled media temperature regulation
-1 – 8 bar g
(0 in Hg – 116 psig)



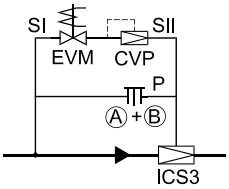
Products

1 × ICS 1 Pilot
1 × CVQ



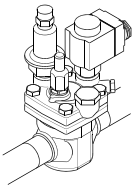
Example no. 3–1

Constant pressure regulation combined with electrical shut off.
-0.66 – 7 bar g
(19.5 in Hg – 102 psig)



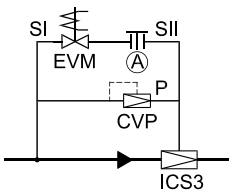
Products

1 × ICS 3 Pilots
1 × blanking plug
1 × CVP (LP)
1 × EVM
1 × coil



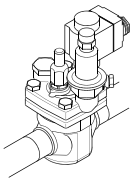
Example no. 3–2

Constant pressure regulation combined with electrical wide open. -0.66 – 7 bar g
(19.5 in Hg – 102 psig)



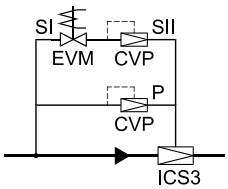
Products

1 × ICS 3 Pilots
1 × blanking plug
1 × CVP (LP)
1 × EVM



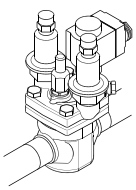
Example no. 3–4

Constant pressure regulation with change-over between two preset evaporating pressures.
-0.66 – 7 bar g
(19.5 in Hg – 102 psig)



Products

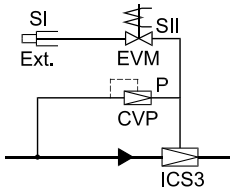
1 × ICS 3 Pilots
2 × CVP (LP)
1 × EVM
1 × coil



ICS application examples (continued)

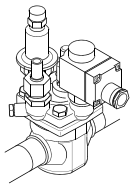
Example no. 3–5

External control pressure with electrical shut off combined with constant pressure regulation.
-0.66 – 7 bar g
(19.5 in Hg – 102 psig)



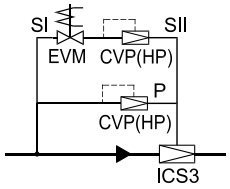
Products

1 × ICS 3 Pilots
1 × nipple for external control pressure
1 × CVP (LP)
1 × EVM
1 × coil



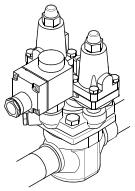
Example no. 3–15

Constant pressure regulation with change-over between two preset evaporating pressures.
-0.66 – 28 bar g
(19.5 in Hg – 406 psig)



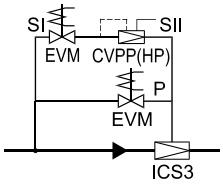
Products

1 × ICS 3 Pilots
2 × CVP (HP)
1 × EVM
1 × coil



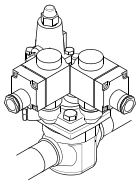
Example no. 3–18

Differential pressure regulation combined with electrical wide open and shut off.
0 – 22 bar g / 0 – 319 psig



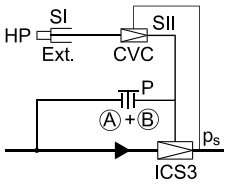
Products

1 × ICS 3 Pilots
1 × CVPP (HP)
2 × EVM
2 × coils



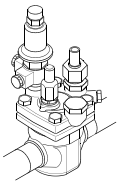
Example no. 3–22

Crankcase pressure regulation (max. suction pressure regulation) at low pressure drops across the valve.
-0.45 – 7 bar g
(13.3 in Hg – 102 psig).



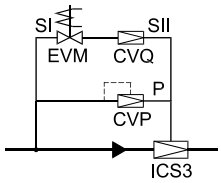
Products

1 × ICS 3 Pilots
1 × blanking plug
1 × nipple for external control pressure
1 × CVC



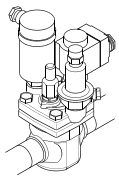
Example no. 3–28

Electronically controlled media temperature regulation combined with electrical shut off and changeover to constant pressure regulation.
-1 – 8 bar g
(0 in Hg – 116 psig)

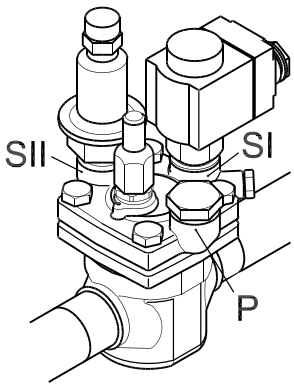


Products

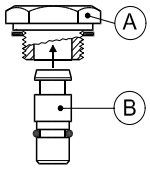
1 × ICS 3 Pilots
1 × CVQ
1 × CVP (LP)
1 × EVM
1 × coil



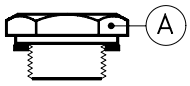
The ICS valve will be fully open if the pilot valve in P is fully open, irrespective of the degree of opening of pilot valves SI and SII.
The ICS valve will be fully closed if the pilot valve in P is fully closed and at least one of the valves in SI or SII is fully closed at the same time.
The relation 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



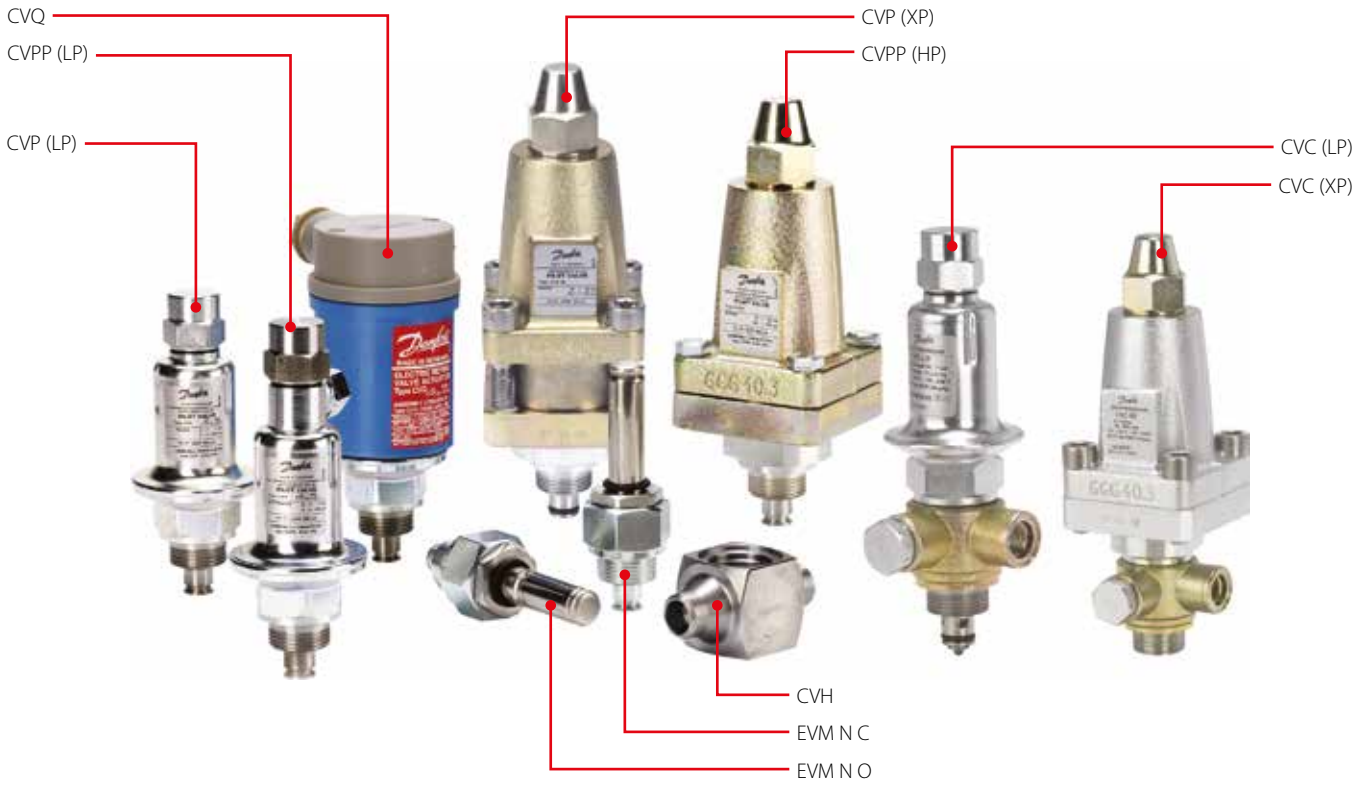
Blanking plug A

CVH / CVP / CVQ / EVM - Pilot valve

Applicable to all common non flammable refrigerants including R717 and non corrosive gases / liquids dependent on sealing material compatability.
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 direct in a ICS or PM main valve or be connected via an external pilot line and a CVH housing.
Several pilot valves can be connected in series or in parallel to provide many functions in the same ICS or PM main valve.

Features
CVH / CVP / CVQ / EVM



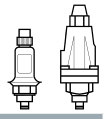
Facts

The range of pilot valves consist of:
- Constant-pressure pilot valve, type CVP (LP) and CVP (HP)
- Differential-pressure pilot valve, type CVPP (LP) and CVPP (HP)
- High pressure pilot valve, type CVP (XP) and CVC (XP) ideal for CO_2 hot gas defrosting
- Pressure-operated pilot valve with reference pressure connection, type CVC
- Electronically operated constant-pressure pilot valve, type CVQ (pressure-dependent)
- 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 all common non flammable refrigerants including R 717 and non corrosive gases / liquids dependent on sealing material compatability
- 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 direct in an ICS or PM main valve or 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 PM main valve

Technical data and ordering

CVP - Pilot valve

Low pressure pilot valves



Type	MWP [bar g]	K_v value [m³/h]	Temperature range [°C]	Pressure range [bar g]	Code no.
CVP (LP)	17	0.40	-50 – 120	0 – 7	027B1100
	17	0.40	-50 – 120	-0.66 – 2	027B1101
CVPP (LP)	17	0.40	-50 – 120	0 – 7	027B1102
CVC (LP)	28	0.20	-50 – 120	-0.5 – 9	027B1080

CVP - Pilot valve

High pressure pilot valves

Valve type	MWP [bar g]	K_v value [m³/h]	Temperature range [°C]	Pressure range [bar g]	Code no.
CVP (HP)	28	0.40	-50 – 120	4 – 22	027B1160
	28	0.40	-50 – 120	4 – 28	027B1161
	28	0.40	-50 – 120	-0.66 – 7	027B1164
CVPP (HP)	28	0.40	-50 – 120	0 – 7	027B1162
	40	0.40	-50 – 120	4 – 22	027B1268
CVP (XP)	52	0.45	-50 – 120	25 – 52	027B0080
CVC (XP)	52	0.20	-50 – 120	4 – 28	027B0087

EVM - Pilot valve

Solenoid valves

Valve type	MWP [bar g]	K_v value [m³/h]	MOPD [bar g]	Code no.
EVM (NC)	65	0.37	21	027B1120
EVM (NO)	52	0.12	19	027B1130

CVQ - Pilot valve

Pilot valves

Valve type	MWP [bar g]	K_v value [m³/h]	MOPD [bar g]	Code no.
CVQ	17	0.45	-1 – 5	027B1139
	17	0.45	0 – 6	027B1140
	17	0.45	1.7 – 8	027B1141

CVQ - Pilot valve

Pilot valves - Electrical data

Supply voltage		24 V AC ±10%
Frequency		50 – 60 Hz
Power consumption	operation	50 VA
	start	75 VA
Enclosure		NEMA 3 / IP55
Cable entry		Pg 13.5
Ambient temperature	operation	-30 – 50 °C / -22 – 122 °F
	transport	-50 – 70 °C / -58 – 158 °F
CE-marking		EMC-Directive 89 / 336 / EEC, EMC-Directive 89 / 336 / EN 50081-1 and EN 50082-1

CVH - Pilot valve

Housings

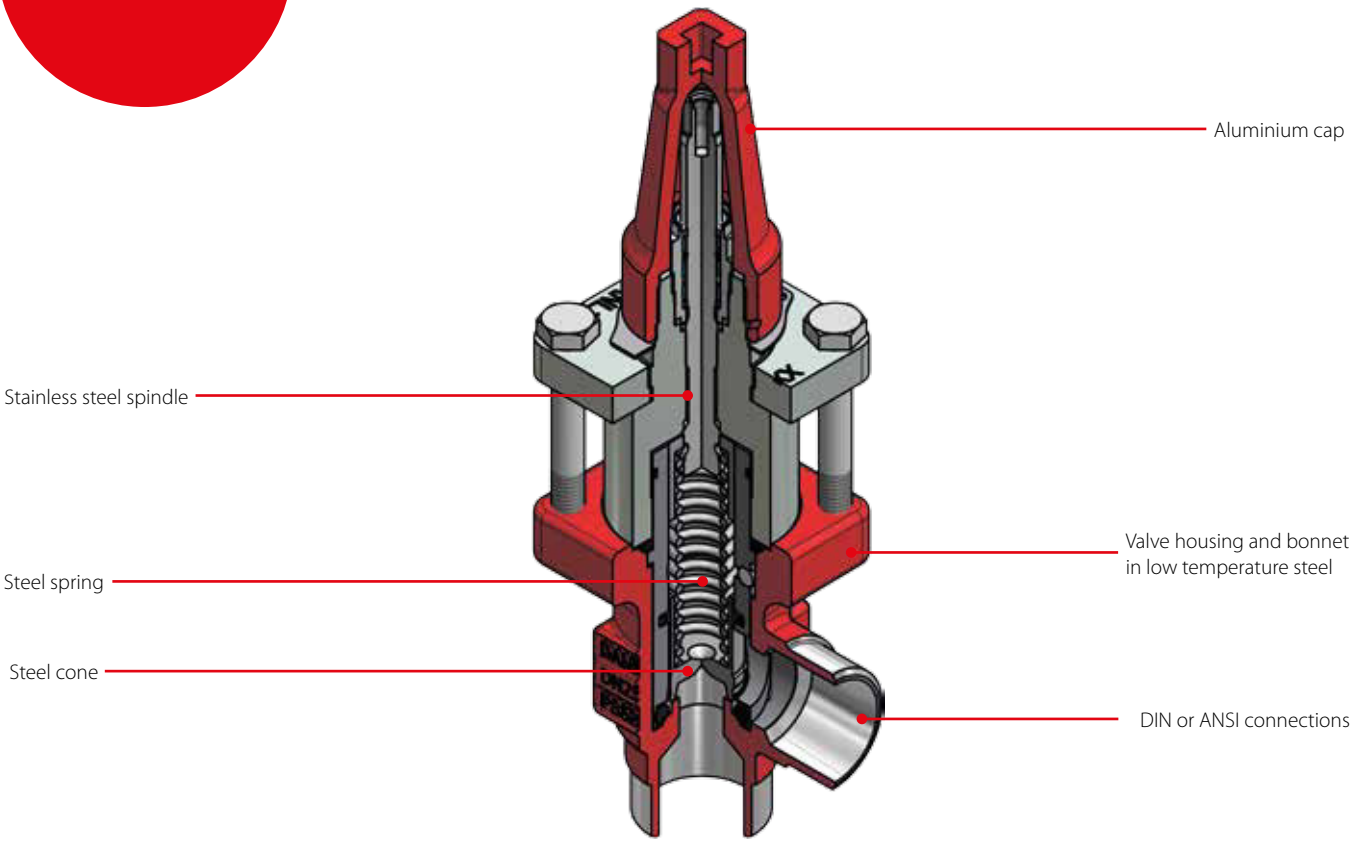
Type	Connection size [in]	Connection size [mm]	Connection type	Connection standard	Material	Code no.
CVH	1/4	6	1/4 in NPT (internal)	ANSI/ASME B1.20.1	DIN 9SMnPb 28, W - no. 1.0718	027F1159
	1/4	6	G1/4 A (external)	ISO 228-1	DIN 9SMnPb 28, W - no. 1.0718	027F1160
	3/8	10	Butt weld	ASME B 36.10M - SCHEDULE 80	DIn CK 15. W - no. 1.1141	027F1047
	1/2	15	Butt weld	ASME B 36.10M - SCHEDULE 80	DIn CK 15. W - no. 1.1141	027F1090
	1/2	15	Socket weld	ASME B 16.11	DIn CK 15. W - no. 1.1141	027F1091

OFV / OFV-SS, Pressure regulating valve

OFV are angle-way over flow valves, which have ajustable 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.



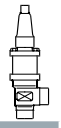


Facts

- Applicable to HCFC, HFC, R717(Ammonia) and R744 (CO_2)
- 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

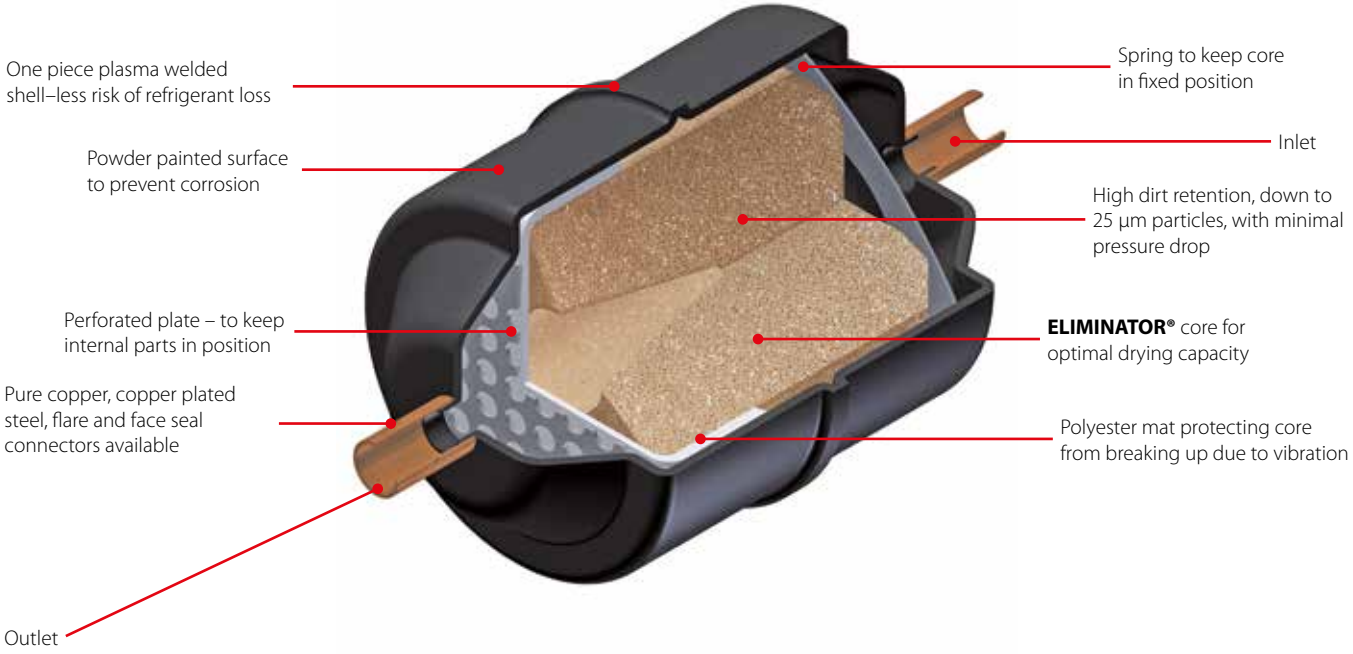
Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
OFV 20	3/4	20	Angleway	Butt weld, ANSI (B 36.10)	A	2412+185
	3/4	20	Angleway	Butt weld, EN 10220	D	2412+183
OFV – SS 20	3/4	20	Angleway	Butt weld, EN 10220	D	148G3194
OFV 25	1	25	Angleway	Butt weld, ANSI (B 36.10)	A	2412+186
	1	25	Angleway	Butt weld, EN 10220	D	2412+184
OFV – SS 25	1	25	Angleway	Butt weld, EN 10220	D	148G3195

DCL - Hermetic filter drier

DCL **ELIMINATOR®** hermetic filter driers protect refrigeration and air conditioning systems from moisture, acids and solid particles, eliminating harmful chemical reaction and abrasive impurities.

DCL hermetic filter driers, with a solid core of 80% Molecular Sieve and 20% activated alumina, are recommended for use with HFO, HC, HFC and HCFC refrigerants. They are hermetic and available in many sizes and connection types.





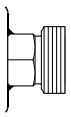
Facts

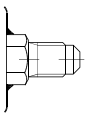
Application:
- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

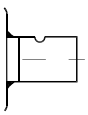
- 4 times better moisture adsorption capacity than traditional filter driers with activated alumina, at both high and low humidity levels
- High drying capacity avoiding the risk of acid formation in the refrigeration system
- Solder connections are in copper plated and steel material (flare and face seal)
- Wide range with sizes: 1.5 – 75 cubic inches
- Corrosion resistant powder-painted finish. Special coating for marine applications available upon request

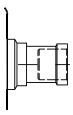
- 80% 3Å molecular sieve with 20% activated alumina core
- Recommended for use with HFO, HC, HFC and HCFC refrigerants (Face seal connectors for HFO refrigerants available upon request, please contact your sales representative)
- Thermally stable up to 120 °C / 250 °F
- Minimal amount of binder, resistant to systems chemicals, assuring a stable core and long life
- PS / MWP up to 46 bar / 667 psig
- Available with flare, face seal, flare o-ring solder (pure cooper, cu-plated) connections

Technical data and ordering


Face seal version


Flare version


Solder version (pure cooper)


Solder version (cu- plated)

DCL - Hermetic filter drier

Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant [1]														Liquid capacity [kW] [2]							Max. working pressure PS [bar]
	R134a		R404A		R507		R22		R407C		R410A		R32		R134a	R404A	R507	R22	R407C	R410A	R32	
	[°C]																					
	24	52	24	52	24	52	24	52	24	52	24	52	24	52								
DCL1.52XL / 2.8 mms	2.3	2.1	2.4	2.3	2.5	2.3	2.3	2.1	2.3	2.1	2.1	1.9	2.1	1.9	2.81	1.76	1.76	3.16	2.81	2.81	4.21	46
DCL 032 / 032s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	3.6	3.3	6.70	5.01	4.86	7.45	7.09	7.43	10.86	46
DCL 032.5s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	3.6	3.3	9.59	6.97	6.75	10.52	9.97	10.31	15.10	46
DCL 033 / 033s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	3.6	3.3	12.85	9.86	9.75	14.46	13.84	14.67	21.40	46
DCL 052 / 052s	6.2	5.8	6.6	6.3	6.7	6.2	6.2	5.8	6.2	5.7	5.6	5.2	5.7	5.3	7.67	5.62	5.45	8.45	8.02	8.32	12.18	46
DCL 052.5s	6.2	5.8	6.6	6.3	6.7	6.2	6.2	5.8	6.2	5.7	5.6	5.2	5.7	5.3	9.58	7.01	6.80	10.54	10.01	10.38	15.19	46
DCL 053 / 053s	6.2	5.8	6.6	6.3	6.7	6.2	6.2	5.8	6.2	5.7	5.6	5.2	5.7	5.3	7.67	9.81	9.52	14.44	13.80	14.58	21.28	46
DCL 082 / 082s	9.8	9.3	10.6	10.0	10.8	10.0	10.0	9.2	9.9	9.1	9.0	8.3	9.1	8.4	7.68	5.44	5.27	8.32	7.85	8.02	11.77	46
DCL 082.5s	9.8	9.3	10.6	10.0	10.8	10.0	10.0	9.2	9.9	9.1	9.0	8.3	9.1	8.4	10.53	7.84	7.61	11.69	11.13	11.63	17.01	46
DCL 083 / 083s	9.8	9.3	10.6	10.0	10.8	10.0	10.0	9.2	9.9	9.1	9.0	8.3	9.1	8.4	14.19	10.98	10.66	16.03	15.37	16.35	23.85	46
DCL 084 / 084s	9.8	9.3	10.6	10.0	10.8	10.0	10.0	9.2	9.9	9.1	9.0	8.3	9.1	8.4	28.61	21.33	2058	31.76	30.24	31.63	46.24	46
DCL 162 / 162s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	7.68	5.43	5.26	8.31	7.85	8.01	11.75	46
DCL 162.5s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	10.57	7.36	7.12	11.36	10.59	10.83	15.91	46
DCL 163 / 163s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	16.33	11.18	10.82	17.41	16.33	16.43	24.16	46
DCL 164 / 164s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	32.19	23.54	22.81	35.40	33.50	34.83	50.99	46
DCL 165 / 165s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	44.64	36.59	35.59	51.82	50.16	54.83	79.63	46
DCL 166 / 166s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	45.53	37.37	36.35	32.89	51.20	56.01	81.33	46
DCL 167s	21.6	20.5	23.3	22.1	23.7	21.9	21.9	20.3	21.7	20.0	19.7	18.2.	20.0	18.4	45.92	40.14	39.19	53.50	52.78	60.97	87.77	46
DCL 303 / 303s	45.6	43.1	49	46.5	49.9	46.1	46.2	42.7	45.7	42.2	41.6	38.3	42.1.	38.8	15.70	10.56	10.20	16.59	15.52	15.48	22.79	46
DCL 304 / 304s	45.6	43.1	49	46.5	49.9	46.1	46.2	42.7	45.7	42.2	41.6	38.3	42.1.	38.8	32.1	25.00	24.26	36.63	35.06	37.19	54.26	46
DCL 305 / 305s	45.6	43.1	49	46.5	49.9	46.1	46.2	42.7	45.7	42.2	41.6	38.3	42.1.	38.8	45.71	36.96	35.93	52.72	50.91	55.29	80.38	46
DCL 306 / 306s	45.6	43.1	49	46.5	49.9	46.1	46.2	42.7	45.7	42.2	41.6	38.3	42.1.	38.8	43.72	39.89	38.95	53.22	52.49	60.57	87.22	46
DCL 307s	45.6	43.1	49	46.5	49.9	46.1	46.2	42.7	45.7	42.2	41.6	38.3	42.1.	38.8	64.25	53.95	52.51	75.40	73.29	81.06	117.51	46
DCL 309s	45.6	43.1	49	46.5	49.9	46.1	46.2	42.7	45.7	42.2	41.6	38.3	42.1.	38.8	83.76	69.78	67.90	97.86	95.02	104.77	114.45	46
DCL 413	63.3	59.8	68.1	64.5	69.3	64.0	64.1	59.3	63.4	58.6	57.7	53.2	58.4	53.9	18.40	12.44	12.02	19.49	18.25	18.25	26.86	46
DCL 414 / 414s	63.3	59.8	68.1	64.5	69.3	64.0	64.1	59.3	63.4	58.6	57.7	53.2	58.4	53.9	33.39	26.45	25.70	38.15	36.70	39.48	57.48	46
DCL 415 / 415s	63.3	59.8	68.1	64.5	69.3	64.0	64.1	59.3	63.4	58.6	57.7	53.2	58.4	53.9	55.48	41.84	40.58	61.29	59.08	62.11	90.74	46
DCL 417s	63.3	59.8	68.1	64.5	69.3	64.0	64.1	59.3	63.4	58.6	57.7	53.2	58.4	53.9	66.74	56.32	54.82	78.50	76.37	84.67	122.70	35
DCL 419s	63.3	59.8	68.1	64.5	69.3	64.0	64.1	59.3	63.4	58.6	57.7	53.2	58.4	53.9	95.30	76.29	74.14	109.42	105.47	11.01	165.86	35
DCL 604s	91.2	86.2	98.0	92.9	99.8	92.2	92.3	85.4	91.4	84.4	83.2	76.6	84.1	77.6	27.88	26.22	25.63	34.36	34.07	39.98	57.41	46
DCL 607s	91.2	86.2	98.0	92.9	99.8	92.2	92.3	85.4	91.4	84.4	83.2	76.6	84.1	77.6	70.08	70.13	68.74	88.48	88.70	107.99	154.09	46
DCL 609s	91.2	86.2	98.0	92.9	99.8	92.2	92.3	85.4	91.4	84.4	83.2	76.6	84.1	77.6	61.35	73.05	72.40	81.77	84.39	117.36	162.79	46
DCL 757s	126.6	119.7	136.1	129.0	138.5	128.0	128.3	118.6	126.9	117.2	115.5	106.4	116.9	107.8	84.97	71.70	69.80	99.95	97.23	107.31	156.22	35
DCL 759s	126.6	119.7	136.1	129.0	138.5	128.0	128.3	118.6	126.9	117.2	115.5	106.4	116.9	107.8	84.22	87.19	85.60	107.64	108.54	135.06	191.97	35

[1]) Drying capacity is based on following moisture content test standards before and after drying:
– R32: 990 ppm W – 50 ppm W
– R134a: 1050 – 50 ppm W
– R404A, R507: 1020 – 50 ppm W
– R407C: 1020 – 50 ppm W
– R410A: 1050 – 50 ppm W
– R22: 1050 – 60 ppm W
In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
t_e = -15 °C
t_c = 30 °C
Δp = 0.07 bar

Approvals
UL US, file no. SA 6398
PED 97 / 23 / EC - a3p3
Compliant with ATEX hazard zone 2

Note
Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants now

Technical data and ordering

DCL - Hermetic filter drier

Drying and liquid capacity

Type	Drying capacity [lb] of refrigerant [1]														Liquid capacity [TR] [2]							Max. working pressure MWP [psig]
	R134a		R404A		R507		R22		R407C		R410A		R32									
	[°F]																					
	75	125	75	125	75	125	75	125	75	125	75	125	75	125	R134a	R404A	R507	R22	R407C	R410A	R32	
DCL1.52XL 2.8 mm s	5.1	4.6	5.3	5.1	5.5	5.1	5.1	4.6	5.1	4.6	4.6	4.2	4.6	4.2	0.80	0.50	0.50	0.90	0.80	0.80	1.20	667
DCL 032.5s	8.5	8.0	9.1	8.7	9.3	8.6	8.6	8.0	8.5	7.9	7.8	7.2	7.9	7.3	2.73	1.98	1.92	2.99	2.84	2.93	4.30	667
DCL 033 / 033s	8.5	8.0	9.1	8.7	9.3	8.6	8.6	8.0	8.5	7.9	7.8	7.2	7.9	7.3	3.65	2.80	2.72	4.11	3.94	4.17	6.10	667
DCL 052 / 052s	13.6	12.8	14.6	13.8	14.9	13.7	13.8	12.7	13.6	12.6	12.4	11.4	12.6	11.7	2.18	1.60	1.55	2.40	2.28	2.37	3.47	667
DCL 052.5s	13.6	12.8	14.6	13.8	14.9	13.7	13.8	12.7	13.6	12.6	12.4	11.4	12.6	11.7	2.72	1.99	1.93	3.00	2.85	2.95	4.33	667
DCL 053 / 053s	13.6	12.8	14.6	13.8	14.9	13.7	13.8	12.7	13.6	12.6	12.4	11.4	12.6	11.7	3.66	2.79	2.71	4.10	3.92	4.15	6.06	667
DCL 082 / 082s	21.7	20.5	23.3	22.1	23.8	21.9	22.0	20.3	21.8	20.1	19.8	18.2	20.1	18.5	2.18	1.55	1.50	2.37	2.23	2.28	3.35	667
DCL 082.5s	21.7	20.5	23.3	22.1	23.8	21.9	22.0	20.3	21.8	20.1	19.8	18.2	20.1	18.5	3.00	2.23	2.16	3.32	3.16	3.31	4.85	667
DCL 083 / 083s	21.7	20.5	23.3	22.1	23.8	21.9	22.0	20.3	21.8	20.1	19.8	18.2	20.1	18.5	4.03	3.12	3.03	4.56	4.37	4.65	6.79	667
DCL 084 / 084s	21.7	20.5	23.3	22.1	23.8	21.9	22.0	20.3	21.8	20.1	19.8	18.2	20.1	18.5	8.14	6.07	5.88	9.03	8.60	8.99	13.17	667
DCL 162 / 162s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	2.18	1.54	1.50	2.36	2.23	2.28	3.35	667
DCL 162.5s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	3.01	2.09	2.02	3.23	3.04	3.08	4.53	667
DCL 163 / 163s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	4.64	3.18	3.08	4.95	4.64	4.67	6.88	667
DCL 164 / 164s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	9.15	6.69	6.49	10.07	9.55	9.90	14.53	667
DCL 165 / 165s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	12.69	10.41	10.12	14.74	14.26	15.59	22.69	667
DCL 166 / 166s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	12.95	10.63	10.34	15.04	14.56	15.93	23.17	667
DCL 167s	47.7	45.1	51.3	48.6	52.2	48.2	48.3	44.7	47.8	44.2	43.5	40.1	44.1	40.6	12.49	11.41	11.14	15.21	15.01	17.34	25.01	667
DCL 303 / 303s	100.5	95.0	108.0	102.4	109.9	101.6	101.8	94.1	100.7	93.0	91.6	84.4	92.8	85.5	4.46	3.00	2.90	4.72	4.41	4.40	6.49	667
DCL 304 / 304s	100.5	95.0	108.0	102.4	109.9	101.6	101.8	94.1	100.7	93.0	91.6	84.4	92.8	85.5	9.24	7.11	6.90	10.41	9.97	10.58	15.46	667
DCL 305 / 305s	100.5	95.0	108.0	102.4	109.9	101.6	101.8	94.1	100.7	93.0	91.6	84.4	92.8	85.5	13.00	10.51	10.22	14.99	14.48	15.72	22.90	667
DCL 306 / 306s	100.5	95.0	108.0	102.4	109.9	101.6	101.8	94.1	100.7	93.0	91.6	84.4	92.8	85.5	12.43	11.34	11.07	15.13	14.92	17.22	24.85	667
DCL 307s	100.5	95.0	108.0	102.4	109.9	101.6	101.8	94.1	100.7	93.0	91.6	84.4	92.8	85.5	18.27	15.34	14.93	21.44	20.84	23.05	33.48	667
DCL 309s	100.5	95.0	108.0	102.4	109.9	101.6	101.8	94.1	100.7	93.0	91.6	84.4	92.8	85.5	23.78	19.84	19.31	27.83	27.02	29.79	32.61	667
DCL 413	139.5	131.9	150.0	142.2	152.7	141.0	141.3	130.7	139.8	129.2	127.3	117.3	128.7	118.8	5.23	3.54	3.42	5.54	5.19	5.19	7.65	667
DCL 414 / 414s	139.5	131.9	150.0	142.2	152.7	141.0	141.3	130.7	139.8	129.2	127.3	117.3	128.7	118.8	9.49	7.52	7.31	10.85	10.44	11.23	16.38	667
DCL 415 / 415s	139.5	131.9	150.0	142.2	152.7	141.0	141.3	130.7	139.8	129.2	127.3	117.3	128.7	118.8	15.78	11.90	11.54	17.61	16.80	17.66	25.85	667
DCL 417s	139.5	131.9	150.0	142.2	152.7	141.0	141.3	130.7	139.8	129.2	127.3	117.3	128.7	118.8	18.98	16.01	15.59	22.32	21.71	24.08	34.96	500
DCL 419s	139.5	131.9	150.0	142.2	152.7	141.0	141.3	130.7	139.8	129.2	127.3	117.3	128.7	118.8	27.10	21.69	21.08	31.11	29.99	32.42	47.25	500
DCL 604s	200.9	189.9	216.0	204.8	219.9	203.1	203.5	188.2	201.4	186.1	183.3	168.9	185.4	171.1	7.93	7.45	7.29	9.77	9.69	11.37	16.36	667
DCL 607s	200.9	189.9	216.0	204.8	219.9	203.1	203.5	188.2	201.4	186.1	183.3	168.9	185.4	171.1	19.93	19.94	19.54	25.16	25.22	30.71	43.90	667
DCL 609s	200.9	189.9	216.0	204.8	219.9	203.1	203.5	188.2	201.4	186.1	183.3	168.9	185.4	171.1	17.45	20.77	20.59	23.25	23.99	33.37	46.38	667
DCL 757s	279.1	263.8	300.0	284.4	305.4	282.1	282.7	261.3	279.7	258.4	254.5	234.5	257.7	237.7	24.16	20.39	19.85	28.42	27.65	30.66	44.51	500
DCL 759s	279.1	263.8	300.0	284.4	305.4	282.1	282.7	261.3	279.7	258.4	254.5	234.5	257.7	237.7	23.95	24.79	24.34	30.61	30.86	38.41	54.69	500

[1]) Drying capacity is based on following moisture content test standards before and after drying:
- *– R32: 990 ppm W – 50 ppm W*
- *– R134a: 1050 – 50 ppm W*
- *– R404A, R507: 1020 – 50 ppm W*
- *– R407C: 1020 – 50 ppm W*
- *– R410A: 1050 – 50 ppm W*
- *– R22: 1050 – 60 ppm W*

In accordance with ARI 710-2004

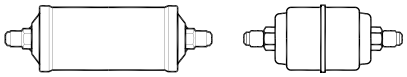
[2]) Given in accordance with ARI 710-2004 for:
- *t_e = 5 °F*
- *t_c = 85 °F*
- *Δp = 1 psig*

Approvals
UL US, file no. SA 6398
PED 97 / 23 / EC - a3p3
Compliant with ATEX hazard zone 2

Note
Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants now

Technical data and ordering

DCL - Flare

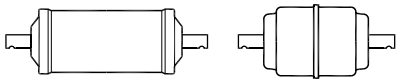


Ordering

Type	Connection		Code no.
	[in]	[mm]	
DCL 032	1/4	6	023Z5000 [1])
	1/4	6	023Z5075
DCL 033	3/8	10	023Z5001 [1])
	3/8	10	023Z5089
DCL 052	1/4	6	023Z5002
DCL 053	3/8	10	023Z5003
DCL 082	1/4	6	023Z5004
DCL 083	3/8	10	023Z5005
DCL 084	1/2	12	023Z5006
DCL 162	1/4	6	023Z5007
DCL 163	3/8	10	023Z5008
DCL 164	1/2	12	023Z5009
DCL 165	5/8	16	023Z5010
DCL 166	3/4	19	023Z5011
DCL 303	3/8	10	023Z0012
DCL 304	1/2	12	023Z0013
DCL 305	5/8	16	023Z0014
DCL 306	3/4	19	023Z0156
DCL 414	1/2	12	023Z0102
DCL 415	5/8	16	023Z0103

[1]) Wire mesh in filter drier outlet

DCL - Solder (pure copper)



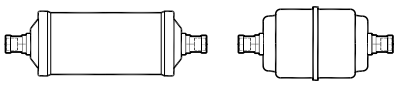
Ordering

Type	Connection	Code no.	Connection	Code no.
	[in]		[mm]	
DCL 1.52XL / 2.8mm s	1/4	023Z8255	–	–
DCL 032s	1/4	023Z5013 [1])	3	–
DCL 032.5s	5/16	023Z5014	8	–
DCL 033s	3/8	023Z5015	10	023Z5016
DCL 052s	1/4	023Z5018	6	–
DCL 053s	3/8	023Z5019	10	023Z5020
DCL 082s	1/4	023Z5022	6	–
DCL 083s	3/8	023Z5023	10	023Z5024
DCL 084s	1/2	023Z5026	12	023Z5025
DCL 085s	5/8	023Z5145	–	–
DCL 162s	1/4	023Z5028	6	023Z5027
DCL 163s	3/8	023Z5029	10	023Z5030
DCL 164s	1/2	023Z5032	12	023Z5031
DCL 165s	5/8	023Z5033	12	–
DCL 166s	3/4	023Z5070	–	–
DCL 167s	7/8	023Z5034	–	–
DCL 303s	3/8	023Z0030	10	–
DCL 304s	1/2	023Z0031	12	–
DCL 305s	5/8	023Z0032	16	–
DCL 306s	3/4	023Z0033	18	–
DCL 307s	7/8	023Z0034	22	–
DCL 309s	1 1/8	023Z0035	28	–
DCL 414s	1/2	023Z0104	12	–
DCL 415s	5/8	023Z0105	16	–
DCL 417s	7/8	023Z0106	22	–
DCL 419s	1 1/8	023Z0107	28	–
DCL 607s	7/8	023Z0036	22	–
DCL 609s	1 1/8	023Z0037	28	–
DCL 757s	7/8	023Z0115	22	–
DCL 759s	1 1/8	023Z0116	28	–

[1]) Wire mesh in filter drier outlet

Technical data and ordering

DCL - Solder (cu-plated)



Ordering

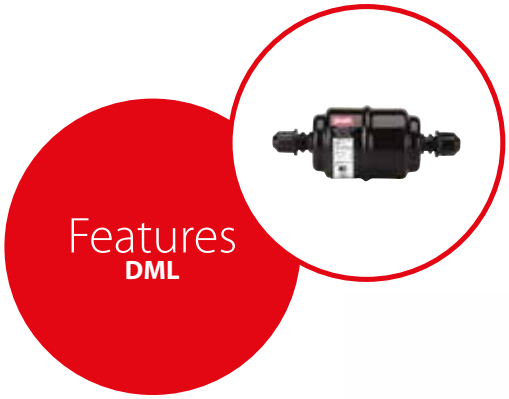
Type	Connection [in]	Code no.	Connection [mm]	Code no.
DCL 032s	1/4	023Z4501	6	023Z4500
DCL 032.5s	5/16	023Z4502	8	–
DCL 033s	3/8	023Z4504	10	023Z4503
DCL 052s	1/4	023Z4506	6	023Z4505
	5/16	023Z4507	10	–
DCL 053s	3/8	023Z4509	10	023Z4508
DCL 082s	1/4	023Z4511	6	023Z4510
	5/16	023Z4512	6	–
DCL 083s	3/8	023Z4514	10	023Z4513
DCL 084s	1/2	023Z4516	12	023Z4515
DCL 162s	1/4	023Z4518	6	023Z4517
DCL 163s	3/8	023Z4521	10	023Z4519
DCL 164s	1/2	023Z4523	12	023Z4522
DCL 165s	5/8	023Z4524	12	–
DCL 166s	3/4	023Z4525	–	–
DCL 167s	7/8	023Z4526	–	–
DCL 303s	3/8	023Z4528	10	023Z4527
DCL 304s	1/2	023Z4530	12	023Z4529
DCL 305s	5/8	023Z4531	16	–
DCL 306s	3/4	023Z4533	18	023Z4532
DCL 307s	7/8	023Z4534	22	–
DCL 309s	1 1/8	023Z4536	28	023Z4535
DCL 414s	1/2	023Z4538	12	–
DCL 415s	5/8	023Z4539	16	–
DCL 417s	7/8	023Z4540	22	–
DCL 419s	1 1/8	023Z4542	28	023Z4541
DCL 604s	1/2	023Z4544	22	–
DCL 607s	7/8	023Z4545	22	–
DCL 609s	1 1/8	–	28	023Z4546
DCL 757s	7/8	023Z4548	22	–
DCL 759s	1 1/8	023Z4550	28	023Z4549

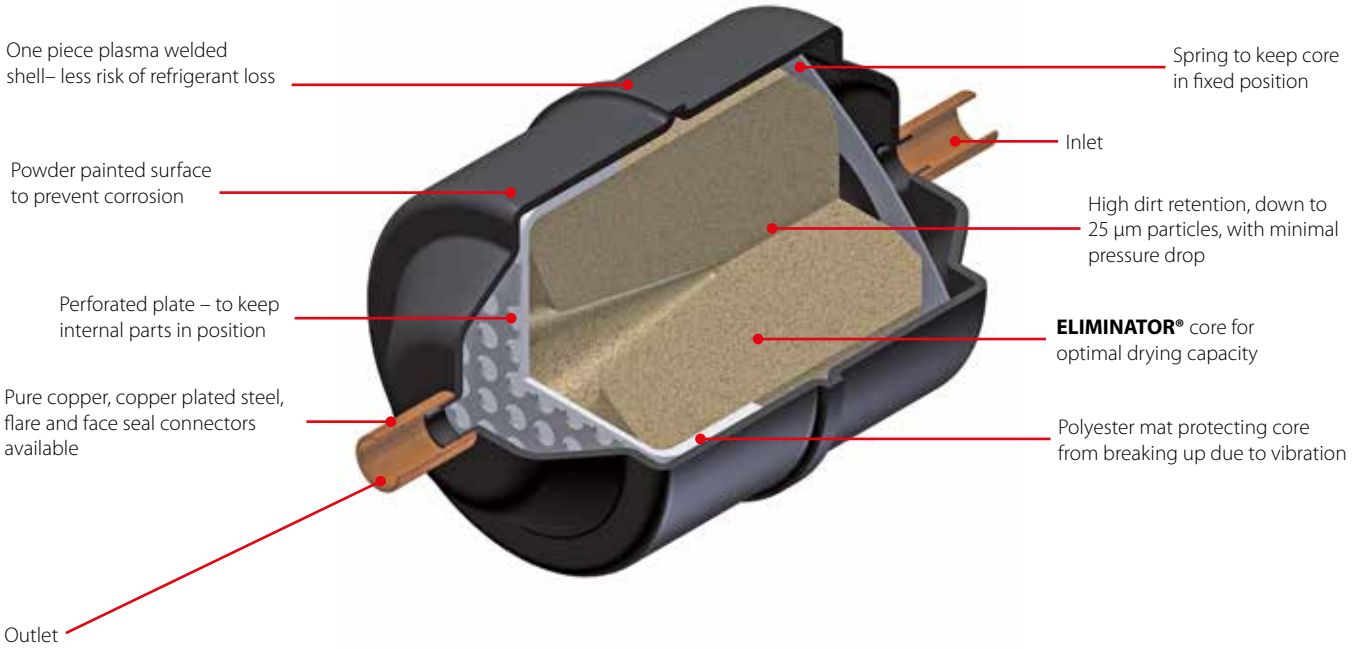
Quick Selection Notes:

DML - Hermetic filter drier

DML **ELIMINATOR®** hermetic filter driers protect refrigeration and air conditioning systems from moisture, acids and solid particles, eliminating harmful chemical reactions and abrasive impurities.

DML hermetic filter driers, with a 100% solid molecular sieve core, are recommended for use with HFO, HC, HFC and HCFC refrigerants. They are hermetic and available in many sizes and connection types.





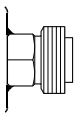
Facts

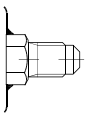
Application:
- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

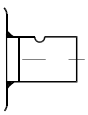
- High drying capacity avoiding the risk of acid formation in the refrigeration system
- All Danfoss filter driers have end caps designed for greater protection and easy removal
- Wide range with sizes: 1.5 – 75 cubic inches
- Corrosion resistant powder-painted finish, tested for 500 hrs in salt spray

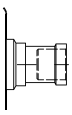
- 100% 3Å molecular sieve core
- Recommended for use with HFO, HC, HFC and HCFC refrigerants (Face seal connectors for HFO refrigerants available upon request, please contact your sales representative)
- PS / MWP up to 46 bar / 667 psig
- Available with flare, solder (pure cooper, cu-plated) connections

Technical data and ordering


Face seal version


Flare version


Solder version (pure cooper)


Solder version (cu-plated)

DML - Hermetic filter drier

Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant [1]														Liquid capacity [kW] [2]							Max. working pressure PS [bar]
	R134a		R404A		R507		R22		R407C		R410A		R32		R134a	R404A	R507	R22	R407C	R410A	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	2.9	2.7	2.6	2.4	2.7	2.5	5.97	4.21	3.86	6.32	5.97	5.97	8.78	46
DML 032 / 032s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	4.6	4.2	6.70	5.01	4.86	7.45	7.09	7.43	10.56	46
DML 032.5s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	4.6	4.2	9.59	6.97	6.75	10.52	9.97	10.31	15.10	46
DML 033 / 033s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	4.6	4.2	12.85	9.86	9.57	14.46	13.84	14.67	21.40	46
DML 034s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	4.6	4.2	24.71	20.12	19.57	28.60	27.65	30.13	43.78	46
DML 052 / 052s	7.9	7.5	8.5	8.1	8.6	8.0	8.0	7.4	7.9	7.3	7.2	6.6	7.3	6.7	7.57	5.62	5.45	8.45	8.02	8.32	12.8	46
DML 052.5s	7.9	7.5	8.5	8.1	8.6	8.0	8.0	7.4	7.9	7.3	7.2	6.6	7.3	6.7	9.58	7.01	6.80	10.34	10.01	10.38	15.19	46
DML 053 / 053s	7.9	7.5	8.5	8.1	8.6	8.0	8.0	7.4	7.9	7.3	7.2	6.6	7.3	6.7	12.87	9.81	9.52	14.44	13.80	14.58	21.28	46
DML 054s	7.9	7.5	8.5	8.1	8.6	8.0	8.0	7.4	7.9	7.3	7.2	6.6	7.3	6.7	25.70	20.77	20.19	29.64	28.62	31.07	45.77	46
DML 055s	7.9	7.5	8.5	8.1	8.6	8.0	8.0	7.4	7.9	7.3	7.2	6.6	7.3	6.7	36.22	29.07	28.25	41.63	40.15	43.45	63.19	46
DML 082 / 082s	12.6	11.9	13.6	12.9	13.8	12.8	12.8	11.8	12.7	11.7	11.5	10.6	11.7	10.8	7.68	5.44	5.27	8.32	7.85	8.02	11.77	46
DML 082.5s	12.6	11.9	13.6	12.9	13.8	12.8	12.8	11.8	12.7	11.7	11.5	10.6	11.7	10.8	10.53	7.84	7.61	11.69	11.13	11.63	17.01	46
DML 083 / 083s	12.6	11.9	13.6	12.9	13.8	12.8	12.8	11.8	12.7	11.7	11.5	10.6	11.7	10.8	14.19	10.98	10.66	16.03	15.37	16.35	23.85	46
DML 084 / 084s	12.6	11.9	13.6	12.9	13.8	12.8	12.8	11.8	12.7	11.7	11.5	10.6	11.7	10.8	28.61	21.33	20.68	31.76	30.24	31.63	46.24	46
DML 085 / 085s	12.6	11.9	13.6	12.9	13.8	12.8	12.8	11.8	12.7	11.7	11.5	10.6	11.7	10.8	43.81	35.32	34.33	50.47	48.71	52.83	76.81	46
DML 162 / 162s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	7.68	5.43	5.26	8.31	7.85	8.01	11.75	46
DML 162.5s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	10.57	7.36	7.12	11.36	10.69	10.83	15.91	46
DML 163 / 163s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	16.33	11.18	10.82	17.41	16.33	16.43	24.16	46
DML 164 / 164s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	32.19	23.54	22.81	35.40	33.60	34.83	50.99	46
DML 165 / 165s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	44.64	36.59	35.59	31.82	50.16	54.83	79.63	46
DML 166 / 166s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	45.53	37.37	36.35	52.89	51.20	56.01	81.33	46
DML 167s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	25.6	23.6	43.92	40.14	39.19	53.50	52.78	60.97	87.77	46
DML 303 / 303s	57.6	54.6	62.0	58.8	63.1	58.3	58.5	54.0	57.8	53.4	52.6	48.5	53.3	49.2	15.70	10.56	10.20	16.59	15.52	15.48	22.79	46
DML 304 / 304s	57.6	54.6	62.0	58.8	63.1	58.3	58.5	54.0	57.8	53.4	52.6	48.5	53.3	49.2	32.51	25.00	24.26	36.63	35.06	37.19	54.26	46
DML 305 / 305s	57.6	54.6	62.0	58.8	63.1	58.3	58.5	54.0	57.8	53.4	52.6	48.5	53.3	49.2	45.71	36.96	35.93	52.72	50.91	55.29	80.38	46
DML 306 / 306s	57.6	54.6	62.0	58.8	63.1	58.3	58.5	54.0	57.8	53.4	52.6	48.5	53.3	49.2	43.73	39.89	38.95	53.22	52.49	60.57	87.22	46
DML 307s	57.6	54.6	62.0	58.8	63.1	58.3	58.5	54.0	57.8	53.4	52.6	48.5	53.3	49.2	64.25	53.95	52.51	75.40	73.29	81.06	117.51	46
DML 309s	57.6	54.6	62.0	58.8	63.1	58.3	58.5	54.0	57.8	53.4	52.6	48.5	53.3	49.2	83.62	69.78	67.90	97.86	95.02	104.77	114.45	46
DML 413	77.9	73.6	83.7	79.4	85.2	78.7	78.9	72.9	78.0	72.1	71.0	65.5	71.9	66.3	18.40	12.44	12.02	19.49	18.25	18.25	26.86	46
DML 414 / 414s	77.9	73.6	83.7	79.4	85.2	78.7	78.9	72.9	78.0	72.1	71.0	65.5	71.9	66.3	33.39	26.45	25.70	38.15	36.70	39.48	57.48	46
DML 415 / 415S	77.9	73.6	83.7	79.4	85.2	78.7	78.9	72.9	78.0	72.1	71.0	65.5	71.9	66.3	55.48	41.84	40.58	61.92	59.08	62.11	90.74	46
DML 417s	77.9	73.6	83.7	79.4	85.2	78.7	78.9	72.9	78.0	72.1	71.0	65.5	71.9	66.3	66.74	56.32	54.82	78.50	76.37	84.67	122.70	35
DML 419s	77.9	73.6	83.7	79.4	85.2	78.7	78.9	72.9	78.0	72.1	71.0	65.5	71.9	66.3	95.30	76.29	74.14	109.42	105.47	114.01	165.86	35
DML 604s	116.9	110.5	125.7	119.1	127.9	118.2	118.4	109.5	117.1	108.2	106.6	98.2	107.9	99.6	27.88	26.22	25.63	34.36	34.07	39.98	57.41	46
DML 607s	116.9	110.5	125.7	119.1	127.9	118.2	118.4	109.5	117.1	108.2	106.6	98.2	107.9	99.6	70.08	70.13	68.74	88.46	88.70	107.99	154.09	46
DML 609s	116.9	110.5	125.7	119.1	127.9	118.2	118.4	109.5	117.1	108.2	106.6	98.2	107.9	99.6	61.35	73.05	72.40	81.77	84.39	117.36	162.79	46
DML 757s	159.8	151.1	171.8	162.9	174.9	161.6	161.9	149.7	160.2	148.0	145.8	134.3	147.5	136.1	84.97	71.70	69.80	99.95	97.23	107.81	156.22	35
DML 759s	159.8	151.1	171.8	162.9	174.9	161.6	161.9	149.7	160.2	148.0	145.8	134.3	147.5	136.1	84.22	87.19	85.60	107.64	106.54	135.08	191.97	35

[1]) Drying capacity is based on following moisture content test standards before and after drying:
- *– R32: 990 ppm W – 50 ppm W*
- *– R134a: 1050 – 50 ppm W*
- *– R404A, R507: 1020 – 50 ppm W*
- *– R407C: 1020 – 50 ppm W*
- *– R410A: 1050 – 50 ppm W*
- *– R22: 1050 – 60 ppm W*

In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
- $t_e = -15$ °C
- $t_c = 30$ °C
- $\Delta p = 0.07$ bar

Approvals
UL US, file no. SA 6398
PED 97 / 23 / EC - a3p3
Compliant with ATEX hazard zone 2

Note
Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants now

Technical data and ordering

DML - Hermetic filter drier

Drying and liquid capacity

Type	Drying capacity [lb] of refrigerant [1]														Liquid capacity [TR] [2]							Max. working pressure MWP [psig]
	R134a		R404A		R507		R22		R407C		R410A		R32									
	[°F]																					
	75	125	75	125	75	125	75	125	75	125	75	125	75	125	R134a	R404A	R507	R22	R407C	R410A	R32	
DML 1.52s	6.4	6.0	6.8	6.6	7.1	6.4	6.4	6.0	6.4	6.0	5.7	5.3	6.0	5.5	1.70	1.20	1.10	1.80	1.70	1.70	2.50	667
DML 032 / 032s	10.9	10.3	11.8	11.2	12.0	11.1	11.1	10.3	11.0	10.1	10.0	9.2	10.1	9.3	1.90	1.42	1.38	2.12	2.02	2.11	3.09	667
DML 032.5s	10.9	10.3	11.8	11.2	12.0	11.1	11.1	10.3	11.0	10.1	10.0	9.2	10.1	9.3	2.73	1.98	1.92	2.99	2.84	2.93	4.30	667
DML 033 / 033s	10.9	10.3	11.8	11.2	12.0	11.1	11.1	10.3	11.0	10.1	10.0	9.2	10.1	9.3	3.65	2.80	2.72	4.11	3.94	4.17	6.10	667
DML 034s	10.9	10.3	11.8	11.2	12.0	11.1	11.1	10.3	11.0	10.1	10.0	9.2	10.1	9.3	7.03	5.72	5.56	8.13	7.86	8.57	12.47	667
DML 052 / 052s	17.4	16.5	18.7	17.8	19.1	17.6	17.6	16.3	17.5	16.1	15.9	14.6	16.1	14.8	2.18	1.60	1.55	2.40	2.28	2.37	3.47	667
DML 052.5s	17.4	16.5	18.7	17.8	19.1	17.6	17.6	16.3	17.5	16.1	15.9	14.6	16.1	14.8	2.72	1.99	1.93	3.00	2.85	2.95	4.33	667
DML 053 / 053s	17.4	16.5	18.7	17.8	19.1	17.6	17.6	16.3	17.5	16.1	15.9	14.6	16.1	14.8	3.66	2.79	2.71	4.10	3.92	4.15	6.06	667
DML 054s	17.4	16.5	18.7	17.8	19.1	17.6	17.6	16.3	17.5	16.1	15.9	14.6	16.1	14.8	7.31	5.91	5.74	8.43	8.14	8.83	12.87	667
DML 055s	17.4	16.5	18.7	17.8	19.1	17.6	17.6	16.3	17.5	16.1	15.9	14.6	16.1	14.8	10.30	8.26	8.03	11.84	11.42	12.35	18.00	667
DML 082 / 082s	27.9	26.3	29.9	28.4	30.5	28.2	28.2	26.1	27.9	25.8	25.4	23.4	25.8	23.8	2.18	1.55	1.50	2.37	2.23	2.28	3.35	667
DML 082.5s	27.9	26.3	29.9	28.4	30.5	28.2	28.2	26.1	27.9	25.8	25.4	23.4	25.8	23.8	3.00	2.23	2.16	3.32	3.16	3.31	4.85	667
DML 083 / 083s	27.9	26.3	29.9	28.4	30.5	28.2	28.2	26.1	27.9	25.8	25.4	23.4	25.8	23.8	4.03	3.12	3.03	4.56	4.37	4.65	6.79	667
DML 084 / 084s	27.9	26.3	29.9	28.4	30.5	28.2	28.2	26.1	27.9	25.8	25.4	23.4	25.8	23.8	8.14	6.07	5.88	9.03	8.60	8.99	13.17	667
DML 085 / 085s	27.9	26.3	29.9	28.4	30.5	28.2	28.2	26.1	27.9	25.8	25.4	23.4	25.8	23.8	12.46	10.04	9.76	14.35	13.85	15.02	21.88	667
DML 162 / 162s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	2.18	1.54	1.50	2.36	2.23	2.28	3.35	667
DML 162.5s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	3.01	2.09	2.02	3.23	3.04	3.08	4.53	667
DML 163 / 163s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	4.64	3.18	3.08	4.95	4.64	4.67	6.88	667
DML 164 / 164s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	9.15	6.69	6.49	10.07	9.55	9.90	14.53	667
DML 165 / 165s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	12.69	10.41	10.12	14.74	14.26	15.59	22.69	667
DML 166 / 166s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	12.95	10.63	10.34	15.04	14.56	15.93	23.17	667
DML 167s	61.2	57.8	65.7	62.3	66.9	61.8	61.9	57.3	61.3	56.6	55.8	51.4	56.4	52.0	12.49	11.41	11.14	15.21	15.01	17.34	25.01	667
DML 303 / 303s	127.2	120.2	136.7	129.6	139.2	128.6	128.8	119.1	127.5	117.8	116.0	106.9	117.5	108.5	4.46	3.00	2.90	4.72	4.41	4.40	6.49	667
DML 304 / 304s	127.2	120.2	136.7	129.6	139.2	128.6	128.8	119.1	127.5	117.8	116.0	106.9	117.5	108.5	9.24	7.11	6.90	10.41	9.97	10.58	15.46	667
DML 305 / 305s	127.2	120.2	136.7	129.6	139.2	128.6	128.8	119.1	127.5	117.8	116.0	106.9	117.5	108.5	13.00	10.51	10.22	14.99	14.48	15.72	22.90	667
DML 306 / 306s	127.2	120.2	136.7	129.6	139.2	128.6	128.8	119.1	127.5	117.8	116.0	106.9	117.5	108.5	12.43	11.34	11.07	15.13	14.92	17.22	24.85	667
DML 307s	127.2	120.2	136.7	129.6	139.2	128.6	128.8	119.1	127.5	117.8	116.0	106.9	117.5	108.5	18.27	15.34	14.93	21.44	20.84	23.05	33.48	667
DML 309s	127.2	120.2	136.7	129.6	139.2	128.6	128.8	119.1	127.5	117.8	116.0	106.9	117.5	108.5	23.78	19.84	19.31	27.83	27.02	29.79	32.61	667
DML 413	171.6	162.2	184.5	174.9	187.8	173.5	173.8	160.7	172.0	158.9	156.6	144.3	158.5	146.2	5.23	3.54	3.42	5.54	5.19	5.19	7.65	667
DML 414 / 414s	171.6	162.2	184.5	174.9	187.8	173.5	173.8	160.7	172.0	158.9	156.6	144.3	158.5	146.2	9.49	7.52	7.31	10.85	10.44	11.23	16.38	667
DML 415 / 415s	171.6	162.2	184.5	174.9	187.8	173.5	173.8	160.7	172.0	158.9	156.6	144.3	158.5	146.2	15.78	11.90	11.54	17.61	16.80	17.66	25.85	667
DML 417s	171.6	162.2	184.5	174.9	187.8	173.5	173.8	160.7	172.0	158.9	156.6	144.3	158.5	146.2	18.98	16.01	15.59	22.32	21.71	24.08	34.96	500
DML 419s	171.6	162.2	184.5	174.9	187.8	173.5	173.8	160.7	172.0	158.9	156.6	144.3	158.5	146.2	27.10	21.69	21.08	31.11	29.99	32.42	47.25	500
DML 604s	257.6	243.5	276.9	262.5	281.9	260.4	260.9	241.2	258.2	238.6	235.0	216.5	237.9	219.6	7.93	7.45	7.29	9.77	9.69	11.37	16.36	667
DML 607s	257.6	243.5	276.9	262.5	281.9	260.4	260.9	241.2	258.2	238.6	235.0	216.5	237.9	219.6	19.93	19.94	19.54	25.16	25.22	30.71	43.90	667
DML 609s	257.6	243.5	276.9	262.5	281.9	260.4	260.9	241.2	258.2	238.6	235.0	216.5	237.9	219.6	17.45	20.77	20.59	23.25	23.99	33.37	46.38	667
DML 757s	352.3	333.0	378.7	359.0	385.5	356.1	356.8	329.9	353.0	326.2	321.3	296.1	325.2	300.0	24.16	20.39	19.85	28.42	27.65	30.66	44.51	500
DML 759s	352.3	333.0	378.7	359.0	385.5	356.1	356.8	329.9	353.0	326.2	321.3	296.1	325.2	300.0	23.95	24.79	24.34	30.61	30.86	38.41	54.69	500

[1]) Drying capacity is based on following moisture content test standards before and after drying:
- *– R32: 990 ppm W – 50 ppm W*
- *– R134a: 1050 – 50 ppm W*
- *– R404A, R507: 1020 – 50 ppm W*
- *– R407C: 1020 – 50 ppm W*
- *– R410A: 1050 – 50 ppm W*
- *– R22: 1050 – 60 ppm W*

In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
- $t_e = 5$ °F
- $t_c = 85$ °F
- $\Delta p = 1$ psig

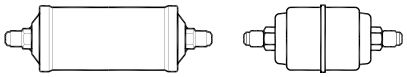
Approvals
UL US, file no. SA 6398
PED 97 / 23 / EC - a3p3
Compliant with ATEX hazard zone 2

Note
Only solder versions (cu-plated / pure copper) and connection sizes below 25 mm are approved for flammable refrigerants now

Technical data and ordering

DML - Flare

Ordering

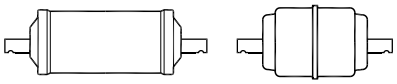


Type	Connection		Code no.
	[in]	[mm]	
DML 032	1/4	6	023Z5035 [1])
DML 033	3/8	10	023Z5036 [1])
	3/8	10	023Z5090
DML 052	1/4	6	023Z5037
DML 053	3/8	10	023Z5038
DML 082	1/4	6	023Z5039
DML 083	3/8	10	023Z5040
DML 084	1/2	12	023Z5041
DML 085	5/8	16	023Z5073
DML 162	1/4	6	023Z5042
DML 163	3/8	10	023Z5043
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

Technical data and ordering

DML - Solder (pure copper)



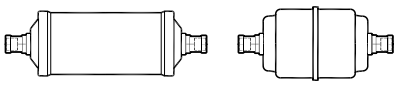
Ordering

Type	Connection [in]	Code no.	Connection [mm]	Code no.
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 055s	5/8	–	16	023Z5100
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 416s	3/4	–	19	023Z8246
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

Technical data and ordering

DML - Solder (cu-plated)



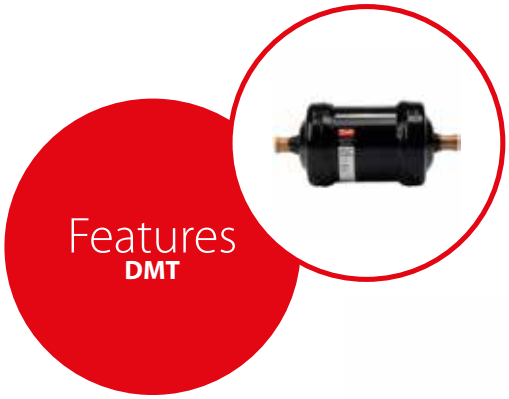
Ordering

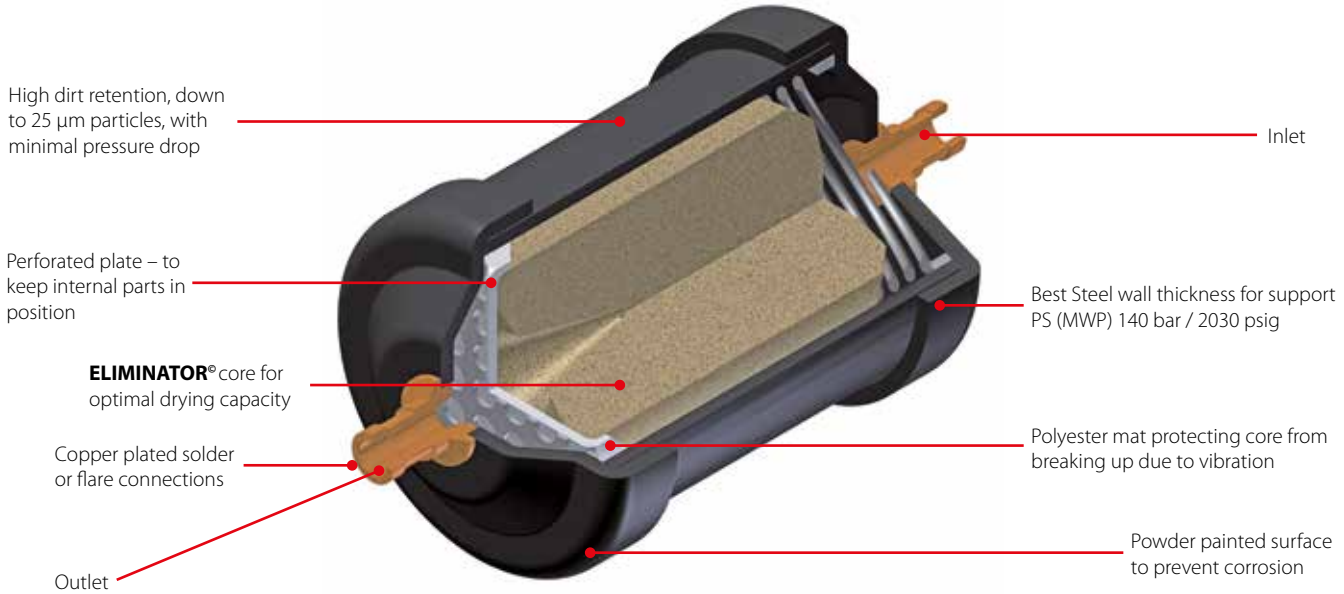
Type	Connection [in]	Code no.	Connection [mm]	Code no.
DML 032s	1/4	023Z4552	6	023Z4551
DML 032.5s	5/16	023Z4553	8	–
DML 033s	3/8	023Z4555	10	023Z4554
DML 034s	1/2	023Z4556	12	023Z4557
DML 052s	1/4	023Z4559	6	023Z4558
DML 052.5s	5/16	023Z4560	6	–
DML 053s	3/8	023Z4562	10	023Z4561
DML 054s	1/2	023Z4564	12	023Z4563
DML 055s	5/8	023Z4565	16	–
DML 082s	1/4	023Z4567	6	023Z4566
DML 082.5s	5/16	023Z4568	8	–
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	1/2	–	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

DMT - Hermetic filter drier for CO_2

DMT **ELIMINATOR®** hermetic filter driers are designed for use in CO_2 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.





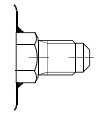
Facts

Application:
- liquid line in CO_2 systems

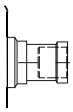
- Recommended for use with R744 (CO_2) refrigerants
- Support PS / MWP up to 140 bar / 2030 psig
- 100% 3 Å Molecular Sieve core
- High drying capacity minimizing the risk of acid formation (hydrolysis)
- Will not deplete oil additives
- Available with solder (copper plated) and flare connections (i.e. 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



Flare version



Solder version (cu-plated)

DMT - Hermetic filter drier for CO_2

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			R 744 CO_2 24 °C			R 744 CO_2 Flare / Cu-plated			Volume [l]		
	H_2O [g]	Ref [Kg]	Drop Water	H_2O [g]	Ref [Kg]	Drop Water	[kW]	[TR]		Shell	Core	Net
DMT 082 / 082s	7.2	7.2	143	5.7	5.8	114	3.56	1.0	140 / 2030	0.22	0,058	0.162
DMT 083 / 083s	7.2	7.2	143	5.7	5.8	114	10.61	3.0	140 / 2030	0.22	0,058	0.162
DMT 084s	7.2	7.2	143	5.7	9.3	114	13.49	3.8	140 / 2030	0.22	0,058	0.162
DMT 133 / 133s	11.6	11.7	232	9.2	9.3	184	10.99	3.1	140 / 2030	0.32	0,095	0.225
DMT 134s	11.6	11.7	232	9.2	9.3	184	13.49	3.8	140 / 2030	0.32	0,095	0.225

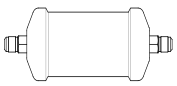
The moisture test was performed according with ASHRAE standard on liquid phase

[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
EPD: From 445 ppm W to 50 ppm W at -6.6 °C

[2] ***Liquid capacity***
Given in accordance with ARI 710-2004 for:
t_e = -15 °C / 5 °F
t_c = 30 °C / 85 °F
Δp = 0.07 bar / 1 psig

Termperature range:
-40 – 100 °C / -40 – 212 °F

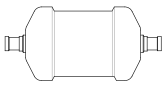
DMT - Flare



Ordering

Type	Connection [in]	Code no.
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)



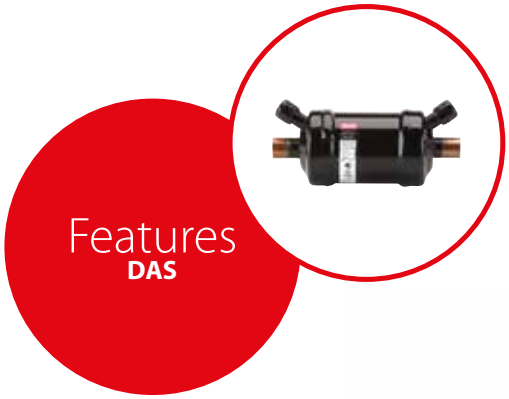
Ordering

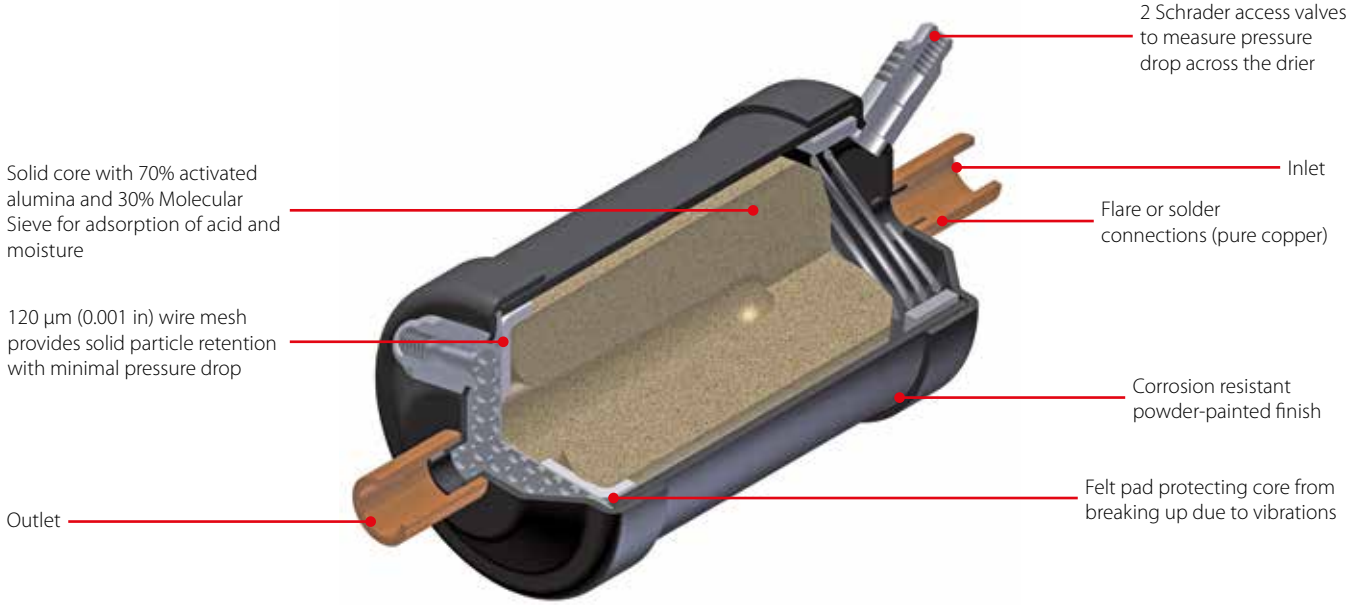
Type	Connection [in]	Code no.	Multi-pack Code no.
DMT 082s	1/4	023Z8408	023Z8415
DMT 083s	3/8	023Z8409	023Z8416
DMT 084s	1/2	023Z8412	023Z8417
DMT 133s	3/8	023Z8402	023Z8418
DMT 134s	1/2	023Z8411	023Z8419

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 flourinated 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.





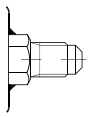
Facts

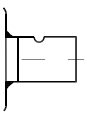
Application:
- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

- 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
- Recommended for use with HFO, HC, HFC and HCFC refrigerants

Technical data and ordering


Flare version


Solder version (pure cooper)

DAS - Hermetic burn-out filter drier

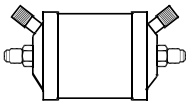
Rated and acid capacities

Type	Rated capacity, Q_n [1]						Acid capacity [2]	Max. working pressure PS / MWP [bar / psig]
	R22 / R407C / R410A		R134a		R404A / R507			
	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[g]	
DAS 083	1.7	6.0	1.0	3.5	1.3	4.5	3.8	35 / 500
DAS 084	2.9	10.0	1.6	5.5	2.3	8.0	3.8	35 / 500
DAS 085	4.1	14.5	2.6	9.0	3.6	12.5	3.8	35 / 500
DAS 086	5.4	19.0	3.3	11.5	4.7	16.5	3.8	35 / 500
DAS 164	3.0	10.5	1.7	6.0	2.4	8.5	8.6	35 / 500
DAS 165	4.3	15.0	2.7	9.5	3.7	13.0	8.6	35 / 500
DAS 166	5.7	20.0	3.4	12.0	4.9	17.0	8.6	35 / 500
DAS 167	6.3	22.0	3.9	13.5	5.4	19.0	8.6	35 / 500
DAS 305	5.1	18.0	3.1	11.0	4.3	15.0	18.2	35 / 500
DAS 306	6.3	22.0	4.0	14.0	5.4	19.0	18.2	35 / 500
DAS 307	7.4	26.0	4.6	16.0	6.3	22.0	18.2	35 / 500
DAS 309	8.9	31.0	5.7	20.0	7.7	27.0	18.2	35 / 500
DAS 417	8.6	30.0	5.1	18.0	7.1	25.0	24.3	35 / 500
DAS 419	10.0	35.0	6.3	22.0	8.6	30.0	24.3	35 / 500
DAS 607	5.7	20.0	3.4	12.0	4.9	17.0	36.5	35 / 500

[1]) Rated capacity is stated at:
evaporating temperature t_e = 4 °C / 39.2 °F
pressure drop Δp = 0.21 bar / 3.04 psig
[2]) Adsorption capacity of oleic acid at 0.05 TAN (Total Acid Number)

Capacities for other temperatures than 4 °C / 39.2 °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

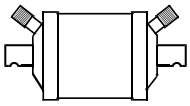
DAS - Flare



Ordering

Type	Connection [in]	Code no.
DAS 084VV	1/2	023Z1002
DAS 164VV	1/2	023Z1007
DAS 165VV	5/8	023Z1008

DAS - Solder (pure copper)



Ordering

Type	Connection [in]	Code no.
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 [°C] / [°F]

[°C] / [°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 R22 plant with an evaporator capacity at 8.5 kW / 2.41 TR a -20 / -4 °F you may use a hermetic burn-out filter drier with a rated capacity of 8.5 / 0.4 = 21.25 kW / 6.02 TR
For example DAS 306

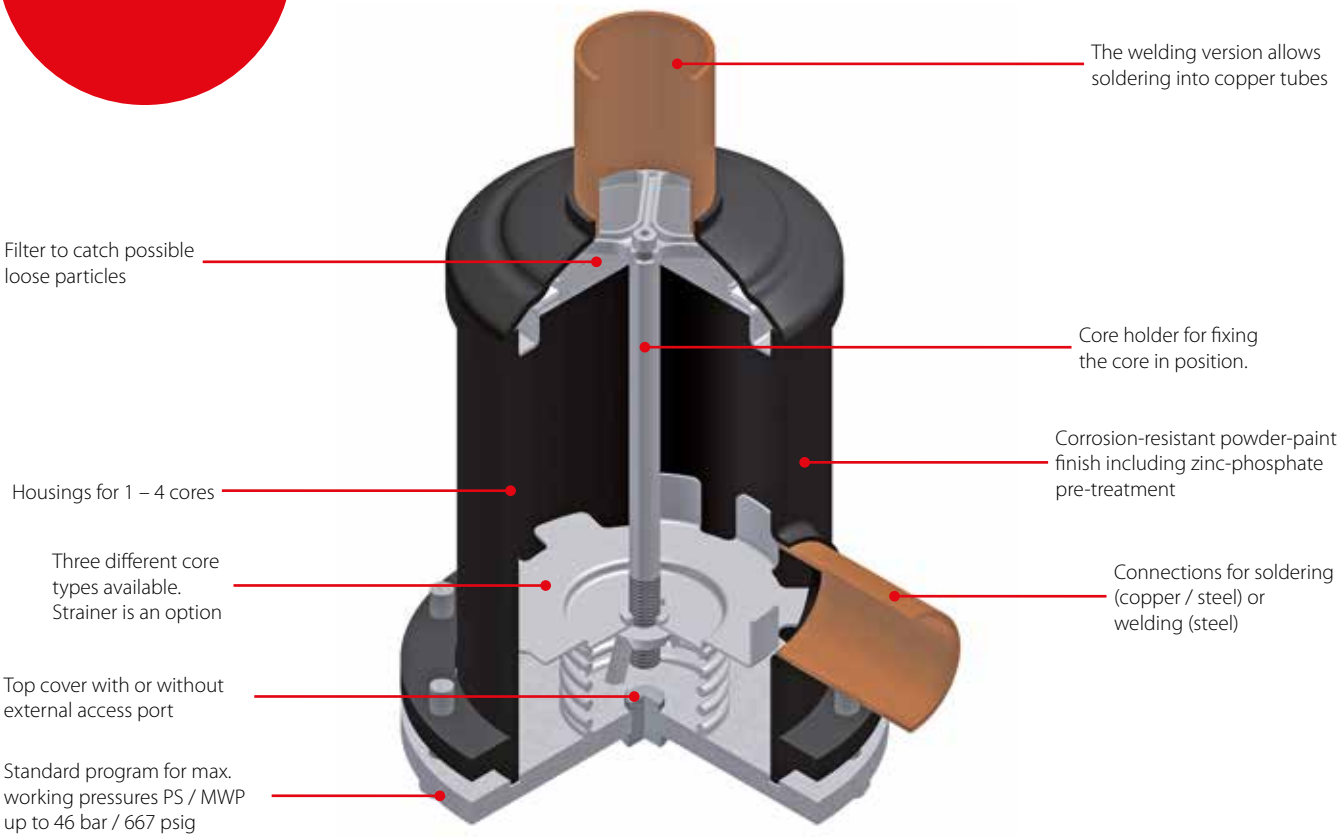
DCR - Filter drier with replaceable solid core

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 and CO_2, 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:
- For refrigeration plants with fluorinated refrigerants or CO_2

- 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
- For convenient filter drier commissioning, cover 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 for HFC). Provides high moisture adsorption at low and high condensing temperatures. Effective protection against impurities
- 48-DC 80% molecular sieve and 20% activated alumina solid core suitable for HCFC refrigerants and compatible with HFC refrigerants: 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
- Recommended for use with HFO, HFC and HCFC refrigerants
- 48-F strainer – compatible with all refrigerants:
  - 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

Type	Number of cores	Drying capacity [kg] of refrigerant [1]												Liquid capacity [kW] [2]						Max. working pressure PS [bar]
		R134a		R404A		R507		R22 / R407C		R410A		R744 (CO_2)		R134a	R404A	R507	R22 / R407C	R410A	R744 (CO_2)	
		[°C]																		
		24	52	24	52	24	52	24	52	24	52	-6.6	24							
DCR 0485	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	80.6	59.4	57.5	84.5	87.9	40.8	46
DCR 0487	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	128.0	92.5	89.6	132.6	136.8	58.0	46
DCR 0489	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	184.3	132.6	128.4	190.4	195.9	95.7	46
DCR 04811	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	249.3	180.5	174.8	258.5	266.8	113.9	46
DCR 04813	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	304.1	222.0	215.1	317.1	328.5	111.5	46
DCR 04817	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	434.3	324.1	314.3	459.4	480.7	148.1	46
DCR 04821	1	82.5	78.0	88.7	84.0	90.3	83.4	82.7	76.4	75.2	69.3	74.9	68.9	320.4	234.4	227.1	334.5	346.8	185.0	46
DCR 0967	2	165.0	155.0	177.3	168.1	180.5	166.8	165.3	152.8	150.5	138.7	149.8	137.7	119.6	85.7	83.0	123.2	126.6	78.4	46
DCR 0969	2	165.0	155.0	177.3	168.1	180.5	166.8	165.3	152.8	150.5	138.7	149.8	137.7	189.5	136.4	131.9	195.6	201.2	111.5	46
DCR 09611	2	165.0	155.0	177.3	168.1	180.5	166.8	165.3	152.8	150.5	138.7	149.8	137.7	259.7	187.2	181.4	268.6	276.7	126.6	46
DCR 09613	2	165.0	155.0	177.3	168.1	180.5	166.8	165.3	152.8	150.5	138.7	149.8	137.7	331.9	240.8	233.3	344.7	356.1	150.9	46
DCR 09617	2	165.0	155.0	177.3	168.1	180.5	166.8	165.3	152.8	150.5	138.7	149.8	137.7	477.2	349.1	338.3	498.2	516.6	200.5	46
DCR 1449	3	247.5	233.9	266.0	252.7	270.8	250.1	248.0	229.1	225.7	208.0	224.8	206.6	184.4	132.7	128.5	190.5	196.0	124.5	35[3] / 46[4]
DCR 14411	3	247.5	233.9	266.0	252.7	270.8	250.1	248.0	229.1	225.7	208.0	224.8	206.6	272.5	196.9	190.7	282.2	290.9	154.0	35[3] / 46[4]
DCR 14413	3	247.5	233.9	266.0	252.7	270.8	250.1	248.0	229.1	225.7	208.0	224.8	206.6	340.1	246.8	239.1	353.2	364.9	183.2	35[3] / 46[4]
DCR 14417	3	247.5	233.9	266.0	252.7	270.8	250.1	248.0	229.1	225.7	208.0	224.8	206.6	442.3	323.0	313.0	461.3	478.0	243.4	35[3] / 46[4]
DCR 19211	4	329.9	311.9	354.7	336.2	361.0	333.5	330.6	305.5	300.9	277.0	299.7	275.4	290.0	211.6	205.0	302.3	313.1	177.2	28[3] / 40[4]
DCR 19213	4	329.9	311.9	354.7	336.2	361.0	333.5	330.6	305.5	300.9	277.0	299.7	275.4	359.8	261.7	253.6	374.2	387.0	211.0	28[3] / 40[4]
DCR 19217	4	329.9	311.9	354.7	336.2	361.0	333.5	330.6	305.5	300.9	277.0	299.7	275.4	505.6	366.0	354.6	524.3	541.0	299.6	28[3] / 40[4]
DCR 19221	4	329.9	311.9	354.7	336.2	361.0	333.5	330.6	305.5	300.9	277.0	299.7	275.4	442.5	321.7	311.7	460.2	475.8	381.6	28[3] / 40[4]
DCR 300	3	555.9	525.5	597.6	566.5	608.3	561.9	557.1	514.8	507.1	467.2	505.0	464.1	–	–	–	–	–	–	–
DCR 400	4	741.2	700.6	796.8	755.3	811.0	749.2	742.8	686.4	676.1	623.0	673.3	618.7	–	–	–	–	–	–	–

[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
– R22: 1050 – 60 ppm W
– R744: 1010 – 50 ppm W at 24 °C / 445 – 50 ppm W at -6.6 °C
In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
t_e = -15 °C
t_c = 30 °C
Δp = 0.07 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 and 100-DM

Type	Number of cores	Drying capacity [lb] of refrigerant [1]												Liquid capacity [TR] [2]						Max. working pressure MWP [psig]
		R134a		R404A		R507		R22 / R407C		R410A		R744 (CO_2)		R134a	R404A	R507	R22 / R407C	R410A	R744 (CO_2)	
		[°F]																		
		75	125	75	125	75	125	75	125	75	125	20	75.5							
DCR 0485	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	22.9	16.9	16.3	24.0	25.0	11.6	667
DCR 0487	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	36.4	26.3	25.5	37.7	38.9	16.5	667
DCR 0489	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	52.4	37.7	36.5	54.1	55.7	27.2	667
DCR 04811	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	70.9	51.3	49.7	73.5	75.9	32.4	667
DCR 04813	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	86.5	63.1	61.2	90.2	93.4	31.7	667
DCR 04817	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	123.5	92.2	89.4	130.6	136.7	42.1	667
DCR 04821	1	181.9	172.0	195.6	185.2	199.1	183.9	182.3	168.4	165.8	152.8	165.1	151.9	91.1	66.7	64.6	95.1	98.6	52.6	667
DCR 0967	2	363.8	341.7	390.9	370.6	397.9	367.7	364.4	336.9	331.8	305.8	330.3	303.6	34.0	24.4	23.6	35.0	36.0	22.3	667
DCR 0969	2	363.8	341.7	390.9	370.6	397.9	367.7	364.4	336.9	331.8	305.8	330.3	303.6	53.9	38.8	37.5	55.6	57.2	31.7	667
DCR 09611	2	363.8	341.7	390.9	370.6	397.9	367.7	364.4	336.9	331.8	305.8	330.3	303.6	73.8	53.2	51.6	76.4	78.7	36.0	667
DCR 09613	2	363.8	341.7	390.9	370.6	397.9	367.7	364.4	336.9	331.8	305.8	330.3	303.6	94.4	68.5	66.3	98.0	101.3	42.9	667
DCR 09617	2	363.8	341.7	390.9	370.6	397.9	367.7	364.4	336.9	331.8	305.8	330.3	303.6	135.7	99.3	96.2	141.7	146.9	57.0	667
DCR 1449	3	545.6	515.7	586.4	557.1	597.0	551.4	546.7	505.1	497.6	458.6	495.6	455.5	52.4	37.7	36.5	54.2	55.7	35.4	507[3]) / 667[4])
DCR 14411	3	545.6	515.7	586.4	557.1	597.0	551.4	546.7	505.1	497.6	458.6	495.6	455.5	77.5	56.0	54.2	80.2	82.7	43.8	507[3]) / 667[4])
DCR 14413	3	545.6	515.7	586.4	557.1	597.0	551.4	546.7	505.1	497.6	458.6	495.6	455.5	96.7	70.2	68.0	100.4	103.8	52.1	507[3]) / 667[4])
DCR 14417	3	545.6	515.7	586.4	557.1	597.0	551.4	546.7	505.1	497.6	458.6	495.6	455.5	125.8	91.8	89.0	131.2	135.9	69.2	507[3]) / 667[4])
DCR 19211	4	727.3	687.6	782.0	741.2	795.9	735.2	728.8	673.5	663.4	610.7	660.7	607.2	82.5	60.2	58.3	86.0	89.0	50.4	406[3]) / 580[4])
DCR 19213	4	727.3	687.6	782.0	741.2	795.9	735.2	728.8	673.5	663.4	610.7	660.7	607.2	102.3	74.4	72.1	106.4	110.0	60.0	406[3]) / 580[4])
DCR 19217	4	727.3	687.6	782.0	741.2	795.9	735.2	728.8	673.5	663.4	610.7	660.7	607.2	143.8	104.1	100.8	149.1	153.8	85.2	406[3]) / 580[4])
DCR 19221	4	727.3	687.6	782.0	741.2	795.9	735.2	728.8	673.5	663.4	610.7	660.7	607.2	125.8	91.5	88.6	130.9	135.3	108.5	406[3]) / 580[4])
DCR 300	3	1226	1159	1317	1249	1341	1239	1228	1135	1118	1030	1113	1023	–	–	–	–	–	–	–
DCR 400	4	1634	1545	1757	1665	1788	1652	1638	1513	1491	1373	1484	1364	–	–	–	–	–	–	–

[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*
- *– R22: 1050 – 60 ppm W*
- *– R744: 1010 – 50 ppm W at 24 °C / 445 – 50 ppm W at -6.6 °C*

In accordance with ARI 710-2004

[2]) Liquid capacity given in accordance with ARI 710-2002 evaporating temperature:
- *t_e = 5 °F*
- *t_c = 86 °F*
- *Δp = 1 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 and 100-DC

Type	Number of cores	Drying capacity [kg] of refrigerant [1]												Liquid capacity [kW] [2]						Max. working pressure PS [bar]
		R134a		R404A		R507		R22 / R407C		R410A		R744 (CO_2)		R134a	R404A	R507	R22 / R407C	R410A	R744 (CO_2)	
		[°C]																		
		24	52	24	52	24	52	24	52	24	52	-6.6	24							
DCR 0485	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	80.6	59.4	57.5	84.5	87.9	40.8	46
DCR 0487	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	128.0	92.5	89.6	132.6	136.8	58.0	46
DCR 0489	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	184.3	132.6	128.4	190.4	195.9	95.7	46
DCR 04811	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	249.3	180.5	174.8	258.5	266.8	113.9	46
DCR 04813	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	304.1	222.0	215.1	317.1	328.5	111.5	46
DCR 04817	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	434.3	324.1	314.3	459.4	480.7	148.1	46
DCR 04821	1	64.7	61.2	69.6	65.9	70.8	65.4	64.9	59.9	59.0	54.4	55.5	51.0	320.4	234.4	227.1	334.5	346.8	185.0	46
DCR 0967	2	129.4	122.3	139.1	131.9	141.6	130.8	129.7	119.9	118.1	108.8	110.9	101.9	119.6	85.7	83.0	123.2	126.6	78.4	46
DCR 0969	2	129.4	122.3	139.1	131.9	141.6	130.8	129.7	119.9	118.1	108.8	110.9	101.9	189.5	136.4	131.9	195.6	201.2	111.5	46
DCR 09611	2	129.4	122.3	139.1	131.9	141.6	130.8	129.7	119.9	118.1	108.8	110.9	101.9	259.7	187.2	181.4	268.6	276.7	126.6	46
DCR 09613	2	129.4	122.3	139.1	131.9	141.6	130.8	129.7	119.9	118.1	108.8	110.9	101.9	331.9	240.8	233.3	344.7	356.1	150.9	46
DCR 09617	2	129.4	122.3	139.1	131.9	141.6	130.8	129.7	119.9	118.1	108.8	110.9	101.9	477.2	349.1	338.3	498.2	516.6	200.5	46
DCR 1449	3	194.1	183.5	208.7	197.8	212.4	196.2	194.6	179.8	177.1	162.2	166.4	152.9	184.4	132.7	128.5	190.5	196.0	124.5	35[3]) / 46[4])
DCR 14411	3	194.1	183.5	208.7	197.8	212.4	196.2	194.6	179.8	177.1	162.2	166.4	152.9	272.5	196.9	190.7	282.2	290.9	154.0	35[3]) / 46[4])
DCR 14413	3	194.1	183.5	208.7	197.8	212.4	196.2	194.6	179.8	177.1	162.2	166.4	152.9	340.1	246.8	239.1	353.2	364.9	183.2	35[3]) / 46[4])
DCR 14417	3	194.1	183.5	208.7	197.8	212.4	196.2	194.6	179.8	177.1	162.2	166.4	152.9	442.3	323.0	313.0	461.3	478.0	243.4	35[3]) / 46[4])
DCR 19211	4	258.9	244.7	278.3	263.8	283.2	261.7	259.4	239.7	236.1	217.6	221.8	203.8	290.0	211.6	205.0	302.3	313.1	177.2	28[3]) / 40[4])
DCR 19213	4	258.9	244.7	278.3	263.8	283.2	261.7	259.4	239.7	236.1	217.6	221.8	203.8	359.8	261.7	253.6	374.2	387.0	211.0	28[3]) / 40[4])
DCR 19217	4	258.9	244.7	278.3	263.8	283.2	261.7	259.4	239.7	236.1	217.6	221.8	203.8	505.6	366.0	354.6	524.3	541.0	299.6	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	221.8	203.8	442.5	321.7	311.7	460.2	475.8	381.6	28[3]) / 40[4])
DCR 300	3	433.5	409.7	466.0	441.7	474.3	438.1	434.4	401.4	395.3	364.3	371.4	341.3	–	–	–	–	–	–	–
DCR 400	4	577.9	546.3	621.3	588.9	632.4	584.2	579.1	535.2	527.1	485.7	495.2	455.1	–	–	–	–	–	–	–

[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
– R22: 1050 – 60 ppm W
– R744: 1010 – 50 ppm W at 24 °C / 445 – 50 ppm W at -6.6 °C
In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
t_e = -15 °C
t_c = 30 °C
Δp = 0.07 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 and 100-DC

Type	Number of cores	Drying capacity [lb] of refrigerant [1]												Liquid capacity [TR] [2]						Max. working pressure MWP [psig]
		R134a		R404A		R507		R22 / R407C		R410A		R744 (CO_2)		R134a	R404A	R507	R22 / R407C	R410A	R744 (CO_2)	
		[°F]																		
		75	125	75	125	75	125	75	125	75	125	20	75.5							
DCR 0485	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	22.9	16.9	16.3	24.0	25.0	11.6	667
DCR 0487	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	36.4	26.3	25.5	37.7	38.9	16.5	667
DCR 0489	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	52.4	37.7	36.5	54.1	55.7	27.2	667
DCR 04811	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	70.9	51.3	49.7	73.5	75.9	32.4	667
DCR 04813	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	86.5	63.1	61.2	90.2	93.4	31.7	667
DCR 04817	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	123.5	92.2	89.4	130.6	136.7	42.1	667
DCR 04821	1	142.6	134.9	153.4	145.3	156.1	144.2	143.1	132.1	130.1	119.9	122.4	112.4	91.1	66.7	64.6	95.1	98.6	52.6	667
DCR 0967	2	285.3	269.6	306.7	290.8	312.2	288.4	285.9	264.3	260.4	239.9	244.5	224.7	34.0	24.4	23.6	35.0	36.0	22.3	667
DCR 0969	2	285.3	269.6	306.7	290.8	312.2	288.4	285.9	264.3	260.4	239.9	244.5	224.7	53.9	38.8	37.5	55.6	57.2	31.7	667
DCR 09611	2	285.3	269.6	306.7	290.8	312.2	288.4	285.9	264.3	260.4	239.9	244.5	224.7	73.8	53.2	51.6	76.4	78.7	36.0	667
DCR 09613	2	285.3	269.6	306.7	290.8	312.2	288.4	285.9	264.3	260.4	239.9	244.5	224.7	94.4	68.5	66.3	98.0	101.3	42.9	667
DCR 09617	2	285.3	269.6	306.7	290.8	312.2	288.4	285.9	264.3	260.4	239.9	244.5	224.7	135.7	99.3	96.2	141.7	146.9	57.0	667
DCR 1449	3	427.9	404.5	460.1	436.1	468.3	432.5	429.0	396.4	390.4	357.6	366.8	337.1	52.4	37.7	36.5	54.2	55.7	35.4	507[3]) / 667[4])
DCR 14411	3	427.9	404.5	460.1	436.1	468.3	432.5	429.0	396.4	390.4	357.6	366.8	337.1	77.5	56.0	54.2	80.2	82.7	43.8	507[3]) / 667[4])
DCR 14413	3	427.9	404.5	460.1	436.1	468.3	432.5	429.0	396.4	390.4	357.6	366.8	337.1	96.7	70.2	68.0	100.4	103.8	52.1	507[3]) / 667[4])
DCR 14417	3	427.9	404.5	460.1	436.1	468.3	432.5	429.0	396.4	390.4	357.6	366.8	337.1	125.8	91.8	89.0	131.2	135.9	69.2	507[3]) / 667[4])
DCR 19211	4	570.8	539.5	613.5	581.6	624.3	576.9	571.9	528.4	520.5	479.7	489.0	449.3	82.5	60.2	58.3	86.0	89.0	50.4	406[3]) / 580[4])
DCR 19213	4	570.8	539.5	613.5	581.6	624.3	576.9	571.9	528.4	520.5	479.7	489.0	449.3	102.3	74.4	72.1	106.4	110.0	60.0	406[3]) / 580[4])
DCR 19217	4	570.8	539.5	613.5	581.6	624.3	576.9	571.9	528.4	520.5	479.7	489.0	449.3	143.8	104.1	100.8	149.1	153.8	85.2	406[3]) / 580[4])
DCR 19221	4	570.8	539.5	613.5	581.6	624.3	576.9	571.9	528.4	520.5	479.7	489.0	449.3	125.8	91.5	88.6	130.9	135.3	108.5	406[3]) / 580[4])
DCR 300	3	956	903	1027	974	1046	966	958	885	871	803	819	752	–	–	–	–	–	–	–
DCR 400	4	1274	1204	1370	1298	1394	1288	1277	1180	1162	1071	1092	1003	–	–	–	–	–	–	–

[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
– R22: 1050 – 60 ppm W
– R744: 1010 – 50 ppm W at 24 °C / 445 – 50 ppm W at -6.6 °C
In accordance with ARI 710-2004

[2]) Liquid capacity given in accordance with ARI 710-2004
t_e = 5 °F
t_c = 86 °F
Δp = 1 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

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	
		R22 / 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:
R22: EPD = 10 ppm W, corresponding to a dew point temperature = -50 °C
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

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	
		R22 / 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:
R22: EPD = 10 ppm W, corresponding to a dew point temperature = -58 °F
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

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
	R22 / 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	9.2	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 a accordance with ARI-Standard 710-2004 for:
t_e = 4.4 °C
t_c = 32.2 °C

Technical data and ordering

DCR - Filter drier with replaceable solid core

Recommended plant capacity [TR], type 48-DA

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
	R22 / 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 °F
t_c = 90 °F

Strainer mounted in suction line, type 48-F

Refrigerant	R22 / 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 solution line

Refrigerant	R22 / R407C	R134a	R404A / R507	R410A
Recommended s ystem 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 °C
t_c = 30 °C
Δp = 0.07 bar

Strainer mounted in suction line, type 48-F

Refrigerant	R22 / 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 solution line

Refrigerant	R22 / R407C	R134a	R404A / R507	R410A
Recommended s ystem 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 °F
t_c = 86 °F
Δp = 1 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 5/8	–	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 5/8	–	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

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

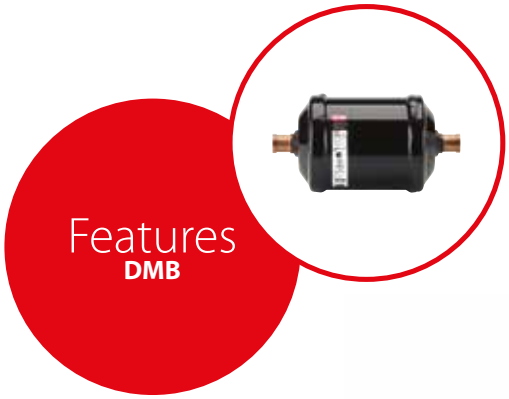
Type	Material	Code no.		
		Industrial pack		Multi pack
		With gasket	Without gasket	With gasket
48-DM solid core	100% molecular sieve	023U1392	023U1393	023U1391
48-DC solid core	80% molecular sieve and 20% Al_3O_2	023U4381	023U4382	023U4380
48-DA solid core	30% molecular sieve and 70% Al_3O_2	023U5381	023U5382	023U5380
48-F strainer	Felt-gasket, 15 µm	023U1921	–	–
		Multi pack		
100-DM solid core[1])	100% molecular sieve	023U7562	–	–
100-DC solid core[1])	80% molecular sive and 20% Al_3O_2	023U7563	–	–

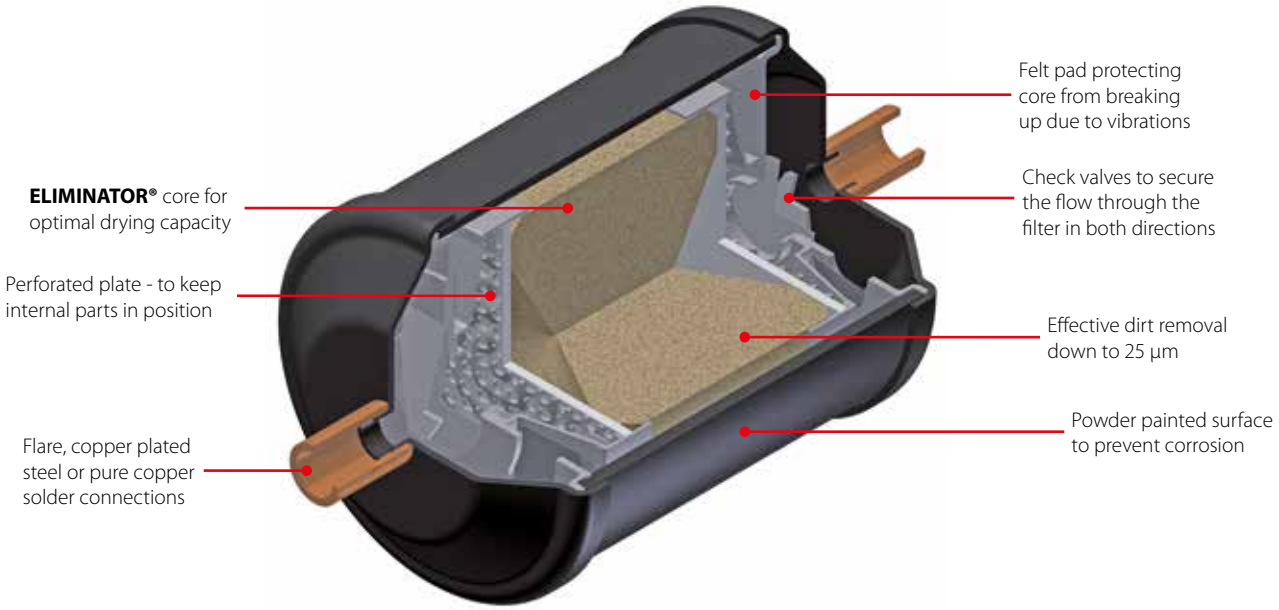
[1]) Do not use with DCR 048 – 192 housings

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.





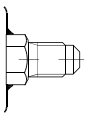
Facts

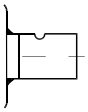
Application:
- Traditional refrigeration
- Heat pumps
- Air conditioning units

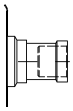
- No dirt released by reversing the flow direction
- The check valves are not sensitive to dirt and give minimum restriction, irrespective of flow direction
- When building heat pump systems, the use of hermetic bi-flow filter driers can save up to ten solder connections. This reduces production costs 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
- Recommended for use with HFO, HC, HFC and HCFC refrigerants
- Available in sizes from 05 to 30 cubic inches
- Available with flare, solder (pure copper, cu-plated) connections

Technical data and ordering


Flare version


Solder version (pure cooper)


Solder version (cu-plated)

DMB - Hermetic bi-flow filter drier

Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant [1]												Liquid capacity [kW] [2]						Max working pressure PS [bar]
	R134a		R404A		R507		R22		R407C		R410A		R134a	R404A	R507	R22	R407C	R410A	
	[°C]																		
	24	52	24	52	24	52	24	52	24	52	24	52							
DMB 082 / 082s	9.1	8.6	9.7	9.2	9.9	9.2	9.2	8.5	9.1	8.4	8.3	7.6	3.9	2.8	2.8	4.3	4.3	4.3	46
DMB 083 / 083s	9.1	8.6	9.7	9.2	9.9	9.2	9.2	8.5	9.1	8.4	8.3	7.6	7.4	5.3	5.3	8.2	8.2	8.2	46
DMB 084 / 084s	9.1	8.6	9.7	9.2	9.9	9.2	9.2	8.5	9.1	8.4	8.3	7.6	8.3	6.0	6.0	9.2	9.2	9.2	46
DMB 162	17.1	16.2	18.4	17.4	18.7	17.3	17.3	16.0	17.1	15.8	15.6	14.4	7.6	5.3	5.3	8.8	8.8	8.8	46
DMB 163 / 163s	17.1	16.2	18.4	17.4	18.7	17.3	17.3	16.0	17.1	15.8	15.6	14.4	18.0	13.0	13.0	20.0	20.0	20.0	46
DMB 164 / 164s	17.1	16.2	18.4	17.4	18.7	17.3	17.3	16.0	17.1	15.8	15.6	14.4	28.0	20.0	20.0	32.0	32.0	32.0	46
DMB 165 / 165s	17.1	16.2	18.4	17.4	18.7	17.3	17.3	16.0	17.1	15.8	15.6	14.4	37.0	29.0	29.0	40.0	40.0	40.0	46
DMB 303	42.0	39.7	45.2	42.8	46.0	42.5	42.5	39.3	42.1	38.9	38.3	35.3	19.0	15.0	15.0	21.0	21.0	21.0	46
DMB 304 / 304s	42.0	39.7	45.2	42.8	46.0	42.5	42.5	39.3	42.1	38.9	38.3	35.3	28.0	20.0	20.0	31.0	31.0	31.0	46
DMB 305 / 305s	42.0	39.7	45.2	42.8	46.0	42.5	42.5	39.3	42.1	38.9	38.3	35.3	38.0	28.0	28.0	42.0	42.0	42.0	46
DMB 307s	42.0	39.7	45.2	42.8	46.0	42.5	42.5	39.3	42.1	38.9	38.3	35.3	43.0	32.0	32.0	47.0	47.0	47.0	46

[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*
- *– R22: 1050 – 60 ppm W*

In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
- *t_e = -15 °C*
- *t_c = 30 °C*
- *Δp = 0.07 bar*

DMB - Hermetic bi-flow filter drier

Drying and liquid capacity

Type	Drying capacity [lb] of refrigerant [1]												Liquid capacity [TR] [2]						Max. working pressure MWP [psig]
	R134a		R404A		R507		R22		R407C		R410A		R134a	R404A	R507	R22	R407C	R410A	
	[°F]																		
	75	125	75	125	75	125	75	125	75	125	75	125							
DMB 082 / 082s	20.0	18.9	21.3	20.2	21.8	20.2	20.2	18.7	20.0	18.5	18.2	16.7	1.1	0.8	0.8	1.2	1.2	1.2	667
DMB 083 / 083s	20.0	18.9	21.3	20.2	21.8	20.2	20.2	18.7	20.0	18.5	18.2	16.7	2.1	1.5	1.5	2.3	2.3	2.3	667
DMB 084 / 084s	20.0	18.9	21.3	20.2	21.8	20.2	20.2	18.7	20.0	18.5	18.2	16.7	2.4	1.7	1.7	2.6	2.6	2.6	667
DMB 162	37.6	35.7	40.5	38.3	41.2	38.1	38.1	35.2	37.6	34.8	34.3	31.7	2.2	1.5	1.5	2.5	2.5	2.5	667
DMB 163 / 163s	37.6	35.7	40.5	38.3	41.2	38.1	38.1	35.2	37.6	34.8	34.3	31.7	5.1	3.7	3.7	5.7	5.7	5.7	667
DMB 164 / 164s	37.6	35.7	40.5	38.3	41.2	38.1	38.1	35.2	37.6	34.8	34.3	31.7	8.0	5.7	5.7	9.1	9.1	9.1	667
DMB 165 / 165s	37.6	35.7	40.5	38.3	41.2	38.1	38.1	35.2	37.6	34.8	34.3	31.7	10.6	8.3	8.3	11.4	11.4	11.4	667
DMB 303	92.5	87.5	99.6	94.3	101.4	93.6	93.6	86.6	92.8	85.7	84.4	77.8	5.4	4.3	4.3	6.0	6.0	6.0	667
DMB 304 / 304s	92.5	87.5	99.6	94.3	101.4	93.6	93.6	86.6	92.8	85.7	84.4	77.8	8.0	5.7	5.7	8.9	8.9	8.9	667
DMB 305 / 305s	92.5	87.5	99.6	94.3	101.4	93.6	93.6	86.6	92.8	85.7	84.4	77.8	10.9	8.0	8.0	12.0	12.0	12.0	667
DMB 307s	92.5	87.5	99.6	94.3	101.4	93.6	93.6	86.6	92.8	85.7	84.4	77.8	12.3	9.1	9.1	13.4	13.4	13.4	667

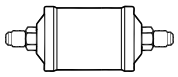
[1]) Drying capacity is based on following moisture content test standards before and after drying:
- *– R134a: 1050 – 50 ppm W*
- *– R404A, R507: 1020 – 50 ppm W*
- *– R407C: 1020 – 50 ppm W*
- *– R410A: 1050 – 50 ppm W*
- *– R22: 1050 – 60 ppm W*

In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
- *t_e = 5 °F*
- *t_c = 85 °F*
- *Δp = 1 psig*

Technical data and ordering

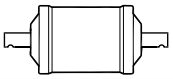
DMB - Flare



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

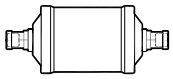
DMB - Solder (pure copper)



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

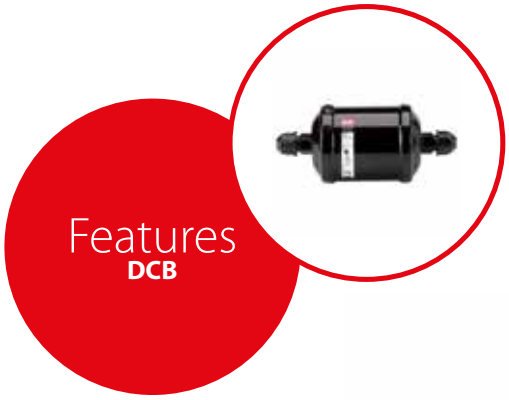
Type	Connection	Code no.	Connection	Code no.
	[in]		[mm]	
DMB 082s	1/4	023Z1473	6	023Z1461
DMB 083s	3/8	023Z1472	10	023Z1459
DMB 084s	1/2	023Z1471	12	023Z1457
DMB 163s	3/8	023Z1476	10	023Z1455
DMB 164s	1/2	023Z1475	12	023Z1453
DMB 165s	5/8	023Z1474	–	–
DMB 303s	3/8	023Z1481	–	–
DMB 304s	1/2	023Z1479	12	023Z1451
DMB 305s	5/8	023Z1478	–	–
DMB 307s	7/8	023Z1477	–	–

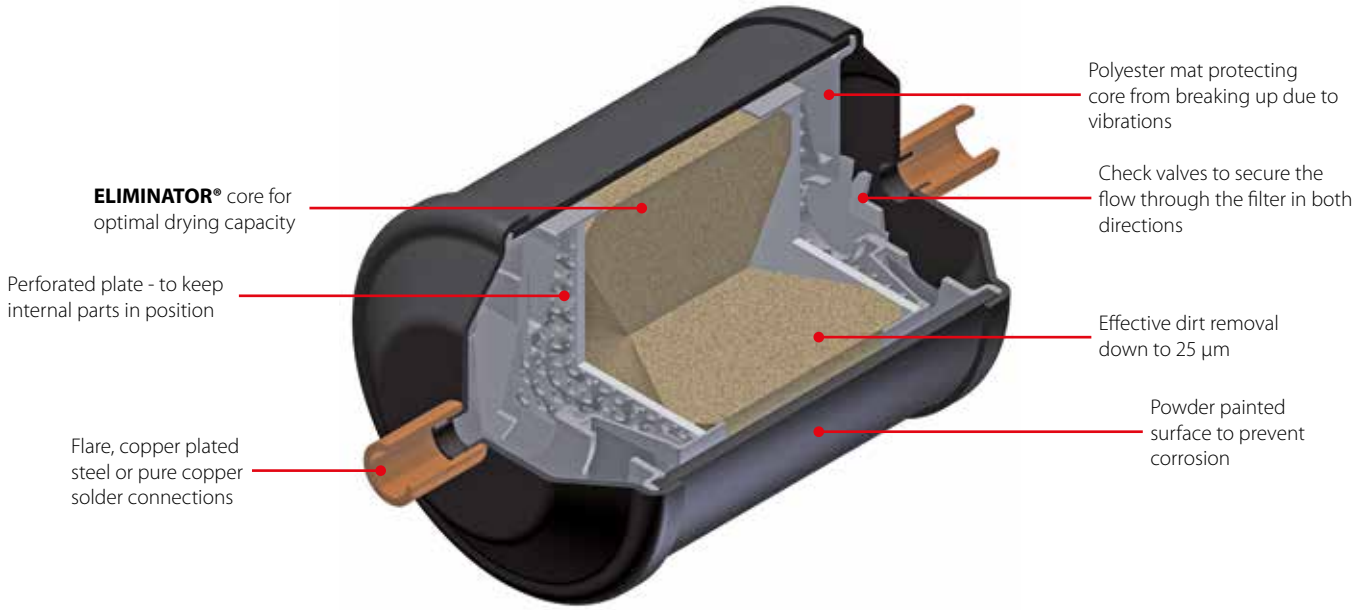
Quick Selection Notes:

DCB - Hermetic bi-flow filter drier

DCB **ELIMINATOR®** hermetic bi-flow filter driers protect refrigeration and air conditioning systems from moisture, acids and solid particles, eliminating harmful chemical reaction and abrasive impurities.

DCB hermetic bi-flow filter driers, with a solid core of 80% Molecular Sieve and 20% activated alumina, are recommended for use with HFO, HC, HFC and HCFC refrigerants. They are hermetic and available in many sizes and connection types.





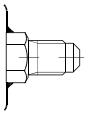
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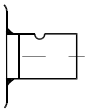
Application:
- Traditional refrigeration
- Heat pumps
- Air conditioning units

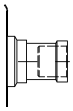
- No dirt released by reversing the flow direction
- The check valves are not sensitive to dirt and give minimum restriction, irrespective of flow direction
- When building heat pump systems, the use of hermetic bi-flow filter driers can save up to ten solder connections. This reduces production costs and the number of potential leakage points

- DCB filter driers can be used in heat pumps with HCFC refrigerants and mineral oil, and also with HFC refrigerants and polyolester oil
- Optimum flow characteristics and dirt retention
- Recommended for use with HFO, HC, HFC and HCFC refrigerants
- Available in sizes from 05 to 30 cubic inches
- Available with flare, solder (pure copper, cu-plated) connections

Technical data and ordering


Flare version


Solder version (pure cooper)


Solder version (cu-plated)

DCB - Hermetic bi-flow filter drier

Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant [1]												Liquid capacity [kW] [2]						Max working pressure PS [bar]
	R134a		R404A		R507		R22		R407C		R410A		R134a	R404A	R507	R22	R407C	R410A	
	[°C]																		
	24	52	24	52	24	52	24	52	24	52	24	52							
DCB 082 / 082s	7.1	6.7	7.6	7.2	7.7	7.1	7.1	6.6	7.1	6.5	6.4	5.9	3.9	2.8	2.8	4.3	4.3	4.3	46
DCB 083 / 083s	7.1	6.7	7.6	7.2	7.7	7.1	7.1	6.6	7.1	6.5	6.4	5.9	7.4	5.3	5.3	8.2	8.2	8.2	46
DCB 084 / 084s	7.1	6.7	7.6	7.2	7.7	7.1	7.1	6.6	7.1	6.5	6.4	5.9	8.3	6.0	6.0	9.2	9.2	9.2	46
DCB 162	13.3	12.6	14.3	13.6	14.6	13.5	14.6	12.5	13.4	11.6	12.2	11.2	7.6	5.3	5.3	8.8	8.8	8.8	46
DCB 163 / 163s	13.3	12.6	14.3	13.6	14.6	13.5	14.6	12.5	13.4	11.6	12.2	11.2	18.0	13.0	13.0	20.0	20.0	20.0	46
DCB 164 / 164s	13.3	12.6	14.3	13.6	14.6	13.5	14.6	12.5	13.4	11.6	12.2	11.2	28.0	20.0	20.0	32.0	32.0	32.0	46
DCB 165 / 165s	13.3	12.6	14.3	13.6	14.6	13.5	14.6	12.5	13.4	11.6	12.2	11.2	37.0	29.0	29.0	40.0	40.0	40.0	46
DCB 303	32.8	31.0	35.8	33.4	35.8	33.1	33.2	30.7	32.8	30.3	29.9	27.5	19.0	15.0	15.0	21.0	21.0	21.0	46
DCB 304 / 304s	32.8	31.0	35.8	33.4	35.8	33.1	33.2	30.7	32.8	30.3	29.9	27.5	28.0	20.0	20.0	31.0	31.0	31.0	46
DCB 305 / 305s	32.8	31.0	35.8	33.4	35.8	33.1	33.2	30.7	32.8	30.3	29.9	27.5	38.0	28.0	28.0	42.0	42.0	42.0	46
DCB 307s	32.8	31.0	35.8	33.4	35.8	33.1	33.2	30.7	32.8	30.3	29.9	27.5	43.0	32.0	32.0	47.0	47.0	47.0	46

[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
– R22: 1050 – 60 ppm W
In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
t_e = -15 °C
t_c = 30 °C
Δp = 0.07 bar

DCB - Hermetic bi-flow filter drier

Drying and liquid capacity

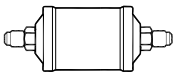
Type	Drying capacity [lb] of refrigerant [1]												Liquid capacity [TR] [2]						Max. working pressure MWP [psig]
	R134a		R404A		R507		R22		R407C		R410A		R134a	R404A	R507	R22	R407C	R410A	
	[°F]																		
	75	125	75	125	75	125	75	125	75	125	75	125							
DCB 082 / 082s	15.6	14.7	16.7	15.8	16.9	15.6	15.6	14.5	15.6	14.3	14.1	13.0	1.1	0.8	0.8	1.2	1.2	1.2	667
DCB 083 / 083s	15.6	14.7	16.7	15.8	16.9	15.6	15.6	14.5	15.6	14.3	14.1	13.0	2.1	1.5	1.5	2.3	2.3	2.3	667
DCB 084 / 084s	15.6	14.7	16.7	15.8	16.9	15.6	15.6	14.5	15.6	14.3	14.1	13.0	2.4	1.7	1.7	2.6	2.6	2.6	667
DCB 162	29.3	27.7	31.5	29.9	32.1	29.7	29.7	27.5	29.5	27.3	26.8	24.6	2.2	1.5	1.5	2.5	2.5	2.5	667
DCB 163 / 163s	29.3	27.7	31.5	29.9	32.1	29.7	29.7	27.5	29.5	27.3	26.8	24.6	5.1	3.7	3.7	5.7	5.7	5.7	667
DCB 164 / 164s	29.3	27.7	31.5	29.9	32.1	29.7	29.7	27.5	29.5	27.3	26.8	24.6	8.0	5.7	5.7	9.1	9.1	9.1	667
DCB 165 / 165s	29.3	27.7	31.5	29.9	32.1	29.7	29.7	27.5	29.5	27.3	26.8	24.6	10.6	8.3	8.3	11.4	11.4	11.4	667
DCB 303	72.3	68.3	77.6	73.6	78.9	72.9	73.1	67.6	72.3	66.8	65.9	60.6	5.4	4.3	4.3	6.0	6.0	6.0	667
DCB 304 / 304s	72.3	68.3	77.6	73.6	78.9	72.9	73.1	67.6	72.3	66.8	65.9	60.6	8.0	5.7	5.7	8.9	8.9	8.9	667
DCB 305 / 305s	72.3	68.3	77.6	73.6	78.9	72.9	73.1	67.6	72.3	66.8	65.9	60.6	10.9	8.0	8.0	12.0	12.0	12.0	667
DCB 307	72.3	68.3	77.6	73.6	78.9	72.9	73.1	67.6	72.3	66.8	65.9	60.6	12.3	9.1	9.1	13.4	13.4	13.4	667

[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
– R22: 1050 – 60 ppm W
In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
t_e = 5 °F
t_c = 85 °F
Δp = 1 psig

Technical data and ordering

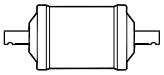
DCB - Flare



Ordering

Type	Connection		Code no.
	[in]	[mm]	
DCB 082	1/4	6	023Z1402
DCB 083	3/8	10	023Z1401
DCB 084	1/2	12	023Z1400
DCB 162	1/4	6	023Z1406
DCB 163	3/8	10	023Z1405
DCB 164	1/2	12	023Z1404
DCB 165	5/8	16	023Z1403
DCB 303	3/8	10	023Z1409
DCB 304	1/2	12	023Z1408
DCB 305	5/8	16	023Z1407

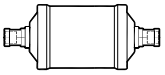
DCB - Solder (pure copper)



Ordering

Type	Connection	Code no.	Connection	Code no.
	[in]		[mm]	
DCB 082s	1/4	023Z1434	–	–
DCB 083s	3/8	023Z1433	–	–
DCB 084s	1/2	023Z1432	–	–
DCB 163s	3/8	023Z1437	–	–
DCB 164s	1/2	023Z1436	–	–
DCB 165s	5/8	023Z1435	–	–
DCB 304s	1/2	023Z1440	–	–
DCB 305s	5/8	023Z1439	–	–
DCB 307s	7/8	023Z1438	–	–

DCB - Solder (cu-plated)



Ordering

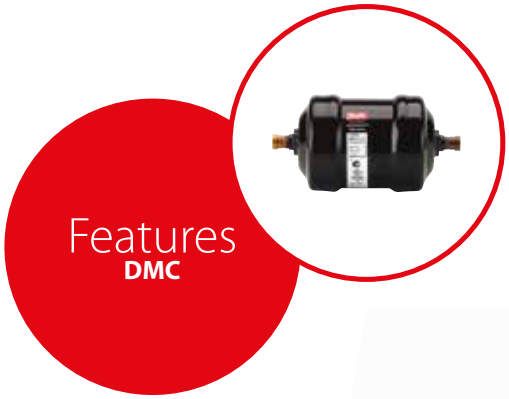
Type	Connection	Code no.	Connection	Code no.
	[in]		[mm]	
DMB 082s	1/4	023Z1464	–	–
DMB 083s	3/8	023Z1463	10	023Z1458
DMB 084s	1/2	023Z1462	–	–
DMB 163s	3/8	023Z1467	–	–
DMB 164s	1/2	023Z1466	12	023Z1452
DMB 165s	5/8	023Z1465	–	–
DMB 304s	1/2	023Z1470	–	–
DMB 305s	5/8	023Z1469	–	–
DMB 307s	7/8	023Z1468	–	–

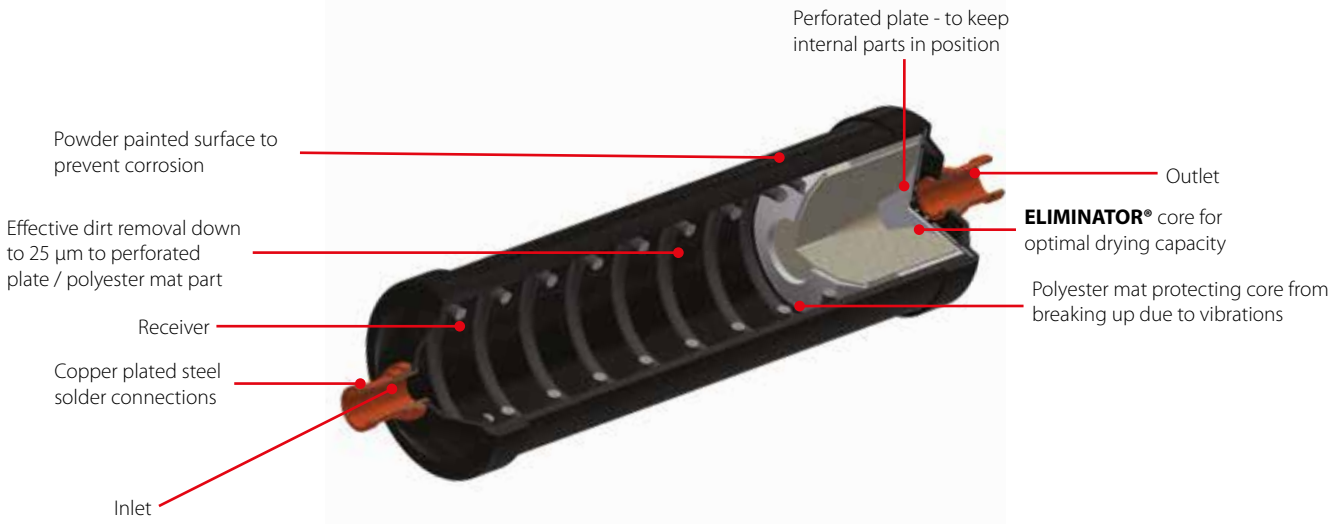
Quick Selection Notes:

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.



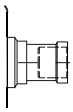


Facts

Application:
- Air conditioning systems
- Heat pumps
- Transport refrigeration

- 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
- Recommended for use with HFO, HC, HFC and HCFC refrigerants
- Approved as HP container according to PED 97 / 23 / EC-a3p3
- 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



Solder version (cu-plated)

DMC - Solder (cu-plated)

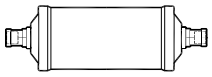
Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant [1]												Liquid capacity [kW] [2]						Max working pressure PS [bar]
	R134a		R404A		R507		R22		R407C		R410A		R134a	R404A	R507	R22	R407C	R410A	
	[°C]																		
	24	52	24	52	24	52	24	52	24	52	24	52							
DMC 0432s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	7.71	5.52	5.36	8.44	7.96	8.21	42
DMC 0732s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	7.71	5.52	5.36	8.44	7.96	8.21	42
DMC 2032s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	7.71	5.52	5.36	8.44	7.96	8.21	42
DMC 2033s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	15.69	11.17	10.84	17.14	16.14	16.61	42
DMC 2034s	5.0	4.7	5.3	5.1	5.4	5.0	5.0	4.7	5.0	4.6	4.5	4.2	32.65	25.73	25.05	37.42	35.85	38.68	42
DMC 40163s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	15.69	11.17	10.84	17.14	16.14	16.61	42
DMC 40164s	27.7	26.2	29.8	28.3	30.4	28.0	28.1	26.0	27.8	25.7	25.3	23.3	32.65	25.73	25.05	37.42	35.85	38.68	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*
- *– R22: 1050 – 60 ppm W*

In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
- *t_e = -15 °C / 5 °F*
- *t_c = 30 °C / 85 °F*
- *Δp = 0.07 bar / 1 psig*



DMC - Solder (cu-plated)

Ordering

Type	Connection [mm]	Connection [in]	Code no.
DMC 0432s	6	–	023Z7019
DMC 0732s	6	–	023Z7020
DMC 2023s	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

DCC - Hermetic receiver filter drier

DCC **ELIMINATOR®** are combined hermetic receiver and filter driers optimized to systems where the condenser is incapable of containing the total quantity of refrigerants.

DCC 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.



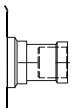


Facts

Application:
- Air conditioning systems
- Heat pumps
- Transport refrigeration

- Combined filter drier and receiver to keep down number of components
- Space-saving
- Fast installation
- High drying capacity at high and low liquid temperatures
- DCC filters contain a solid core consisting of 80% 3Å molecular sieve with 20% activated alumina core
- Available with solder connections (cu-plated steel connectors)
- Optimum flow characteristics and dirt retention
- Optimized for HFC and HCFC refrigerants
- Approved as HP container according to PED 97 / 23 / EC-a3p3
- 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



Solder version (cu-plated)

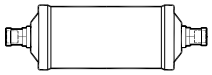
DCC - Solder (cu-plated)

Drying and liquid capacity

Type	Drying capacity [kg] of refrigerant [1]												Liquid capacity [kW] [2]						Max working pressure PS [bar]
	R134a		R404A		R507		R22		R407C		R410A		R134a	R404A	R507	R22	R407C	R410A	
	[°C]																		
	24	52	24	52	24	52	24	52	24	52	24	52							
DCC 0432s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	7.71	5.52	5.36	8.44	7.96	8.21	42
DCC 0732s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	7.71	5.52	5.36	8.44	7.96	8.21	42
DCC 2032s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	7.71	5.52	5.36	8.44	7.96	8.21	42
DCC 2033s	3.9	3.6	4.2	3.9	4.2	3.9	3.9	3.6	3.9	3.6	3.5	3.2	15.69	11.17	10.84	17.14	16.14	16.61	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
– R22: 1050 – 60 ppm W
In accordance with ARI 710-2004

[2]) Given in accordance with ARI 710-2004 for:
t_e = -15 °C / 5 °F
t_c = 30 °C / 85 °F
Δp = 0.07 bar / 1 psig



DCC - Solder (cu-plated)

Ordering

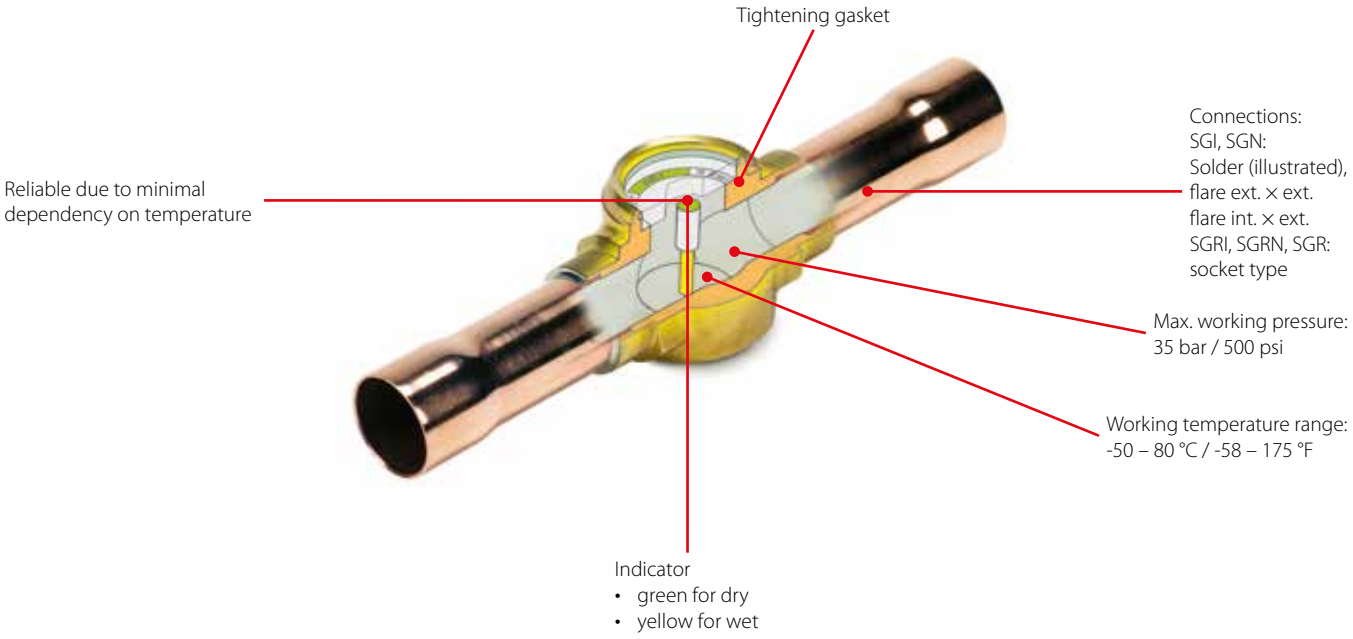
Type	Connection [mm]	Connection [in]	Code no.
DCC 0432s	6	–	023Z7000
DCC 0732s	6	–	023Z7001
DCC 2032s	6	–	023Z7002
	–	1/4	023Z7003
DCC 2033s	10	–	023Z7004

SG - Standard sight glass

SG are sight glasses for commercial refrigeration applications. They are made in brass and are available in versions with flare, solder or socket connections. The SGR are mainly used to indicate the condition of the refrigerant as well as the liquid level in the receiver or the oil level in the compressor.

The SGI / SGN and SGRI / SGRN are equipped with sensitive indicators that change colour depending on the moisture content in the refrigerant.





Facts

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

- Visual indication of moisture (minimal dependence on temperature)
- The flare ext. × int. version can be screwed together with filter drier (reduction of assembly costs)
- Flare connections are 4-sided for quick installation
- Designed for HCFC and non-flammable HFC refrigerants

- Connections:
  - Solder ODF x ODF
  - Solder ODF x ODM
  - Flare ext. × ext
  - Flare int. × ext
  - Socket
- Wide range with connection sizes from 6 to 22 mm

Technical data and ordering

Max. working pressure: PS / MWP = 35 bar / 507 psi
Media temperature: -50 – 80 °C / -58 – 176 °F

Available types



Flare Internal x External

SGI and SGN
with indicator



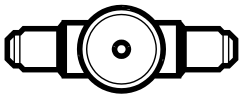
Solder version ODF x ODM

SGI and SGN
with indicator



Solder version ODF x ODF

SGI and SGN
with indicator



Flare External x External

SGI and SGN
with indicator



Socket

SGR
without indicator



Socket

SGRI and SGRN
with indicator



Saddle

SGS

SGI / SGI for HCFC refrigerants with mineral oil

Technical data

Refrigerant	Moisture content ppm = parts per million					
	SGI / SGRI					
	Media temperature 25 °C / 77 °F			Media temperature 43 °C / 109 °F		
	Green / dry	Intermed. color	Yellow / wet	Green / dry	Intermed. color	Yellow / wet
R22 with mineral oil	< 150	150 – 300	> 300	< 250	250 – 500	> 500

SGN / SGRN for HCFC and non-flammable HFC refrigerants

Technical data

Refrigerant	Moisture content ppm = parts per million					
	SGN / SGRN					
	Media temperature 25 °C / 77 °F			Media temperature 43 °C / 109 °F		
	Green / dry	Intermed. color	Yellow / wet	Green / dry	Intermed. color	Yellow / wet
R22	< 30	30 – 120	> 120	< 50	50 – 200	> 200
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

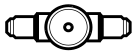
Note
For colours reflecting moisture values of other refrigerants, please contact Danfoss.

Technical data and ordering

SGI / SGRI for HCFC refrigerants with mineral oil

Ordering - Solder / Flare type

Type	Connection type	Connection [in]	Connection [mm]	Code no.
SGI 6	Flare ext. × ext.	1/4 × 1/4	6 × 6	014-0007
SGI 10	Flare ext. × ext.	3/8 × 3/8	10 × 10	014-0008
SGI 12	Flare ext. × ext.	1/2 × 1/2	12 × 12	014-0009
SGI 16	Flare ext. × ext.	5/8 × 5/8	16 × 16	014-0024
SGI 19	Flare ext. × ext.	3/4 × 3/4	19 × 19	014-0028
SGI 6	Flare int. × ext. [1]	1/4 × 1/4	6 × 6	014-0021
SGI 10	Flare int. × ext. [1]	3/8 × 3/8	10 × 10	014-0022
SGI 12	Flare int. × ext. [1]	1/2 × 1/2	12 × 12	014-0025
SGI 16	Flare int. × ext. [1]	5/8 × 5/8	16 × 16	014-0026
SGI 19	Flare int. × ext. [1]	3/4 × 3/4	19 × 19	014-0043
SGI 6s	Solder ODF × ODF	1/4 × 1/4	–	014-0034
SGI 10s	Solder ODF × ODF	3/8 × 3/8	–	014-0035
SGI 12s	Solder ODF × ODF	1/2 × 1/2	–	014-0036
SGI 16s	Solder ODF × ODF	5/8 × 5/8	16 × 16	014-0044
SGI 19s	Solder ODF × ODF	3/4 × 3/4	19 × 19	014-0047
SGI 22s	Solder ODF × ODF	7/8 × 7/8	22 × 22	014-0039
SGI 6s	Solder ODF × ODF	–	6 × 6	014-0040
SGI 10s	Solder ODF × ODF	–	10 × 10	014-0041
SGI 12s	Solder ODF × ODF	–	12 × 12	014-0042
SGI 18s	Solder OD × ODF	–	18 × 18	014-0045
SGI 6s	Solder ODF × ODM	1/4 × 5/8	–	014-0125
SGI 10s	Solder ODF × ODM	3/8 × 3/8	–	014-0126
SGI 12s	Solder ODF × ODM	1/2 × 1/2	–	014-0127
SGI 16s	Solder ODF × ODM	5/8 × 5/8	16 × 16	014-0128
SGI 22s	Solder ODF × ODM	7/8 × 7/8	22 × 22	014-0130






[1]) *Can be screwed directly into the filter drier.*

SGN for HCFC and non-flammable HFC refrigerants

Ordering - Solder / Flare type

Type	Connection type	Connection [in]	Connection [mm]	Code no.
SGN 6	Flare ext. × ext.	1/4 × 1/4	6 × 6	014-0161
SGN 10	Flare ext. × ext.	3/8 × 3/8	10 × 10	014-0162
SGN 12	Flare ext. × ext.	1/2 × 1/2	12 × 12	014-0163
SGN 16	Flare ext. × ext.	5/8 × 5/8	16 × 16	014-0165
SGN 19	Flare ext. × ext.	3/4 × 3/4	19 × 19	014-0166
SGN 6	Flare int. × ext. [1]	1/4 × 1/4	6 × 6	014-0171
SGN 10	Flare int. × ext. [1]	3/8 × 3/8	10 × 10	014-0172
SGN 12	Flare int. × ext. [1]	1/2 × 1/2	12 × 12	014-0173
SGN 16	Flare int. × ext. [1]	5/8 × 5/8	16 × 16	014-0174
SGN 19	Flare int. × ext. [1]	3/4 × 3/4	19 × 19	014-0175
SGN 6s	Solder ODF × ODF	1/4 × 1/4	–	014-0181
SGN 10s	Solder ODF × ODF	3/8 × 3/8	–	014-0182
SGN 12s	Solder ODF × ODF	1/2 × 1/2	–	014-0183
SGN 16s	Solder ODF × ODF	5/8 × 5/8	16 × 16	014-0184
SGN 19s	Solder ODF × ODF	3/4 × 3/4	19 × 19	014-0185
SGN 22s	Solder ODF × ODF	7/8 × 7/8	22 × 22	014-0186
SGN 22s [2])	Solder ODF × ODF	1 1/8 × 1 1/8	–	014-0187
SGN 6s	Solder ODF × ODF	–	6 × 6	014-0191
SGN 10s	Solder ODF × ODF	–	10 × 10	014-0192
SGN 12s	Solder ODF × ODF	–	12 × 12	014-0193
SGN 18s	Solder ODF × ODF	–	18 × 18	014-0195
SGN 6s	Solder ODF × ODM	1/4 × 1/4	–	014-0201
SGN 10s	Solder ODF × ODM	3/8 × 3/8	–	014-0202
SGN 12s	Solder ODF × ODM	1/2 × 1/2	–	014-0203
SGN 16s	Solder ODF × ODM	5/8 × 5/8	16 × 16	014-0204
SGN 22s	Solder ODF × ODM	7/8 × 7/8	22 × 22	014-0206






[1]) *Can be screwed directly into the filter drier.*
[2]) *Oversize connections.*

Technical data and ordering

SGR socket type and SGS saddle

Ordering

Type	Version	Connection		Floating ball [pc]	Code no.
		1	2		
SGR (no indicator)	Pipe thread	G 3/4 A [1])	–	1	014-0004
	NPT	3/4 – 14 NPT [2])	–	1	014-0005
	NPT	1/2 – 14 NPT [2])	–	3	014-0002
SGRI (I type indicator)	NPT	1/2 – 14 NPT [2])	–	3	014-0131
	M thread	M24 × 1	–	–	014-1154
SGRN (N type indicator)	NPT	1/2 – 14 NPT [2])	–	3	014-0006
	M thread	M24 × 1	–	–	014-1155
	M thread	M20 × 1.5	–	–	014-1603
SGS (saddle)	Tube fitting	M20 × 1.5	7/8	–	014-1073
	Tube fitting	M20 × 1.5	1 1/8	–	014-1071
	Tube fitting	M20 × 1.5	1 3/8	–	014-1074
	Tube fitting	M20 × 1.5	1 5/8	–	014-1084
	Tube fitting	M20 × 1.5	3 1/8	–	014-1072
	Tube fitting	M24 × 1	7/8	–	014-1059
	Tube fitting	M24 × 1	1 1/8	–	014-1056
	Tube fitting	M24 × 1	1 3/8	–	014-1057
	Tube fitting	M24 × 1	1 5/8	–	014-1058
	Tube fitting	M24 × 1	2 1/8	–	014-1067
	Tube fitting	M24 × 1	3 1/8	–	014-1068
	Tube fitting	M24 × 1	4 1/8	–	014-1069







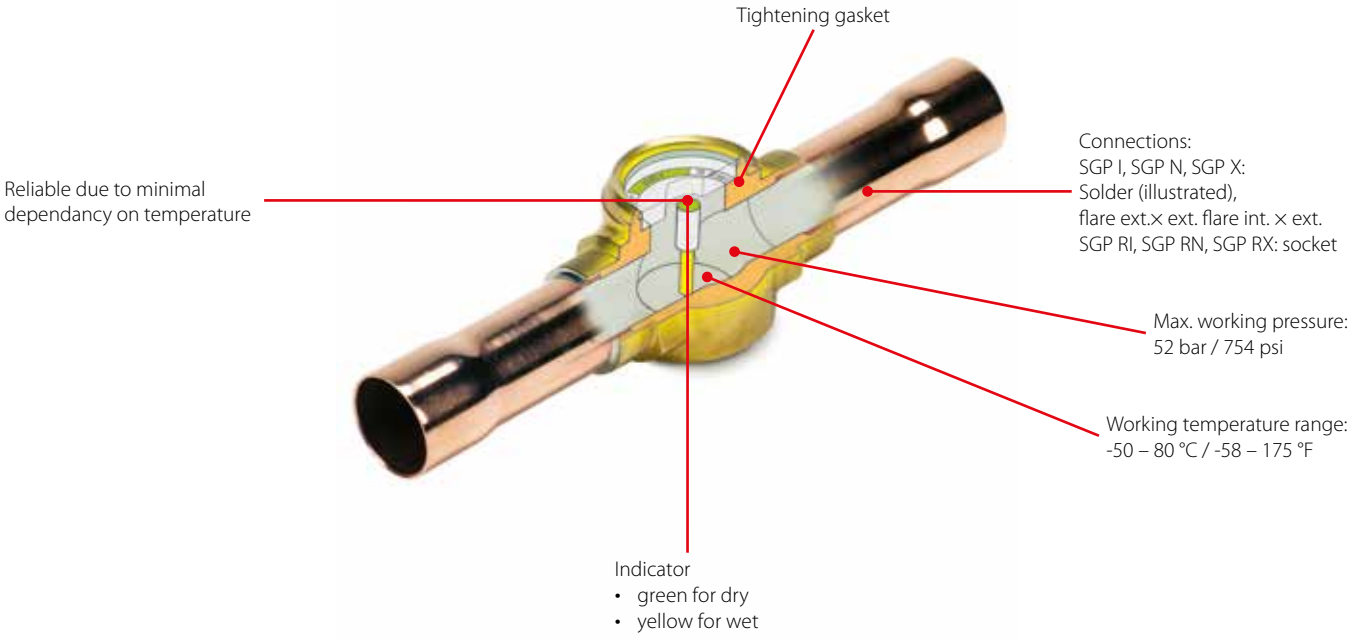
[1]) *ISO 228 / 1.*
[2]) *ANSI / ASME B1.20.1.*

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 in versions SGP I optimized for HCFC and HC refrigerants and in SGP N optimized for HCFC, HFC, HC and R744 refrigerants.

SGP is available with flare, solder and socket connections, and with and without moisture indicators.





Facts

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

- Solder versions are compliant with ATEX hazard zone 2

Type SGP X (without indicator)
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Indicates liquid level in receiver
- Indicates oil level in compressor

Type SGP I (with I type indicator)
- For HCFC and HC refrigerants
- Indicates too high moisture content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency

Type SGP N (with N type indicator)
- For HCFC, HFC, HC and R744 refrigerants
- Indicates too high moisture content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency

Technical data

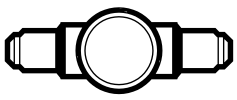
Max. working pressure: PS / MWP = 52 bar / 754 psi
Media temperature: -50 – 80 °C / -58 – 175 °F

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



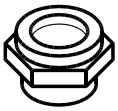
Solder version ODF x ODF

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 HCFC and HC 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
R22	< 150	150 – 300	> 300	< 250	250 – 500	> 500
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

SGP N for HCFC, HFC, HC and R744 (CO_2) 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
R22	< 30	30 – 120	> 120	< 50	50 – 200	> 200
R32	< 70	70 – 300	> 300	< 120	120 – 500	> 500
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

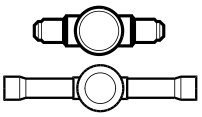
Note
For colours reflecting moisture values of other refrigerants, please contact Danfoss.

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. × ext.	3/8 × 3/8	10 × 10	014L0080
SGP 12s X	Solder ODF x ODF	1/2 × 1/2	–	014L0086
SGP 16s X	Solder ODF x ODF	5/8 × 5/8	16 × 16	014L0087
SGP 22s X	Solder ODF x ODF	7/8 × 7/8	–	014L1207



Note
Only solder versions, connection size from 6s to 22s, are allowed for flammable refrigerants.

SGP I for HCFC and HC refrigerants

Ordering

Type	Connection type	Connection [in]	Connection [mm]	Code no.
SGP 6 I	Flare ext. × ext.	1/4 × 1/4	6 × 6	014L0007
SGP 10 I	Flare ext. × ext.	1/2 × 1/2	10 × 10	014L0008
SGP 12 I	Flare ext. × ext.	1/2 × 1/2	12 × 12	014L0009
SGP 16 I	Flare ext. × ext.	5/8 × 5/8	16 × 16	014L0024
SGP 19 I	Flare ext. × ext.	3/4 × 3/4	19 × 19	014L0028
SGP 6 I	Flare int. × ext. [1]	1/4 × 1/4	6 × 6	014L0021
SGP 10 I	Flare int. × ext. [1]	3/8 × 3/8	10 × 10	014L0022
SGP 12 I	Flare int. × ext. [1]	1/2 × 1/2	12 × 12	014L0025
SGP 16 I	Flare int. × ext. [1]	5/8 × 5/8	16 × 16	014L0026
SGP 19 I	Flare int. × ext. [1]	3/4 × 3/4	19 × 19	014L0043
SGP 6s I	ODF × ODF solder	1/4 × 1/4	–	014L0034
SGP 10s I	ODF × ODF solder	3/8 × 3/8	–	014L0035
SGP 12s I	ODF × ODF solder	1/2 × 1/2	–	014L0036
SGP 16s I	ODF × ODF solder	5/8 × 5/8	16 × 16	014L0044
SGP 19s I	ODF × ODF solder	3/4 × 3/4	19 × 19	014L0047
SGP 22s I	ODF × ODF solder	7/8 × 7/8	22 × 22	014L0039
SGP 6s I	ODF × ODF solder	–	6 × 6	014L0040
SGP 10s I	ODF × ODF solder	–	10 × 10	014L0041
SGP 12s I	ODF × ODF solder	–	12 × 12	014L0042
SGP 18s I	ODF × ODF solder	–	18 × 18	014L0045
SGP 6s I	ODF × ODM solder	1/4 × 1/4	–	014L0125
SGP 10s I	ODF × ODM solder	3/8 × 3/8	–	014L0126
SGP 12s I	ODF × ODM solder	1/2 × 1/2	–	014L0127
SGP 16s I	ODF × ODM solder	5/8 × 5/8	16 × 16	014L0128
SGP 22s I	ODF × ODM solder	7/8 × 7/8	22 × 22	014L0130









[1]) *Can be screwed directly into the filter drier.*

Note
Only solder versions, connection size from 6s to 22s, are allowed for flammable refrigerants.

Technical data and ordering

SGP N for HCFC, HFC, HC and R744 (CO_2) refrigerants

Ordering

Type	Version	Connection [in]	Connection [mm]	Code no.
SGP 6 N	Flare ext. × ext.	1/4 × 1/4	6 × 6	014L0161
SGP 10 N	Flare ext. × ext.	3/8 × 3/8	10 × 10	014L0162
SGP 12 N	Flare ext. × ext.	1/2 × 1/2	12 × 12	014L0163
SGP 16 N	Flare ext. × ext.	5/8 × 5/8	16 × 16	014L0165
SGP 19 N	Flare ext. × ext.	3/4 × 3/4	19 × 19	014L0166
SGP 6 N	Flare int. × ext. [1]	1/4 × 1/4	6 × 6	014L0171
SGP 10 N	Flare int. × ext. [1]	3/8 × 3/8	10 × 10	014L0172
SGP 12 N	Flare int. × ext. [1]	1/2 × 1/2	12 × 12	014L0173
SGP 16 N	Flare int. × ext. [1]	5/8 × 5/8	16 × 16	014L0174
SGP 19 N	Flare int. × ext. [1]	3/4 × 3/4	19 × 19	014L0175
SGP 6s N	ODF × ODF solder	1/4 × 1/4	–	014L0181
SGP 10s N	ODF × ODF solder	3/8 × 3/8	–	014L0182
SGP 12s N	ODF × ODF solder	1/2 × 1/2	–	014L0183
SGP 16s N	ODF × ODF solder	5/8 × 5/8	16 × 16	014L0184
SGP 19s N	ODF × ODF solder	3/4 × 3/4	19 × 19	014L0185
SGP 22s N	ODF × ODF solder	7/8 × 7/8	22 × 22	014L0186
SGP 22s N [2]	ODF × ODF solder	1 1/8 × 1 1/8	–	014L0187
SGP 6s N	ODF × ODF solder	–	6 × 6	014L0191
SGP 10s N	ODF × ODF solder	–	10 × 10	014L0192
SGP 12s N	ODF × ODF solder	–	12 × 12	014L0193
SGP 18s N	ODF × ODF solder	–	18 × 18	014L0195
SGP 6s N	ODF × ODM solder	1/4 × 1/4	–	014L0201
SGP 10s N	ODF × ODM solder	3/8 × 3/8	–	014L0202
SGP 12s N	ODF × ODM solder	1/2 × 1/2	–	014L0203
SGP 16s N	ODF × ODM solder	5/8 × 5/8	16 × 16	014L0204
SGP 22s N	ODF × ODM solder	7/8 × 7/8	22 × 22	014L0206









[1] *Can be screwed directly into the filter drier.*
[2] *Oversize connections.*

Note
Only solder versions, connection size from 6s to 22s, are allowed for flammable refrigerants.

SGP - socket type and SGS saddle

Ordering

Type	Version	Connection 1	Connection 2	Floating ball [pc]	Code no.
SGP ¾ RX (no indicator)	Pipe thread	G 3/4 A [1]	–	1	014L0004
	NPT	3/4 – 14 NPT [2]	–	1	014L0005
SGP ½ RX (no indicator)	NPT	1/2 – 14 NPT [2]	–	3	014L0002
SGP ½ RI (I type indicator)	NPT	1/2 – 14 NPT [2]	–	3	014L0131
SGP 24 RI (I type indicator)	M thread	M24 × 1	–	–	014L1154
SGP ½ RN (N type indicator)	NPT	1/2 – 14 NPT [2]	–	3	014L0006
SGP 24 RN (N type indicator)	M thread	M24 × 1	–	–	014L1155
SGP 20 RN (N type indicator)	M thread	M20 × 1.5	–	–	014L1603
SGS (saddle)	Tube fitting	M20 × 1.5	7/8	–	014-1073
	Tube fitting	M20 × 1.5	1 1/8	–	014-1071
	Tube fitting	M20 × 1.5	1 3/8	–	014-1074
	Tube fitting	M20 × 1.5	1 5/8	–	014-1084
	Tube fitting	M20 × 1.5	3 1/8	–	014-1072
	Tube fitting	M24 × 1	7/8	–	014-1059
	Tube fitting	M24 × 1	1 1/8	–	014-1056
	Tube fitting	M24 × 1	1 3/8	–	014-1057
	Tube fitting	M24 × 1	1 5/8	–	014-1058
	Tube fitting	M24 × 1	2 1/8	–	014-1067
	Tube fitting	M24 × 1	3 1/8	–	014-1068
	Tube fitting	M24 × 1	4 1/8	–	014-1069







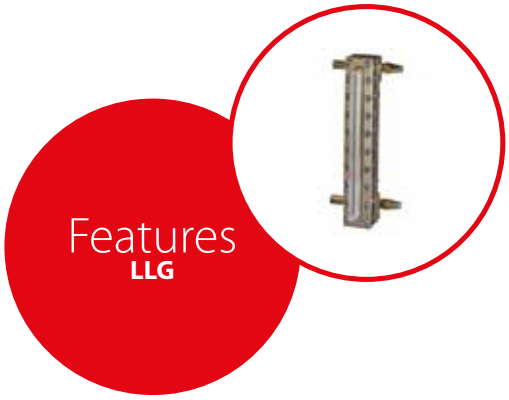
[1] *ISO 228-1.*
[2] *NSI / ASME B1.20.1*

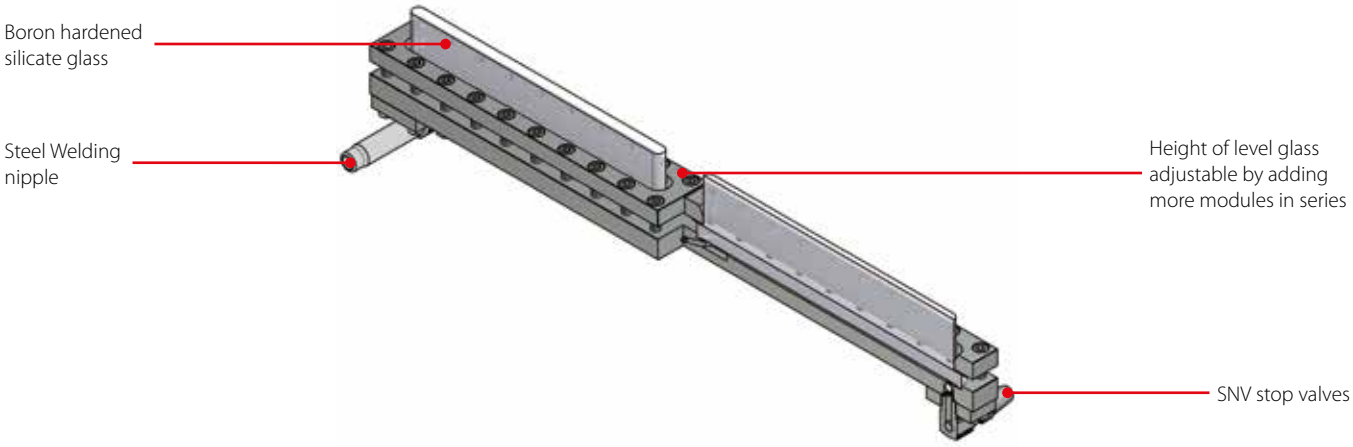
Note
Only solder versions, connection size from 6s to 22s, are allowed for flammable refrigerants.

LLG - Sight glass

LLG columnar sight glasses are made of ductile steel which meets the strictest requirements on industrial and marine refrigeration installations.
Applicable to HCFC, HFC and R717 (Ammonia).

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 HCFC, HFC and R717 (Ammonia). For further information please see installation instruction for LLG. Flammable hydrocarbons are not recommended. For further information please contact your local Danfoss Sales Company
- 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 - Sigh glass

Technical data

Refrigerants	The liquid level glasses are applicable to all common non flammable refrigerants including R717 and non corrosive gases / liquids. Flammable hydrocarbons are not recommended.
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

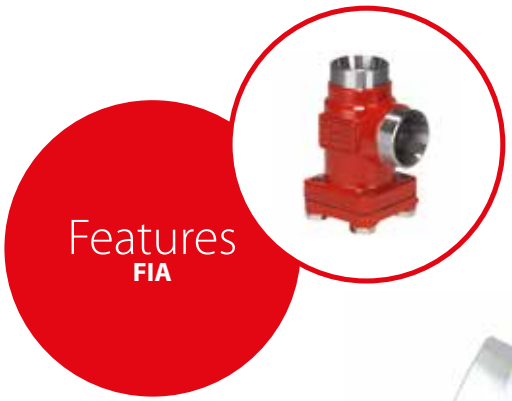
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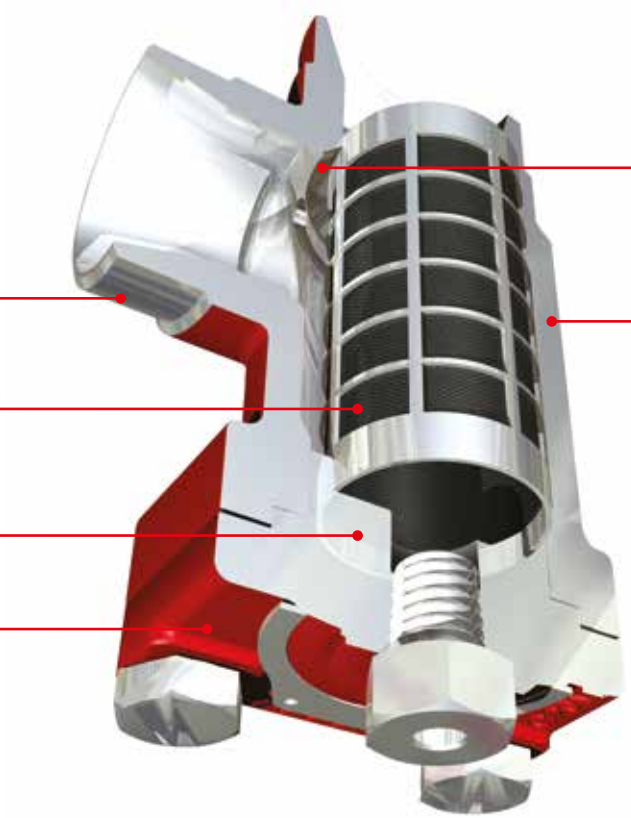
Where products need to be certified according to specific certification societies or where higher pressures are required, the relevant information should be included at the time of order.

FIA - Strainer

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. Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerants.





Facts

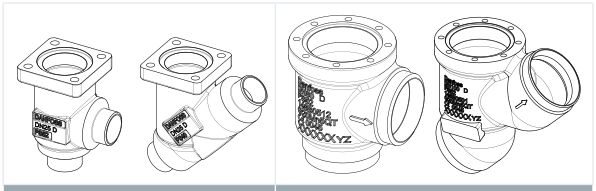
- Valve body is standard SVL angleway or straightway valve body allowing other inserts from the SVL platform to be installed
- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerants
- Strainer insert of stainless steel mounted directly without extra gaskets for easy servicing
- 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 (½ – 1 ½ 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 65 – FIA 200 (2 – 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:
  52 bar g / 754 psi g

Technical data

The Concept

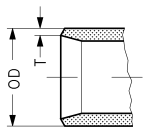
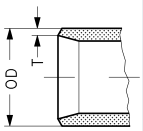
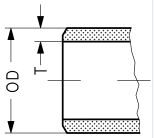
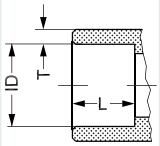
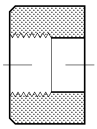
Each valve housing is available with several different connection types and sizes.
It is possible to convert FIA strainers to any other product in the SVL family (shut-off valve, hand regulating valve, check & stop valve or check valve) just by replacing the complete top part.

The valve body



DN 15–65 mm (½ – 2 ½ in)	DN 80–125 mm (3 – 5 in)

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	
						[cm²]	[in²]	[cm²]	[in²]
15 – 20 (½ – ¾ 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 ½ 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 ½ 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
80 (3 in)	150	100	0.10	0.004	36	205	31.8	450	70.2
	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
100 (4 in)	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
	500	38	0.16	0.006	57.6	370	57.4	790	123.2
125 (5 in)	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
150 (6 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
200 (8 in)	150	100	0.10	0.004	36	1315	203.8	–	–
	250	72	0.10	0.004	51	1315	203.8	–	–
	500	38	0.16	0.006	57.6	1315	203.8	–	–

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

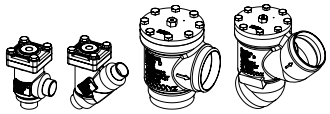
DN	FIA angle – plain strainer insert				FIA angle – pleated strainer insert		
	µ 100	µ 150	µ 250	µ 500	µ 150	µ 250	µ 500
15	3.3	3.4	3.5	3.7	4.2	–	–
20	6.9	7.1	7.3	7.7	8.8	–	–
25	13.8	14.0	14.5	15.2	17.2	17.9	–
32	23.0	23.8	24.7	25.5	29.2	30.5	–
40	25.1	25.5	26.4	28.1	31.4	32.6	–
50	45.1	45.9	47.6	50.2	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	–	–
200	–	572.9	590.8	620.5	–	–	–

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	–	–
200	–	438.1	451.8	474.5	–	–	–

Technical data and ordering

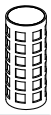
FIA - Strainer

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
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
FIA 125 angleway	5	125	Butt weld, EN 10220	D	148B6105
	5	125	Butt weld, ANSI (B 36.10)	A	148B6107
FIA 125 straightway	5	125	Butt weld, EN 10220	D	148B6106
	5	125	Butt weld, ANSI (B 36.10)	A	148B6108
FIA 150 angleway	6	150	Butt weld, EN 10220	D	148B6202
	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

Technical data and ordering



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
FIA 150	150	100	148H3134
	250	72	148H3142
	500	38	148H3148
FIA 200	150	100	148H3135
	250	72	148H3143
	500	38	148H3149

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
FIA 200	150	100	148H3297

Acessories

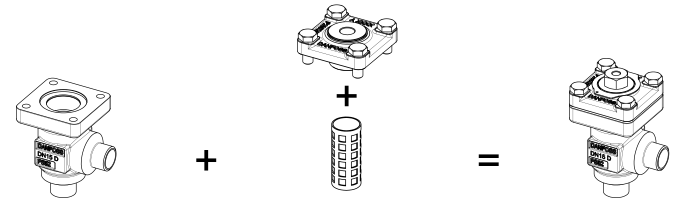
Part	Accessory for	Code no.
Magnet insert	FIA 65 – 100	148H3447
	FIA 125 – 200	148H3448
Strainer insert µ150 with removable insert µ50 for the first start up	FIA 15 – 20	148H3301
	FIA 25 – 40	148H3302
Filter bag	FIA 50	148H3150
	FIA 65	148H3151
	FIA 80	148H3152
	FIA 100	148H3153
	FIA 125	148H3154
	FIA 150	148H3155
	FIA 200	148H3156
Purge valve complete	FIA 50 – 300	148B3745
Blind nut with gasket	FIA 50 – 300	148H3450

Technical data and ordering

Ordering from the parts programme (valve body + top part + strainer insert)

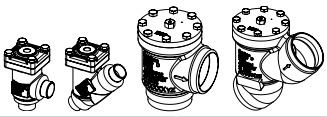
(For strainer insert code numbers; please see the section "*ordering plain strainer inserts*" or "*ordering pleated strainer inserts*")

Example



Valve body, size 15 (1/2 in), DIN butt weld, angleway,
148B5452

Top part, FIA, size 25 (1 in)
148B5476
+
Strainer insert 250 µ, 72 mesh
148H3127



FIA 15 - Valve body

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 [1])

Type		Code no.
FIA 15		148B5284

FIA 20 - Valve body

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 [1])

Type		Code no.
FIA 20		148B5284

FIA 25 - Valve body

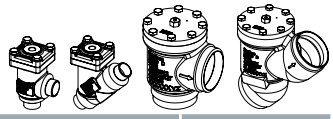
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 25 angleway	1	25	Butt weld, EN 10220	D	148B5452
	1	25	Butt weld, ANSI (B 36.10)	A	148B5454
	1	25	Female pipe thread (ANSI / ASME B 1.20.1)	FPT	148B5458
	1	25	Socket weld, ANSI (B 16.11)	SOC	148B5456
	1	25	Butt weld, 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 [1])

Type		Code no.
FIA 25		148B5484

[1]) *Including gaskets and bolts.*

Technical data and ordering



FIA 32 - Valve body

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
	1 1/4	32	Butt weld, GOST	G	148B5593
FIA 32 straightway	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 [1])

Type		Code no.
FIA 32		148B5484

FIA 40 - Valve body

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 [1])

Type		Code no.
FIA 40		148B5484

FIA 50 - Valve body

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 [1])

Type		Code no.
FIA 50		148B5748

FIA 65 - Valve body

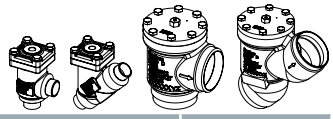
Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
FIA 65 angleway	2 1/2	65	Butt weld, EN 10220	D	148B5816
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	148B5818
	2 1/2	65	Butt weld, F	F	148B6420
	2 1/2	65	Butt weld, GOST	G	148B5816
FIA 65 straightway	2 1/2	65	Butt weld, EN 10220	D	148B5817
	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 [1])

Type		Code no.
FIA 65		148B5832

[1]) Including gaskets and bolts.

Technical data and ordering



FIA 80 - Valve body

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 [1])

Type		Code no.
FIA 80		148B5922

FIA 100 - Valve body

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 [1])

Type		Code no.
FIA 100		148B6024

FIA 125 - Valve body

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 [1])

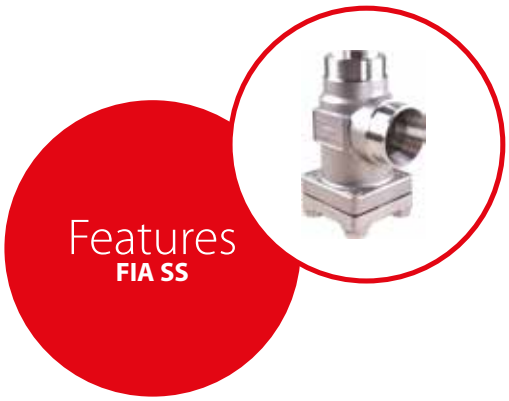
Type		Code no.
FIA 125		148B6122

[1]) *Including gaskets and bolts.*

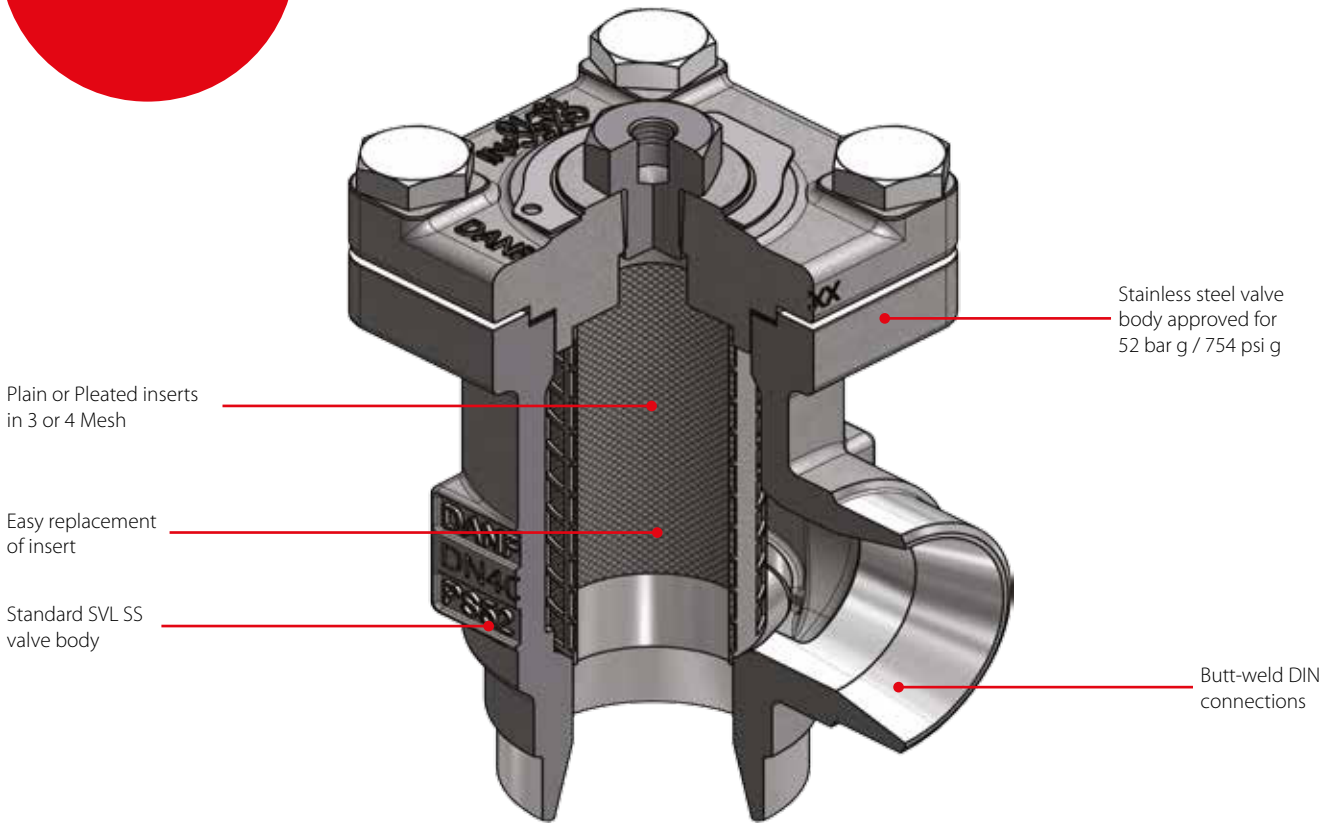
FIA SS - Strainer

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.



Features
FIA SS



Facts

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerants
- 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 (½ – 1 ½ 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 ½ in)**:
  A large capacity filter bag (50 µ) can be inserted for cleaning plant during commissioning
- **FIA SS 65 (2 – 2 ½ in)**:
  can be equipped with a magnetic insert for detention of iron particles and other magnetic particles
- 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	
						[cm²]	[in²]	[cm²]	[in²]
15–20 (½ – ¾ 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 ½ 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 ½ 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

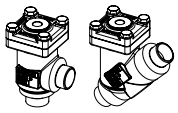
K_V values

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

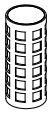
FIA SS - Strainer without strainer insert



Ordering

Type	Connection size		Connection type	Connection designation	Code number
	[in]	[mm]			
FIA SS 15 angleway	1/2	15	Butt weld, EN 10220	D	148B5295
FIA SS 15 straightway	1/2	15	Butt weld, EN 10220	D	148B5296
FIA SS 20 angleway	3/4	20	Butt weld, EN 10220	D	148B5383
FIA SS 20 straightway	3/4	20	Butt weld, EN 10220	D	148B5384
FIA SS 25 angleway	1	25	Butt weld, EN 10220	D	148B5492
FIA SS 25 straightway	1	25	Butt weld, EN 10220	D	148B5493
FIA SS 32 angleway	1 1/4	32	Butt weld, EN 10220	D	148B5587
FIA SS 32 straightway	1 1/4	32	Butt weld, EN 10220	D	148B5588
FIA SS 40 angleway	1 1/2	40	Butt weld, EN 10220	D	148B5666
FIA SS 40 straightway	1 1/2	40	Butt weld, EN 10220	D	148B5667
FIA SS 50 angleway	2	50	Butt weld, EN 10220	D	148B5757
FIA SS 50 straightway	2	50	Butt weld, EN 10220	D	148B5758
FIA SS 65 angleway	2 1/2	65	Butt weld, EN 10220	D	148B5851
FIA SS 65 straightway	2 1/2	65	Butt weld, EN 10220	D	148B5852

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

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

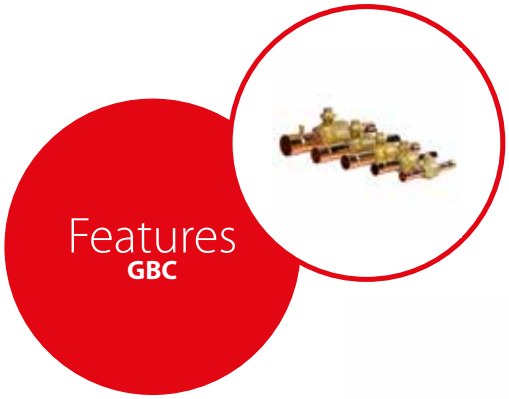
Part	Accessory for	Code number
Magnet insert	FIA SS 65	148H3447
Strainer insert µ150 with removable insert µ50 for the first start up	FIA SS 15 – 20	148H3301
	FIA SS 25 – 40	148H3302
Filter bag	FIA SS 50	148H3150
	FIA SS 65	148H3151
Purge valve complete	FIA SS 50 – 65	148B3745
Blind nut with gasket	FIA SS 50 – 65	148H3450

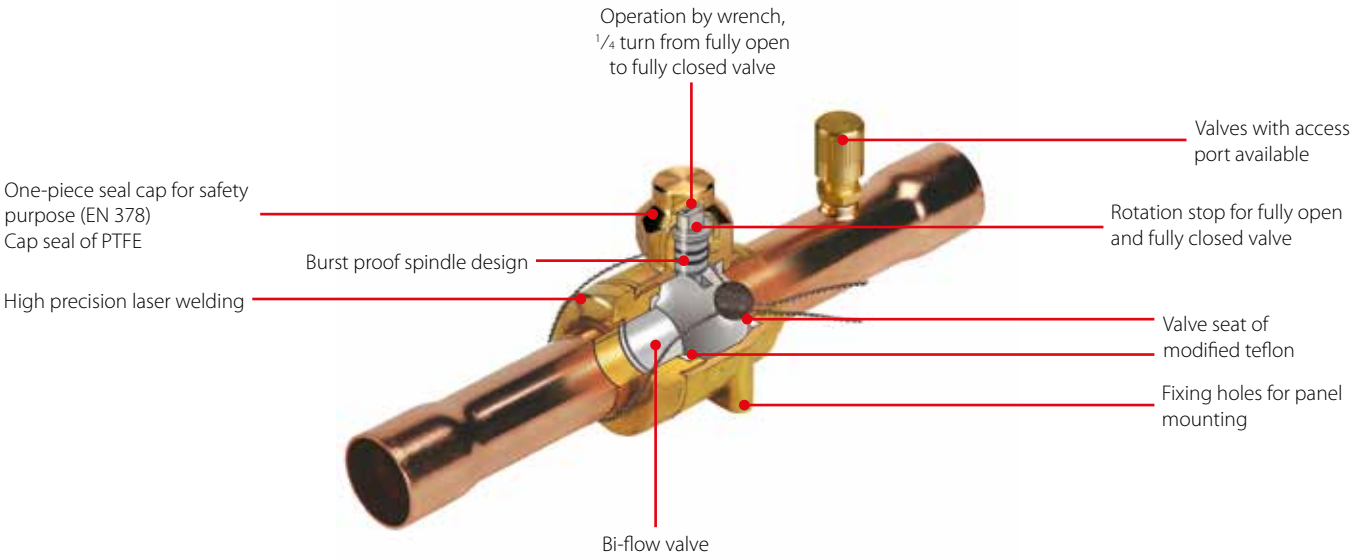
Quick Selection Notes:

GBC, Shut-off ball valve

GBC 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 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

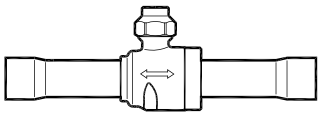
Application:
- GBC valves are used in liquid, suction and hot gas lines in all refrigeration and air-conditioning systems with fluorinated refrigerants

- Full flow with minimum pressure drop
- Bi-flow, i.e. valve orientation is unimportant
- Slimline design ensures easy operational handling
- Burst proof spindle design prevents liquid from being trapped internally
- Valve seat of modified teflon to secure maximum tightness and a long lifetime
- Versions with access port helps in reducing cost if service of the system is necessary
- Ball status indicator on spindle top indicating open or closed position
- Laser welded construction
- Holes for panel mounting
- Temperature range:
  - GBC 6s – 42s: -40 – 150 °C / -40 – 302 °F
  - GBC 54s – 79s: -40 – 121 °C / -40 – 250 °F
- Approvals: C UL US LISTED, EAC

Technical data and ordering

The product range cover valves with and or without access port.
Both versions can be supplied in inch or millimeter sizes: 1/4 – 3 1/8 in / 6 – 54 mm. All valves have holes for panel mounting.

GBC without access port, ODF / ODF

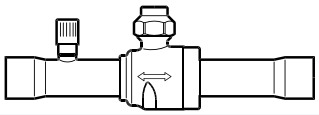


Ordering

Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K_V value [1] [m³/h]	C_V value [1] [gal/min]	Code no.
	[in]	[mm]	[Bar]	[psig]			
GBC 6s	–	6	45	650	1.74	2.01	009G7030
GBC 6s	1/4	–	45	650	1.74	2.01	009G7020
GBC 10s	–	10	45	650	7.52	8.69	009G7031
GBC 10s	3/8	–	45	650	7.52	8.69	009G7021
GBC 12s	–	12	45	650	12.9	14.9	009G7032
GBC 12s	1/2	–	45	650	12.9	14.9	009G7022
GBC 16s	5/8	16	45	650	15.6	18.1	009G7023
GBC 18s	–	18	45	650	21.9	25.3	009G7035
GBC 18s	3/4	–	45	650	21.9	25.3	009G7024
GBC 22s	7/8	22	45	650	33.3	38.5	009G7025
GBC 28s	–	28	45	650	62	71	009G7033
GBC 28s	1 1/8	–	45	650	62	71	009G7026
GBC 35s	1 3/8	35	45	650	92	107	009G7027
GBC 42s	–	42	45	650	134	155	009G7034
GBC 42s	1 5/8	–	45	650	134	155	009G7028
GBC 54s	2 1/8	54	45	650	240	277	009G7029
GBC 67s	2 5/8	–	45	650	367	424	009G7959
GBC 67s RP	2 5/8	–	45	650	203	234	009G7036
GBC 79s	3 1/8	–	45	650	528	611	009G7980
GBC 79s RP	3 1/8	–	45	650	171	198	009G7037

[1]) calculated values

GBC with access port, ODF / ODF



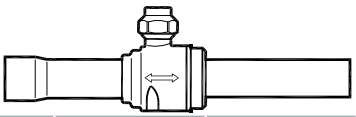
Ordering

Type	Solder ODF / ODF connection		Max. working pressure PS / MWP		K_V value [1] [m³/h]	C_V value [1] [gal/min]	Code no.
	[in]	[mm]	[Bar]	[psig]			
GBC 6s	–	6	45	650	1.74	2.01	009G7060
GBC 6s	1/4	–	45	650	1.74	2.01	009G7050
GBC 10s	–	10	45	650	7.52	8.69	009G7061
GBC 10s	3/8	–	45	650	7.52	8.69	009G7051
GBC 12s	–	12	45	650	12.9	14.9	009G7062
GBC 12s	1/2	–	45	650	12.9	14.9	009G7052
GBC 16s	5/8	16	45	650	15.6	18.1	009G7053
GBC 18s	–	18	45	650	21.9	25.3	009G7065
GBC 18s	3/4	–	45	650	21.9	25.3	009G7054
GBC 22s	7/8	22	45	650	33.3	38.5	009G7055
GBC 28s	–	28	45	650	62	71	009G7063
GBC 28s	1 1/8	–	45	650	62	71	009G7056
GBC 35s	1 3/8	35	45	650	92	107	009G7057
GBC 42s	–	42	45	650	134	155	009G7064
GBC 42s	1 5/8	–	45	650	134	155	009G7058
GBC 54s	2 1/8	54	45	650	240	277	009G7059
GBC 67s	2 5/8	–	45	650	367	424	009G7960
GBC 67s RP	2 5/8	–	45	650	203	234	009G7066
GBC 79s	3 1/8	–	45	650	528	611	009G7981
GBC 79s RP	3 1/8	–	45	650	171	198	009G7067

[1]) calculated values

Technical data and ordering

GBC without access port, ODF / ODM

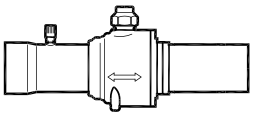


Ordering

Type	Solder ODF / ODM connection		Max. working pressure PS / MWP		K_V value [1] [m³/h]	C_V value [1] [gal/min]	Code no.
	[in]	[mm]	[Bar]	[psig]			
GBC 22s	7/8	22	45	650	33.3	38.5	009G7000
GBC 28s	1 1/8	–	45	650	62	71	009G7001
GBC 35s	1 3/8	35	45	650	92	107	009G7002
GBC 42s	1 5/8	–	45	650	134	155	009G7003
GBC 79s	3 1/8	–	45	650	528	611	009G7969

[1]) calculated values

GBC with access port, ODF / ODM



Ordering

Type	Solder ODF / ODM connection		Max. working pressure PS / MWP		K_V value [1] [m³/h]	C_V value [1] [gal/min]	Code no.
	[in]	[mm]	[Bar]	[psig]			
GBC 28s	7/8	–	45	650	62	71	009G7097
GBC 35s	1 1/8	35	45	650	92	107	009G7098
GBC 42s	1 3/8	–	45	650	134	155	009G7099
GBC 54s	1 5/8	54	45	650	240	277	009G7069
GBC 67s	3 1/8	–	45	650	367	424	009G7958
GBC 79s	3 1/8	–	45	650	528	611	009G7970

[1]) calculated values

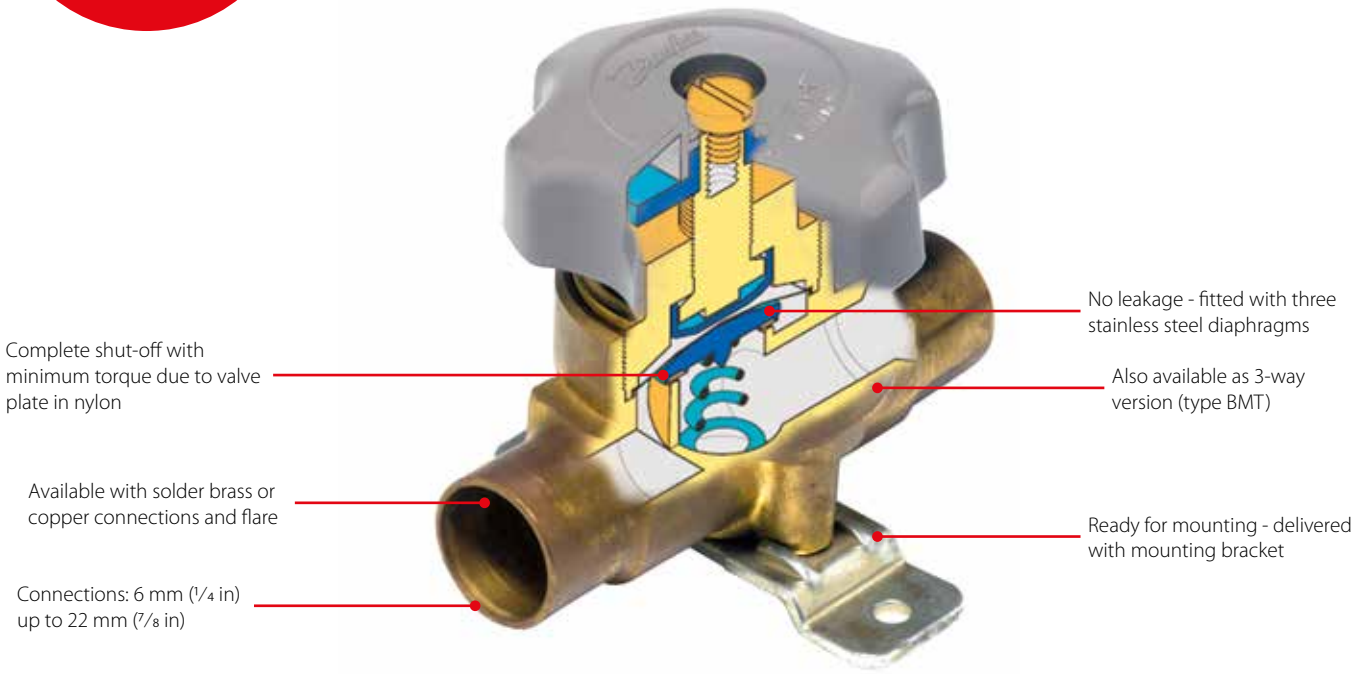
Quick Selection Notes:

BM, Shut-off diaphragm valve

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.
BML / BMT valves can be used for HCFC, HFC and HC refrigerants.





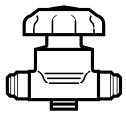
Facts

Application:
- Traditional refrigeration

- 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

- Flare versions can be used for HCFC / Non flammable HFC. Solder versions can be used for all fluorinated refrigerants HCFC, HFC and HC flammable refrigerants
- Temperature range: -55 – 100 °C / -67 – 212 °F
- Max. working pressure PS / MWP: 28 bar / 406 psig
- Approvals: C UL US LISTED, EAC
- Solder versions are compliant with ATEX hazard zone 2

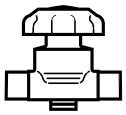
Technical data and ordering



BML flare, with hand wheel

Ordering

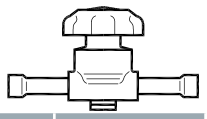
Type	Version	Flare connection		Max. working pressure PS / MWP		K_V value [m³/h]	C_V value [gal/min]	Code no.
		[in]	[mm]	[Bar]	[psi]			Flare
BML 6	Straight way	1/4	–	28	406	0.30	0.35	009G0101
BML 10	Straight way	3/8	–	28	406	0.84	0.97	009G0127
BML 12	Straight way	1/2	–	28	406	1.50	1.73	009G0141
BML 15	Straight way	5/8	–	28	406	2.20	2.54	009G0168
BML 18	Straight way	3/4	–	28	406	2.90	3.35	009G0183



BML solder, with hand wheel

Ordering

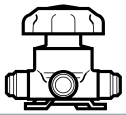
Type	Version	[in]	[mm]	Max. working pressure PS / MWP		K_V value [m³/h]	C_V value [gal/min]	Code no.
				[Bar]	[psi]			
BML 6s	Straight way	1/4	–	28	406	0.30	0.35	009G0102
	Straight way	–	6	28	406	0.30	0.35	009G0108
BML 10s	Straight way	3/8	–	28	406	0.84	0.97	009G0122
	Straight way	–	10	28	406	0.84	0.97	009G0128
BML 12s	Straight way	1/2	–	28	406	1.50	1.73	009G0142
	Straight way	–	12	28	406	1.50	1.73	009G0148
BML 15s	Straight way	5/8	16	28	406	2.20	2.54	009G0170
BML 18s	Straight way	3/4	–	28	406	2.90	3.35	009G0181
	Straight way	–	18	28	406	2.90	3.35	009G0184
BML 22s	Straight way	7/8	22	28	406	2.90	3.35	009G0191



BML solder extended connections, with hand wheel

Ordering

Type	Version	[in]	[mm]	Max. working pressure PS / MWP		K_V value [m³/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	0.97	009G0222
	Straight way	–	10	28	406	0.84	0.97	009G0228
BML 12s	Straight way	1/2	–	28	406	1.50	1.73	009G0242
	Straight way	–	12	28	406	1.50	1.73	009G0248
BML 15s	Straight way	5/8	16	28	406	2.20	2.54	009G0262
BML 22s	Straight way	7/8	22	28	406	2.90	3.35	009G0291



BMT 3-way flare, with hand wheel

Ordering

Type	Version	Flare connection		Max. working pressure PS / MWP		K_V value [m³/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

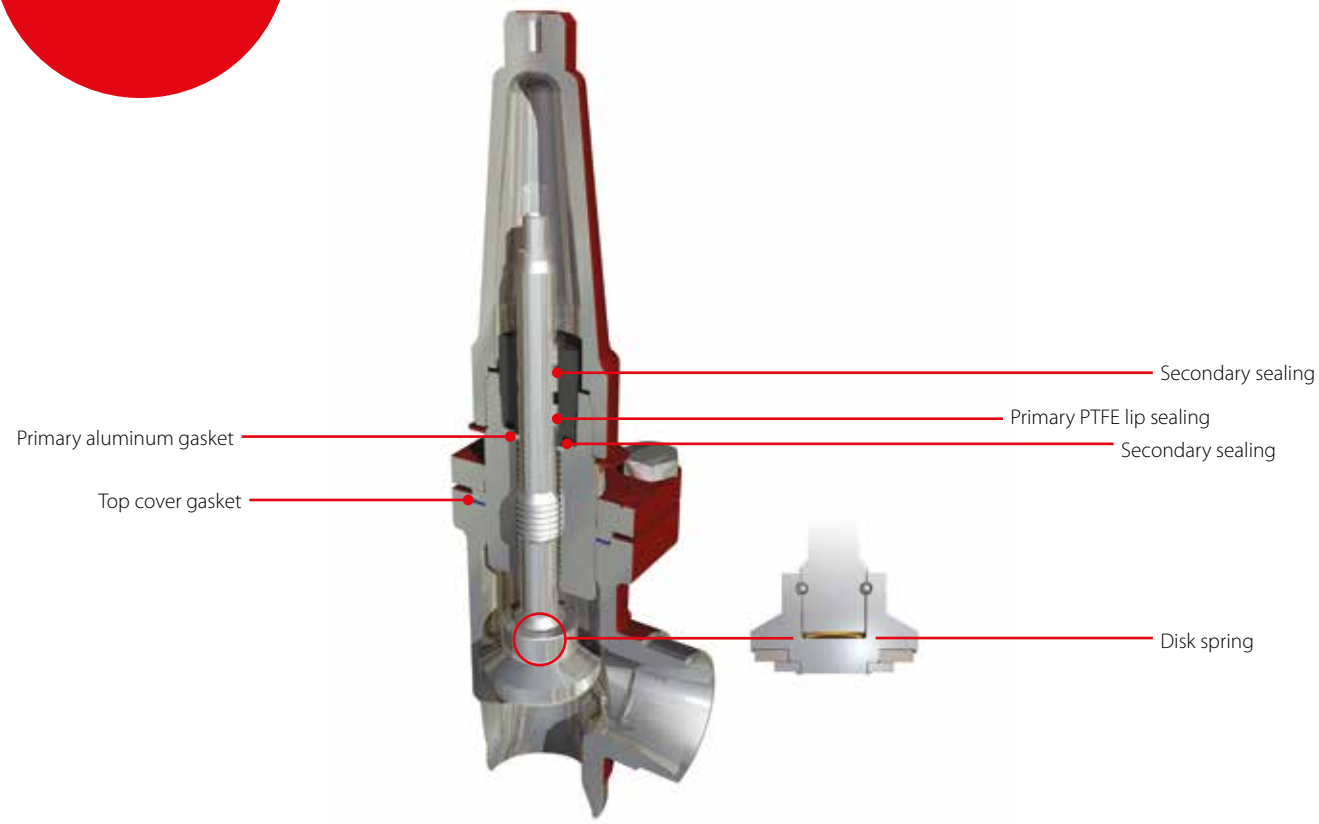
Note

Only solder versions are approved for flammable refrigerants now

SVA-S / SVA-L, Shut-off valve

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.
Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerants.





Facts

- 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
Refrigerants	Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerants
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 (¼)	x	–
DN 10 (⅜)	x	–
DN 15 (½)	x	x
DN 20 (¾)	x	x
DN 25 (1)	x	x
DN 32 (1 ¼)	x	x
DN 40 (1 ½)	x	x
DN 50 (2)	x	–
DN 65 (2 ½)	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				
Nominal size [mm]	[mm]	[in]	A / D	SOC	FPT	T	F
	6	DN 6 (¼)	x			x	
	10	DN 10 (⅜)	x				
	15	DN 15 (½)	x	x	x		x
	20	DN 20 (¾)	x	x	x		x
	25	DN 25 (1)	x	x	x		x
	32	DN 32 (1 ¼)	x	x	x		x
	40	DN 40 (1 ½)	x	x			x
	50	DN 50 (2)	x	x			x
	65	DN 65 (2 ½)	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 (½ – 1 ½ in)					
		Butt-weld connection: ANSI B 36.10 schedule 40, DN 50 - 200 (2 – 8 in)					
	D	Butt-weld connection: DIN EN 10220					
	G	Butt-weld connection: GOST (8734-75 and 8732-78)					
	SOC	Socket weld: ANSI B 16.11					
	FPT	Female Pipe Thread NPT: ANSI / ASME B 1.20.1					
	T	Outside threaded connections ISO 228/1 Pipe thread					
	F	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

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
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

Ordering



Type	Connection size [mm]	Connection size [in]	Execution	Connection type	Connection designation	Equipment	Code no.
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
	40	1 1/2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5633
SVA-S 50	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
	50	2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5731
	50	2	Straightway	Socket weld, ANSI (B 16.11)	SOC	Cap	148B5733
SVA-S 65	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
	65	2 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5831
SVA-S 80	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
	80	3	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B5931
SVA-S 100	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
	100	4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6031
SVA-S 125	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
	125	5	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B6131
SVA-S 150	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
	150	6	Straightway	Butt weld, GOST	G	Cap	148B6251
SVA-S 200	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

Ordering factory assembled SVA-L angleway valve

SVA-L, Shut-off valve



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



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

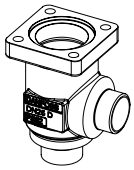
Accessories

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

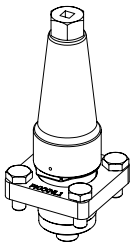
Ordering from the parts programme (valve body + top part)

Example:



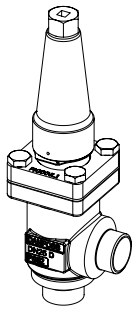
Valve housing, size 25 (1 in),
DIN butt weld, angleway,
148B5452
Table 1

+



Top part, SVA-S
size 25 (1 in) with cap
148B5476
Table 2

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SVA-S 6

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

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

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

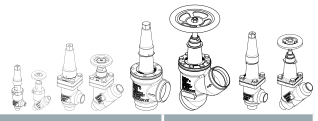
Top part [1])

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

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
	3/4	20	Angleway	Butt weld, GOST	G	148B5393
SVA-S / L 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	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

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
	1	25	Angleway	Butt weld, GOST	G	148B5498
SVA-S / L 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	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

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
	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
SVA-S / L 32	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

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S / L 40	1 ½	40	Angleway	Butt weld, EN 10220	D	148B5652
	1 ½	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5654
	1 ½	40	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 ½	40	Angleway	Butt weld, F	F	148B6418
	1 ½	40	Angleway	Butt weld, GOST	G	148B5681
SVA-S / L 40	1 ½	40	Straightway	Butt weld, EN 10220	D	148B5653
	1 ½	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B5655
	1 ½	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 ½	40	Straightway	Butt weld, F	F	148B6428
	1 ½	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

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

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
SVA-S 65	2 ½	65	Angleway	Butt weld, EN 10220	D	148B5816
	2 ½	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5818
	2 ½	65	Angleway	Butt weld, F	F	148B6420
	2 ½	65	Angleway	Butt weld, GOST	G	148B5816
SVA-S 65	2 ½	65	Straightway	Butt weld, EN 10220	D	148B5817
	2 ½	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B5819
	2 ½	65	Straightway	Butt weld, F	F	148B6430
	2 ½	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

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

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

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])

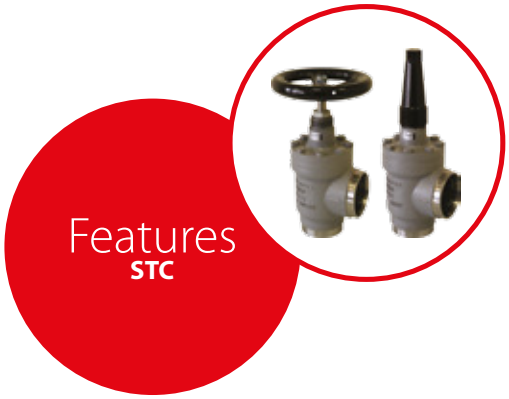
Type	Equipment	Code no.
SVA-S 125	Cap	148B6116
SVA-S 125	Hand wheel	148B6117

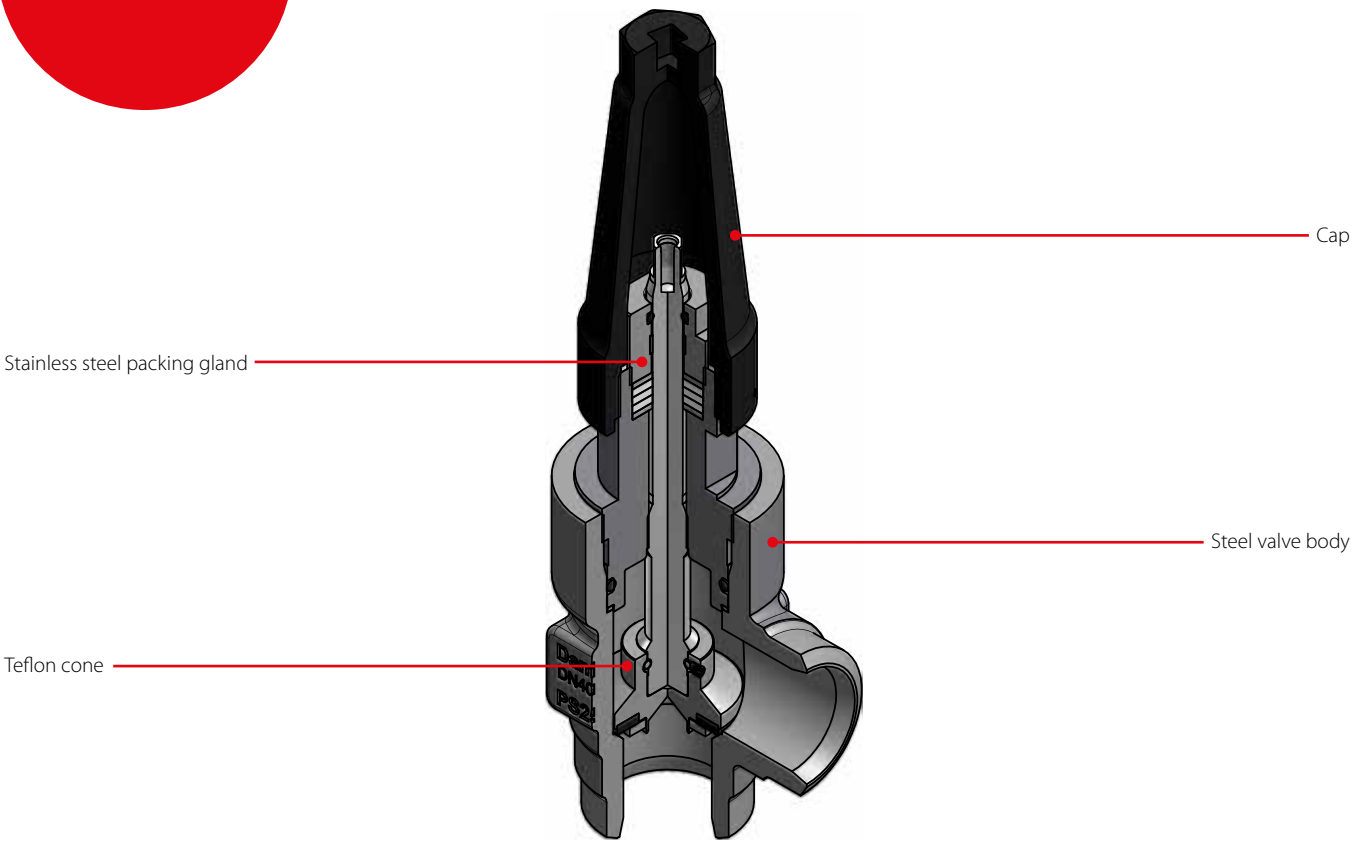
[1]) *Including gaskets and bolts*

STC – Shut-off valves

STC are angleway and straightway shut-off valves which are designed to meet industrial refrigeration application requirements.

The valves are designed to give favourable flow characteristics and are easy to dismantle and repair when necessary.

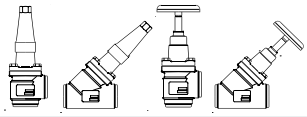




Facts

- Applicable to HCFC, HFC and R717 (Ammonia)
- Available with:
- Heavy duty industrial handwheel for frequent operation
- Vented cap for infrequent operation
- Available in angle and straight versions with standard bonnet for installation in normal insulated systems
- The valves and caps are prepared for sealing, to prevent operation by unauthorized persons
- Internal metal backseating
- DN 15 – 150 (½ - 6 in)
- Can accept flow in both directions
- Max. working pressure: 25 bar g / 365 psig
- Temperature range: -50 – 150 °C / -58 – 302 °F
- Design specification according to DIN 3158

Technical data and ordering



STC - Shut-off valves

Technical data

Type	Description
Refrigerants	Applicable to HCFC, HFC and R717 (Ammonia)
Pressure range	The valves are designed for max. working pressure 25 bar g / 365 psig
Temperature range	-50 – 150 °C / -58 – 302 °F

STC - Shut-off valves

Ordering

Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[in.]	[mm]					
STC 15	15	1/2	Angleway	Metric	M	Hand wheel	148B4645
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4601
	15	1/2	Straightway	Metric	M	Hand wheel	148B4667
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4623
	15	1/2	Angleway	Metric	M	Cap	148B4644
	15	1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4600
	15	1/2	Straightway	Metric	M	Cap	148B4666
	15	1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4622
STC 20	20	3/4	Angleway	Metric	M	Hand wheel	148B4647
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4603
	20	3/4	Straightway	Metric	M	Hand wheel	148B4669
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4625
	20	3/4	Angleway	Metric	M	Cap	148B4646
	20	3/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4602
	20	3/4	Straightway	Metric	M	Cap	148B4668
	20	3/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4624
STC 25	25	1	Angleway	Metric	M	Hand wheel	148B4649
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4605
	25	1	Straightway	Metric	M	Hand wheel	148B4671
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4627
	25	1	Angleway	Metric	M	Cap	148B4648
	25	1	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4604
	25	1	Straightway	Metric	M	Cap	148B4670
	25	1	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4626
STC 32	32	1 1/4	Angleway	Metric	M	Hand wheel	148B4651
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4607
	32	1 1/4	Straightway	Metric	M	Hand wheel	148B4673
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4629
	32	1 1/4	Angleway	Metric	M	Cap	148B4650
	32	1 1/4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4606
	32	1 1/4	Straightway	Metric	M	Cap	148B4672
	32	1 1/4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4628
STC 40	40	1 1/2	Angleway	Metric	M	Hand wheel	148B4653
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4609
	40	1 1/2	Straightway	Metric	M	Hand wheel	148B4675
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4631
	40	1 1/2	Angleway	Metric	M	Cap	148B4652
	40	1 1/2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4608
	40	1 1/2	Straightway	Metric	M	Cap	148B4674
	40	1 1/2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4630
STC 50	50	2	Angleway	Metric	M	Hand wheel	148B4655
	50	2	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4611
	50	2	Straightway	Metric	M	Hand wheel	148B4677
	50	2	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4633
	50	2	Angleway	Metric	M	Cap	148B4654
	50	2	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4610
	50	2	Straightway	Metric	M	Cap	148B4676
	50	2	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4632

Technical data and ordering

STC - Shut-off valves

Ordering

Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[in.]	[mm]					
STC 65	65	2 ½	Angleway	Metric	M	Hand wheel	148B4657
	65	2 ½	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4613
	65	2 ½	Straightway	Metric	M	Hand wheel	148B4679
	65	2 ½	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4635
	65	2 ½	Angleway	Metric	M	Cap	148B4656
	65	2 ½	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4612
	65	2 ½	Straightway	Metric	M	Cap	148B4678
	65	2 ½	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4634
STC 80	80	3	Angleway	Metric	M	Hand wheel	148B4659
	80	3	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4615
	80	3	Straightway	Metric	M	Hand wheel	148B4681
	80	3	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4637
	80	3	Angleway	Metric	M	Cap	148B4658
	80	3	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4614
	80	3	Straightway	Metric	M	Cap	148B4680
	80	3	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4636
STC 100	100	4	Angleway	Metric	M	Hand wheel	148B4661
	100	4	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4617
	100	4	Straightway	Metric	M	Hand wheel	148B4683
	100	4	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4639
	100	4	Angleway	Metric	M	Cap	148B4660
	100	4	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4616
	100	4	Straightway	Metric	M	Cap	148B4682
	100	4	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4638
STC 125	125	5	Angleway	Metric	M	Hand wheel	148B4663
	125	5	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4619
	125	5	Straightway	Metric	M	Hand wheel	148B4685
	125	5	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4641
	125	5	Angleway	Metric	M	Cap	148B4662
	125	5	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4618
	125	5	Straightway	Metric	M	Cap	148B4684
	125	5	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4640
STC 150	150	6	Angleway	Metric	M	Hand wheel	148B4665
	150	6	Angleway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4621
	150	6	Straightway	Metric	M	Hand wheel	148B4687
	150	6	Straightway	Butt weld, ANSI (B 36.10)	A	Hand wheel	148B4643
	150	6	Angleway	Metric	M	Cap	148B4664
	150	6	Angleway	Butt weld, ANSI (B 36.10)	A	Cap	148B4620
	150	6	Straightway	Metric	M	Cap	148B4686
	150	6	Straightway	Butt weld, ANSI (B 36.10)	A	Cap	148B4642

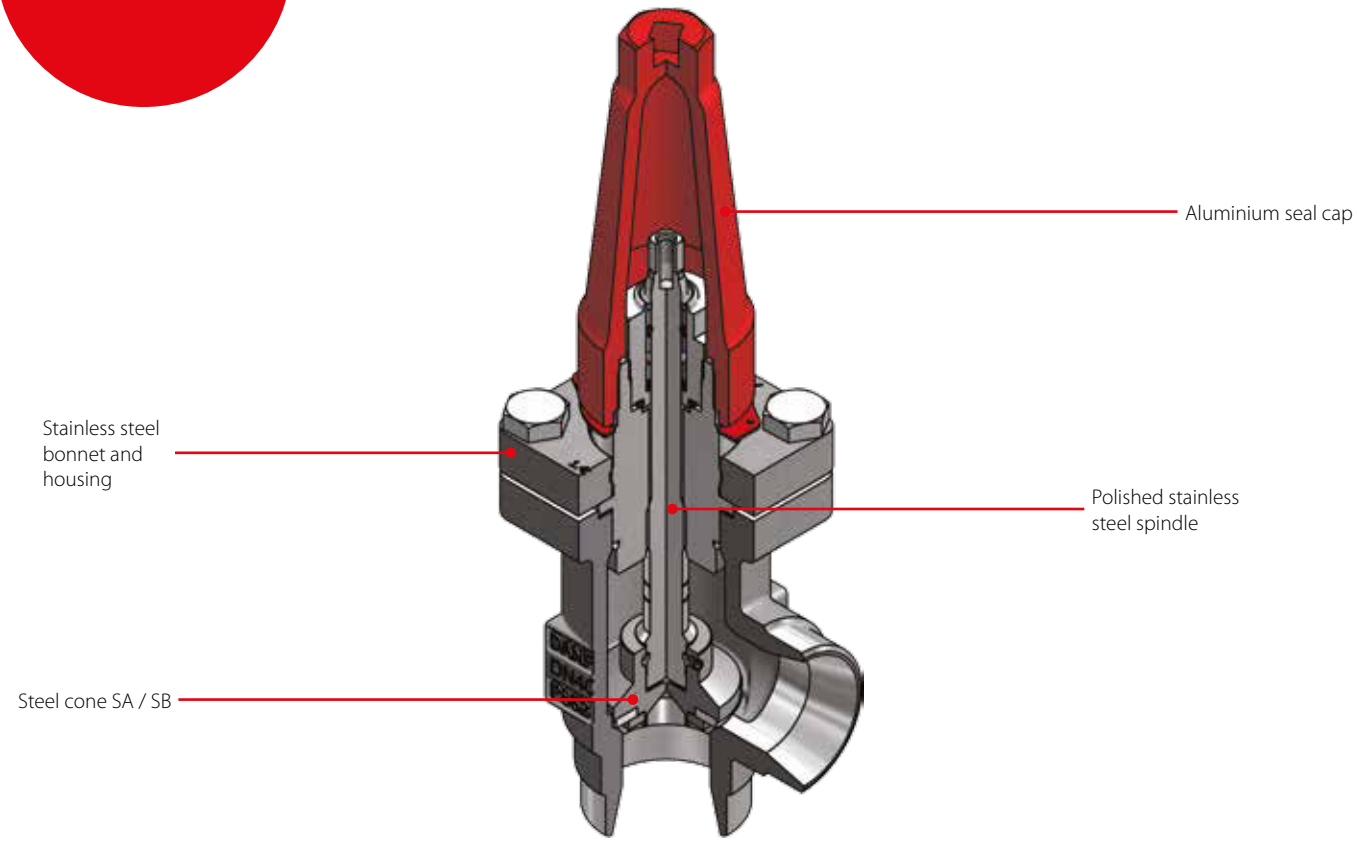
Quick Selection Notes:

SVA-S SS, Shut-off valves

SVA-S 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.





Facts

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerants
- 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, Shut-off valves

Technical data

Type	Description
Refrigerants	Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2) and all flammable refrigerant
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
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
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
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
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
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
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
SVA-S SS 80	80	3	Angleway	Butt weld, EN 10220	D	Cap	148B5928
SVA-S SS 100	100	4	Angleway	Butt weld, EN 10220	D	Cap	148B6032
SVA-S SS 125	125	5	Angleway	Butt weld, EN 10220	D	Cap	148B6126

SVA-S SS, Shut-off valves



Ordering straightway valves

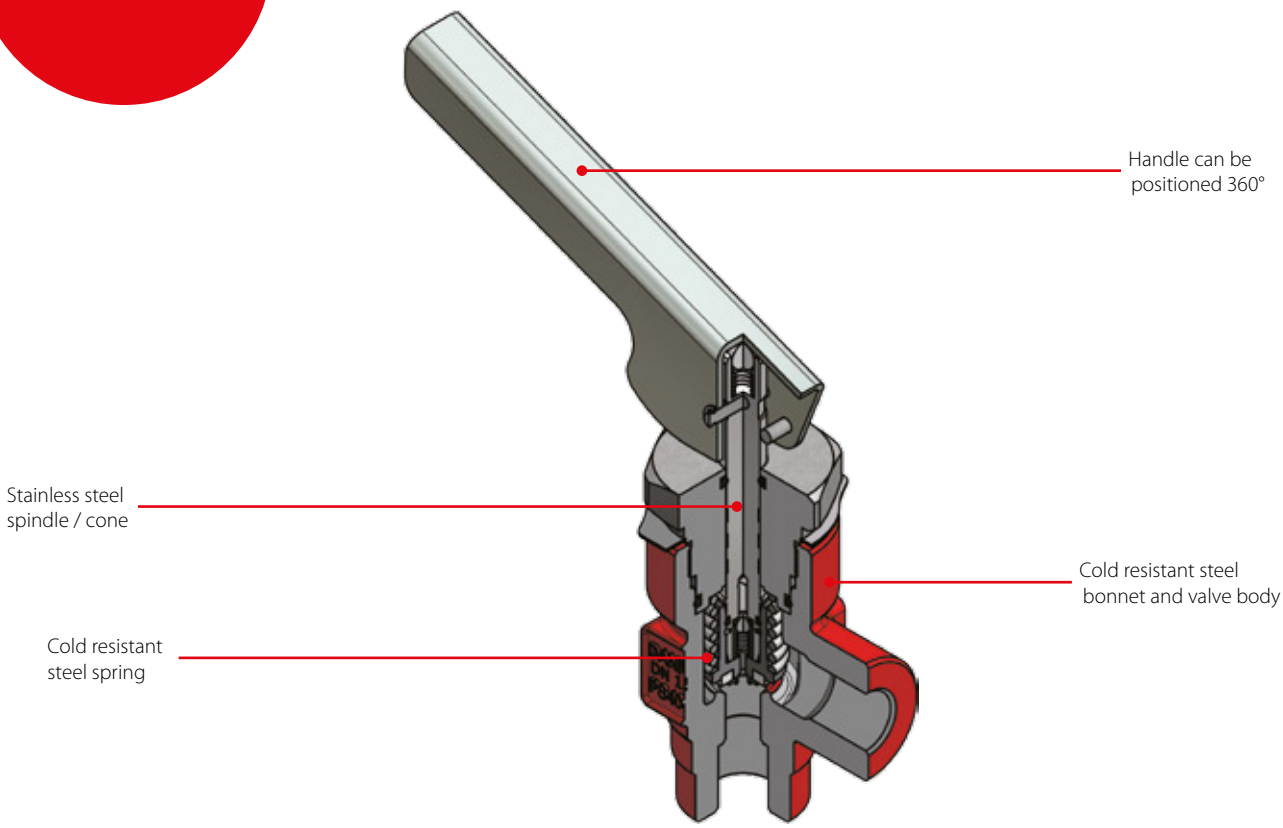
Type	Connection size		Execution	Connection type	Connection designation	Equipment	Code no.
	[mm]	[in]					
SVA-S SS 15	15	1/2	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5291
	15	1/2	Straightway	Butt weld, EN 10220	D	Cap	148B5292
SVA-S SS 20	20	3/4	Straightway	Butt weld, EN 10220	D	Hand wheel	148B5379
	20	3/4	Straightway	Butt weld, EN 10220	D	Cap	148B5380
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
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
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
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
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

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
- 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
Refrigerants	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 black pressure building up when relieving. For further information please see installation instruction for QDV Flammable hydrocarbons are not recommended
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 ¾ in	148H3272
QDV 15 ½ in FPT	½ in FPT	½ in FPT	148H3273
QDV 15 ¾ in FPT	¾ in FPT	¾ in FPT	148H3274
QDV 15 DN 15 + SVA-ST DN 15 H-WHEEL *)	DN 15	G ¾ in	148H3310
QDV 15 ½ in FPT + SVA-ST SOC ½ in H-WHEEL *)	½ in SOC	½ in FPT	148H3311
Fittings for hose connection - G ¾ in	–	–	148H3451
Fittings for welding connection - G ¾ 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.

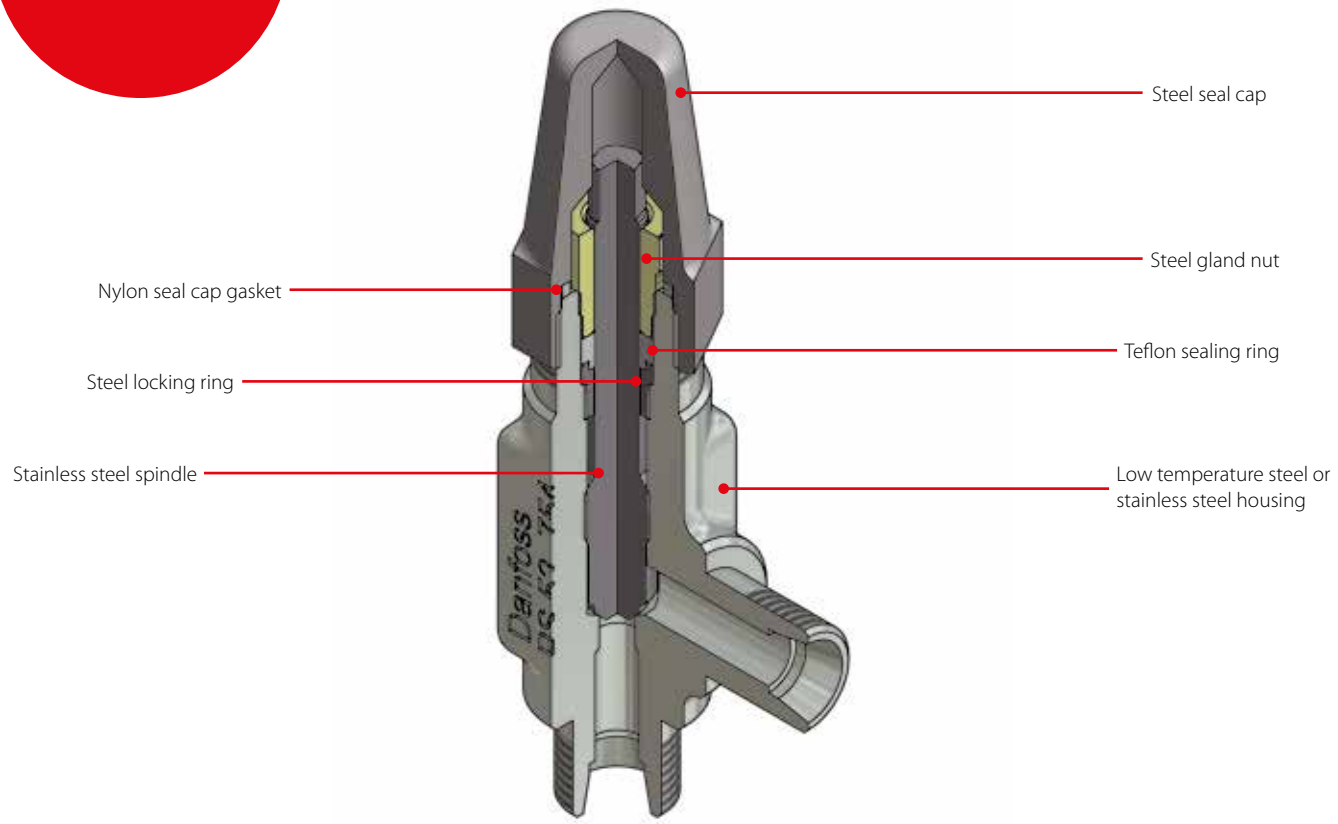
SNV-ST / SNV-SS, Gauge valve

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. SNV is applicable to HCFC, non flammable HFC, R717 (Ammonia) and R744 (CO_2).



Features
SNV-ST / SNV-SS



Facts

- Applicable to HCFC, non flammable HFC, R717 (Ammonia) and R744 (CO_2)
- 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

Dane techniczne

Type	Description
Refrigerants	Applicable to all common refrigerants including R 717 and R744 (CO_2) and non corrosive gases / liquids. For further information please see installation instruction for SNV-ST.
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!

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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
	CD 10	CD 10	30	148B4177
SNV-ST CD10-¼ MPT	CD 10	¼ MPT	1	148B3741
SNV-ST CD6-¼ MPT	CD 6	¼ MPT	1	148B3742
SNV-ST CD10-⅜ MPT	CD 10	⅜ MPT	1	148B3743
SNV-ST CD6-⅜ MPT	CD 6	⅜ MPT	1	148B3744
SNV-ST G ½-G ½	G ½ (external)	G ½ (external)	1	148B3745
	G ½ (external)	G ½ (external)	30	148B4179
SNV-ST ¼ FPT-¼ MPT	¼ FPT	¼ MPT	1	148B3746
	¼ FPT	¼ MPT	30	148B4180
SNV-ST ⅜ FPT-⅜ MPT	⅜ FPT	⅜ MPT	1	148B3747
	⅜ FPT	⅜ MPT	30	148B4181
SNV-ST ⅜ FPT-½ MPT	⅜ FPT	½ MPT	30	148B4233
SNV-ST ¼ FPT-¼ FPT	¼ FPT	¼ FPT	30	148B4223
SNV-ST ½ MPT-½ MPT	½ MPT	½ MPT	30	148B4224
SNV-ST ⅜ FPT-⅜ FPT	⅜ FPT	⅜ FPT	30	148B4225
SNV-ST ½ MPT-⅜ FPT	½ MPT	⅜ FPT	30	148B4226
SNV-ST CD6-¼ MPT *)	CD 6	¼ MPT	30	148B4216
SNV-ST 7/16 UNF-¼ MPT	7/16 UNF	¼ MPT	30	148B4230

**) With handwheel.*

SNV-ST

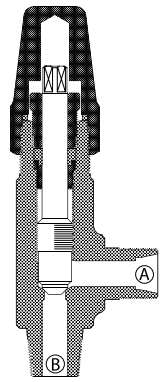


Fig. 1

Technical data and ordering

SNV-ST / SNV-SS (extended Branch) - see figure 2

Ordering

Type	Side branch connection Ⓐ	Bottom branch connection Ⓑ	Quantity [pcs.]	Code no.
SNV-ST CD10-W ½ L100	CD10	W ½ L100	1	148B3768
	CD10	W ½ L100	30	148B4210
SNV-ST G ½-W ½ L100	G ½ (external)	W ½ L100	1	148B3769
	G ½ (external)	W ½ L100	30	148B4211
SNV-ST G ½-W ½ L125	G ½ (external)	W ½ L125	30	148B4219
SNV-ST G ½-W ½ L50	G ½ (external)	W ½ L50	30	148B4218
SNV-ST G ¼-R ¼ L50	G ¼ (internal)	R ¼ L50 (external)	30	148B4231
SNV-ST ¼ FPT-¼ MPT L100	¼ FPT	¼ MPT L100	30	148B4232
SNV-SS G ½-W ½ L50	G ½ (external)	W ½ L50	1	148B4265
SNV-SS G ½-W ½ L150	G ½ (external)	W ½ L150	1	148B4266
SNV-ST G ⅜-W ½ L125	G ⅜ (external)	W ½ L125	30	148B4336

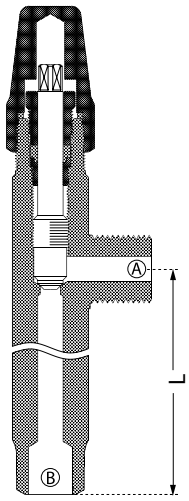
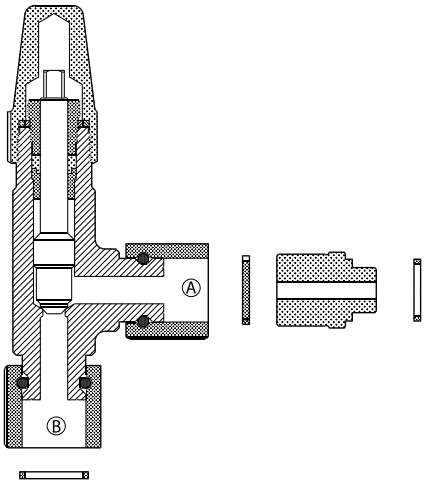
L50 = 50 mm (2 in), L100 = 100 mm (4 in), L125 = 125 mm (5 in), L150 = 150 mm (6 in).

SNV-ST (Manometer connection) - see figure 3

Ordering

Type	Side branch connection Ⓐ	Bottom branch connection Ⓑ	Quantity [pcs.]	Code no.
SNV-ST G ½ Man	G ½	G ½	1	148B3778 **)

***) Including adaptor for connection to ICS / PM valve.*

SNV-ST / SNV-SS (extended branch)	SNV-ST (manometer connection)
	
Fig. 2	*Fig. 3*

For additional equipment; please concult the spare parts and accessories documentation.

Quick Selection Notes:

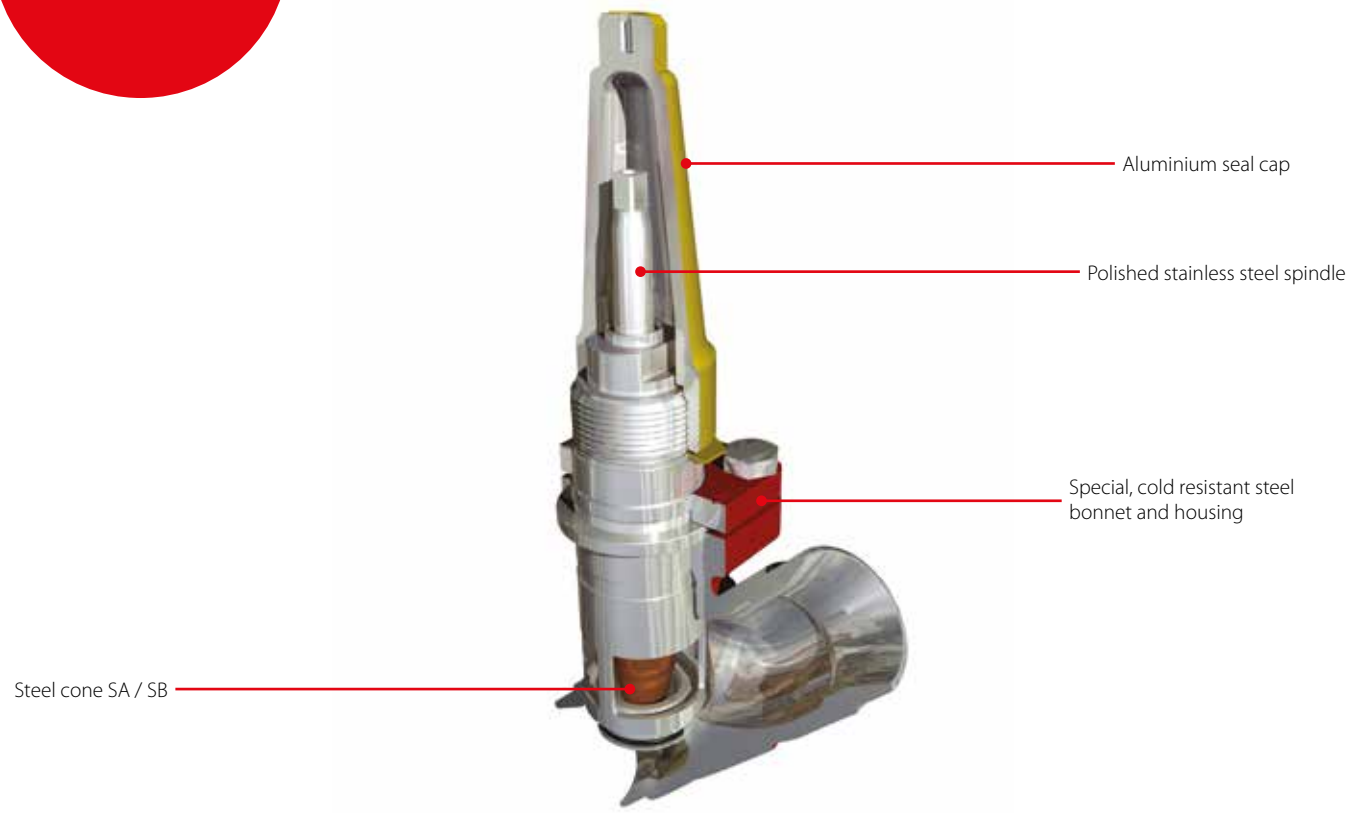
REG-SA / REG-SB, Hand-operated regulating valve

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).
Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane.



Features
REG-SA / REG-SB



Facts

- Standard SVL angleway or straightway valve body allowing other top parts from the SVL platform to be installed
- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
- 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

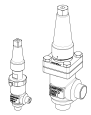
Technical data and ordering

REG-SA / REG-SB, Hand-operated regulating valve

Technical data

Type	Description
Refrigerants	Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
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 m³/h (C_V = 0.17 – 92.5 USgal/min)

REG-SA / REG-SB, Hand-operated regulating valve



Available combination between valve size, cone type and valve connection

Size	DN 10 (⅜ in)		DN 15 (½ in)		DN 20 (¾ in)		DN 25 (1 in)		DN 32 (1 ¼ in)		DN 40 (1 ½ in)		DN 50 (2 in)		DN 65 (2 ½ in)	
Cone type	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
DIN	×	×	×	×	×	×	×	×	×	×	×	×		×		×
ANSI	×	×	×	×	×	×	×	×	×	×	×	×		×		×
GOST	×	×	×	×	×	×	×	×	×	×	×	×		×		×
SOC			×	×	×	×	×	×	×	×	×	×		×		
FPT			×	×	×	×	×	×	×	×						
F			×	×	×	×	×	×	×	×	×	×		×		×

× = *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	x
	20	DN 20	x	x	x	x	x
	22	DN 22					
	25	DN 25	x	x	x	x	x
	32	DN 32	x	x	x	x	x
	40	DN 40	x	x	x		x
	50	DN 50	x	x	x		x
	65	DN 65	x	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: DN 10 DN 15 DN 20 DN 25 DN 32 DN 40	Flow area [mm²] 3.02 36.5 36.5 178 178 178					
Cone B	Size: DN 10 DN 15 DN 20 DN 25 DN 32 DN 40 DN 50 DN 65	Flow area [mm²] 16 115 115 531 531 531 822 1978					

Technical data and ordering

REG-SA (Cone type A - for expansion lines)

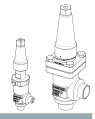
Ordering factory assembled angleway valves



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 (Cone type A - for expansion lines)

Ordering factory assembled straightway valves

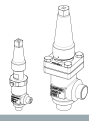


Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA 10	10	3/8	Straightway	Butt weld, EN 10220	D	148B5104
	10	3/8	Straightway	Butt weld, ANSI (B 36.10)	A	148B5116
REG-SA 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5228
	15	1/2	Straightway	Butt weld, 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 (Cone type B - for liquid lines)

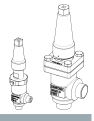
Ordering factory assembled angleway



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 (Cone type B - for liquid lines)

Ordering factory assembled straightway valves

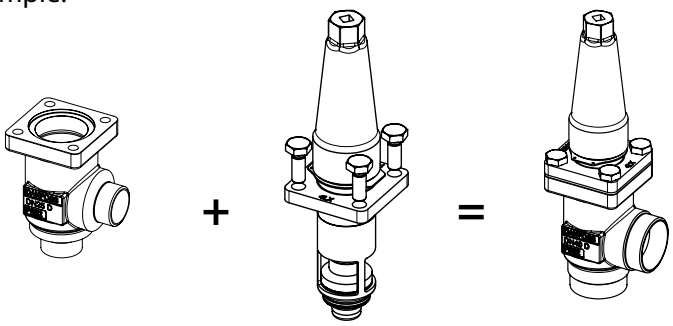


Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SB 10	10	3/8	Straightway	Butt weld, EN 10220	D	148B5105
	10	3/8	Straightway	Butt weld, ANSI (B 36.10)	A	148B5117
REG-SB 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5229
	15	1/2	Straightway	Butt weld, 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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

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	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
REG-SA / SB / LA / LB 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.
REG-SA 20	148B5280
REG-SB 20	148B5281
REG-LA 20	148B6401
REG-LB 20	148B6402

REG-SA / SB / LA / LB 25

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	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
REG-SA / SB / LA / LB 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.
REG-SA 25	148B5480
REG-SB 25	148B5481
REG-LA 25	148B6403
REG-LB 25	148B6404

REG-SA / SB / LA / LB 32

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	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
	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
REG-SA / SB / LA / LB 32	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

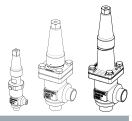
Top part [1])

Type	Code no.
REG-SA 32	148B5480
REG-SB 32	148B5481
REG-LA 32	148B6403
REG-LB 32	148B6404

[1]) *Including gaskets and bolts*

Technical data and ordering

REG-SA / SB / LA / LB 40



Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB / LA / LB 40	1 ½	40	Angleway	Butt weld, EN 10220	D	148B5652
	1 ½	40	Angleway	Butt weld, ANSI (B 36.10)	A	148B5654
	1 ½	40	Angleway	Socket weld, ANSI (B 16.11)	SOC	148B5656
	1 ½	40	Angleway	Butt weld, F	F	148B6418
	1 ½	40	Angleway	Butt weld, GOST	G	148B5681
REG-SA / SB / LA / LB 40	1 ½	40	Straightway	Butt weld, EN 10220	D	148B5653
	1 ½	40	Straightway	Butt weld, ANSI (B 36.10)	A	148B5655
	1 ½	40	Straightway	Socket weld, ANSI (B 16.11)	SOC	148B5657
	1 ½	40	Straightway	Butt weld, F	F	148B6428
	1 ½	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

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

Valve body

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
REG-SA / SB 65	2 ½	65	Angleway	Butt weld, EN 10220	D	148B5816
	2 ½	65	Angleway	Butt weld, ANSI (B 36.10)	A	148B5818
	2 ½	65	Angleway	Butt weld, F	F	148B6420
	2 ½	65	Angleway	Butt weld, GOST	G	148B5816
REG-SA / SB 65	2 ½	65	Straightway	Butt weld, EN 10220	D	148B5817
	2 ½	65	Straightway	Butt weld, ANSI (B 36.10)	A	148B5819
	2 ½	65	Straightway	Butt weld, F	F	148B6430
	2 ½	65	Straightway	Butt weld, GOST	G	148B5817

Top part [1])

Type	Code no.
REG-SB 65	148B5824

[1]) *Including gaskets and bolts*

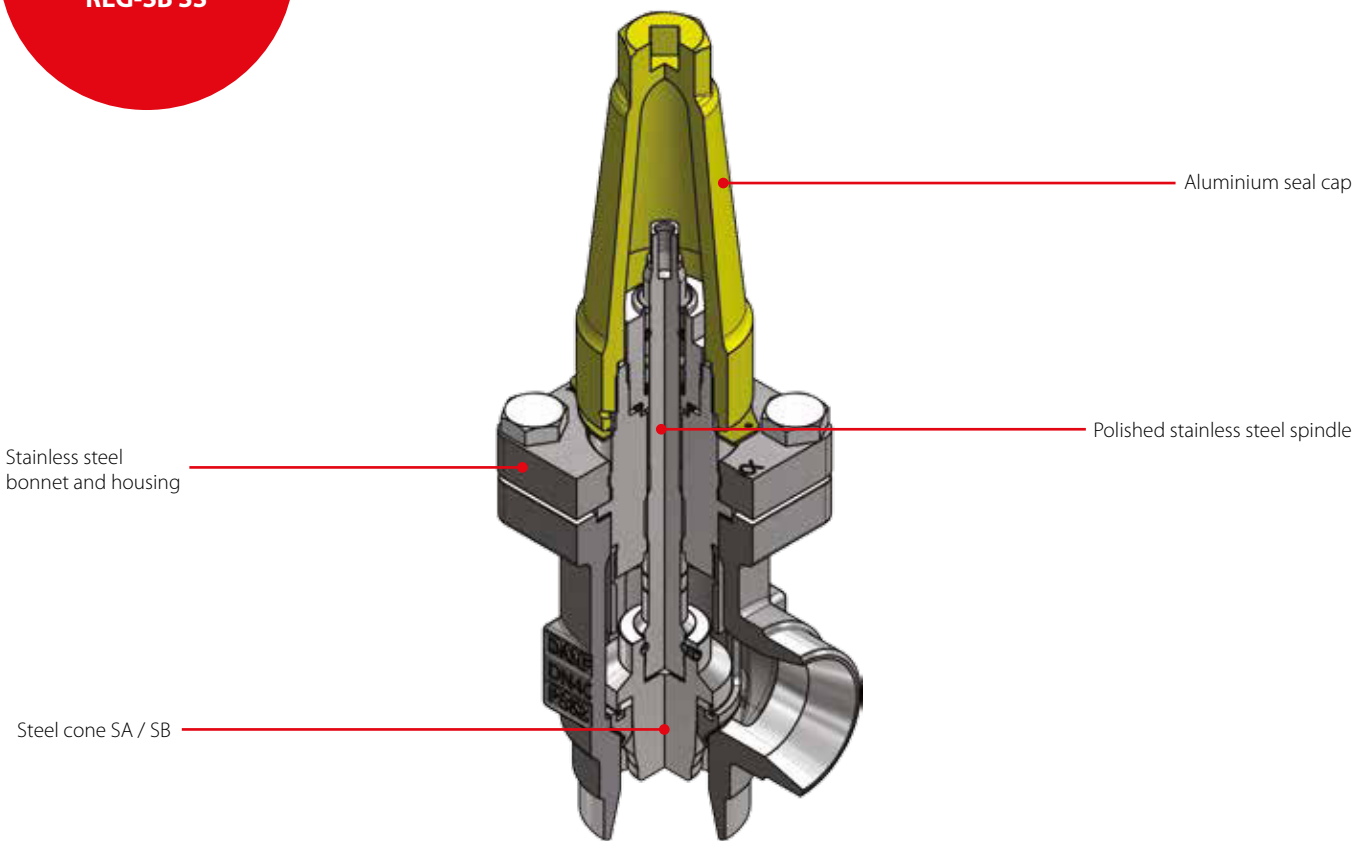
Quick Selection Notes:

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 flowconditions 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.





Facts

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- 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

Technical data and ordering

REG-SA SS / REG-SB SS, Hand-operated regulating valves

Technical data

Type	Description
Refrigerants	Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
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 m³/h (C_V = 0.17 – 92.5 USgal/min)



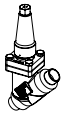
REG-SA (Cone type A - for expansion lines)

Ordering angleway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA 15	15	1/2	Angleway	Butt weld, EN 10220	D	148B5297
REG-SA 20	20	3/4	Angleway	Butt weld, EN 10220	D	148B5385
REG-SA 25	25	1	Angleway	Butt weld, EN 10220	D	148B5494
REG-SA 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	148B5589
REG-SA 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	148B5674

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	Angleway	Butt weld, EN 10220	D	148B5387
REG-SB 20	20	3/4	Angleway	Butt weld, EN 10220	D	148B5389
REG-SB 25	25	1	Angleway	Butt weld, EN 10220	D	148B5496
REG-SB 32	32	1 1/4	Angleway	Butt weld, EN 10220	D	148B5591
REG-SB 40	40	1 1/2	Angleway	Butt weld, EN 10220	D	148B5676



REG-SA (Cone type A - for expansion lines)

Ordering straightway valves

Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SA 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5298
REG-SA 20	20	3/4	Straightway	Butt weld, EN 10220	D	148B5386
REG-SA 25	25	1	Straightway	Butt weld, EN 10220	D	148B5495
REG-SA 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	148B5590
REG-SA 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	148B5675

REG-SB (Cone type B - for liquid lines)

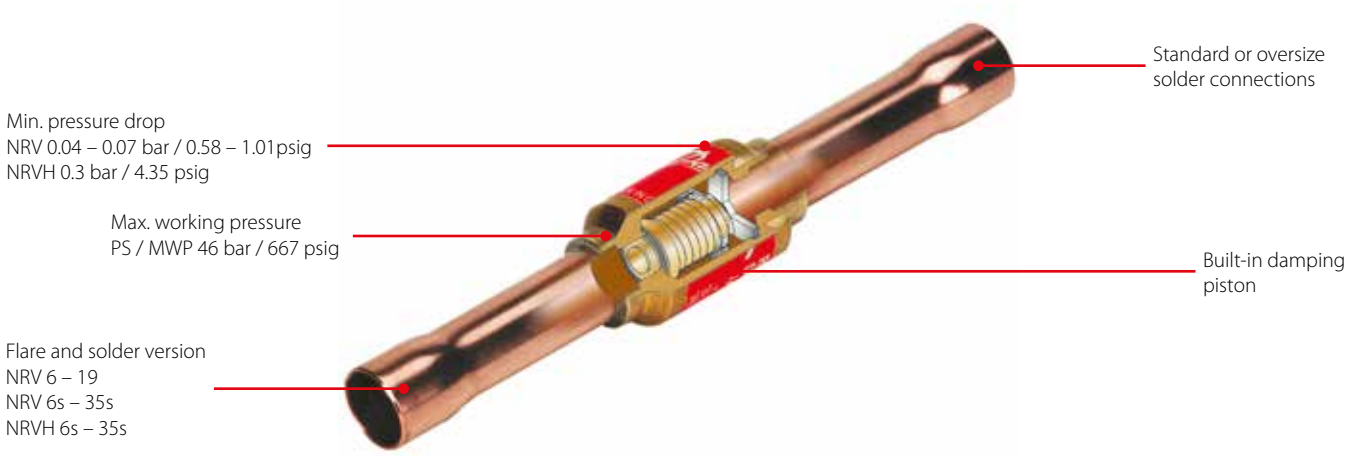
Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[mm]	[in]				
REG-SB 15	15	1/2	Straightway	Butt weld, EN 10220	D	148B5388
REG-SB 20	20	3/4	Straightway	Butt weld, EN 10220	D	148B5390
REG-SB 25	25	1	Straightway	Butt weld, EN 10220	D	148B5497
REG-SB 32	32	1 1/4	Straightway	Butt weld, EN 10220	D	148B5592
REG-SB 40	40	1 1/2	Straightway	Butt weld, EN 10220	D	148B5677

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 with HCFC, HFC and HC flammable refrigerants. Special versions, with a max. working pressure of 90 bar / 1305 psig are available for CO_2 applications.

The valves ensure the correct flow direction and prevent back-condensation from a warm part of the system to the cold evaporator. 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.





Facts

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

- 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

- In refrigeration plants with compressors connected in parallel, it is advantageous to use NRVH, since the spring is stronger than in NRV
- Available in both straightway and angleway versions
- Solder versions are compliant with ATEX hazard zone 2

Technical data and ordering

NRV / NRVH - Check valves

Technical data

Type	Description
Temperature range	-50 – 140 °C / -58 – 284 °F
Max. working pressure (PS / MWP)	46 bar / 667 psig
Approvals	C UL US LISTED, EAC

Note
Only solder versions, connection size: 6 – 19 s, are allowed for flammable refrigerants.

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]	[m³/h]	[G/h]	
NRV6	Straight-way - flare	1/4	6	0.07	1.01	0.56	148	020-1040
NRV 10	Straight-way - flare	3/8	10	0.07	1.01	1.20	317	020-1041
NRV 12	Straight-way - flare	1/2	12	0.05	0.72	2.05	542	020-1042
NRV 16	Straight-way - flare	5/8	16	0.05	0.72	3.60	951	020-1043
NRV 19	Straight-way - flare	3/4	19	0.05	0.72	5.50	1453	020-1044

[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 K_V / C_V value is the flow of water in [m²/h] / [G/h] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3]) Oversize connections.

NRV - Check valve, straight-way, solder ODF

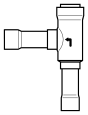


Ordering

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]	[m³/h]	[G/h]	
NRV 6s	Straight-way - Solder	1/4	–	0.07	1.01	0.56	148	020-1010
	Straight-way - Solder	–	6	0.07	1.01	0.56	148	020-1014
NRV 6s [3])	Straight-way - Solder	3/8	–	0.07	1.01	0.56	148	020-1057
	Straight-way - Solder	–	10	0.07	1.01	0.56	148	020-1050
NRV 10s	Straight-way - Solder	3/8	–	0.07	1.01	1.20	317	020-1011
	Straight-way - Solder	–	10	0.07	1.01	1.20	317	020-1015
NRV 10s [3])	Straight-way - Solder	1/2	–	0.07	1.01	1.20	317	020-1058
	Straight-way - Solder	–	12	0.07	1.01	1.20	317	020-1051
NRV 12s	Straight-way - Solder	1/2	–	0.05	0.72	2.05	542	020-1012
	Straight-way - Solder	–	12	0.05	0.72	2.05	542	020-1016
NRV 12s [3])	Straight-way - Solder	5/8	16	0.05	0.72	2.05	542	020-1052
NRV 16s	Straight-way - Solder	5/8	16	0.05	0.72	3.60	951	020-1018
NRV 16s [3])	Straight-way - Solder	–	18	0.05	0.72	3.60	951	020-1053
	Straight-way - Solder	3/4	19	0.05	0.72	3.60	951	020-1059
NRV 19s	Straight-way - Solder	–	18	0.05	0.72	5.50	1453	020-1017
	Straight-way - Solder	3/4	19	0.05	0.72	5.50	1453	020-1019
NRV 19s [3])	Straight-way - Solder	7/8	22	0.05	0.72	5.50	1453	020-1054

[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 K_V / C_V value is the flow of water in [m²/h] / [G/h] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3]) Oversize connections.

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]	[m³/h]	[G/h]	
NRV 22s	Angle-way - solder	7/8	22	0.04	0.58	8.5	2245	020-1020
NRV 22s [3])	Angle-way - solder	1 1/8	–	0.04	0.58	8.5	2245	020-1060
	Angle-way - solder	–	28	0.04	0.58	8.5	2245	020-1055
NRV 28s	Angle-way - solder	1 1/8	–	0.04	0.58	16.5	4359	020-1021
	Angle-way - solder	–	28	0.04	0.58	16.5	4359	020-1025
NRV 28s [3])	Angle-way - solder	1 3/8	35	0.04	0.58	16.5	4359	020-1056
NRV 35s	Angle-way - solder	1 3/8	35	0.04	0.58	29.0	7661	020-1026
NRV 35s [3])	Angle-way - solder	1 5/8	–	0.04	0.58	29.0	7661	020-1061
	Angle-way - solder	–	42	0.04	0.58	29.0	7661	020-1027

[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 K_V / C_V value is the flow of water in [m²/h] / [G/h] 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

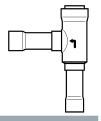


Ordering

Type	Version	Connection		Pressure drop across valve		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	Δp [bar] [1]	Δp [psig] [1]	[m³/h]	[G/h]	
NRVH 6s [3]	Straight-way - solder	3/8	–	0.30	4.35	0.56	148	020-1069
	Straight-way - solder	–	10	0.30	4.35	0.56	148	020-1062
NRVH 10s	Straight-way - solder	3/8	–	0.30	4.35	1.20	317	020-1046
	Straight-way - solder	–	10	0.30	4.35	1.20	317	020-1036
NRVH 10s [3]	Straight-way - solder	1/2	–	0.30	4.35	1.20	317	020-1070
	Straight-way - solder	–	12	0.30	4.35	1.20	317	020-1063
NRVH 12s	Straight-way - solder	1/2	–	0.30	4.35	2.05	542	020-1039
	Straight-way - solder	–	12	0.30	4.35	2.05	542	020-1037
NRVH 12s [3]	Straight-way - solder	5/8	16	0.30	4.35	2.05	542	020-1064
NRVH 16s	Straight-way - solder	5/8	16	0.30	4.35	3.60	951	020-1038
NRVH 16s [3]	Straight-way - solder	–	18	0.30	4.35	3.60	951	020-1065
	Straight-way - solder	3/4	19	0.30	4.35	3.60	951	020-1071
NRVH 19s	Straight-way - solder	–	18	0.30	4.35	5.50	1453	020-1008
	Straight-way - solder	3/4	19	0.30	4.35	5.50	1453	020-1023
NRVH 19s [3]	Straight-way - solder	7/8	22	0.30	4.35	5.50	1453	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 K_V / C_V value is the flow of water in [m³/h] / [G/h] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.
[3] Oversize connections..

NRVH - Check valve, angle-way, solder ODF

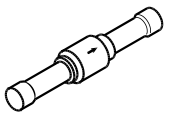


Ordering

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]	[m³/h]	[G/h]	
NRVH 22s	Angle-way - solder	7/8	22	0.30	4.35	8.5	2245	020-1032
NRVH 22s [3]	Angle-way - solder	1 1/8	–	0.30	4.35	8.5	2245	020-1072
	Angle-way - solder	–	28	0.30	4.35	8.5	2245	020-1067
NRVH 28s	Angle-way - solder	1 1/8	–	0.30	4.35	16.5	4359	020-1029
	Angle-way - solder	–	28	0.30	4.35	16.5	4359	020-1033
NRVH 28s [3]	Angle-way - solder	1 3/8	35	0.30	4.35	16.5	4359	020-1068
NRVH 35s	Angle-way - solder	1 3/8	35	0.30	4.35	29.0	7661	020-1034
NRVH 35s [3]	Angle-way - solder	1 5/8	–	0.30	4.35	29.0	7661	020-1073
	Angle-way - solder	–	42	0.30	4.35	29.0	7661	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 K_V / C_V value is the flow of water in [m³/h] / [G/h] 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 (CO_2)



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

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		K_V - value [2]	C_V - value [2]	Code no.
		[in]	[mm]	[bar] [1]	[psi] [1]	[bar] [1]	[psi] [1]	[m³/h]	[G/h]	
NRV 10s H	Straightway Solder ODF	3/8	–	0.4	5.8	1.1	15.95	0.9	238	020-4000
	Straightway Solder ODF	–	10	0.4	5.8	1.1	15.95	0.9	238	020-4300

[1] ΔP_1 = the minimum pressure at which the valve start opening.
ΔP_2 = 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] / [G/h] at a pressure drop across valve of 1 bar / 14.5 psig, ρ = 1000 kg/m³ / 2205 lbs/G.

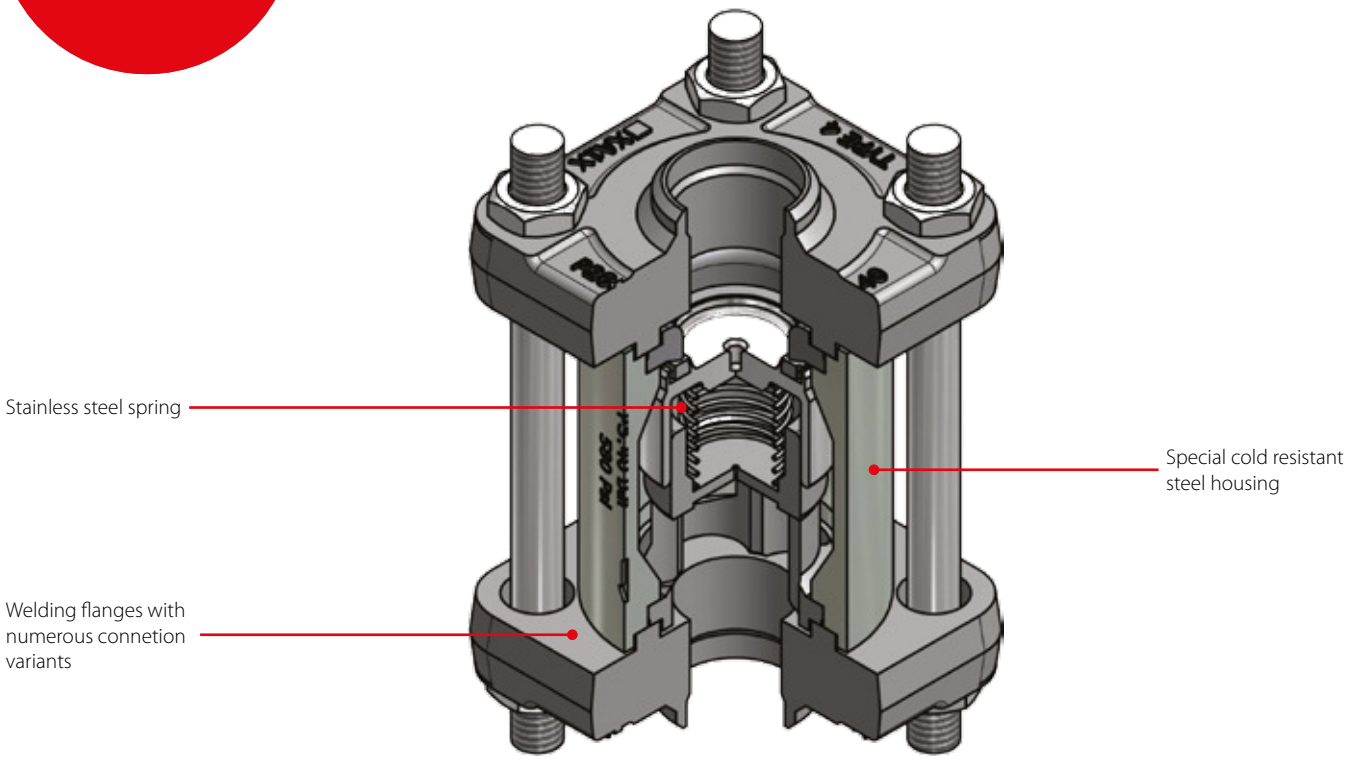
Quick Selection Notes:

NRVA - Check valve

NRVA check valves can be used in liquid, suction and hot gas lines in refrigeration and air conditioning plant with HCFC, HFC and R717 (Ammonia).

The valves ensure the correct flow direction and prevent back-condensation from a warm part of the system to the cold evaporator.





Facts

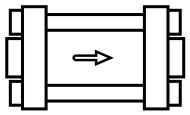
- Ensures correct direction of flow
- Valve housing made of steel
- Available for 40 bar g / 580 psig working pressure
- Large range of flanges with connection dimensions in accordance with standards: DIN, ANSI, SOC, SA and FPT
- Fitted with damping piston that makes the valves suitable for installation 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
Refrigerants	Can be used for all normal, non-flammable refrigerants, including R 717, and non-corrosive gases / liquids. For further information please see installation instruction for NRVA. Use with flammable hydrocarbons cannot be recommended.
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]	[m³/h]	[gal/min]	
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 & stop valve / CHV-X, Check valve

SCA-X are check & stop valves with a built-in stop valve function. SCA-X are equipped with vented cap and have internal backseating enabling the spindle seal to be replaced whilst the valve still under pressure. CHV-X are check valves only.
SCA-X / CHV-X are available in angleway versions.
Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane.

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.





CHV-X SCA-X

Facts

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
- 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

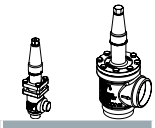
Technical data and ordering

SCA-X / CHV-X, Check valves

Technical data

Type	Description
Refrigerants	Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
Pressure range	52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

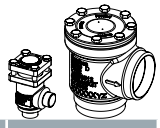
SCA-X, Check & stop valve, factory assembled



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

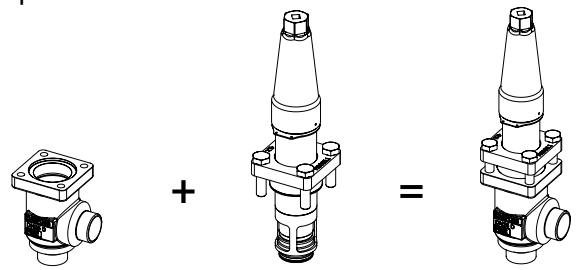


Ordering

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

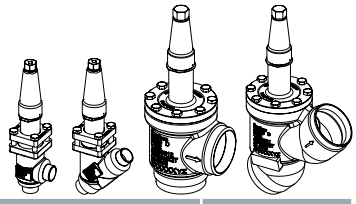
Ordering

Ordering SCA-X from the parts programme (valve body + top part)
Example:



Valve body, size 25 (1 in), DIN butt weld, angleway, **148B5452**

Top part, SCA-X size 25 (1 in) **148B5482**



SCA-X 15

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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	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

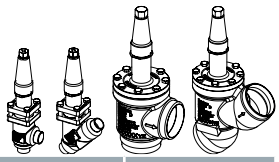
Top part [1])

Type	Code no.
SCA-X 25	148B5482

[1]) Including gaskets and bolts.

Ordering

Ordering SCA-X from the parts programme (valve body + top part)



SCA-X 32

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
	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
SCA-X 32	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

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

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

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

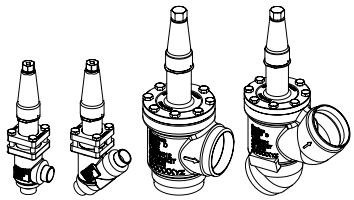
Top part [1])

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

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

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

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

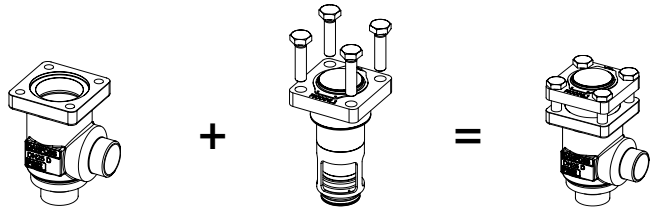
Top part [1])

Type	Code no.
SCA-X 125	148B6118

[1]) Including gaskets and bolts.

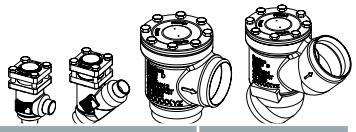
Ordering

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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

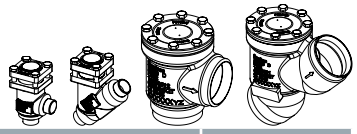
Top part [1])

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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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
	1 1/4	32	Angleway	Butt weld, GOST	G	148B5593
CHV-X 32	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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

Valve body

Type	Connection size [in]	Connection size [mm]	Execution	Connection type	Connection designation	Code no.
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

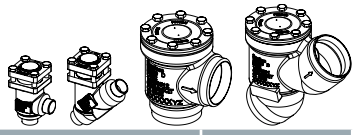
Top part [1])

Type	Code no.
CHV-X 65	148B5827

[1]) *Including gaskets and bolts.*

Ordering

Ordering CHV-X from the parts programme (valve body + top part)



CHV-X 80

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

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

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.*

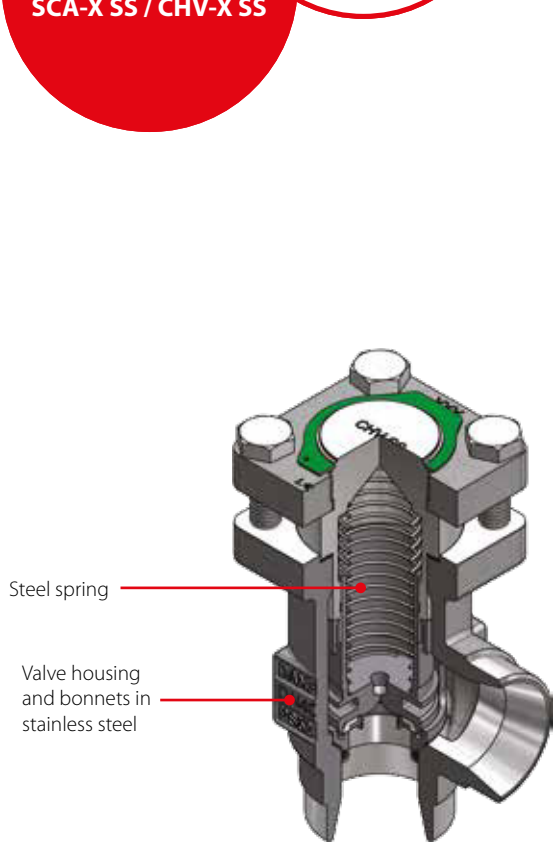
SCA-X SS, Check & stop valves / CHV-X SS, Check valves

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.

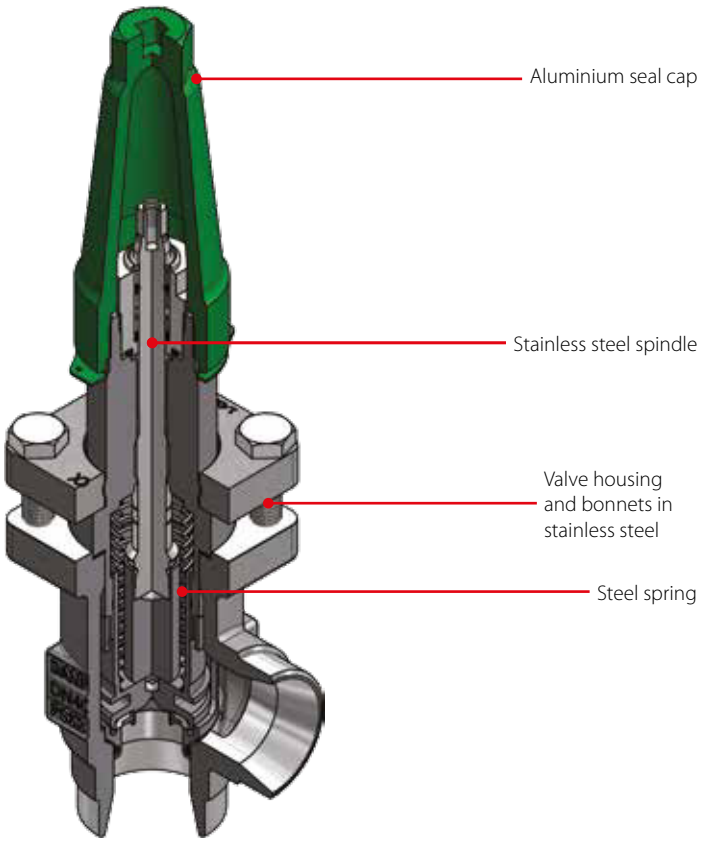
The valve cone has a built-in flexibility to ensure a precise and tight closing towards the valve seat.
A well balanced dampening effect between the piston and the cylinder gives an optimal protection during low loads and against pulsations.

Features
SCA-X SS / CHV-X SS





CHV-X SS



SCA-X SS

Facts

- Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
- 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
Refrigerants	Applicable to HCFC, HFC, R717 (Ammonia), R744 (CO_2), Propane, Butane, Iso-Butane and Ethane
Pressure range	52 bar g / 754 psig
Temperature range	-60 – 150 °C / -76 – 302 °F

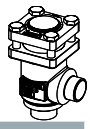
SCA-X SS, Check & Stop valve



Ordering

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
SCA-X SS 25	1	25	Angleway	Butt weld, EN 10220	D	148B5490
SCA-X SS 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5585
SCA-X SS 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5664

CHV-X SS, Check valve



Ordering

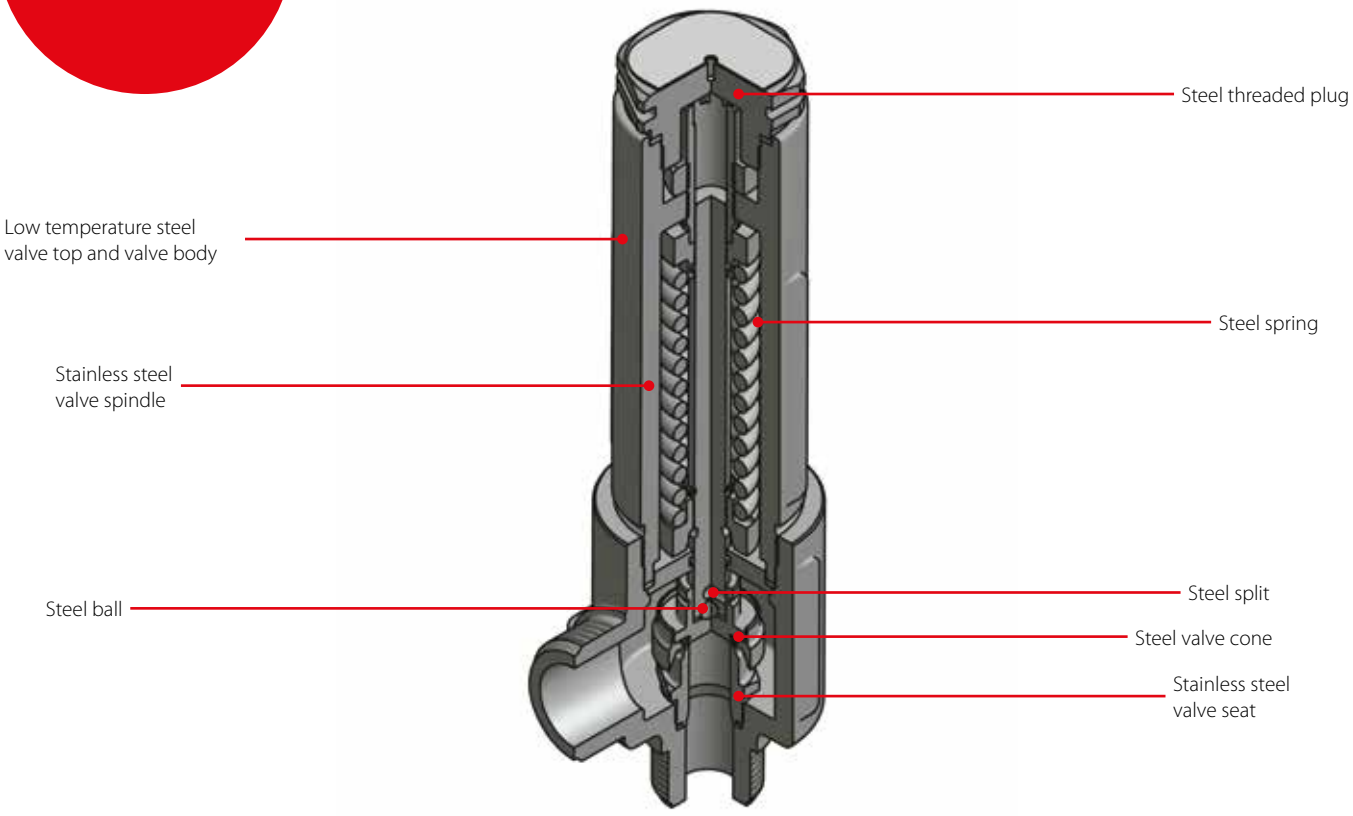
Type	Connection size		Execution	Connection type	Connection designation	Code no.
	[in]	[mm]				
CHV-X SS 15	1/2	15	Angleway	Butt weld, EN 10220	D	148B5294
CHV-X SS 20	3/4	20	Angleway	Butt weld, EN 10220	D	148B5382
CHV-X SS 25	1	25	Angleway	Butt weld, EN 10220	D	148B5491
CHV-X SS 32	1 1/4	32	Angleway	Butt weld, EN 10220	D	148B5586
CHV-X SS 40	1 1/2	40	Angleway	Butt weld, EN 10220	D	148B5665

SFA 15 and 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 50.

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.





Facts

- Applicable for the refrigerants HCFC, HFC, R717 (Ammonia), R744 (CO_2) 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 × P_{set}.*

Technical data and ordering

SFA 15 and SFA 15-50, Safety relief valve

Technical data

Type	Description
Refrigerants	Applicable for the refrigerants HCFC, HFC, R717 (Ammonia), R744 (CO_2) within a temperature range of -50 °C* / 100 °C (-58 °F* / 212 °F) Flammable hydrocarbons are not recommended.
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 × 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	½	10	145	148F4000
SFA 15-50 T 211	15	½	11	160	148F4001
SFA 15-50 T 212	15	½	12	174	148F4002
SFA 15-50 T 213	15	½	13	189	148F4003
SFA 15-50 T 214	15	½	14	203	148F4004
SFA 15-50 T 215	15	½	15	218	148F4005
SFA 15-50 T 216	15	½	16	232	148F4006
SFA 15-50 T 217	15	½	17	247	148F4007
SFA 15-50 T 218	15	½	18	261	148F4008
SFA 15-50 T 219	15	½	19	276	148F4009
SFA 15-50 T 220	15	½	20	290	148F4010
SFA 15-50 T 221	15	½	21	305	148F4011
SFA 15-50 T 222	15	½	22	319	148F4012
SFA 15-50 T 223	15	½	23	334	148F4013
SFA 15-50 T 224	15	½	24	348	148F4014
SFA 15-50 T 225	15	½	25	363	148F4015
SFA 15-50 T 226	15	½	26	377	148F4016
SFA 15-50 T 227	15	½	27	392	148F4017
SFA 15-50 T 228	15	½	28	406	148F4018
SFA 15-50 T 229	15	½	29	421	148F4019
SFA 15-50 T 230	15	½	30	435	148F4020
SFA 15-50 T 231	15	½	31	450	148F4021
SFA 15-50 T 232	15	½	32	464	148F4022
SFA 15-50 T 233	15	½	33	479	148F4023
SFA 15-50 T 234	15	½	34	493	148F4024
SFA 15-50 T 235	15	½	35	508	148F4025
SFA 15-50 T 236	15	½	36	522	148F4026
SFA 15-50 T 237	15	½	37	537	148F4027
SFA 15-50 T 238	15	½	38	551	148F4028
SFA 15-50 T 239	15	½	39	566	148F4029
SFA 15-50 T 240	15	½	40	580	148F4030

Technical data and ordering

Certified SFA valves with standard set pressure and TÜV pressure setting certificate with each valve

Ordering

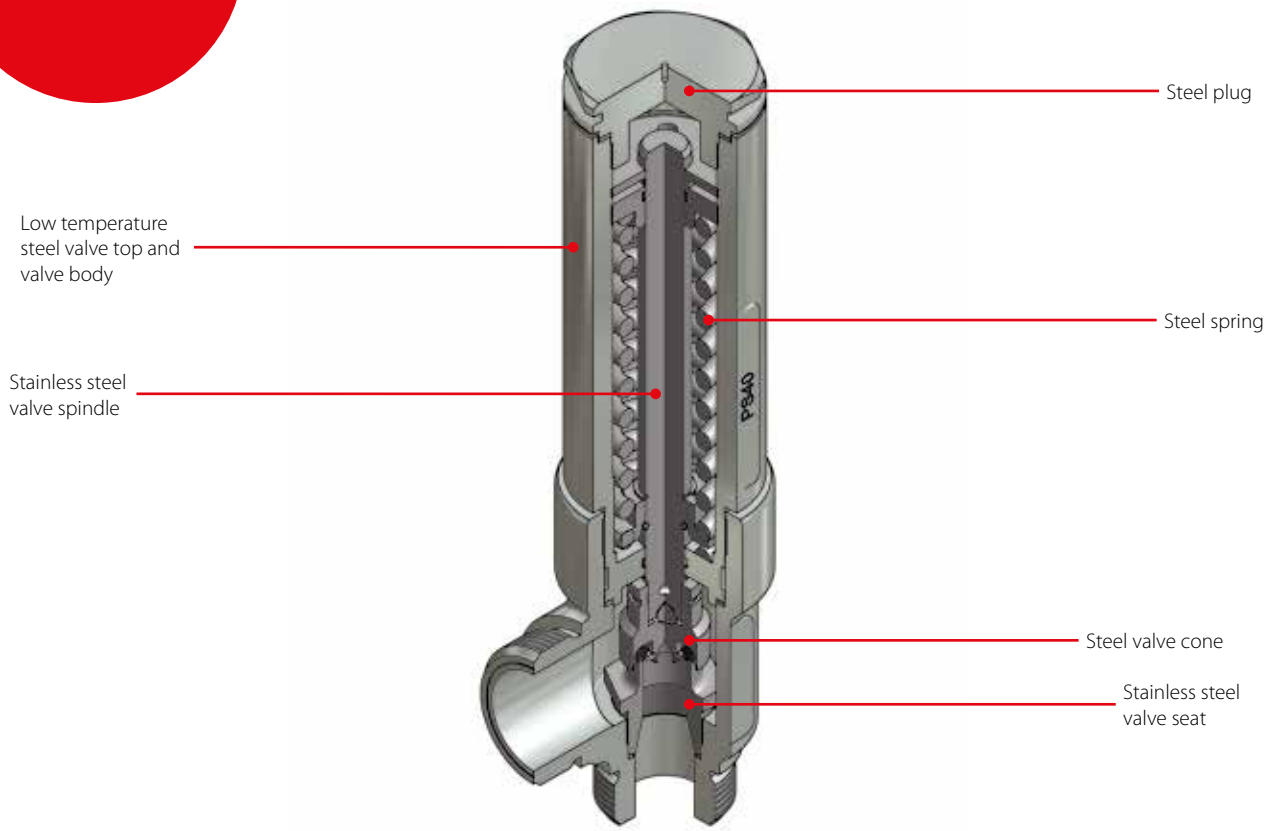
Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFA 15 T 310	15	½	10	145	148F3310
SFA 15 T 311	15	½	11	160	148F3311
SFA 15 T 312	15	½	12	174	148F3312
SFA 15 T 313	15	½	13	189	148F3313
SFA 15 T 314	15	½	14	203	148F3314
SFA 15 T 315	15	½	15	218	148F3315
SFA 15 T 316	15	½	16	232	148F3316
SFA 15 T 317	15	½	17	247	148F3317
SFA 15 T 318	15	½	18	261	148F3318
SFA 15 T 319	15	½	19	276	148F3319
SFA 15 T 320	15	½	20	290	148F3320
SFA 15 T 321	15	½	21	305	148F3321
SFA 15 T 322	15	½	22	319	148F3322
SFA 15 T 323	15	½	23	334	148F3323
SFA 15 T 324	15	½	24	348	148F3324
SFA 15 T 325	15	½	25	363	148F3325
SFA 15 T 326	15	½	26	377	148F3326
SFA 15 T 327	15	½	27	392	148F3327
SFA 15 T 328	15	½	28	406	148F3328
SFA 15 T 329	15	½	29	421	148F3329
SFA 15 T 330	15	½	30	435	148F3330
SFA 15 T 331	15	½	31	450	148F3331
SFA 15 T 332	15	½	32	464	148F3332
SFA 15 T 333	15	½	33	479	148F3333
SFA 15 T 334	15	½	34	493	148F3334
SFA 15 T 335	15	½	35	508	148F3335
SFA 15 T 336	15	½	36	522	148F3336
SFA 15 T 337	15	½	37	537	148F3337
SFA 15 T 338	15	½	38	551	148F3338
SFA 15 T 339	15	½	39	566	148F3339
SFA 15 T 340	15	½	40	580	148F3340
SFA 15-50 T 210	15	½	10	145	148F4100
SFA 15-50 T 211	15	½	11	160	148F4101
SFA 15-50 T 212	15	½	12	174	148F4102
SFA 15-50 T 213	15	½	13	189	148F4103
SFA 15-50 T 214	15	½	14	203	148F4104
SFA 15-50 T 215	15	½	15	218	148F4105
SFA 15-50 T 216	15	½	16	232	148F4106
SFA 15-50 T 217	15	½	17	247	148F4107
SFA 15-50 T 218	15	½	18	261	148F4108
SFA 15-50 T 219	15	½	19	276	148F4109
SFA 15-50 T 220	15	½	20	290	148F4110
SFA 15-50 T 221	15	½	21	305	148F4111
SFA 15-50 T 222	15	½	22	319	148F4112
SFA 15-50 T 223	15	½	23	334	148F4113
SFA 15-50 T 224	15	½	24	348	148F4114
SFA 15-50 T 225	15	½	25	363	148F4115
SFA 15-50 T 226	15	½	26	377	148F4116
SFA 15-50 T 227	15	½	27	392	148F4117
SFA 15-50 T 228	15	½	28	406	148F4118
SFA 15-50 T 229	15	½	29	421	148F4119
SFA 15-50 T 230	15	½	30	435	148F4120
SFA 15-50 T 231	15	½	31	450	148F4121
SFA 15-50 T 232	15	½	32	464	148F4122
SFA 15-50 T 233	15	½	33	479	148F4123
SFA 15-50 T 234	15	½	34	493	148F4124
SFA 15-50 T 235	15	½	35	508	148F4125
SFA 15-50 T 236	15	½	36	522	148F4126
SFA 15-50 T 237	15	½	37	537	148F4127
SFA 15-50 T 238	15	½	38	551	148F4128
SFA 15-50 T 239	15	½	39	566	148F4129
SFA 15-50 T 240	15	½	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.





Facts

- Applicable for the refrigerants HCFC, HFC, R717 (Ammonia), R744 (CO_2) 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
Refrigerants	Applicable for the refrigerants HCFC, HFC, R717 (Ammonia), R744 (CO_2) within a temperature range of -30 – 100 °C / -22 – 212 °F. Flammable hydrocarbons are not recommended.
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

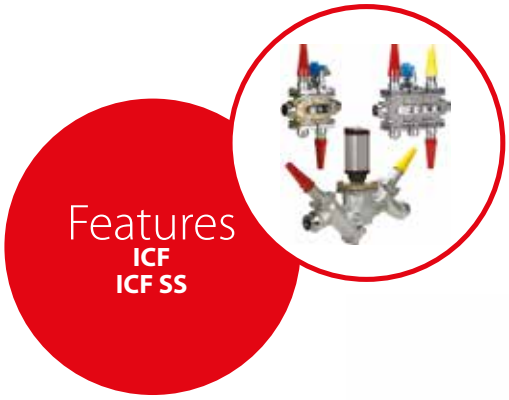
Type	Size		Set pressure		Code no.
	[mm]	[in]	[bar g]	[psi g]	
SFV 25 T 310	25	1	10	145	2416+297
SFV 25 T 311	25	1	11	160	2416+298
SFV 25 T 312	25	1	12	174	2416+299
SFV 25 T 313	25	1	13	189	2416+163
SFV 25 T 314	25	1	14	203	2416+300
SFV 25 T 315	25	1	15	218	2416+301
SFV 25 T 316	25	1	16	232	2416+302
SFV 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

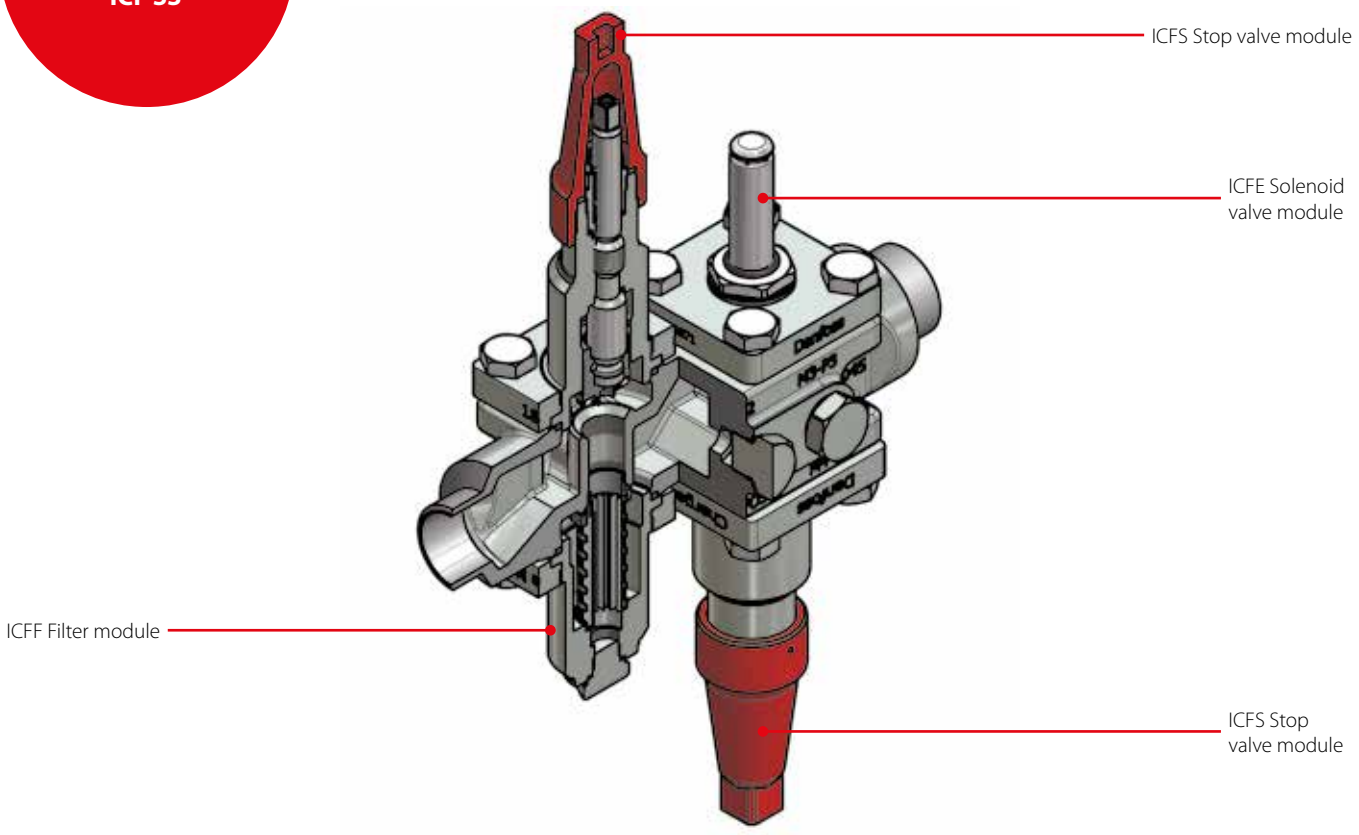
Quick Selection Notes:

ICF and ICF SS - Valve station

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 with HCFC, non flammable HFC, R717 (Ammonia) or R744 (CO_2). ICF is Supplied as a complete assembly, it is fully tested at high pressure and its functions are tested under factory controlled conditions.





Configuration example
ICF 20-4-9

Facts

- Applicable to HCFC, non flammable HFC, R717 (Ammonia) and R744 (CO_2)
- 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 station

Technical data

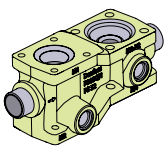
Refrigerants	Applicable to HCFC, non flammable HFC, R717 (Ammonia) or R744 (CO_2)
Temperature range	-60 – 120 °C / -76 – 248 °F
Presssure range	The ICF is designed for max. working pressure: 52 bar g / 754 psig
Modules	3, 4 or 6, depending on housing version
Connection types (ICF SS available with DIN 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

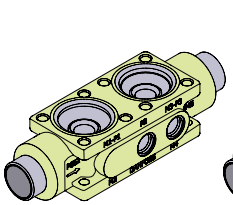
The main components of the ICF valve station are:

- 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

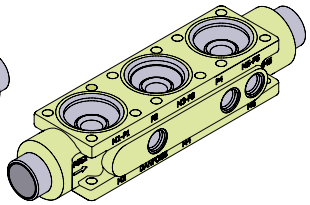
The valve body



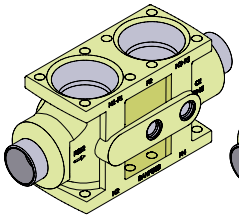
ICF 15-4



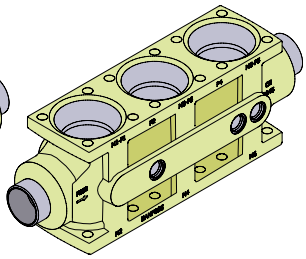
ICF 20-4



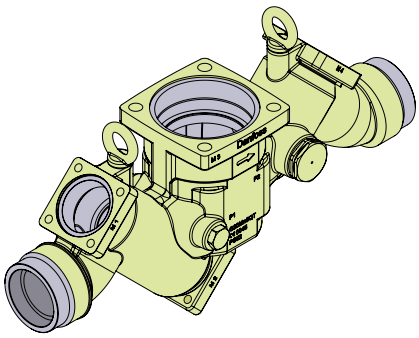
ICF 20-6



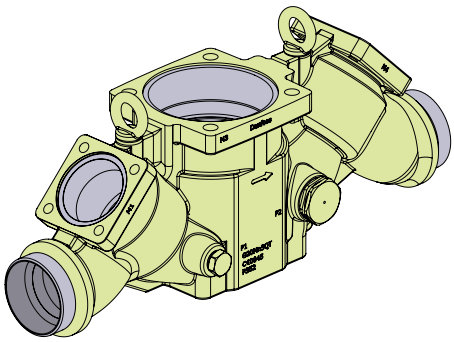
ICF 25-4



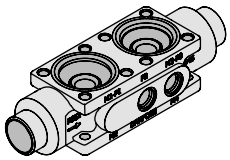
ICF 25-6



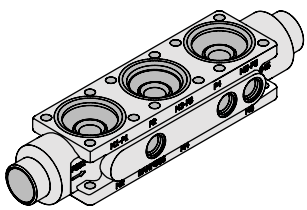
ICF 50-4



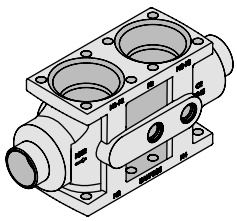
ICF 65-3



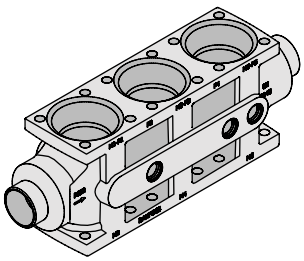
ICF SS 20-4



ICF SS 20-6



ICF SS 25-4



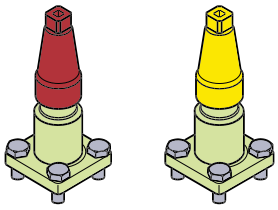
ICF SS 25-6

The function modules for ICF 15 and ICF 20

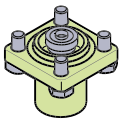
ICF 15 and ICF 20 have the same function modules except for the two fixed modules M1 (stop valve ICFS 15) and M2 (filter ICFF 15) in ICF 15.

ICFS 15 / ICFS 20
Shut-off valve module
This module has the function of a stop valve, and has a red cap.

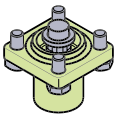
ICFR 20A
Manual regulating valve module
This module has the function of a hand regulating valve, and has a yellow cap.


ICFS 15/ICFS 20 ICFR 20A

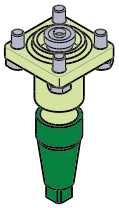
ICFC 20
Check valve module
This module has the function of a check valve.


ICFC 20

ICFF 15/20 / ICFF 20E
Strainer module
This module functions as a strainer.
ICF 15, all connections:
Strainer element 150µ (100 mesh) 60 cm^2 (9.3 in^2)
ICF 20, with DIN/ANSI connections:
Pleated 150µ (100 mesh) 45 cm^2 (7.0 in^2)
ICF 20 with SOC connections (ICFF 20E):
Pleated 150µ (100 mesh) / 160 cm^2 (24.8 in^2)

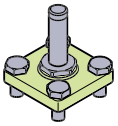

ICFF 15/20 / ICFF 20E

ICFN 20
Stop & check valve module
This module has the function of a combined stop and check valve, and has a green cap.

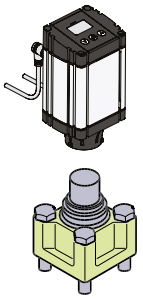

ICFN 20

ICFE 20
Solenoid valve module
This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.

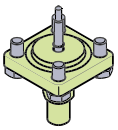
ICFA 20
Electronic expansion valve module
This module has the function of an electronic pulse width modulating (PWM) expansion valve.


ICFE 20 / ICFA 20

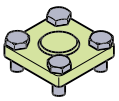
ICM 20-A, B or C
Motor operated valve module
This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.


ICM 20-A, B or C

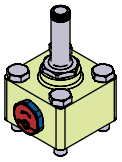
ICFO 20
Manual opening module
This module facilitates the manual opening of the solenoid valve (type ICFE).


ICFO 20

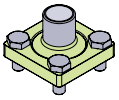
ICFB 20
Blind top cover
This provides a blanking cover for unused module ports.


ICFB 20

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.


ICFE 20H

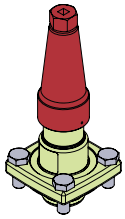
ICFW 20
Welding module 20 DIN or ¾" SOC
This module is used for drain connection during hot-gas defrosting - in case of high capacity.


ICFW 20

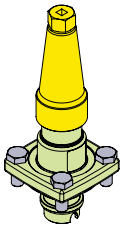
Note:
At about 10% of maximum mass flow of ICFE 20H, the pressure differential correspond to about 0.07 Bar / 1 psi.
ICFE 20H will start to open at these conditions. At a pressure differential of minimum 0.2 Bar / 2.9 psi ICFE 20H will be 100% open.

The function modules for ICF 25

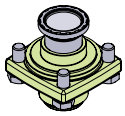
ICFS 25
Shut-off valve module
This module has the function of a stop valve, and has a red cap.


ICFS 25

ICFR 25, A or B
Manual regulating valve module
This module has the function of a hand regulating valve, and has a yellow cap.


ICFR 25

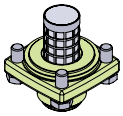
ICFC 25
Check valve module
This module has the function of a check valve.


ICFC 25

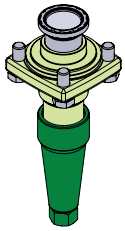
ICFF 25 / ICFF 25E
Strainer module
This module functions as a strainer.

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)

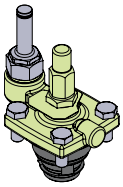

ICFF 25 / ICFF 25E

ICFN 25
Stop & check valve module
This module has the function of a combined stop and check valve, and has a green cap.


ICFN 25

ICFE 25
Solenoid valve module
This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.

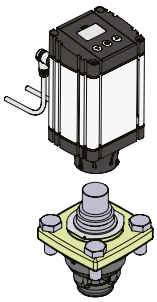
It has a built-in manual opening function.


ICFE 25

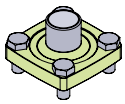
Please note:
At about 10% of maximum mass flow of ICFE 25, the pressure differential correspond to about 0.07 Bar (1 psi). ICFE 25 will start to open at these conditions.

At a pressure differential of minimum 0.2 Bar (2.9 psi) ICFE 25 will be 100% open.

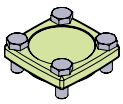
ICM 25-A or B
Motor operated valve module
This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.


ICM 25-A or B

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.

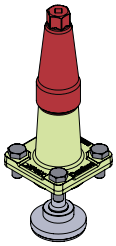

ICFW 25

ICFB 25
Blind top cover
This provides a blanking cover for unused module ports.

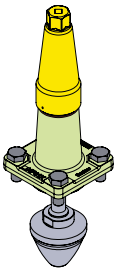

ICFB 25

The function modules for ICF 50 and ICF 65

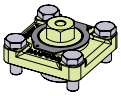
SVA-S 50 / SVA 65
Shut-off valve module
This module has the function of a stop valve, and has a red cap.


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.

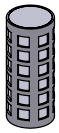

REG-SB 50 / REG-SB 65

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.

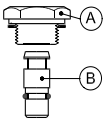
Available elements:
See below.


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-oprated valve module
This module has the function of a pilot-operated valve for on/off and modulating control of the refrigerant flow.

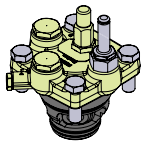
All ICS modules are 3-pilot versions. They are supplied with two blanking plugs (A) and one sealing plug (B).



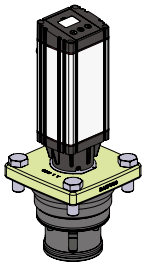
ICS 50 and 65 inserts are available in different capacities:

ICS 50:	**ICS 65:**
ICS 50	ICS 65
ICS 50-32	ICS 65-40
ICS 50-40	ICS 80

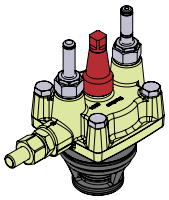
For K_v values please see the ordering section.


ICS 50 / ICS 65

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

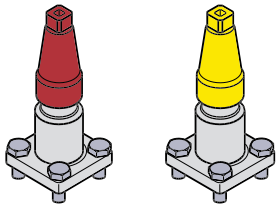
ICLX 50 / ICLX 65
2-step solenoid valve module
This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.
It has a built-in manual opening function.
The ICLX module functions as a shut-off valve to open after hot gas defrost.


ICLX 50 / ICLX 65

The function modules for ICF SS 20 (Stainless Steel)

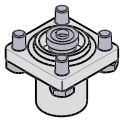
ICFS SS 20
Shut-off valve module
This module has the function of a stop valve, and has a red cap.

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.



ICFS SS 20 ICFR SS 20

ICFC SS 20
Check valve module
This module has the function of a check valve.

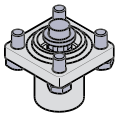


ICFC SS 20

ICFF SS 20 / ICFF SS 20E
Strainer module
This module functions as a strainer.

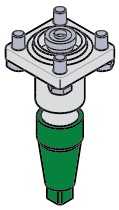
ICF SS 20:
Pleated 150µ (100 mesh) / 45 cm^2 (7.0 in^2)

ICF SS 20E:
Pleated 150µ (100 mesh) / 160 cm^2 (24.8 in^2)



ICFF SS 20 / ICFF SS 20E

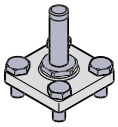
ICFN SS 20
Stop & check valve module
This module has the function of a combined stop and check valve, and has a green cap.



ICFN SS 20

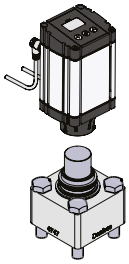
ICFE SS 20
Solenoid valve module
This module has the function of a normally closed solenoid valve for controlling the refrigerant flow.

ICFA SS 20
Electronic expansion valve module
This module has the function of an electronic pulse width modulating (PWM) expansion valve.



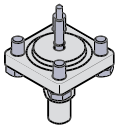
ICFE SS 20 / ICFA SS 20

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.



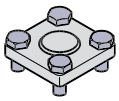
ICM SS 20-A, 20-B, 20-C, 20-A33 or 20-B66

ICFO SS 20
Manual opening module
This module facilitates the manual opening of the solenoid valve (type ICFE SS).



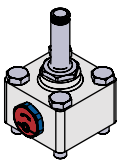
ICFO SS 20

ICFB SS 20
Blind top cover
This provides a blanking cover for unused module ports.



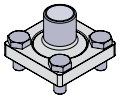
ICFB SS 20

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.



ICFE SS 20H

ICFW SS 20
Welding module 20 DIN
This module is used for drain connection during hot-gas defrosting - in case of high capacity.

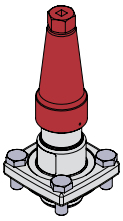


ICFW SS 20

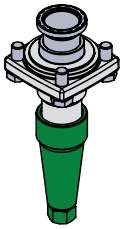
Note:
At about 10% of maximum mass flow of ICFE SS 20H, the pressure differential correspond to about 0.07 Bar / 1 psi.
ICFE SS 20H will start to open at these conditions. At a pressure differential of minimum 0.2 Bar / 2.9 psi ICFE SS 20H will be 100% open.

The function modules for ICF SS 25 (Stainless Steel)

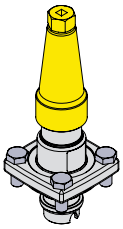
ICFS SS 25
Shut-off valve module
This module has the function of a stop valve, and has a red cap.


ICFS SS 25

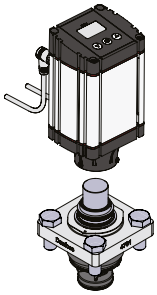
ICFN SS 25
Stop & check valve module
This module has the function of a combined stop and check valve, and has a green cap.


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

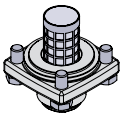
ICM SS 25-A or B
Motor operated valve module
This module is a stepper motor actuator valve for on/off and modulating control of the refrigerant flow.


ICM SS 25-A or B

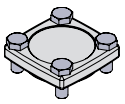
ICFF SS 25
Strainer module
This module functions as a strainer.

ICFF SS 25:
Pleated 150µ (100 mesh) / 160 cm^2 (24.8 in^2)

ICFF SS 25E:
Pleated 150µ (100 mesh) / 330 cm^2 (51.2 in^2)


ICFF SS 25 / ICFF SS 25E

ICFB SS 25
Blind top cover
This provides a blanking cover for unused module ports.

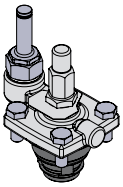

ICFB SS 25

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.

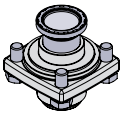
At a pressure differential of minimum 0.2 Bar (2.9 psi) ICFE SS 25 will be 100% open.

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

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 www.danfoss.com)

- 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)

To facilitate selection of the right ICF valve station Danfoss has predefined and grouped a large number of code numbers matching common applications:

Application no.		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	–	
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.	–	

*) ICF 50 only
**) ICS typical options: On/Off solenoid, Pressure or Temperature control (see ICS data sheet)

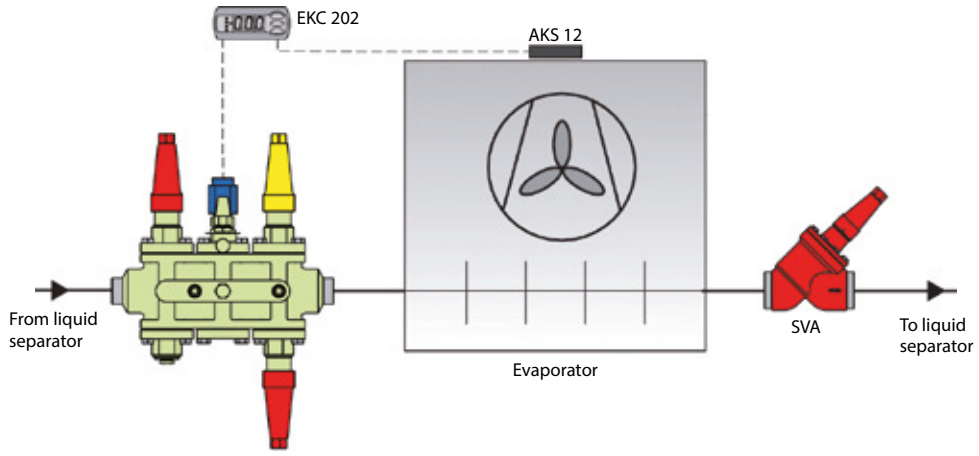
Miscellaneous		
90	Multipurpose configurations	–

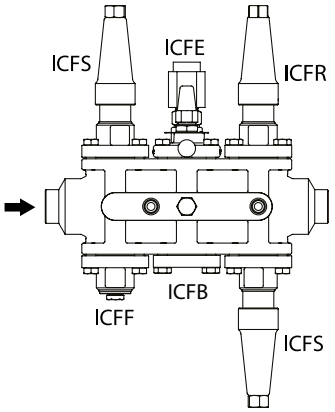
For specific identification of the different codes and flow capacity (K_v) please refer to ordering section.

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:

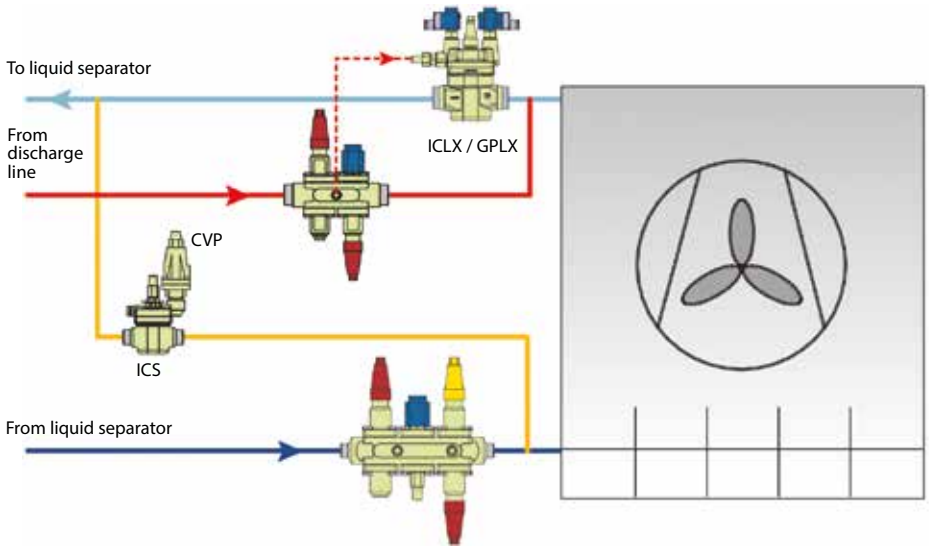


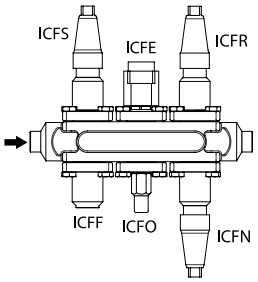


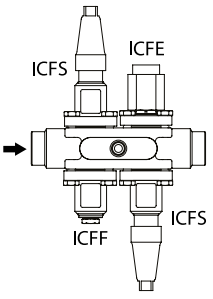
Not all valves are shown. Not to be used for construction purposes.

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).





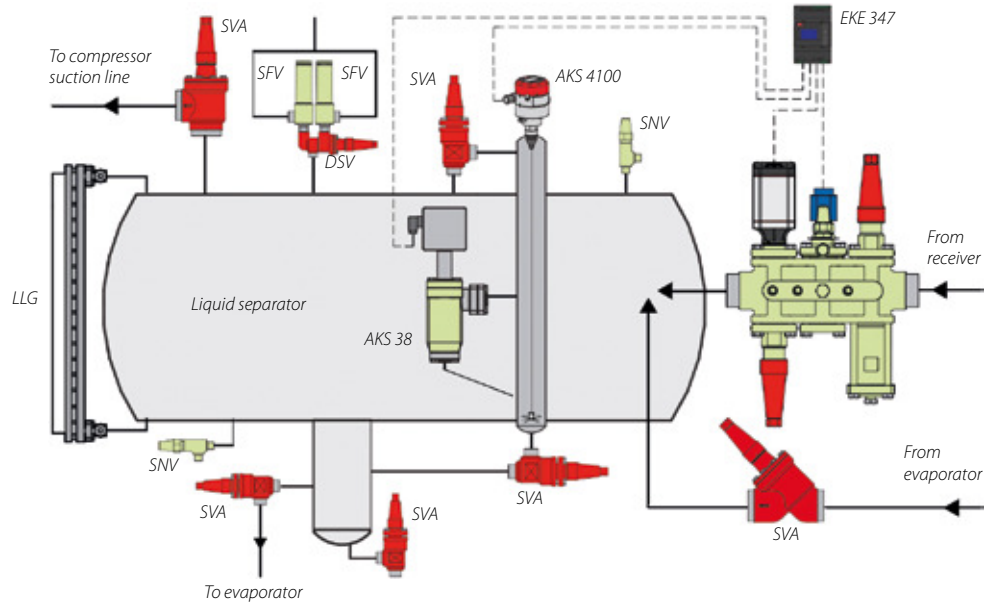


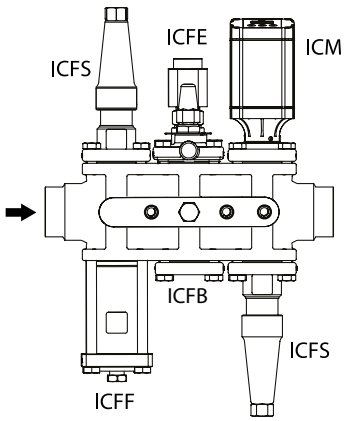
Not all valves are shown. Not to be used for construction purposes.

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.

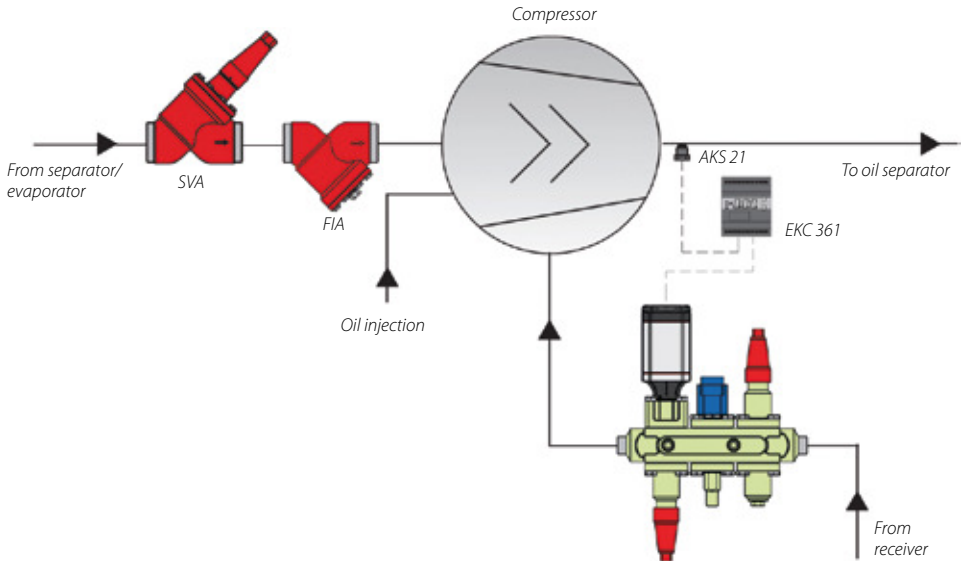


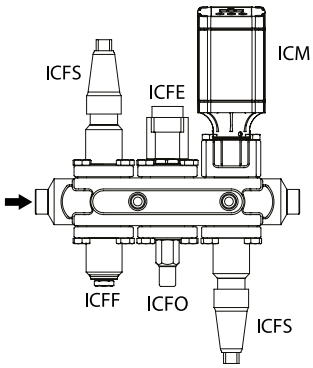


Not all valves are shown. Not to be used for construction purposes.

Example of application: Liquid injection line

A valve combination for compressor liquid injection with electronic injection valve is required. It is a required to have a solenoid valve in front of the control valve.



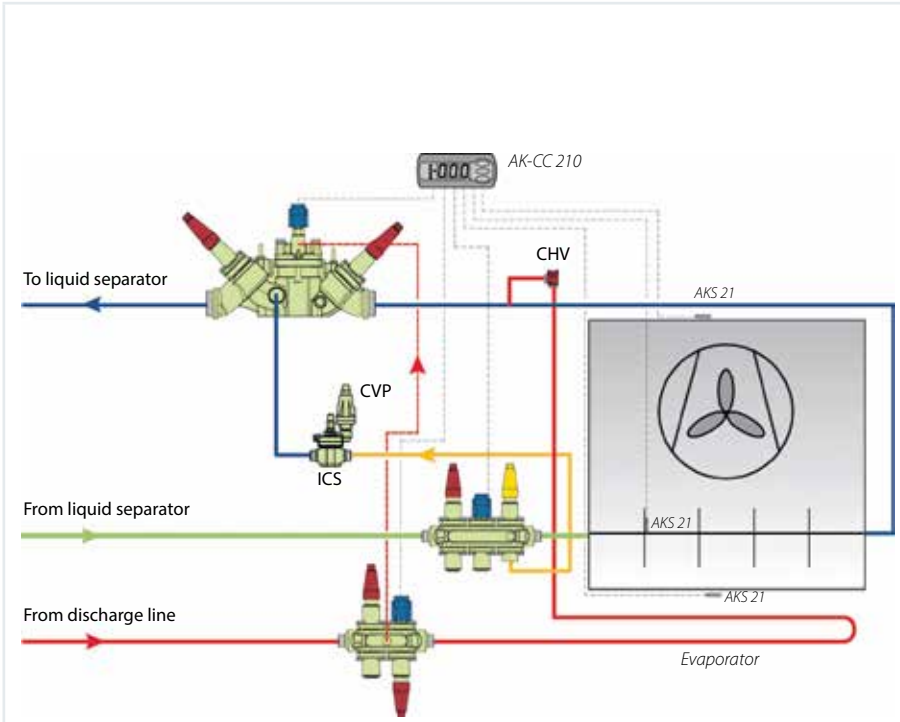


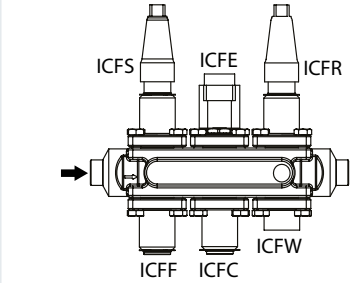
Not all valves are shown. Not to be used for construction purposes.

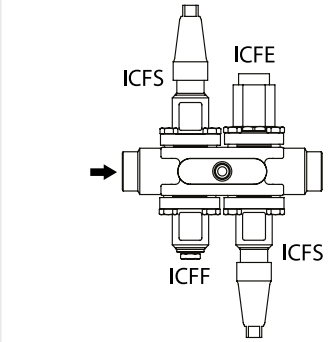
Application example

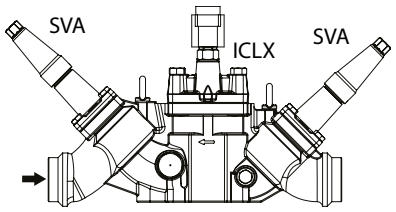
Example of application: Liquid feed line/Hotgas defrost line/ Return line

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.







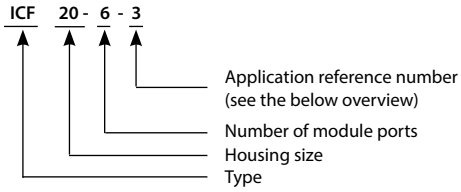


Not all valves are shown. Not to be used for construction purposes.

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).



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).

Label example:



Application overview (generic configuration - connection type and size excluded)

Application no.		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	–	
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.	–	

*) ICF 50 only
**) ICS typical options: On/Off solenoid, Pressure or Temperature control (see ICS data sheet)

Miscellaneous		
90	Multipurpose configurations	–

Ordering ICF

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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	6	1RA	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.5	20.9	027L3004
ICF 20	6	1RA	1	25	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	10.1	22.2	027L3373
ICF 25	6	1RB	1 1/4	32	Butt-weld ANSI (B 36.10)	A	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	7.3	23.8	52.4	027L4012
ICF 20	6	1RA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.5	20.9	027L3000
ICF 20	6	1RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.7	21.3	027L3002
ICF 20	6	1HRA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20A	ICFS 20	2.4	10.3	22.7	027L3302
ICF 20	6	1HRB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	2.8	10.3	22.7	027L3406
ICF 25	6	1RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	5.3	23.6	51.9	027L4002
ICF 20	6	1RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.7	21.3	027L3003
ICF 20	6	1HRA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20A	ICFS 20	2.4	10.3	22.7	027L3303
ICF 20	6	1HRB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	2.8	10.3	22.7	027L3407
ICF 25	6	1RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	5.3	23.6	51.9	027L4006
ICF 25	6	1RB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	7.3	23.6	51.9	027L4011
ICF 25	6	1RB	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	7.3	22.7	49.9	027L4016
ICF 20	6	1RA	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	10.4	22.9	027L3005
ICF 20	6	1RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.9	21.8	027L3007
ICF 20	6	1HRA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20-E	ICFE 20-H	ICFB 20	ICFR 20-A	ICFS 20	2.4	10.9	24.0	027L3305
ICF 20	6	1HRB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	2.8	10.9	24.0	027L3408
ICF 25	6	1RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	5.3	24.1	53.0	027L4003
ICF 20	6	1RA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	10.1	22.2	027L3008
ICF 20	6	1HRA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20A	ICFS 20	2.4	10.9	24.0	027L3306
ICF 20	6	1HRB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFS 20	2.8	10.9	24.0	027L3409
ICF 25	6	1RA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25A	ICFS 25	5.3	23.8	52.4	027L4008
ICF 25	6	1RB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	7.3	24.2	53.2	027L4013
ICF 25	6	1RB	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICFR 25B	ICFS 25	7.3	23.8	52.4	027L4017

Application 2: Liquid feed

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	6	2RA	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.8	21.6	027L3013
ICF 20	6	2RA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.7	21.3	027L3009
ICF 20	6	2RB	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20B	ICFN 20	2.3	10.2	22.9	027L3398
ICF 20	6	2RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.7	21.3	027L3011
ICF 20	6	2HRA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20A	ICFN 20	2.3	10.2	22.9	027L3309
ICF 20	6	2HRB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	2.6	9.2	20.2	027L3410
ICF 20	6	2RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.7	21.3	027L3012
ICF 20	6	2HRA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20A	ICFN 20	2.3	9.2	20.2	027L3310
ICF 20	6	2HRB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	2.6	9.2	20.2	027L3411
ICF 25	6	2RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICFR 25A	ICFN 25	5.3	23.3	51.3	027L4135
ICF 20	6	2RA	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	10.1	22.2	027L3014
ICF 20	6	2RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.9	21.8	027L3016
ICF 20	6	2HRA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20A	ICFN 20	2.3	8.8	19.4	027L3312
ICF 20	6	2HRB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	2.6	8.8	19.4	027L3412
ICF 20	6	2RA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.9	21.8	027L3017
ICF 20	6	2HRA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20A	ICFN 20	2.3	10.9	24.0	027L3313
ICF 20	6	2HRB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	2.6	10.9	24.0	027L3413

**) 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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Liquid feed

Application 3: Liquid feed

Type	# of Modules	Appl. #	Connection size		Connection type		Module location						K_v total	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)	A	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	9.9	21.8	027L3022
ICF 20	6	3RA	1	25	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	9.9	21.8	027L3419
ICF 20	6	3RA	¾	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	9.6	21.1	027L3018
ICF 20	6	3RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	9.7	21.3	027L3020
ICF 20	6	3HRA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	10.5	23.1	027L3316
ICF 20	6	3HRB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	2.6	10.6	23.3	027L3414
ICF 25	6	3RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	23.4	51.5	027L4020
ICF 20	6	3RA	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	10.4	22.9	027L3021
ICF 20	6	3HRA	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	10.6	23.3	027L3317
ICF 20	6	3HRB	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	2.6	10.6	23.3	027L3415
ICF 25	6	3RA	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	23.2	51.0	027L4024
ICF 20	6	3RB	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFS 20	2.4	10.4	22.9	027L3430
ICF 25	6	3RB	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	23.8	52.4	027L4029
ICF 25	6	3RB	1 ½	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	24.0	52.8	027L4034
ICF 20	6	3RA	¾	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	10.0	22.0	027L3023
ICF 20	6	3HRA	¾	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	10.7	23.5	027L3352
ICF 20	6	3HRB	¾	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	2.6	10.7	23.5	027L3418
ICF 20	6	3RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	10.0	22.0	027L3025
ICF 20	6	3HRA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	11.2	24.6	027L3319
ICF 20	6	3HRB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	2.6	11.2	24.6	027L3416
ICF 25	6	3RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	24.2	53.2	027L4021
ICF 20	6	3RA	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	ICFR 20A	ICFS 20	2.1	10.1	22.2	027L3026
ICF 20	6	3HRA	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	11.3	24.9	027L3320
ICF 20	6	3HRB	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFS 20	2.6	11.3	24.9	027L3417
ICF 25	6	3RA	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	24.1	53.0	027L4026
ICF 25	6	3RB	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	24.1	53.0	027L4031
ICF 25	6	3RB	1 ½	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	24.2	53.2	027L4035

**) 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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Liquid feed

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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	4	10RA	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	2.3	6.6	14.5	027L3077
ICF 25	4	10RA	1 1/4	32	Butt-weld ANSI (B 36.10)	A	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	5.5	16.1	35.4	027L4081
ICF 15	4	10RA	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20A	–	–	2.2	6.3	13.8	027L4548
ICF 15	4	10RB	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20B	–	–	2.7	6.3	13.8	027L4544
ICF 15	4	10HRA	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20A	–	–	2.4	7.0	15.4	027L4552
ICF 15	4	10HRB	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20B	–	–	3.1	7.0	15.4	027L4549
ICF 15	4	10RA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20A	–	–	2.2	6.3	13.8	027L4545
ICF 15	4	10RB	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFR 20B	–	–	2.7	6.3	13.8	027L4540
ICF 15	4	10HRB	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20B	–	–	3.1	7.0	15.4	027L4524
ICF 20	4	10RA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	2.3	6.7	14.7	027L3073
ICF 20	4	10HRA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFR 20A	–	–	2.5	7.9	17.4	027L3370
ICF 20	4	10HRB	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFR 20B	–	–	3.0	7.9	17.4	027L3383
ICF 20	4	10RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	2.3	7.2	15.8	027L3075
ICF 20	4	10RB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFR 20B	–	–	2.6	7.2	15.8	027L3431
ICF 20	4	10HRA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFR 20A	–	–	2.5	7.9	17.4	027L3339
ICF 20	4	10HRB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFR 20B	–	–	3.0	7.9	17.4	027L3400
ICF 25	4	10RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	5.5	15.9	35.0	027L4076
ICF 25	4	10RB	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	7.9	15.9	35.0	027L4169
ICF 20	4	10RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	2.3	6.7	14.7	027L3076
ICF 20	4	10HRA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFR 20A	–	–	2.5	7.9	17.4	027L3340
ICF 20	4	10HRB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFR 20B	–	–	3.0	7.9	17.4	027L3401
ICF 25	4	10RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	5.5	15.8	34.8	027L4080
ICF 25	4	10RB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	7.9	15.4	33.9	027L4085
ICF 25	4	10RB	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	7.9	15.8	34.8	027L4090
ICF 15	4	10HRB	1/2	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFE 20H	ICFR 20B	–	–	3.1	7.0	15.4	027L4530
ICF 20	4	10RA	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFR 20A	–	–	2.3	7.0	15.4	027L3078
ICF 20	4	10HRA	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20A	–	–	2.5	8.4	18.5	027L3350
ICF 20	4	10HRB	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20B	–	–	3.0	8.4	18.5	027L3404
ICF 20	4	10RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFR 20A	–	–	2.3	6.9	15.2	027L3080
ICF 20	4	10HRA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20A	–	–	2.5	7.8	17.2	027L3342
ICF 20	4	10HRB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20B	–	–	3.0	7.8	17.2	027L3402
ICF 25	4	10RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFR 25A	–	–	5.5	15.8	34.8	027L4077
ICF 20	4	10RA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFR 20A	–	–	2.3	7.0	15.4	027L3081
ICF 20	14	10HRA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20A	–	–	2.5	8.1	17.8	027L3343
ICF 20	4	10HRB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFR 20B	–	–	3.0	8.1	17.8	027L3403
ICF 25	4	10RA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFR 25A	–	–	5.5	12.7	27.9	027L4082
ICF 25	4	10RB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFR 25B	–	–	7.9	16.2	35.6	027L4087
ICF 25	4	10RB	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFR 25B	–	–	7.9	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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Liquid feed

Application 15: Liquid feed with external connection

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	6	15RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFW 20D	ICFR 20A	2.1	9.1	20.0	027L3157
ICF 25	6	15RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25A	5.3	21.8	48.0	027L4121
ICF 25	6	15RB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	7.3	22.7	49.9	027L4126
ICF 25	6	15RB	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	7.3	21.9	48.2	027L4130
ICF 25	6	15RA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFR 25A	5.3	23.5	51.7	027L4122
ICF 25	6	15RB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	7.3	23.6	51.9	027L4127
ICF 25	6	15RB	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFR 25B	7.3	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						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	6	4	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFB 20	ICFS 20	3.0	9.2	20.2	027L3028
ICF 20	6	4	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFB 20	ICFS 20	3.0	9.2	20.2	027L3029
ICF 20	6	4	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFS 20	3.0	9.4	20.7	027L3124
ICF 20	6	4	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFS 20	3.0	9.3	20.5	027L3032
ICF 20	6	4	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFS 20	3.0	9.5	20.9	027L3033

Application 8: Solenoid - Liquid & hot gas lines

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 15	4	8	1/2	15	Butt-weld ANSI (B 36.10)	A	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4533
ICF 15	4	8	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4535
ICF 20	4	8	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFO 20	–	–	3.2	6.3	13.9	027L3062
ICF 15	4	8	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4532
ICF 15	4	8	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4520
ICF 20	4	8	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	–	–	3.2	7.2	15.8	027L3060
ICF 25	4	8	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	–	–	9.9	12.4	27.3	027L4054
ICF 20	4	8	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	–	–	3.2	6.3	13.9	027L3061
ICF 25	4	8	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	–	–	9.9	14.5	31.9	027L4133
ICF 25	4	8	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	–	–	9.9	14.5	31.9	027L4059
ICF 15	4	8	1/2	15	Pipe thread (ANSI B 1.20.1)	F	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4534
ICF 15	4	8	1/2	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4526
ICF 20	4	8	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	–	–	3.2	6.6	14.5	027L3366
ICF 20	4	8	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	–	–	3.2	6.7	14.7	027L3064
ICF 20	4	8	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	–	–	3.2	6.7	14.7	027L3065
ICF 15	4	8	7/8	22	Solder ANSI B 16.22	X	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	5.7	12.6	027L4536
ICF 15	4	8	7/8	22	Solder DIN-EN1254-1	Y	ICFS 15*	ICFF 15*	ICFE 20	ICFO 20	–	–	3.2	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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Liquid injection

Application 5: Liquid injection (expansion)

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	6	5MA	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	9.6	21.1	027L3037
ICF 20	6	5MB	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	9.9	21.8	027L3043
ICF 25	6	5MA	1 1/4	32	Butt-weld ANSI (B 36.10)	A	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	23.0	50.6	027L4043
ICF 20	6	5MA33	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	10.1	22.2	027L3367
ICF 20	6	5MA33	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	9.8	21.6	027L3151
ICF 20	6	5MA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	9.8	21.6	027L3034
ICF 20	6	5MA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	9.8	21.6	027L3147
ICF 20	6	5MB	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	9.8	21.6	027L3145
ICF 20	6	5MB66	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	9.6	21.1	027L3161
ICF 20	6	5MA33	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	10.1	22.2	027L3388
ICF 20	6	5MA33	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	9.6	21.1	027L3153
ICF 20	6	5MA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	9.8	21.6	027L3036
ICF 20	6	5HMA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-A	ICFS 20	0.6	10.4	22.9	027L3322
ICF 20	6	5MA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	9.8	21.6	027L3148
ICF 20	6	5MB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	9.6	21.1	027L3042
ICF 20	6	5MB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20-74	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	9.8	21.6	027L3149
ICF 20	6	5HMB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	2.0	11.4	25.1	027L3325
ICF 20	6	5MB66	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	10.5	23.1	027L3389
ICF 20	6	5MC	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	2.5	9.9	21.8	027L3047
ICF 20	6	5HMC	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	3.0	11.4	25.1	027L3328
ICF 25	6	5MA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	22.8	50.2	027L4038
ICF 25	6	5MA33	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	2.0	23.0	50.6	027L4171
ICF 20	6	5MB66	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	9.6	21.1	027L3374
ICF 20	6	5MC	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	2.5	9.8	21.6	027L3048
ICF 20	6	5HMB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20-H	ICFB 20	ICM 20-B	ICFS 20	2.0	10.3	22.7	027L3390
ICF 20	6	5HMC	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	3.0	10.3	22.7	027L3329
ICF 25	6	5MA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	23.0	50.6	027L4042
ICF 25	6	5MB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	7.3	22.0	48.5	027L4047
ICF 25	6	5MA	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	21.9	48.2	027L4148
ICF 25	6	5MA	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	22.2	48.9	027L4174
ICF 25	6	5MA33	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	2.0	22.2	48.9	027L4170
ICF 25	6	5MB	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	7.3	22.2	48.9	027L4052
ICF 20	6	5MA33	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	10.1	22.2	027L3154
ICF 20	6	5MA	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	10.0	22.0	027L3038
ICF 20	6	5MB66	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	10.5	23.1	027L3159
ICF 20	6	5MB	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	9.8	21.6	027L3127
ICF 20	6	5MA33	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20-E	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	10.1	22.2	027L3391
ICF 20	6	5MA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-A	ICFS 20	0.6	10.1	22.2	027L3040
ICF 20	6	5HMA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-A	ICFS 20	0.6	11.4	25.1	027L3323
ICF 20	6	5MB66	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	10.5	23.1	027L3160
ICF 20	6	5MB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-B	ICFS 20	1.9	10.0	22.0	027L3045
ICF 20	6	5HMB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	2.0	11.0	24.2	027L3326
ICF 20	6	5MC	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	2.5	10.0	22.0	027L3051
ICF 20	6	5HMC	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	3.0	10.0	22.0	027L3330
ICF 25	6	5MA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	23.1	50.8	027L4039
ICF 25	6	5MA33	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	2.0	22.0	48.5	027L4173
ICF 25	6	5MA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	23.2	51.0	027L4044
ICF 20	6	5MB66	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20-E	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	10.5	23.1	027L3392
ICF 25	6	5MB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	7.3	23.2	51.1	027L4049
ICF 20	6	5MC	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICM 20-C	ICFS 20	2.5	10.1	22.2	027L3052
ICF 20	6	5HMB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20-E	ICFE 20-H	ICFB 20	ICM 20-B	ICFS 20	2.0	11.0	24.2	027L3393
ICF 25	6	5MA	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	3.0	11.0	24.2	027L3331
ICF 25	6	5MA33	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	2.0	22.0	48.5	027L4172
ICF 25	6	5MA	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-A33	ICFS 25	5.0	23.1	50.8	027L4132
ICF 25	6	5MB	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICFE 25	ICFB 25	ICM 25-B	ICFS 25	7.3	23.2	51.1	027L4053

**) 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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Liquid injection

Application 12: Liquid injection (expansion) PWM

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 15	4	12	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 15*	ICFF 15*	ICFA 20	ICFS 20	–	–	0.3	6.2	13.7	027L4556
ICF 15	4	12	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFA 20	ICFS 20	–	–	0.3	6.2	13.7	027L4573
ICF 15	4	12	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFA 20	ICFS 20	–	–	0.3	6.2	13.7	027L4522
ICF 20	4	12	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFA 20	ICFS 20	–	–	0.3	6.8	15.0	027L3089
ICF 15	4	12	1/2	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFA 20	ICFS 20	–	–	0.3	6.2	13.7	027L4528
ICF 20	4	12	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFA 20	ICFS 20	–	–	0.3	6.8	15.0	027L3091

Application 14: Liquid injection (expansion)

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 15	4	14MA	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICM 20-A	ICFS 20	–	–	0.6	6.8	15.0	027L4551
ICF 15	4	14MB	1/2	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICM 20-B	ICFS 20	–	–	2.2	6.8	15.0	027L4559
ICF 20	4	14MA33	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-A33	ICFS 20	–	–	0.2	7.3	16.1	027L3394
ICF 15	4	14MA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICM 20-A	ICFS 20	–	–	0.6	6.8	15.0	027L4525
ICF 20	4	14MA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-A	ICFS 20	–	–	0.6	7.3	16.1	027L3095
ICF 15	4	14MB66	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICM 20-B66	ICFS 20	–	–	1.5	6.8	15.0	027L4553
ICF 20	4	14MB66	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-B66	ICFS 20	–	–	1.5	7.2	15.8	027L4155
ICF 15	4	14MB	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICM 20-B	ICFS 20	–	–	2.2	6.8	15.0	027L4560
ICF 20	4	14 MA33	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-A33	ICFS 20	–	–	0.2	6.6	14.5	027L3365
ICF 20	4	14MA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-A	ICFS 20	–	–	0.6	7.3	16.1	027L3097
ICF 20	4	14MB66	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-B66	ICFS 20	–	–	1.5	7.2	15.8	027L3356
ICF 20	4	14MB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-B	ICFS 20	–	–	2.1	7.2	15.8	027L3103
ICF 20	4	14MC	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-C	ICFS 20	–	–	3.3	7.2	15.8	027L3108
ICF 25	4	14MA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICM 25-A	ICFS 25	–	–	5.4	15.5	34.1	027L4103
ICF 20	4	14MC	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-C	ICFS 20	–	–	3.3	7.3	16.1	027L3109
ICF 25	4	14MB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	8.5	14.4	31.7	027L4112
ICF 25	4	14MA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICM 25-A	ICFS 25	–	–	5.4	15.4	33.9	027L4107
ICF 25	4	14MA	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICM 25-A	ICFS 25	–	–	5.4	15.3	33.7	027L4182
ICF 25	4	14MB	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICM 25-B	ICFS 25	–	–	8.5	15.3	33.7	027L4117
ICF 15	4	14MA	1/2	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICM 20-A	ICFS 20	–	–	0.6	6.8	15.0	027L4531
ICF 20	4	14MA	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICM 20-A	ICFS 20	–	–	0.6	7.5	16.5	027L3099
ICF 20	4	14MA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICM 20-A	ICFS 20	–	–	0.6	6.7	14.7	027L3101
ICF 20	4	14MB	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICM 20-B	ICFS 20	–	–	2.1	6.7	14.7	027L3106
ICF 25	4	14MB	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICM 25-B	ICFS 25	–	–	8.5	17.3	38.1	027L4114
ICF 25	4	14MB	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25-E	ICM 25-B	ICFS 25	–	–	8.5	16.6	36.6	027L4118
ICF 20	4	14MC	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICM 20-C	ICFS 20	–	–	3.3	6.7	14.7	027L3112
ICF 25	4	14MA	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICM 25-A	ICFS 25	–	–	5.4	15.8	34.8	027L4104
ICF 20	4	14MC	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICM 20-C	ICFS 20	–	–	3.3	7.4	16.3	027L3113
ICF 25	4	14MA	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICM 25-A	ICFS 25	–	–	5.4	15.6	34.3	027L4109
ICF 25	4	14MA	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICM 25-A	ICFS 25	–	–	5.4	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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	4	9	¾	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	7.2	15.8	027L3069
ICF 15	4	9H	¾	20	Butt-weld ANSI (B 36.10)	A	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	4.2	7.2	15.4	027L4554
ICF 15	4	9	½	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFS 20	–	–	3.3	6.3	13.9	027L4543
ICF 15	4	9H	½	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	4.2	7.2	15.4	027L4541
ICF 15	4	9	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFS 20	–	–	3.3	6.3	13.9	027L4571
ICF 20	4	9	¾	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	6.7	14.7	027L3120
ICF 15	4	9H	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	4.2	7.2	15.4	027L4521
ICF 20	4	9	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	7.2	15.8	027L3067
ICF 20	4	9H	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	4.1	8.2	18.0	027L3333
ICF 25	4	9	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.8	34.8	027L4063
ICF 20	4	9	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	6.8	15.0	027L3068
ICF 20	4	9H	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	4.1	7.6	16.7	027L3334
ICF 25	4	9	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.7	34.5	027L4067
ICF 25	4	9	1 ½	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.7	34.5	027L4072
ICF 15	4	9	½	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFE 20	ICFS 20	–	–	3.3	6.3	13.9	027L4538
ICF 15	4	9H	½	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFE 20H	ICFS 20	–	–	4.2	7.2	15.4	027L4527
ICF 20	4	9H	¾	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFS 20	–	–	4.1	8.0	17.6	027L3351
ICF 20	4	9	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFS 20	–	–	3.3	7.0	15.4	027L3071
ICF 20	4	9H	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFS 20	–	–	4.1	8.1	17.8	027L3336
ICF 25	4	9	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFS 25	–	–	9.7	16.0	35.2	027L4064
ICF 20	4	9	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFS 20	–	–	3.3	7.4	16.3	027L3072
ICF 20	4	9H	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFS 20	–	–	4.1	7.9	17.4	027L3337
ICF 25	4	9	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFS 25	–	–	9.7	16.0	35.2	027L4069
ICF 25	4	9	1 ½	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFS 25	–	–	9.7	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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Solenoid multiple evaporators

Application 11: Solenoid - Multiple evaporators

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	4	11	¾	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	3.0	6.5	14.3	027L3085
ICF 15	4	11	½	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFC 20	–	–	3.1	6.5	14.3	027L4539
ICF 15	4	11	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFC 20	–	–	3.1	6.5	14.3	027L4547
ICF 15	4	11H	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20-H	ICFC 20	–	–	3.7	7.2	15.8	027L4546
ICF 20	4	11	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	3.0	6.4	14.1	027L3083
ICF 20	4	11H	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	–	–	3.7	8.0	17.6	027L3345
ICF 20	4	11	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	–	–	3.0	6.5	14.3	027L3084
ICF 20	4	11H	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	–	–	3.7	7.4	16.3	027L3346
ICF 25	4	11	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	–	–	9.6	14.9	32.8	027L4094
ICF 25	4	11	1 ½	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	–	–	9.6	13.7	30.1	027L4099
ICF 20	4	11	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	–	–	3.0	6.9	15.2	027L3087
ICF 20	4	11H	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	–	–	3.7	8.0	17.6	027L3348
ICF 20	4	11	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFC 20	–	–	3.0	6.7	14.7	027L3088
ICF 20	4	11H	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	–	–	3.7	7.4	16.3	027L3349
ICF 25	4	11	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	–	–	9.6	13.0	28.6	027L4096
ICF 25	4	11	1 ½	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	–	–	9.6	14.3	31.5	027L4100

Application 18: Solenoid - Multiple evaporators

Type	# of Modules	Appl. #	Connection size		Connection type		Module location						Kv total	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)	A	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	3.7	7.2	15.8	027L4572
ICF 15	4	18H	½	15	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	3.7	7.2	15.8	027L4542
ICF 15	4	18	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20	ICFN 20	–	–	3.1	6.5	14.3	027L4574
ICF 15	4	18H	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	3.7	7.2	15.8	027L4550
ICF 25	4	18	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFN 25	–	–	9.6	15.8	34.8	027L4175
ICF 25	4	18	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFN 25	–	–	9.6	16.6	36.5	027L4164
ICF 25	4	18	1 ¼	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	9.6	16.6	36.5	027L4575
ICF 25	4	18	1 ½	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFN 25	–	–	9.6	16.6	36.5	027L4165
ICF 25	4	18	1 ½	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	9.6	16.6	36.6	027L4177
ICF 20	4	18H	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFN 20	–	–	3.7	8.0	17.6	027L3354
ICF 15	4	18	½	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFE 20	ICFN 20	–	–	3.1	6.5	14.3	027L4558
ICF 15	4	18H	½	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFE 20-H	ICFN 20	–	–	3.7	7.2	15.8	027L4557
ICF 25	4	18	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	9.6	16.9	37.2	027L4136
ICF 20	4	18H	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFN 20	–	–	3.7	8.0	17.6	027L3355
ICF 25	4	18	1 ¼	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	9.6	16.0	35.2	027L4137
ICF 25	4	18	1 ½	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFN 25	–	–	9.6	16.2	35.6	027L4138

Liquid PWM

Application 13: Liquid injection & liquid feed PWM

Type	# of Modules	Appl. #	Connection size		Connection type		Module location						Kv total	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)	A	ICFS 15*	ICFF 15*	ICFA 20	ICFN 20	–	–	0.3	6.2	13.7	027L4555
ICF 15	4	13	¾	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFA 20	ICFN 20	–	–	0.3	6.2	13.7	027L4523
ICF 15	4	13	½	15	Socket weld, ANSI (B 16.11)	S	ICFS 15*	ICFF 15*	ICFA 20	ICFN 20	–	–	0.3	6.2	13.7	027L4529

**) 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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Return lines

Application 41: Return lines - ON/OFF

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 50	4	41	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	–	–	34.4	25.5	56.1	027L5021
ICF 50	4	41	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	–	–	34.4	25.5	56.1	027L5023
ICF 50	4	41	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	–	–	34.4	25.5	56.1	027L5022
ICF 50	4	41	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICLX 50	SVA-S 50	–	–	34.4	25.5	56.1	027L5024
ICF 65	3	41	2 ½	65	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICLX 65	SVA-S 65	–	–	52.5	32.7	71.9	027L6522
ICF 65	3	41	3	80	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICLX 65	SVA-S 65	–	–	52.5	32.7	71.9	027L6524
ICF 65	3	41	2 ½	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICLX 65	SVA-S 65	–	–	52.5	32.7	71.9	027L6521
ICF 65	3	41	3	80	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICLX 65	SVA-S 65	–	–	52.5	32.7	71.9	027L6523

Return lines

Application 42: Return lines - Pressure (temperature) - Mechanical control

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 50	4	42S50	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	–	–	34.3	25.8	56.8	027L5001
ICF 50	4	42S32	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	–	–	18.8	25.8	56.8	027L5005
ICF 50	4	42S40	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	–	–	26.5	25.8	56.8	027L5009
ICF 50	4	42S50	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	–	–	34.3	25.8	56.8	027L5003
ICF 50	4	42S32	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	–	–	18.8	25.8	56.8	027L5007
ICF 50	4	42S40	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	–	–	26.5	25.8	56.8	027L5011
ICF 50	4	42S50	1 ½	40	Socket weld. ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	–	–	34.3	25.8	56.8	027L5002
ICF 50	4	42S32	1 ½	40	Socket weld. ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	–	–	18.8	25.8	56.8	027L5006
ICF 50	4	42S40	1 ½	40	Socket weld. ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	–	–	26.5	25.8	56.8	027L5010
ICF 50	4	42S50	2	50	Socket weld. ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50	SVA-S 50	–	–	34.3	25.8	56.8	027L5004
ICF 50	4	42S32	2	50	Socket weld. ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-32	SVA-S 50	–	–	18.8	25.8	56.8	027L5008
ICF 50	4	42S40	2	50	Socket weld. ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-40	SVA-S 50	–	–	26.5	25.8	56.8	027L5012
ICF 65	3	42S65	2 ½	65	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICS 65	SVA-S 65	–	–	46.0	33.3	73.3	027L6502
ICF 65	3	42S40	2 ½	65	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICS 65-40	SVA-S 65	–	–	24.9	33.3	73.3	027L6506
ICF 65	3	42S80	2 ½	65	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICS 80	SVA-S 65	–	–	50.0	33.3	73.3	027L6510
ICF 65	3	42S65	3	80	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICS 65	SVA-S 65	–	–	46.0	33.3	73.3	027L6504
ICF 65	3	42S40	3	80	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICS 65-40	SVA-S 65	–	–	24.9	33.3	73.3	027L6508
ICF 65	3	42S80	3	80	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICS 80	SVA-S 65	–	–	50.0	33.3	73.3	027L6512
ICF 65	3	42S65	2 ½	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 65	SVA-S 65	–	–	46.0	33.3	73.3	027L6501
ICF 65	3	42S40	2 ½	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 65-40	SVA-S 65	–	–	24.9	33.3	73.3	027L6505
ICF 65	3	42S80	2 ½	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 80	SVA-S 65	–	–	50.0	33.3	73.3	027L6509
ICF 65	3	42S65	3	80	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 65	SVA-S 65	–	–	46.0	33.3	73.3	027L6503
ICF 65	3	42S40	3	80	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 65-40	SVA-S 65	–	–	24.9	33.3	73.3	027L6507
ICF 65	3	42S80	3	80	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 80	SVA-S 65	–	–	50.0	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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Return lines

Application 43: Return lines - Pressure (temperature) - Electronic control

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 50	4	43MA	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	–	–	22.0	24.8	54.6	027L5013
ICF 50	4	43MB	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	–	–	34.0	24.8	54.6	027L5017
ICF 50	4	43MA	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	–	–	22.0	24.8	54.6	027L5015
ICF 50	4	43MB	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	–	–	34.0	24.8	54.6	027L5019
ICF 50	4	43MA	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	–	–	22.0	24.8	54.6	027L5014
ICF 50	4	43MB	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	–	–	34.0	24.8	54.6	027L5018
ICF 50	4	43MA	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50 - A	SVA-S 50	–	–	22.0	24.8	54.6	027L5016
ICF 50	4	43MB	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50 - B	SVA-S 50	–	–	34.0	24.8	54.6	027L5020
ICF 65	3	43MA	2 ½	65	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICM 65 - A	SVA-S 65	–	–	29.3	32.9	72.4	027L6514
ICF 65	3	43MB	2 ½	65	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICM 65 - B	SVA-S 65	–	–	45.3	32.9	72.4	027L6518
ICF 65	3	43MA	3	80	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICM 65 - A	SVA-S 65	–	–	29.3	32.9	72.4	027L6516
ICF 65	3	43MB	3	80	Butt-weld ANSI (B 36.10)	A	SVA-S 65*)	–	ICM 65 - B	SVA-S 65	–	–	45.3	32.9	72.4	027L6520
ICF 65	3	43MA	2 ½	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICM 65 - A	SVA-S 65	–	–	29.3	32.9	72.4	027L6513
ICF 65	3	43MB	2 ½	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICM 65 - B	SVA-S 65	–	–	45.3	32.9	72.4	027L6517
ICF 65	3	43MA	3	80	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICM 65 - A	SVA-S 65	–	–	29.3	32.9	72.4	027L6515
ICF 65	3	43MB	3	80	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICM 65 - B	SVA-S 65	–	–	45.3	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						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 50	4	44	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	–	–	29.6	25.5	56.1	027L5045
ICF 50	4	44	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	–	–	29.6	25.5	56.1	027L5046
ICF 50	4	44	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	–	–	29.6	25.5	56.1	027L5047
ICF 50	4	44	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICLX 50	REG 50-B	–	–	29.6	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						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 50	4	45S50	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	–	–	29.5	25.8	56.8	027L5025
ICF 50	4	45S32	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	–	–	17.9	25.8	56.8	027L5029
ICF 50	4	45S40	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	–	–	24.1	25.8	56.8	027L5033
ICF 50	4	45S50	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	–	–	29.5	25.8	56.8	027L5027
ICF 50	4	45S32	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	–	–	17.9	25.8	56.8	027L5031
ICF 50	4	45S40	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	–	–	24.1	25.8	56.8	027L5035
ICF 50	4	45S50	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	–	–	29.5	25.8	56.8	027L5026
ICF 50	4	45S32	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	–	–	17.9	25.8	56.8	027L5030
ICF 50	4	45S40	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	–	–	24.1	25.8	56.8	027L5034
ICF 50	4	45S50	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50	REG 50-B	–	–	29.5	25.8	56.8	027L5028
ICF 50	4	45S32	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-32	REG 50-B	–	–	17.9	25.8	56.8	027L5032
ICF 50	4	45S40	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICS 50-40	REG 50-B	–	–	24.1	25.8	56.8	027L5036
ICF 65	3	45S65	3	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 65	REG 65-B	–	–	44.3	33.3	73.3	027L6525
ICF 65	3	45S65	3	65	Butt-weld DIN-EN 10220	D	SVA-S 65*)	–	ICS 80	REG 65-B	–	–	47.9	33.3	73.3	027L6526

Application 46: Pressure (temperature) Electronic control + Manual Regulating

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 50	4	46MA	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*	ICFB 50	ICM 50-A	REG 50-B	–	–	20.6	24.8	54.6	027L5037
ICF 50	4	46MB	1 ½	40	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	–	–	29.4	24.8	54.6	027L5041
ICF 50	4	46MA	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	–	–	20.6	24.8	54.6	027L5039
ICF 50	4	46MB	2	50	Butt-weld DIN-EN 10220	D	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	–	–	29.4	24.8	54.6	027L5043
ICF 50	4	46MA	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	–	–	20.6	24.8	54.6	027L5038
ICF 50	4	46MB	1 ½	40	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	–	–	29.4	24.8	54.6	027L5042
ICF 50	4	46MA	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50-A	REG 50-B	–	–	20.6	24.8	54.6	027L5040
ICF 50	4	46MB	2	50	Socket weld, ANSI (B 16.11)	S	SVA-S 50*)	ICFB 50	ICM 50-B	REG 50-B	–	–	29.4	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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Miscellaneous

Application 90: Miscellaneous

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 20	4	90	3/4	20	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20E	ICFE 20	ICFN 20	–	–	3.0	7.2	15.8	027L3371
ICF 20	6	90	1	25	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFB 20	2.9	10.2	22.5	027L3420
ICF 20	6	90	1	25	Butt-weld ANSI (B 36.10)	A	ICFS 20	ICFF 20	ICFE 20	ICFS 20	ICFB 20	ICFB 20	3.1	9.7	21.4	027L3421
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFR 20A	ICFF 20	ICFA 20	ICFN 20	–	–	0.3	6.4	14.1	027L3156
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFA 20	ICFC 20	–	–	0.3	6.8	15.0	027L3092
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFR 20A	ICFF 20	ICFE 20	ICFN 20	–	–	2.2	6.4	14.1	027L3155
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFN 20	–	–	3.0	7.2	15.8	027L3379
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFW 20-D	ICFE 20	ICFS 20	–	–	3.5	5.9	13.0	027L3385
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFB 20	ICFC 20	–	–	3.9	5.9	13.0	027L3141
ICF 20	4	99	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFB 20	–	–	3.3	6.2	13.7	027L3122
ICF 20	4	99	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	–	–	3.2	6.1	13.4	027L3359
ICF 20	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFN 20	–	–	3.0	7.2	15.9	027L3379
ICF 20	4	99	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFR 20A	–	–	2.3	6.7	14.8	027L3700
ICF 15	4	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 15*	ICFF 15*	ICFR 20A	ICFN 20	–	–	2.3	7.2	15.8	027L4576
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFA 20	ICFS 20	0.3	9.4	20.7	027L3053
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFA 20	ICFC 20	ICFB 20	ICFS 20	0.3	9.9	21.8	027L3056
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A	ICFN 20	0.6	9.7	21.3	027L3372
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFB 20	ICFR 20-A	ICFN 20	2.1	9.7	21.3	027L3133
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFR 20A	2.1	9.4	20.7	027L3144
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICM 20-C	ICFS 20	2.5	9.7	21.3	027L3152
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFS 20	ICFC 20	2.8	9.8	21.6	027L3360
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFB 20	ICFC 20	ICFE 20	ICFO 20	ICFS 20	ICFB 20	2.9	6.2	13.6	027L3121
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFB 20	ICFS 20	3.4	9.6	21.1	027L3387
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.1	9.1	20.1	027L3368
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFS 20	2.3	10.2	22.5	027L3386
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICM 20B	ICFS 20	1.9	9.7	21.4	027L3397
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFS 20	2.9	9.4	20.7	027L3424
ICF 20	6	90	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20B	ICFN 20	1.8	9.6	21.1	027L3425
ICF 20	6	99	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFR 20A	2.1	9.4	20.7	027L3701
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFN 20	–	–	3.0	6.7	14.7	027L3134
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFB 20	–	–	3.3	5.9	13.0	027L3364
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFN 20	–	–	3.7	7.2	15.8	027L3380
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFN 20	–	–	3.0	6.7	14.8	027L3134
ICF 20	4	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20-H	ICFN 20	–	–	3.7	7.2	15.9	027L3380
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFA 20	ICFS 20	0.3	9.8	21.6	027L3361
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFB 20	2.1	9.1	20.0	027L3363
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	12.0	26.4	027L3376
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	11.5	25.3	027L3375
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFB 20	ICFS 20	2.9	9.4	20.7	027L3123
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	7.3	23.6	51.9	027L4168
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFS 25	ICFB 25	8.6	22.0	48.4	027L4151
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.1	9.0	19.8	027L3369
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.3	9.7	21.4	027L3381
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.3	9.7	21.4	027L3382
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFA 20	ICFC 20	0.3	9.6	21.1	027L3396
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20A	ICFB 20	2.3	9.7	21.4	027L3423
ICF 20	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20B	ICFN 20	1.8	9.6	21.1	027L3426
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFB 25	7.3	23.6	52.0	027L4176
ICF 25	6	90	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFF 25	6.9	23.8	52.4	027L4577

***Note**: When For special applications that cannot be covered by our predefined ICF code numbers please contact your local Danfoss Sales company*
**) 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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF

Miscellaneous

Application 90: Miscellaneous

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF 25	6	90	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFB 25	7.3	21.7	47.7	027L4143
ICF 25	6	90	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	7.3	22.7	49.9	027L4160
ICF 25	6	90	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	7.3	21.9	48.2	027L4161
ICF 25	6	90	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFB 25	ICFS 25	8.6	21.9	48.2	027L4162
ICF 25	6	90	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25-E	ICFE 25	ICFC 25	ICFR 25B	ICFB 25	7.3	22.7	49.9	027L4178
ICF 25	6	90	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFW 25D	5.3	23.6	51.9	027L4157
ICF 25	6	90	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	7.3	23.6	51.9	027L4166
ICF 25	6	90	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFW 25D	7.3	21.7	47.7	027L4167
ICF 20	4	90	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICM 20-A33	ICFB 20	–	–	0.2	7.2	15.8	027L3362
ICF 20	4	90	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFA 20	ICFC 20	–	–	0.3	6.8	15.0	027L3094
ICF 20	4	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFR 20A	ICFF 20E	ICFE 20	ICFN 20	–	–	2.2	7.2	15.8	027L4179
ICF 20	4	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFR 20B	ICFF 20E	ICFE 20H	ICFN 20	–	–	2.8	7.9	17.4	027L4578
ICF 20	4	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFB 20	ICFF 20	ICFE 20	ICFN 20	–	–	3.1	7.0	15.4	027L3357
ICF 25	4	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFB 25	ICFF 25E	ICFE 25	ICFN 25	–	–	9.8	14.1	31.0	027L4149
ICF 25	4	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFB 25	ICFR 25A	–	–	5.8	16.1	35.5	027L4180
ICF 25	6	90	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFB 25	ICFR 25A	–	–	5.8	16.1	35.5	027L4181
ICF 20	6	90	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFA 20	ICFS 20	0.3	9.3	20.5	027L3055
ICF 20	6	90	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFA 20	ICFC 20	ICFB 20	ICFS 20	0.3	9.9	21.8	027L3058
ICF 20	6	90	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20	ICFO 20	ICFB 20	ICFN 20	2.8	9.4	20.7	027L3150
ICF 20	6	90	3/4	20	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFW 20S	ICFS 20	3.4	10.4	22.9	027L4153
ICF 20	6	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFW 20S	ICFS 20	3.4	11.5	25.3	027L3377
ICF 25	6	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFB 25	ICFS 25	8.6	23.1	50.8	027L4156
ICF 25	6	90	1	25	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFS 25	8.6	25.1	55.2	027L4158
ICF 20	6	90	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFB 20	ICFS 20	3.4	10.5	23.1	027L3378
ICF 20	6	90	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFW 20S	ICFS 20	3.4	10.5	23.1	027L4152
ICF 25	6	90	1 1/4	32	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFS 25	8.6	25.1	55.2	027L4154
ICF 25	6	90	1 1/2	40	Socket weld, ANSI (B 16.11)	S	ICFS 25	ICFF 25E	ICFE 25	ICFC 25	ICFW 25S	ICFS 25	8.6	25.1	55.2	027L4159

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**) 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. ICAD and coils are not included and must be ordered separately.*

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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	1RA	3/4	20	Butt-weld DIN-EN 10220	D	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	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFS 20	2.1	9.7	21.3	027L4701

Liquid feed

Application 2: Liquid feed

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	2RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICFR 20A	ICFN 20	2.1	9.7	21.3	027L4758
ICF SS 20	6	2HRB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICFR 20B	ICFN 20	2.6	9.2	20.2	027L4759

Liquid feed

Application 3: Liquid feed

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	3RA	3/4	20	Butt-weld DIN-EN 10220	D	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	D	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	D	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	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	23.4	51.5	027L4724
ICF SS 25	6	3RA	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25A	ICFS 25	5.3	23.2	51.0	027L4760
ICF SS 25	6	3RB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	23.8	52.4	027L4725
ICF SS 25	6	3RB	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFR 25B	ICFS 25	7.2	24.0	52.8	027L4761

Liquid feed

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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	10RA	1	25	Butt-weld DIN-EN 10220	D	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	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25A	–	–	5.5	15.9	35.0	027L4731
ICF SS 25	4	10RB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFR 25B	–	–	7.9	15.4	33.9	027L4732

Liquid feed

Application 15: Liquid feed with external connection

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 25	6	15RA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25A	5.3	21.8	48.0	027L4733
ICF SS 25	6	15RB	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFC 25	ICFW 25D	ICFR 25B	7.3	22.7	49.9	027L4734

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. 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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	6	5MA33	3/4	20	Butt-weld DIN-EN 10220	D	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	5MA	1	25	Butt-weld DIN-EN 10220	D	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	D	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	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-B	ICFS 20	2.0	11.4	25.1	027L4718
ICF SS 20	6	5MB66	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-B66	ICFS 20	1.4	9.6	21.1	027L4754
ICF SS 20	6	5MA33	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFO 20	ICM 20-A33	ICFS 20	0.2	9.6	21.1	027L4755
ICF SS 20	6	5HMB	1 1/4	32	Butt-weld DIN-EN 10220	D	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	1 1/2	32	Butt-weld DIN-EN 10220	D	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	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFB 20	ICM 20-C	ICFS 20	3.0	10.3	22.7	027L4719
ICF SS 25	6	5MA	1	25	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	22.8	50.2	027L4726
ICF SS 25	6	5MB	1 1/4	32	Butt-weld DIN-EN 10220	D	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	1 1/2	40	Butt-weld DIN-EN 10220	D	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	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFB 25	ICM 25-A	ICFS 25	5.0	22.3	49.0	027L4735

Liquid injection

Application 14: Liquid injection (expansion)

Type	No. of Modules	Appl. no.	Connection size		Connection type		Module location						K_v total	Weight		Code no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	14MA	3/4	20	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-A	ICFS 20	–	–	0.6	7.3	16.1	027L4710
ICF SS 20	4	14MB	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-B	ICFS 20	–	–	2.1	7.2	15.8	027L4711
ICF SS 20	4	14MC	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-C	ICFS 20	–	–	3.3	7.3	16.1	027L4712
ICF SS 20	4	14MB66	1	25	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICM 20-B66	ICFS 20	–	–	1.5	7.0	15.4	027L4722

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 no.
			[in]	[mm]			M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	9	1	25	Butt-weld DIN-EN 10220	D	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	D	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	4.1	8.2	18.0	027L4720
ICF SS 20	4	9	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20	ICFS 20	–	–	3.3	6.8	15.0	027L4708
ICF SS 20	4	9H	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 20	ICFF 20	ICFE 20H	ICFS 20	–	–	4.1	7.6	16.7	027L4721
ICF SS 25	4	9	1 1/4	32	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.7	34.5	027L4729
ICF SS 25	4	9	1 1/2	40	Butt-weld DIN-EN 10220	D	ICFS 25	ICFF 25	ICFE 25	ICFS 25	–	–	9.7	15.7	34.5	027L4730

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. ICAD and coils are not included and must be ordered separately.*

Ordering ICF SS (Stainless Steel)

Miscellaneous

Application 90: Miscellaneous

Type	No. of Modules	Appl. no.	Connection size		Connection type	Module location						K_v total	Weight		Code no.
			[in]	[mm]		M1	M2	M3	M4	M5	M6		[kg]	[lbs]	
ICF SS 20	4	90	3/4	20	Butt-weld DIN-EN 10220 D	ICFR 20A	ICFF 20	ICFA 20	ICFN 20	–	–	0.3	6.4	14.1	027L4716
ICF SS 20	6	90	3/4	20	Butt-weld DIN-EN 10220 D	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	3/4	20	Butt-weld DIN-EN 10220 D	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	1	25	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20E	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	11.5	25.3	027L4723
ICF SS 20	6	90	3/4	20	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.5	8.9	17.8	027L4740
ICF SS 20	6	90	3/4	20	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFW 20D	2.5	8.9	17.8	027L4741
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220 D	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 D	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 1/4	32	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20A	ICFW 20D	2.6	8.9	17.8	027L4746
ICF SS 20	6	90	1 1/4	32	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20	ICFC 20	ICFR 20B	ICFW 20D	2.6	8.9	17.8	027L4747
ICF SS 20	6	90	3/4	20	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.5	9.8	21.5	027L4748
ICF SS 20	6	90	3/4	20	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.5	9.8	21.5	027L4749
ICF SS 20	6	90	1	25	Butt-weld DIN-EN 10220 D	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 D	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 1/4	32	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20A	ICFW 20D	2.6	9.8	21.5	027L4752
ICF SS 20	6	90	1 1/4	32	Butt-weld DIN-EN 10220 D	ICFS 20	ICFF 20	ICFE 20H	ICFC 20	ICFR 20B	ICFW 20D	2.6	9.8	21.5	027L4753

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. ICAD and coils are not included and must be ordered separately.*

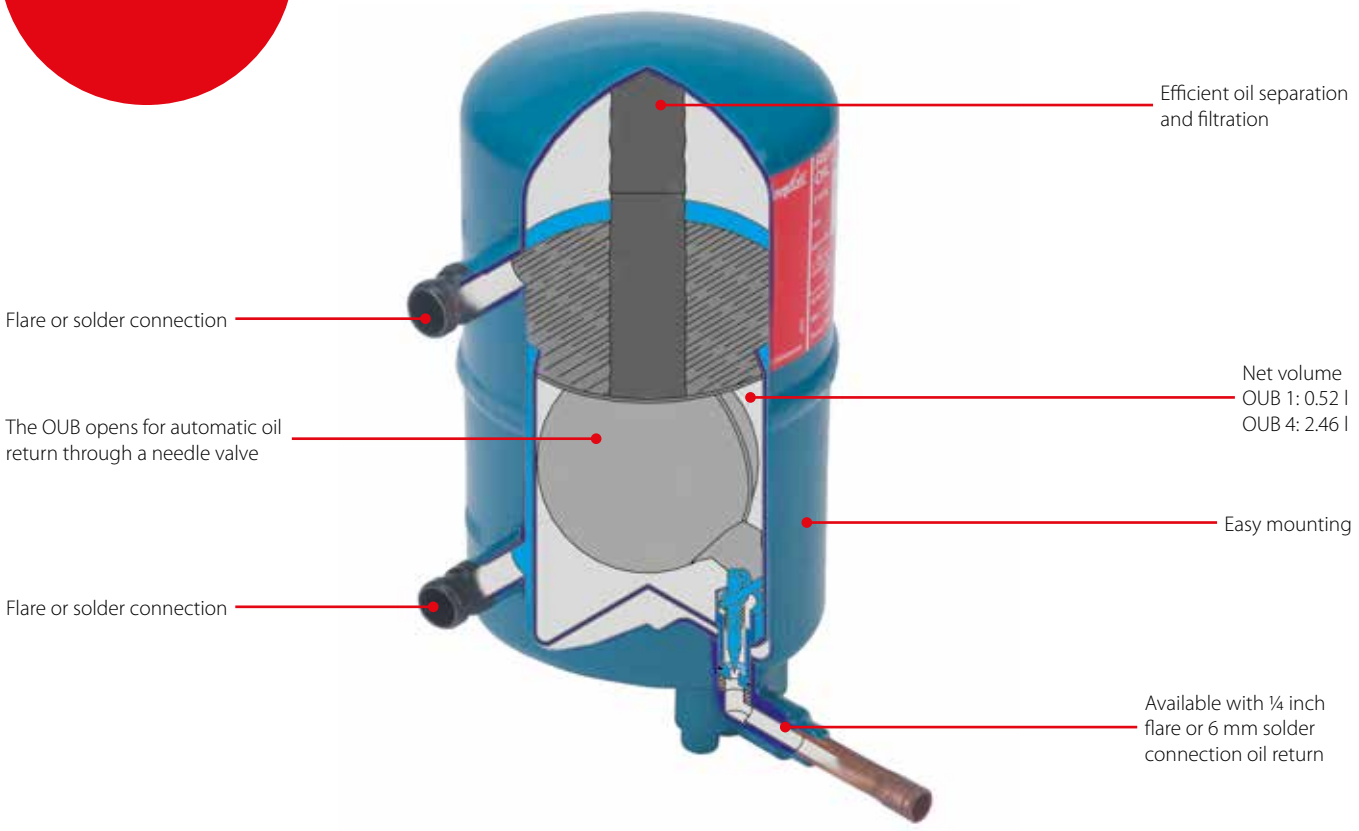
Quick Selection Notes:

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.



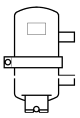


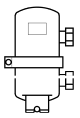
Facts

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: for use with HCFC, HFC and HC
- OUB 1: compliant with ATEX hazard zone 2
- OUB 4: for use with HCFC and non flammable HFC
- Temperature of medium: -40 – 120 °C
- Net volume:
  - OUB 1: 0.52 l
  - OUB 4: 2.46 l

Technical data and ordering


OUB 1s


OUB 1/OUB 4

OUB - Oil separator

Ordering

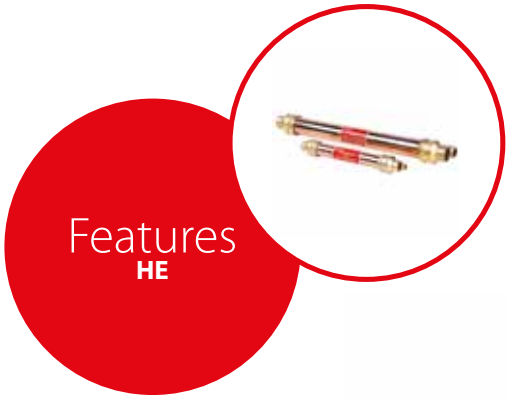
Type	Connection			Rated plant capacity [kW]					Code no. for OUB + unions (straightway)
	[in]	[mm]	Version	R22	R134a	R404A	R507	R407C	
OUB 1	3/8	10	Flare	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0132
	3/8	–	Solder	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0140
	1/2	12	Flare	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0134
	1/2	–	Solder	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0142
	5/8	16	Flare	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0136
	5/8	16	Solder	3.1	2.5	3.5	3.5	4.4	040B0010 + 2 × 040B0144
	Without connection unions								040B0010
OUB 1s 1)	–	10	Solder	3.1	2.5	3.5	3.5	4.4	040B0023
OUB 1s 2)	–	10	Solder	3.1	2.5	3.5	3.5	4.4	040B0029
OUB 4	5/8	16	Flare	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0256
	5/8	16	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0266
	3/4	–	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0268
	7/8	–	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0270
	–	22	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0264
	1 1/8	–	Solder	11.6	9.6	12.8	12.8	16.0	040B0040 + 2 × 040B0274
	Without connection unions								040B0040

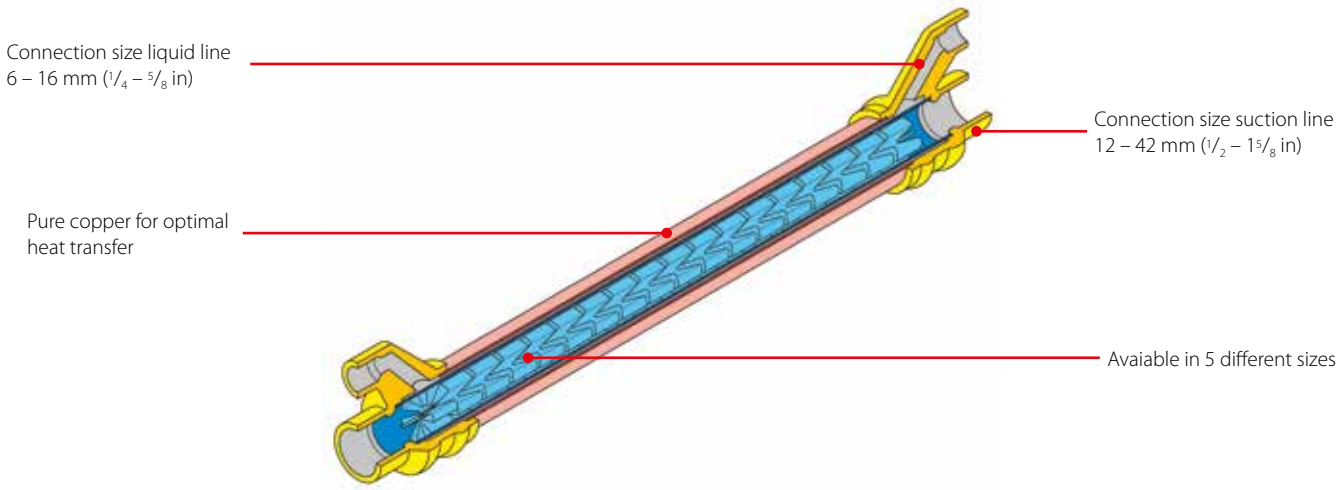
1) ¼ inch flare connection to oil return line.
2) 6 mm ODF solder connection to oil return line.

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

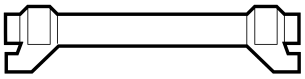
Application:
- Traditional refrigeration
- Air conditioning units

- 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: for use with HCFC, HFC and HC
- HE 0.5 – 1.5: compliant with ATEX hazard zone 2
- HE 4.0 – 8.0: for use with HCFC and non flammable HFC
- 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

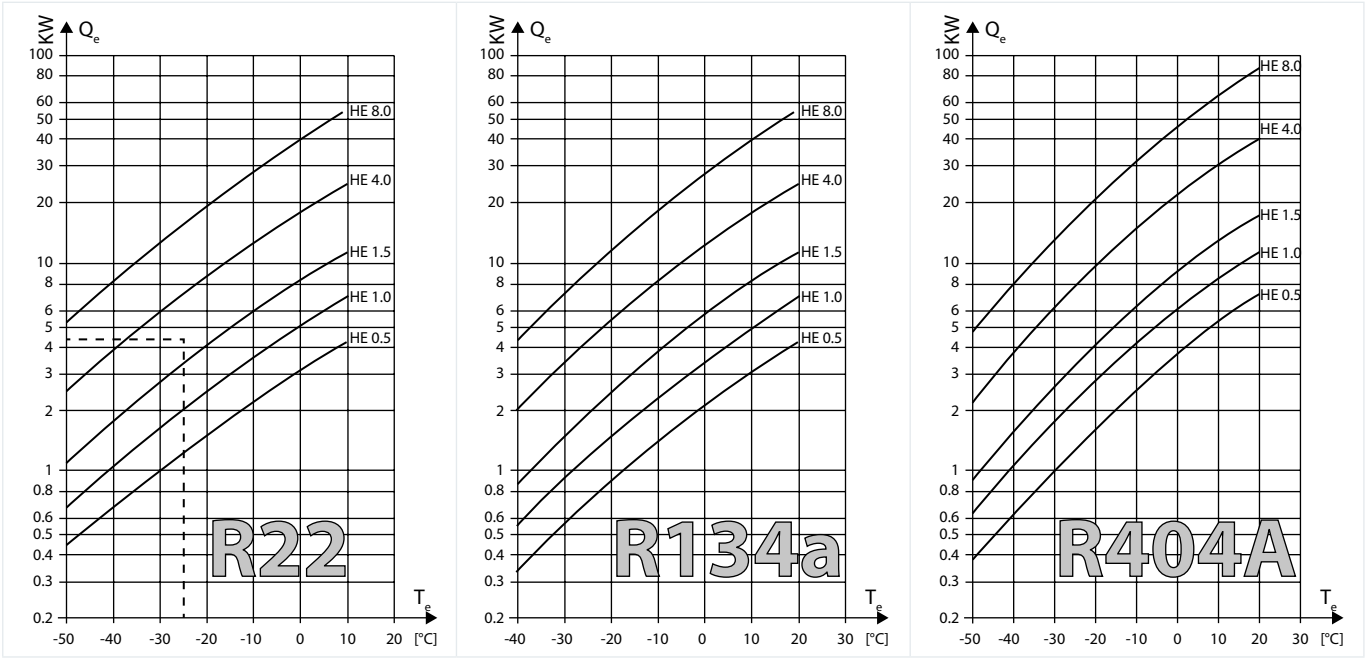
HE, Tube-in-tube heat exchanger



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 R22 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 kW and t_e = -25 °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

$$\Delta t_m = \frac{\Delta t_{max.} - t_{min.}}{\ln \frac{\Delta t_{max.}}{\Delta t_{min.}}}$$

k × A values determined by experiment (see table)

Type	k × 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

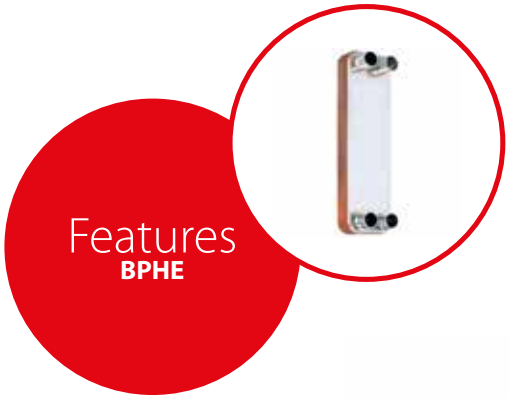
[1]) These figures apply to dry gas only. Even if a thermostatic expansion valve is used, the suction gas will carry very small liquid drops into the suction line. The fins of the HE catch these drops which then evaporate. This may result in a smaller superheat than the theoretically calculated value.

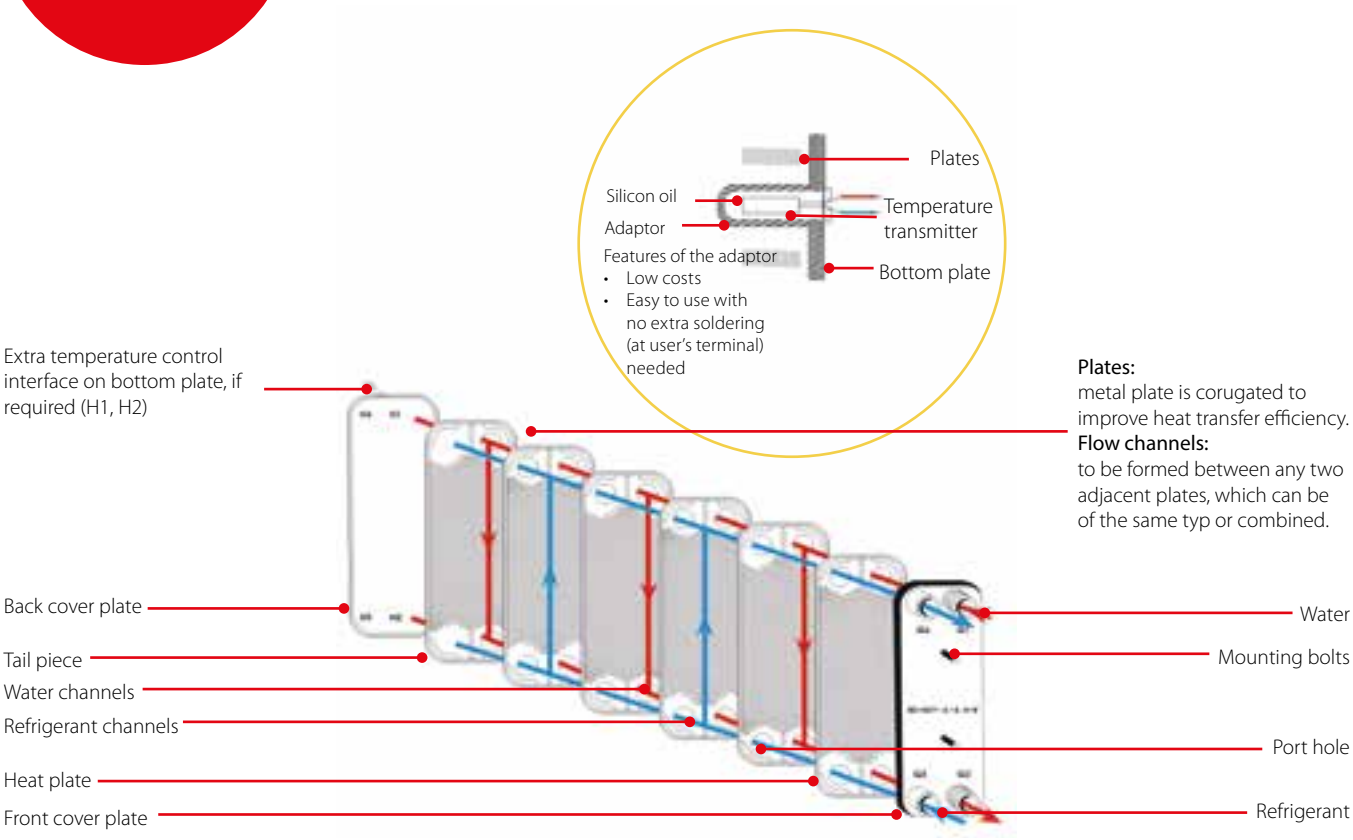
Precise heat exchanger sizing can be obtained from the curves which show plant capacity Q_e for R22, R134a and R404A depending on evaporating temperature t_e.

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 various HCFC, HFC and HC refrigerants, work with water, brine and oil etc.





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					
		R22		R134a		R407C		R22		R134a		R407C	
		[kW]	[kPa]	[kW]	[kPa]	[kW]	[kPa]	[kW]	[kPa]	[kW]	[kPa]	[kW]	[kPa]
PHE B3-030	B3-030-10-3.0-HQ	3.5	47	2.5	25	3.5	47	5	82	4.4	65	2.6	25
PHE B-3030	B3-030-20-3.0-HQ	7	47	5.5	31	7	47	11	98	9	68	5.4	27
PHE B3-030	B3-030-30-3.0-HQ	10.5	47	8.5	33	10.5	47	16.5	99	13.2	66	8	26
PHE B3-030	B3-030-50-3.0-HQ	17.5	49	15	37	17.5	49	27	98	18.5	49	13	26
PHE B3-030	B3-030-70-3.0-HQ	26.3	57	21.5	40	25	52	37	98	30	66	18.2	27
PHE B3-052	B3-052-54-3.0-HQ	35	46	31	36	33.5	42	38	55	29	32	18.5	14
PHE B3-052	B3-052-70-3.0-HQ	43.8	44	38	34	42	41	48	54	37	32	24	14
PHE B3-052	B3-052-88-3.0-HQ	52.5	42	45.5	32	50	39	61	58	47	35	30	15
PHE B3-095	B3-095-44-3.0-HQ	52.5	31	44	22	52.5	31	56	33	44	21	29	10
PHE B3-095	B3-095-60-3.0-HQ	70	30	60	23	70	30	75	33	59	21	39	10
PHE B3-095	B3-095-74-3.0-HQ	87.5	31	73	24	87.5	31	92	33	72	21	48	10
PHE B3-095	B3-095-92-3.0-HQ	105	31	94	25	105	31	114	34	89	22	59	10
PHE B3-095	B3-095-122-3.0-HQ	140	33	125	27	140	33	148	36	116	23	78	11
PHE B3-210	B3-210-74-3.0-HQ	175	35	165	32	168	33	190	42	152	27	100	12
PHE B3-210	B3-210-90-3.0-HQ	210	36	200	32	205	34	235	44	188	28	122	12

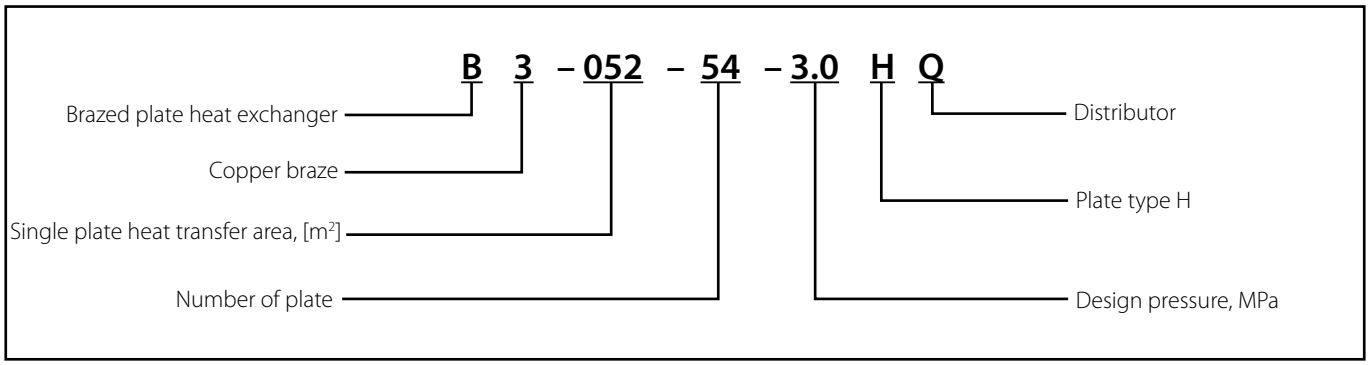
BPHE - Brazed plate heat exchanger

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]
R22	2	5	40	5	12	7	85	50	40	45
R134a	2	5	40	5	12	7	85	50	40	45
R407C	4.5	5	40	5	12	7	85	50	40	45

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.

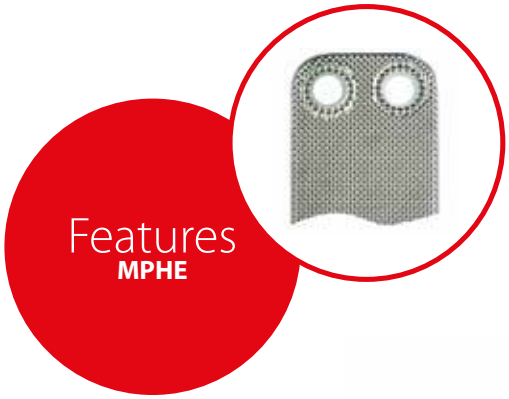
***Media**: R410A, R407C, R22, R134a, R404A, R407F, R513A, R1234ze, R290, R600a, R32, R452A, R444B*
Use only for system in compliance with ATEX. Ignition risk is evaluated in accordance to ATEX. BPHE can be applied on systems with R290 and R600a as the working fluid. For countries where safety standards 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.*

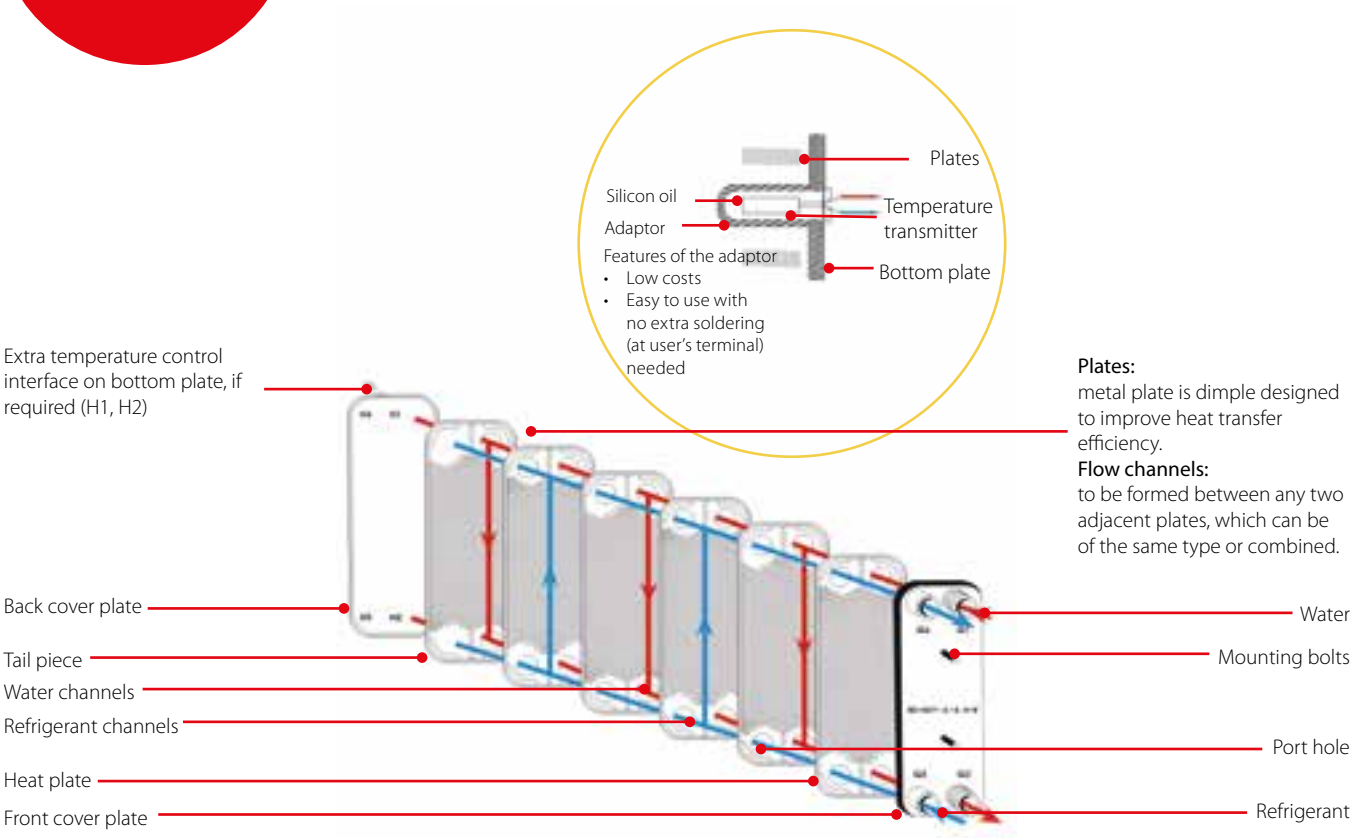
Quick Selection Notes:

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 various HCFC, HFC and HC refrigerants, work with water, brine and oil etc.





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 distributer 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 distributer 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	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2756
D118-E	26	613	186	5/8	1 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2757
D118-E	30	613	186	3/4	1 3/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2758
D118-E	36	613	186	3/4	1 3/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2759
D118-E	40	613	186	3/4	1 3/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2760
D118-E	46	613	186	7/8	1 5/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2761
D118-E	50	613	186	7/8	1 5/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2762
D118-E	56	613	186	7/8	1 5/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2763
D118-E	60	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2764
D118-E	70	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2765
D118-E	80	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2766
D118-E	90	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2767
D118-E	100	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2768
D118-E	110	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2769
D118-E	120	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2770
D118-E	130	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2771
D118-E	140	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2772
D118-E	150	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 1 5/8	YES	021H2773
D118-E	160	613	186	1 1/8	2 1/8	G 2 / 1 5/8	G 2 / 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	Code no.
				SOLDER [in]	SOLDER [in]	THREAD [in] / SOLDER [in]	THREAD [in] / SOLDER [in]	Front	
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	Code no.
				SOLDER [in]	SOLDER [in]	THREAD [in] / SOLDER [in]	THREAD [in] / SOLDER [in]	Front	
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, R22, R134a, R404A, R407F, R513A, R1234ze, R290, R600a, R32, R452A, R444B*
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:

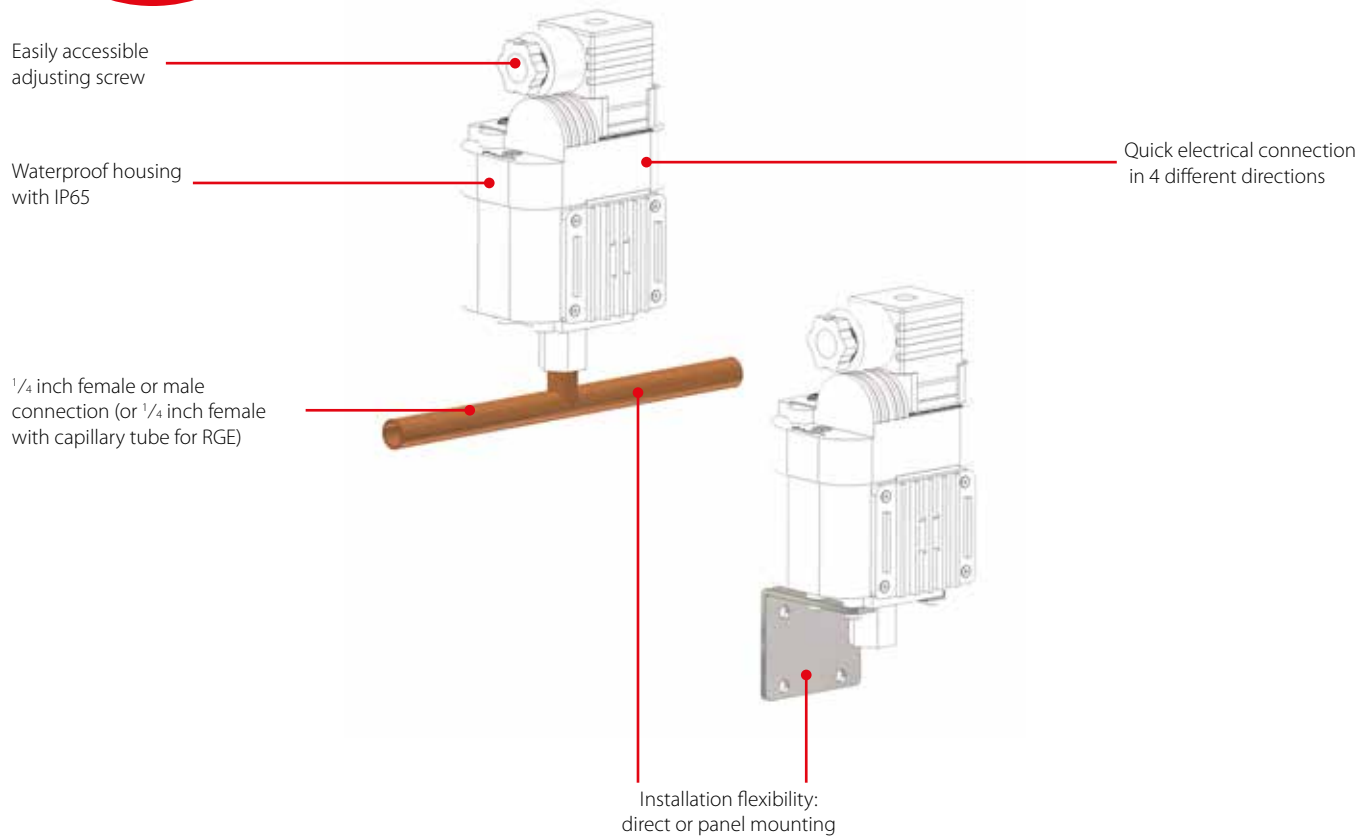
XGE / RGE - Fan speed controllers

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.



Features
XGE / RGE



Facts

Application:
- Freezing and refrigeration condensing units
- Packaged air conditioners
- Chillers

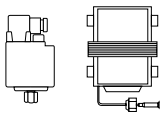
- Simple to install and easy setting *"All in one"*: senses pressure and controls fan speed
- Reliable sensing mechanism

- 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)
- For all the commonly used refrigerants, including R410A
- Enclosure: IP65 (XGE) and IP54 (RGE)
- Full CE / EMC approved
- 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-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

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

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
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				x	TEV	x								x/+	
EKC 302D	084B4164	4/3	x		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				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			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			x		AKV	x					x		x	+/+	
AK-CC 750	080Z0125	9/5	x		x	x	x/x/x		x/x/ x/x		x/-	x	x	x/x/x	x		x		x	4xAKV	x					x		x	-/x	EN, DE, FR, IT, NL, EN, ES, PT, PL, RU, CZ, CH, DK, FI
Superheat Controller																														
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		x/-	
ERC 211	080G3293	1/1		x					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		x/-	
ERC 213	080G3294	3/2	x			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		x/-	
ERC 214	080G3295	4/2	x			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

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
Capacity Controller																														
AK-PC 351	080G0289	6/4				x	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				-/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				-/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				-/x	EN, DE, FR, DK, ES, IT, PT, NL, RU, PL, CZ, TR, UY, HR, SR, RO
AK-PC 772	080Z0200	8/11				4x			x/x/ x/x								x		x										-/x	EN, DE, FR, IT, NL
AK-PC 781	080Z0186	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 783	080Z0196	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-SM820	080Z4004	System Manager for Small Stores w / Display / Keypad																												
AK-SM850	080Z4001	System Manager for Refrigeration Only w / Display / Keypad																												
AK-SM880	080Z4008	System Manager for Total Store Control w / Display / Keypad																												

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.

Features
EKC 202

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

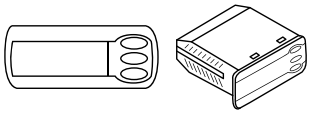
Compressor
- Anti cycle timers for optimum compressor protection
- High-effect 16 A relays for connection of compressors without use of intermediate relay

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 mm² multi-core cable on supply and relays		
	Power current terminals are mounted on the circuit board		
	Max. 1 mm² on sensors - and DI inputs		
Relays *)	DO1 DO2 DO3 DO4	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 keept*
***) 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.

Features
EKC 202D1

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:
- 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

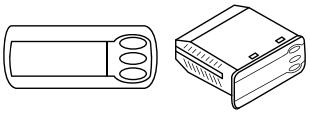
Compressor
- Anti cycle timers for optimum protection
- High-effect 16 A relays for connection of compressors without use of intermediate relays

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 mm² multi-core cable	
Relays *)		CE (250 V AC)
	DO1. Refrigeration	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	
	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 keept*
***) Gold plating ensures make function wiht 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

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.

Features
EKC 302

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



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

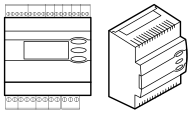
Compressor
- Anti cycle timers for optimum compressor protection
- High-effect 16 A relays for connection of compressors without use of intermediate relay

Fan
- Fan delay during defrost
- Fan stop when compressor cuts out
- Fan stop at high "*S5*" temperature

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 mm² multi-core cable on supply and relays		
	Power current terminals are mounted on the circuit board		
	Max. 1 mm² on sensors - and DI inputs		
Relays *)	DO1 DO2 DO3 DO4	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 keept*
***) 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 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

Features
AK-CC 450

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



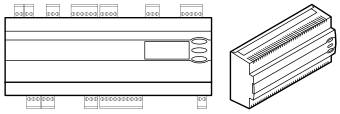
Compressor
- Control of two compressors

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

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 mm² 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 *)		CE (250 V AC)
	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 / 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	

**) 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.

Features
AK-CC 550A

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

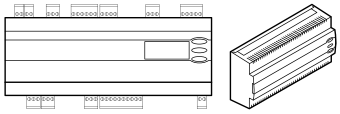
Compressor
- Control of two compressors

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 CO_2 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 mm² 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
Relays *)		CE (250 V AC)
	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

AK-CC 750, Controller for evaporator control

AK-CC 750 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.

Features
AK-CC 750

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

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

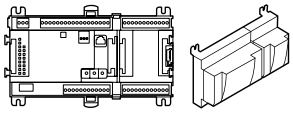


Food quality / HACCP compliance
- Modulating temperature control
  Accurate temperature control
- Measuring accuracy
  Factory calibration guarantees a better measuring accuracy than required in the EN 12830 and EN 13485 standards without subsequent calibration on site (Pt 1000 ohms sensor)
- Product 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

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 750, 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) Voltage signal 0 – 10 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 > 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 infl uences / vibrations
Enclosure	Material	PC / ABS
	Enclosure	IP10, VBG 4
	Mounting	For mounting on wall or DIN rail
Weight with screw terminals	Modules in100- / 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 750	English, Danish, Swedish, Finnish, Russian, Chech, Polish, Chinese , German, French, Italian, Dutch, Spanish, Portuguese	080Z0125

Ordering Accessory – Extension modules and survey for inputs and outputs

Type	Analog inputs	ON / OFF outputs		ON / OFF supply voltage (DI signal)		Module with switches	Code no.
	For sensors, pressure transmitters	Relay (SPDT)	Solid state	Low voltage (max. 80 V)	High voltage (max. 260 V)	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 204A	–	8	–	–	–	–	080Z0011
AK-XM 204B	–	8	–	–	–	x	080Z0018
AK-XM 205A	8	8	–	–	–	–	080Z0010
AK-XM 205B	8	8	–	–	–	x	080Z0017

Software

AK-ST 500	Software for operation of AK controllers	080Z0161

Remote displays

EKA 163B	Display unit	084B8574
EKA 164B	Display unit with operation buttons	084B8575

Miscellaneous

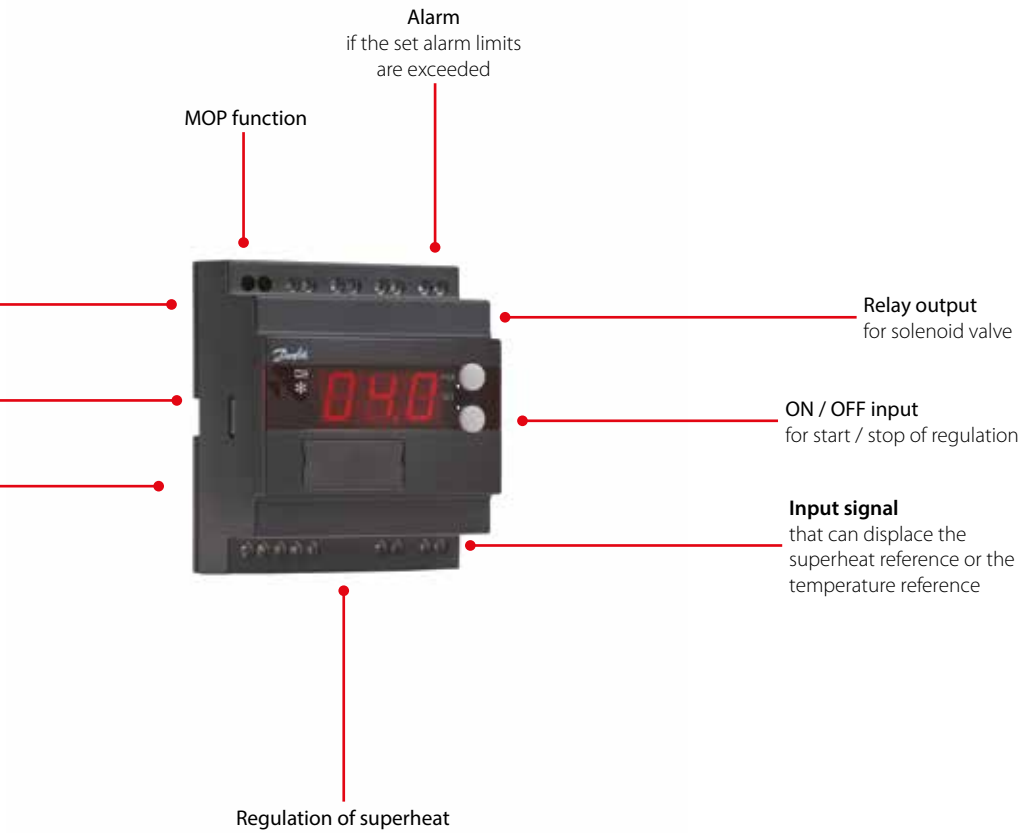
Power supply (AK-PS 075)	080Z0053
Display cable - 2 meters	084B7298
Display cable - 6 meters	084B7299

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

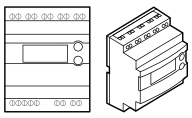
Features
EKC 315A



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

EKC 312 - Superheat controller

The controller and valve can be used where there are requirements to accurate control of superheat and temperature in connection with refrigeration:

- Processing plant (water chillers)
- Cold store (air coolers)
- A/C plant

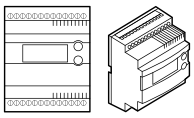
Features EKC 312



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
- The superheating is regulated to the lowest possible value

Technical data and ordering



EKC 312 - Superheat controller

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
	ETS 12.5 - ETS 400 step motor: 1.3 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
Alarm relay	1 pcs. SPST: AC-1: 4 A (ohmic)
	1 pcs. SPST: AC-15: 3 A (inductive)
Step motor output	Pulsating 100 mA
Data communication	Possible to connect a data communication module
Environments	-10 – 55 °C / 14 – 131 °F, during operations
	-40 – 70 °C / -40 – 158 °F, during transport
	20 – 80% Rh, not condensed
	No shock influence / vibrations
Enclosure	IP20
Weight	300 g / 10.6 oz
Mounting	DIN rail
Display	LED, 3 digits
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

Ordering

Type	Description	Code no.
EKC 312	Superheat controller	084B7250

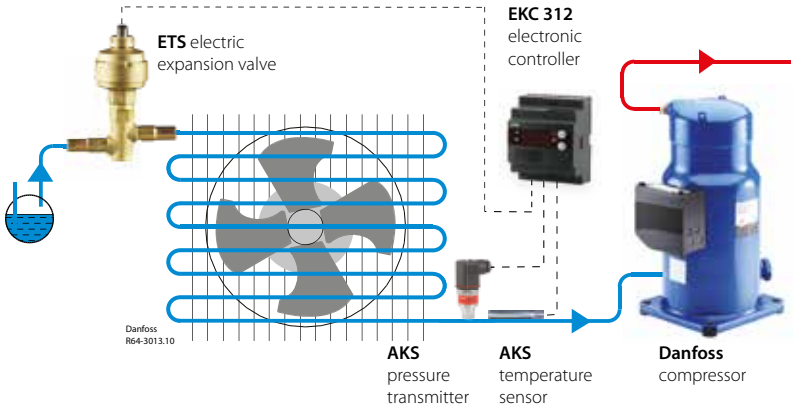
Accessory

Type	Description	Code no.
EKA 175	Data communication module (accessories), (RS 485 module)	084B8579
EKA 174	Data communicationsmodule (accessories), (RS 485 module) with galvanic separation	084B7124

Temperature sensor Pt 1000 ohm / Pressure transmitter type AKS 33

Related products

Electric expansion valves
ETS 12.5 - ETS 400
Temperature sensors and pressure transmitters
Type AKS



EKC 316A - Superheat controller

The controller and valve can be used where there are requirements to accurate control of superheat and temperature in connection with refrigeration:

- Processing plant (water chillers)
- Cold store (air coolers)
- A/C plant

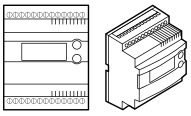
Features
EKC 316A



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
- 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 316A - Superheat controller

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
	ETS 12.5 - ETS 400 step motor: 1.3 VA
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
Alarm relay	1 pcs. SPST: AC-1: 4 A (ohmic)
	1 pcs. SPST: AC-15: 3 A (inductive)
Step motor output	Pulsating 100 mA
Data communication	Possible to connect a data communication module
Environments	-10 – 55 °C / 14 – 131 °F, during operations
	-40 – 70 °C / -40 – 158 °F, during transport
	20 – 80% Rh, not condensed
	No shock influence/vibrations
Enclosure	IP20
Weight	300 g / 10.6 oz
Mounting	DIN rail
Display	LED, 3 digits
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 316A	Superheat controller	084B7088

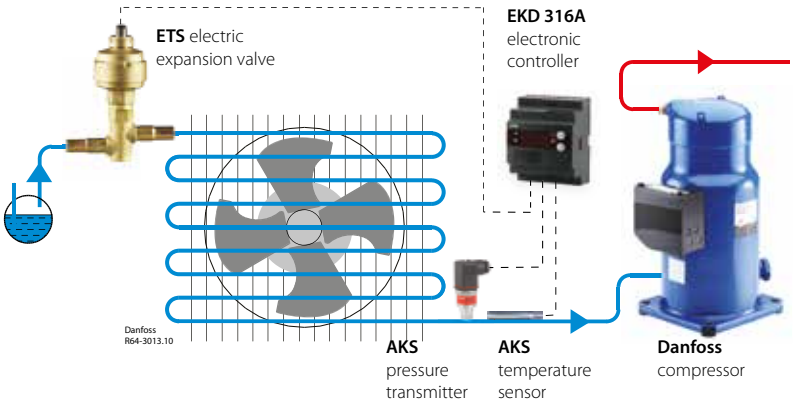
Accessory

Type	Description	Code no.
EKA 175	Data communication module (accessories), (RS 485 module)	084B8579
EKA 174	Data communicationsmodule (accessories), (RS 485 module) with galvanic separation	084B7124

Temperature sensor Pt 1000 ohm / Pressure transmitter type AKS 33.

Related products

Electric expansion valves
ETS 12.5 - ETS 400
Temperature sensors and pressure transmitters
Type AKS

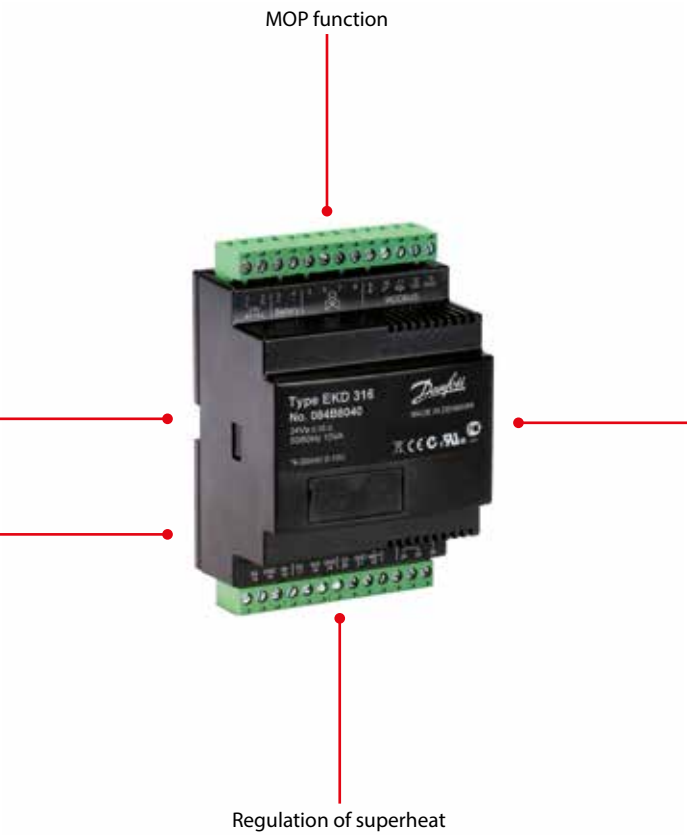


EKD 316 - Superheat controller

The controller and valve can be used where there are requirements to accurate control of superheat and temperature in connection with refrigeration:

- Processing plant (water chillers)
- Cold store (air coolers)
- A/C plant

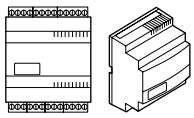
Features
EKD 316



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
- The superheating is regulated to the lowest possible value

Technical data and ordering



EKD 316 - Superheat controller

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
	Type ETS 6 - ETS 400, CCM and CCMT
Input signal	Current signal [1]): 4 – 20 mA or 0 – 20 mA
	Voltage signal [1]): 0 – 10 V or 1 – 5 V
	Pressure transmitter: AKS 32R
	Digital input from external contact function
Sensor input	2 pcs. Pt 1000 ohm
Alarm relay	1 pcs. SPST: AC-1: 4 A (ohmic)
	1 pcs. SPST: AC-15: 3 A (inductive)
Step motor output	Pulsating 30 – 300 mA
Data communication	Mounted with MODBUS data communication
Environments	0 – 55 °C / 32 – 131 °F, during operations
	-40 – 70 °C / -40 – 158 °F, during transport
	20 – 80% Rh, not condensed
	No shock influence / vibrations
Enclosure	IP20
Weight	300 g / 10.6 oz
Mounting	DIN rail
Display	No, external Display optional (LED, 3 digits)
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

[1]) Ri: mA 400 ohm V: 50 kohm
If battery backup is used: Battery requirements: 18 – 24 V DC min. 120 mAh

Ordering

Type	Description	Code no.
EKD 316	Superheat controller [2])	084B8040

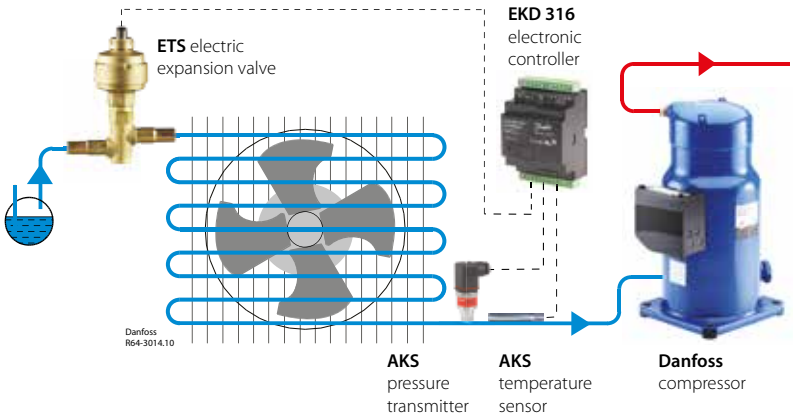
Accessory

Type	Description	Code no.
EKA 164A	Display with buttons to change settings (with MODBUS communication) [2])	084B8563

[2]) In order to change seetings either display EKA 164A or software AK-ST 500 (Plus accessories) is needed Temperature sensor Pt 1000 ohm / Pressure transmitter type AKS 32R

Related products

Electric suction modulating valves
Type ETS 6 - ETS 400, CCM and **CCMT**
Temperature sensors and pressure transmitters
Type AKS

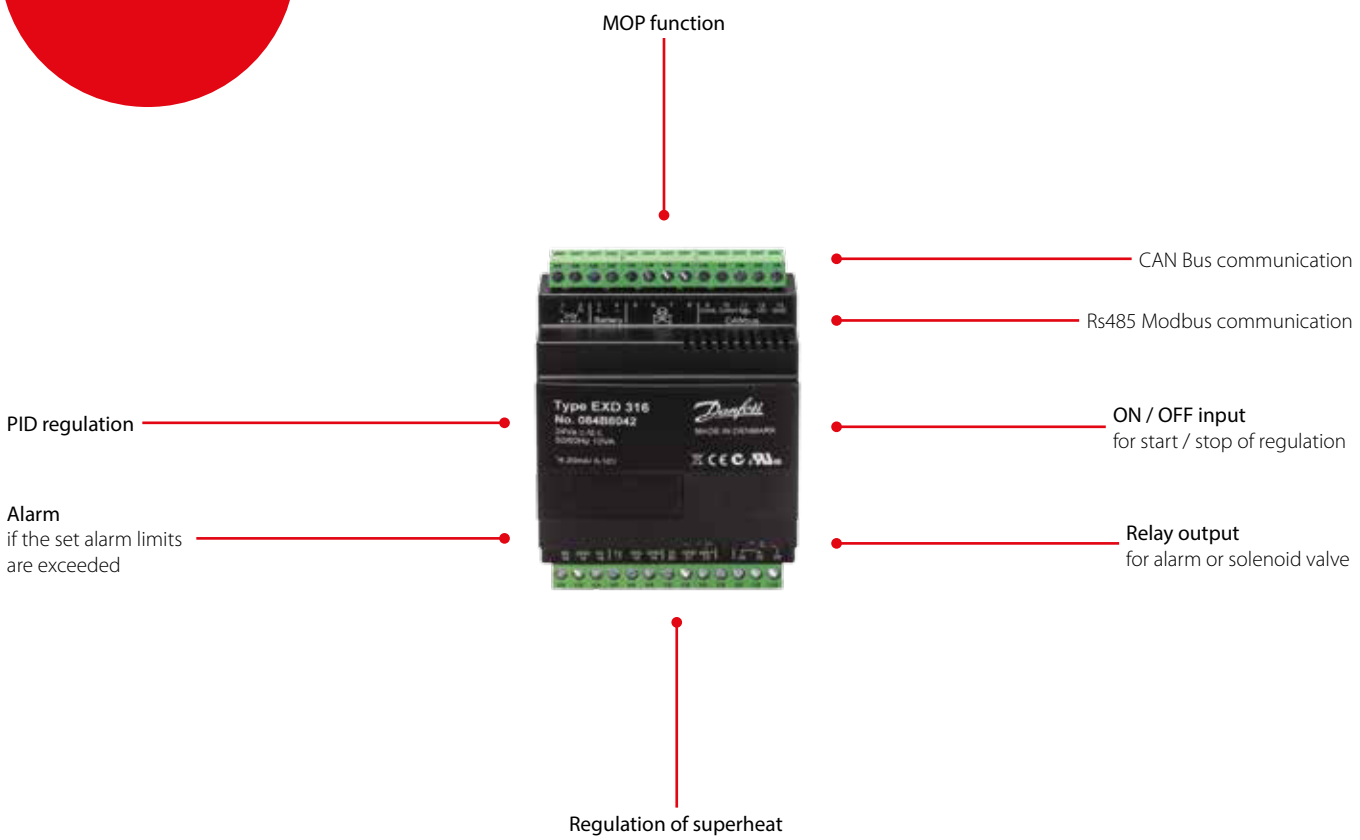


EXD 316 - Superheat controller

The EXD superheat controller and valve can be used where there are requirements for accurate control of superheat in connection with refrigeration.

- Processing plant (water chillers)
- Cold store (air coolers)
- A/C plant
- Heat pumps
- Air conditioning

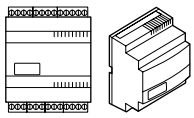
Features
EXD 316



Facts

- The superheat is regulated to the lowest possible value
- 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 thus a high suction pressure
- Regulation of superheat
- MOP function
- ON / OFF input for start / stop of regulation
- Relay output to alarm
- CANbus communication
- Safety features and
- Alarm indications

Technical data and ordering



EXD 316 - Superheat controller

Technical data

Features	Description
Supply voltage	24 V AC / DC ± 15%, 50 / 60 Hz, 10 V A (the supply voltage is not galvanically separated from the input and output signals)
Power consumption	Controller ETS step motor
	5 VA, 1.3 VA
Input signal *)Ri: mA: 400 ohm V: 50 kohm	Current signal *): 4 – 20 mA or 0 – 20 mA
	Voltage signal *): 0 – 10 V or 1 – 5 V
	Pressure transmitter: AKS 32R
	Digital input from external contact function
Sensor input	2 pcs. Pt 1000 ohm
Alarm relay	1 pcs. SPST: AC-1: 4 A (ohmic)
	1 pcs. SPST: AC-15: 3 A (inductive)
Step motor output	Pulsating 30 – 300 mA
Data communication	Via CANBUS
Environments	0 – 55 °C / 32 – 131 °F, during operations
	-40 – 70 °C / -40 – 158 °F, during transport
	20 – 80% Rh, not condensed
	No shock influence / vibrations
Enclosure	IP20
Weight	300 g / 10.6 oz
Montage	DIN rail
Operation	Via CANBUS
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 c UL us
Battery backup	If battery backup is used, the requirements for the battery are: 18 – 24 V DC
Max. distance between controller and valve	30 m

**) If battery backup is used: Battery requirements: 18 – 24 V DC min. 120 mAh*
Compatible valves - Unipolar and bi-polar stepper motor valves

Ordering

Type	Description	Code no.
EXD 316	superheat controller (with terminals)	084B8042

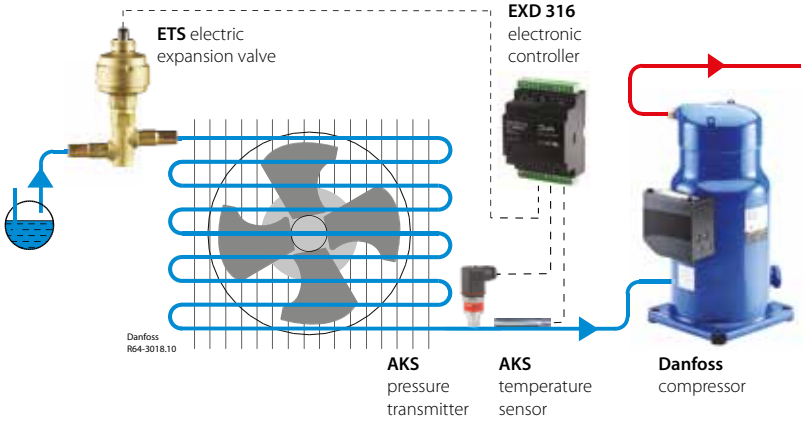
Accessory

Type	Description	Code no.
EKA 164A	Display with buttons to change settings (with MODBUS communication) [2]	084B8563

[2] In order to change seetings either display EKA 164A or software AK-ST 500 (Plus accessories) is needed Temperature sensor Pt 1000 ohm / Pressure transmitter type AKS 32R
EKA 183A Programming key 084B8582

Related products

Electric expansion valves
Type ETS 6 - ETS 400, CCM and **CCMT**
Temperature sensors and pressure transmitters
Type AKS



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.

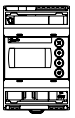
Features
EKE 347



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 ± 20%, 50 / 60 Hz or 24 V DC ± 20% (the supply voltage is galvanically separated from the input and output signals. Input / output are not individual galvanic isolated)	
Power consumption	Controller 20 W coil for AKV	15 VA / 10 W 55 VA
Input signal ***) Ri =0(4)-20 mA: 33 ohm** **0(2)-10 V: 100 kohm**	Level signal *)	4 – 20 mA or 0 – 10 V
	ICM valve feedback signal *)	From ICAD 0 / 4 – 20 mA
	Contact function start / stop of regulation	
Relay output	3 pcs. SPDT (Lower level alarm, Upper level alarm, Common alarm / NC Solenoid)	3 A (ohmic) 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.

Features
EKC 368



Modulating temperature control

Alarm
if the set alarm limits are exceeded

Input signal
that can displace the temperature reference

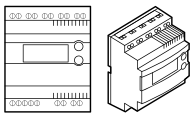
Defrost function
electric, hotgas or natural

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 mm² / 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

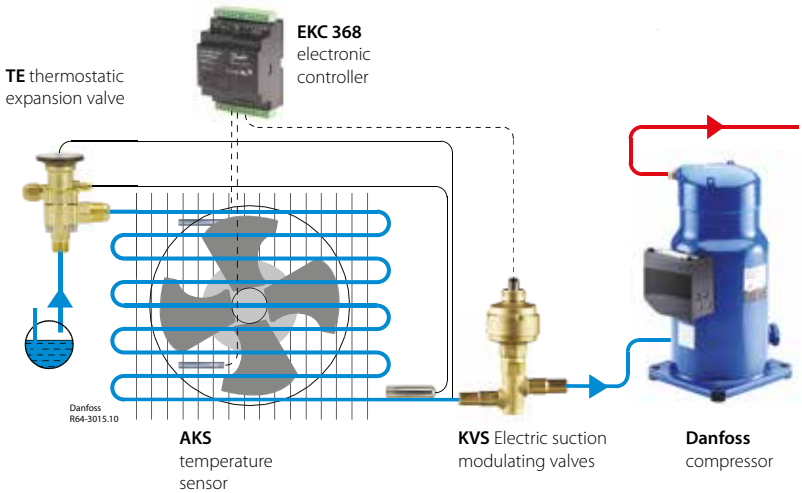
Type	Description	Code no.
EKC 368	Media temperature controller	084B7079

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 - Temperature controller

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.

Features
ERC 211

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



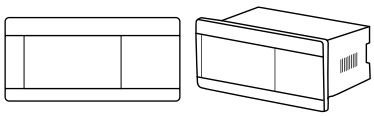
Unit Protection
special software features like compressor protection from fluctuation in power supply or from high condensing temperature ensure the safety & reliability operation of the unit

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 - Temperature controller

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

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.

Features Optyma™



Stylish new design

Simple wiring
and live outputs

Transparent cover
for access to magnetothermic breaker, all with IP65 protection rating

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

Simple, flexible programming
for optimum versatility

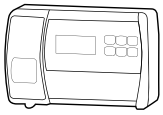
Compressor
can be run in pump-down stop mode

RS485 Modbus
for data communication and integration into a complete ADAP-KOOL® system

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



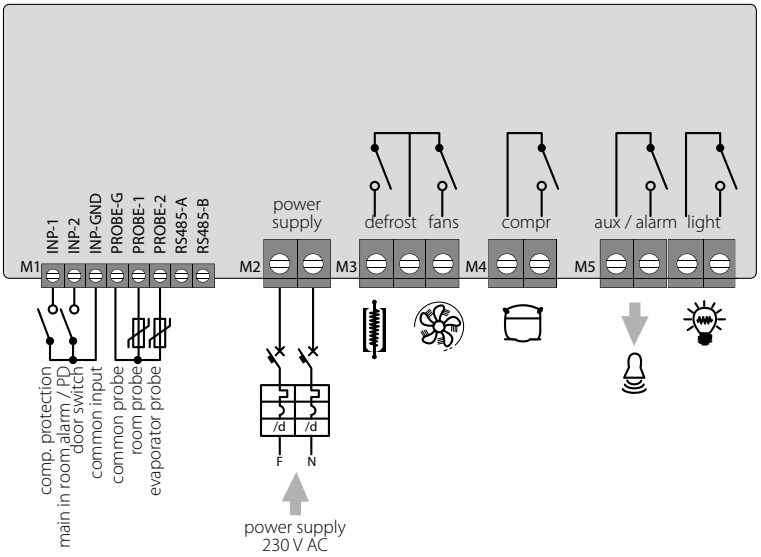
Optyma™ Control, Single phase

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

AK-RC 101



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.

Features Optyma™

Direct control
of the compressor, condenser fans, compressor oil heater, defrosting heaters, evaporator fans, solenoid valve, room light and all standard-compliant electrical safeguards

Transparent cover
for access to magnetothermic circuit breaker, all with IP65 protection rating

Electronic control
with wide LED display and easy-to-use buttons

Auxiliary relay
with activation configurable by parameter

RS485 Modbus
for data communication and integration into a complete ADAP-KOOL® system



Differential
magnetothermic circuit breaker (for cutting the general power supply) accessible from the front panel

Adjustable motor circuit
breaker for compressor protection accessible from the front panel

Status signaling
with LED icons

Easy wiring
on the internal terminal block

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



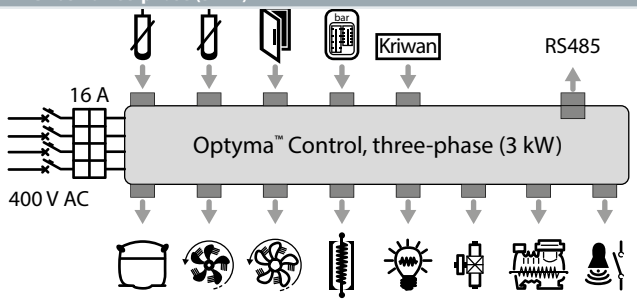
Optyma™ Control, three phase

Technical data

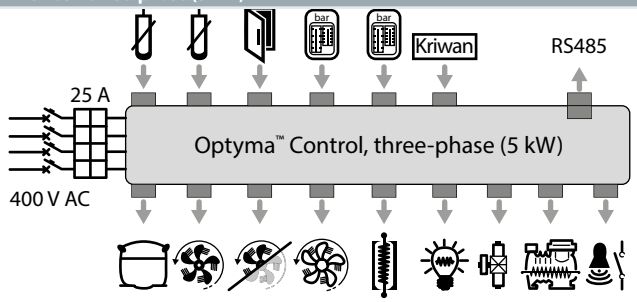
Features	Optyma™ Control AK-RC 103, three-phase (3 kW)	Optyma™ Control AK-RC 103, three-phase (5 kW)
Case dimensions	400 × 300 × 135 mm	400 × 300 × 135 mm
Protection rating	IP65	IP65
Power supply (3F + N + T)	400 V AC ± 10% 50 / 60 Hz	400 V AC ± 10% 50 / 60 Hz
Load type	three-phase	three-phase
Operating 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

AK-RC 103 - three-phase (3 kW)



AK-RC 103 - three-phase (5 kW)



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 useraccess.

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.

Features AK-SM 800



3 main versions
AK-SM 820 (C-Store), AK-SM 850 (Refrigeration) and AK-SM 880 (Full store)

Configuration
web based wizards to assist in initial setup

Available support tool
Remote Management Tool (RMT) that facilitates full offline programming, remote software updating and graphical screen creation

Full
web browser navigation

Custom graphic screen
(seen in web and local screen)

SVGA 800x600
local color screen

Support of Service Tool
via tunnelling over IP (AK2 only)

Site Service App
for Remote access from tablet or smart phone for service technitians

Seamless view
of multiple System Manager units that are interconnected (host network)

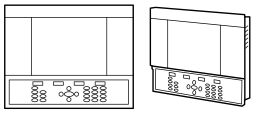
Automatically created plant
view screens showing main refrigeration systems in one screen

All new hardware casing
providing easy access to power and field bus connections, designed for wall or panel door mounting

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	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 *Note: Adaptive Defrost not currently supported*	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 820	C-Store (Refrigertion / HVAC / Lighting)	Convienience Store version with 32 device capacity	080Z4004
AK-SM 850	Refrigeration (including lighting)	Refrigeration version with 120 device capacity	080Z4001
AK-SM 880	Full (Refrigertion / HVAC / Lighting)	Full store version with 120 device capacity	080Z4008

MCX 06C - Programmable controller

MCX06C is an electronic controller that holds all the typical functionalities of MCX controllers in the 32x74 mm standard size: programmability, connection to the CANbus local network, Modbus RS485 serial interface.



Features
MCX06C

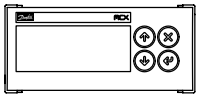


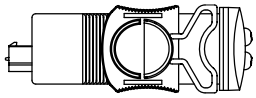
Facts

- 4 analog and 6 digital inputs
- 2 analog and 6 digital outputs
- Insulated power supply 20 – 60 V DC and 24 V AC
- Easy upload of application software through CANbus connection for programming key
- Remote access to data through CANbus connection for additional display (LCD available) and keyboard
- RTC clock for managing weekly time programs and data logging information
- Modbus RS485 serial interface
- Display LED with 2 groups of digits for showing the desired information in one screen
- Dimensions 33x75 mm
- Panel mounting

Technical data and ordering

MCX06C – Programmable controller





Technical data

Features	Description
Power supply	20 – 60 V DC and 24 V AC ±15% 50 / 60 Hz. Maximum power consumption: 6 W, 9 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	Self extinguishing V0 according to IEC 60695-11-10 and glowing/hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T60 / UL: 0T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In class I and/or II appliances
Index of protection	IP64 ~ NEMA3R only on the front cover
Period of electric stress across insul.parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category I
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC, 0 – 1 V, 0 – 5 V,	2	**AI1, AI2** Analog inputs selectable via software between: • NTC temperature probes, default: 10 kΩ at 25 °C • pressure transducers with 0 – 5 V output
	Universal	2	**AI3, AI4** Universal analog inputs selectable via software between: • ON/OFF (current: 20 mA) • 0 – 1 V, 0 – 5 V, 0 – 10 V • 0 – 20 mA, 4 – 20 mA • NTC (10 kΩ at 25 °C) • Pt1000 12 V+ power supply 12 V DC, 50 mA max for 4 – 20 mA transmitter (total on all outputs) 5 V+ power supply 5 V DC, 80 mA max for 0 – 5 V transmitter (total on all outputs)
Digital input	Voltage free contact	6	**DI1, DI2, DI3, DI4, DI5, DI6** Current consumption: 5 mA
Analog outputs	0 – 10 V, PWM, PPM,	1	**AO1** Analog output selectable via software between: • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM): - open circuit voltage: 6.8 V - minimum load: 1 kΩ • pulsing output, at modulation of impulse width (PWM) with range 100 / 500 Hz: - open circuit voltage: 6.8 V - minimum load: 1 kΩ • 0 – 10 V DC non optoinsulated output, referred to the ground 10 mA maximum loads
	PWM, PPM,	1	**AO2** Analog output selectable via software between: • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM): - open circuit voltage: 6.8 V - minimum load: 1 kΩ • pulsing output, at modulation of impulse width (PWM) with range 100 / 500 Hz: - open circuit voltage: 6.8 V - minimum load: 1 kΩ
Digital output	Relay	6	Insulation between relays: functional (common lines internally connected) Insulation between relays and the extra-low voltage parts: reinforced Total current load limit: 6 A **C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5, C6-NO6** Normally open contact relays • characteristics of each relay: - 4 A – 30 V DC – 250 V AC for resistive load - 100 000 cycles - 0.7 A – 250 V AC for inductive load - 100 000 cycles with cos(phi) = 0.5 - UL: 240 V AC - 1 A resistive - 1.0 FLA - 6.0 LRA - 96 V A pilot duty 30 000 cycles

Ordering

Type	Description	Code no.
MCX06C	MCX06C, 24 V, LED, RS485, RTC, S	080G0066
MCX06C	MCX06C, 24 V, LED, RS485, RTC, I	080G0107

Accessory

Type	Description	Code no.
ACCCNX	MCX06C CONNECTORS KIT	080G0175
ACCCNX	ACCCNX, WIRED CONNECTORS KIT FOR MCX06C, 1 m CABLE	080G0081
ACCCNX	ACCCNX, WIRED CONNECTORS KIT FOR MCX06C, 2 m CABLE	080G0082

Note: industrial pack (I), 36 pieces, don't include standard kit connectors (Code no. 080G0175)

MCX 06D - Programmable controller

MCX06D is fitted with LED display, graphic LCD display, or without display. It is an electronic controller that holds all the typical functionalities of MCX controllers in the compact size of 4 DIN modules: programmability, connection to the CANbus local network, Modbus RS485 opto-insulated serial interface.



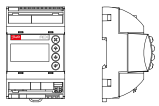


Facts

- 4 analog and 8 digital inputs
- 3 analog and 6 digital outputs
- Power supply 20 – 60 V DC and 24 V AC
- Remote access to data through CANbus connection for additional display (LCD available) and keyboard
- RTC clock for managing weekly time programs and data logging information
- Modbus RS485 opto-insulated serial interface
- Available with LED display, graphic LCD display and without display for showing the desired information
- Dimensions 4 DIN modules

Technical data and ordering

MCX06D – Programmable controller



Technical data

FEATURES	DESCRIPTION
Power supply	20 – 60 V DC and 24 V AC ± 15%, 50 / 60 Hz. Maximum power consumption: 6 W, 9 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	Self extinguishing V0 according to IEC 60695-11-10 and glowing/hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T60 / UL: 0T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP40 only on the front cover
Period of electric stress across insul.parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category I
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC, 0 – 1 V, 0 – 5 V,	2	**AI1, AI2** Analog inputs selectable via software between: • NTC temperature probes, default: 10 kΩ at 25 °C • pressure transducers with 0 – 5 V output
	Universal	2	**AI3, AI4** Universal analog inputs selectable via software between: • ON/OFF (current: 20 mA) • 0 – 1 V, 0 – 5 V, 0 – 10 V • 0 – 20 mA, 4 – 20 mA • NTC (10 kΩ at 25 °C) • Pt1000 12 V+ power supply 12 V DC, 50 mA max for 4 – 20 mA transmitter (total on all outputs) 5 V+ power supply 5 V DC, 80 mA max for 0 – 5 V transmitter (total on all outputs)
Digital input	Voltage free contact	8	**DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8** Current consumption: 5 mA
Analog outputs	0 – 10 V, PWM, PPM,	2	**AO1, AO2** Analog outputs selectable via software between: • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM): - open circuit voltage: 6.8 V - minimum load: 1 kΩ • pulsing output, at modulation of impulse width (PWM) with range 100 / 500 Hz: - open circuit voltage: 6.8 V - minimum load: 1 kΩ 0 – 10 Vdc non optoinsulated output, referred to the ground 10 mA maximum loads
	PWM, PPM	1	**AO3** Analog output selectable via software between: • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM): - open circuit voltage: 6.8 V - minimum load: 1 kΩ • pulsing output, at modulation of impulse width (PWM) with range 100 / 500 Hz: - open circuit voltage: 6.8 V - minimum load: 1 kΩ
Digital output	Relay	6	Insulation between relays 1 – 5: functional Insulation between relay 6 and the other relays: reinforced Insulation between relays and the extra-low voltage parts: reinforced Total current load limit: 33 A **C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5** Normally open contact relays 5 A • characteristics of each relay: - 5 A – 30 V DC / 250 V AC for resistive loads - 100 000 cycles - 0.7 A – 250 V AC for inductive load - 100 000 cycles with cos(phi) = 0.5 - UL: 250 V AC - 3 A resistive - 1.5 FLA - 9.0 LRA - 144 V A pilot duty 30 000 cycles **NC6-C6-NO6** Changeover contacts relay 8 A • characteristics of each relay: - 8 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30 000 cycles

Technical data and ordering

Ordering

Type	Description	Code no.
MCX06D	MCX06D, 24 V, LCD, S	080G0111
MCX06D	MCX06D, 24 V, LCD, RS485, RTC, S	080G0112
MCX06D	MCX06D, 24 V, RS485, RTC, S	080G0115
MCX06D	MCX06D, 24 V, LCD, Industrial Pack (32 pieces)	080G0166
MCX06D	MCX06D, 24 V, LCD, RS485, RTC, Industrial Pack (32 pieces)	080G0167
MCX06D	MCX06D, 24 V, RS485, RTC, Industrial Pack (32 pieces)	080G0169

Accessory

Type	Description	Code no.
ACCCNX	MCX06D CONNECTORS KIT	080G0179

Note: industrial pack (I), 32 pieces, don't include standard kit connectors (Code no. 080G0179)

Quick Selection Notes:

MCX 061V - Programmable controller

MCX061V is a standard MCX electronic controller with one integrated electronic expansion valve driver. It is available in the version with or without graphic LCD display, and 110 – 230 V AC or 24 V AC power supply. It holds all the typical functionalities of MCX controllers in the compact size of 8 DIN modules: programmability, connection to the CANbus local network, Modbus RS485 serial communication interface.

It is moreover fitted with a slot for memory card SD / MMC and Ethernet connection.
The memory card assures SW download and datalogging function; the Ethernet port allows the SW download, monitoring with web pages, datalogging and the alarms warning.

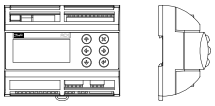




Facts

- 7 analog and 8 digital inputs
- 3 analog and 6 digital outputs
- Power supply 24 V AC and 110 – 230 V AC
- Drives bipolar and unipolar electronic expansion valves
- SD / MMC card slot for easy software upload and datalogging
- Remote access to data through CANbus connection for additional display and keyboard
- RTC clock for managing weekly time programs and data logging information
- Ethernet / WebServer option
- Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display and without display for showing the desired information
- Dimensions 8 DIN modules

Technical data and ordering



MCX061V – Programmable controller

Technical data

FEATURES	DESCRIPTION
Power supply	85 – 265 V AC, 50 / 60 Hz. Maximum power consumption: 18 W, 27 V A
	Insulation between power supply and the extra-low voltage: reinforced
	24 V AC ± 15%, 50 / 60 Hz. Maximum power consumption: 18 W, 22 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	Self extinguishing V0 according to IEC 60695-11-10 and glowing / hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP40 only on the front cover
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category II
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 /23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs			Max 15 V input voltage Do not connect voltage sources without current limitation (overall 80 mA) to analog inputs while unit is not powered. Open circuit HW diagnostics available for voltage input on: AI1, 2,3,4,6
	0 – 1 V, 0 – 5 V, 0 – 10 V	7	**AI1, AI2, AI3, AI4, AI5, AI6, AI7** 0 – 1 V, 0 – 5 V, 0 – 10 V
	NTC	5	**AI1, AI2, AI3, AI4, AI6** NTC temperature probes, default: 10 kΩ at 25 °C
	0 – 20 mA, 4 – 20 mA	6	**AI1, AI2, AI3, AI4, AI5, AI6,** 0 – 20 mA; 4 – 20 mA
	Pt1000	4	**AI1, AI2, AI3, AI7** Pt1000
	Differential input	1	**AI5(-), AI6(+)** Differential input, DM Voltage 0..300 mV; CM voltage max 14 V
	Auxiliary Supplies	2	15 V+ and 5 V+ 5 V+ max: 70 mA 15 V+ max: 100 mA
Digital input	Voltage free contacts	8	**DI1** (Frequency input) min. pulse time 2.5 ms **DI2, DI3, DI4, DI5, DI6, DI7, DI8** Min pulse time 64 ms
Analog outputs	0 – 10 V DC	2	**AO1, AO2** Current max: 10 mA
	0 – 10 V, PWM, PPM	1	**AO3** Current max: 10 mA • pulse output, synchronous with mains, at modulation of impulse position (PPM) or modulation of impulse width (PWM): 6.8 V open circuit • pulse output, PWM with range 1 – 1000 Hz: 6.8 V open circuit

Technical data and ordering

I/O	TYPE	NUM	SPECIFICATIONS
Digital output	Relay	6	C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5 Functional Isolation Normally open contact relays 5 A • characteristics of each relay: - 5 A – 30 V DC / 250 V AC for resistive loads - 100 000 cycles - 0.7 A 250 – V AC for inductive load - 100 000 cycles with cos(phi) = 0.5 - 1 – 10 hp, 240 V AC, motor, 30 000 cycles - 1.5 FLA, 9.0 LRA, 240 V AC, 30 000 cycles - 144 V A, pilot duty, 240 V AC, 30 000 cycles C1-NO1 Optionally it can be solid state relays • characteristics of each relay: - 15 – 280 Vrms, 1 A C6-NO6 Functional Isolation Normally open contact relays 5 A • characteristics of each relay: - 5 A – 30 V DC – 250 V AC for resistive loads - 100 000 cycles - 0.7 A – 250 V AC for inductive load - 100 000 cycles with cos(phi) = 0.5 - 1 – 10 hp, 240 V AC, motor, 30 000 cycles - 1.5 FLA, 9.0 LRA, 240 V AC, 30 000 cycles - 144 VA, pilot duty, 240 V AC, 30.000 cycles - Reinforced isolation (with respect to DO1..DO5)
Stepper motor		1	ST1, ST2, ST3, ST4 • Bipolar and unipolar stepper motor output: - Danfoss ETS / KVS valves (green, red, black, white) - Saginomyia UKV / SKV / VKV / PKV / ETS6 (black, red, yellow, orange) • Other Valves: - drive mode 1/8 microstep - peak phase current: 500 mA - max drive voltage 30 V - max. output power 4.6 W
Battery backup		1	BATT 18 – 24 V DC: leakage current max. 12 µA max. battery current: 0.5 A at 18 V
Memory card		1	SD / MMC Max 2 GB: for data logging make sure that the memory card is firm in place avoid installations with vibrations

Ordering

Type	Description	Code no.
MCX061V	MCX061V, 230 V, LCD, RS485, RTC, S	080G0250
MCX061V	MCX061V, 24 V, LCD, RS485, RTC, S	080G0251
MCX061V	MCX061V, 24 V, LCD, RS485, RTC,ETH, S	080G0255

Quick Selection Notes:

MCX 08M - Programmable controller

MCX08M is fitted with or without graphic LCD display. It is an electronic controller that holds all the typical functionalities of MCX controllers in the compact size of 8 DIN modules: programmability, connection to the CANbus local network, Modbus RS485 opto-insulated serial interface. It is moreover available in the version with power supply 110 – 230 V AC or 24 V AC.

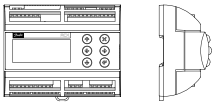




Facts

- 8 analog and 8 digital inputs
- 4 analog and 8 digital outputs
- Power supply 24 V AC / 20 – 60 V DC and 110 V / 230 V AC
- Remote access to data through CANbus connection for additional display (LCD available) and keyboard
- RTC clock for managing weekly time programs and data logging information
- Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display and without display for showing the desired information
- Dimensions 8 DIN modules

Technical data and ordering



MCX08M – Programmable controller

Technical data

FEATURES	DESCRIPTION
Power supply	85 – 265 V AC, 50 / 60 Hz. Maximum power consumption: 20 V A
	Insulation between power supply and the extra-low voltage: reinforced
	20 – 60 V DC and 24 V AC ±15%, 50 / 60 Hz. Maximum power consumption: 10 W, 17 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	Self extinguishing V0 according to IEC 60695-11-10 and glowing / hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T60/UL: 0T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP40 only on the front cover
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category II
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC, 0 – 1 V, 0 – 5 V	4	**AI5, AI6, AI7, AI8** Analog inputs selectable via software between: NTC temperature probes, default: 10 kΩ at 25 °C pressure transducers with 0 – 5 V output
	Universal	4	**AI1, AI2, AI3, AI4** Universal analog inputs selectable via software between: ON/OFF (current: 20 mA) 0 – 1 V, 0 – 5 V, 0 – 10 V 0 – 20 mA, 4 – 20 mA NTC (10 kΩ at 25 °C) Pt1000 12 V+ power supply 12 V DC, 50 mA max for 4 – 20 mA transmitter (total on all outputs) 5 V+ power supply 5 V DC, 80 mA max for 0 – 5 V transmitter (total on all outputs)
Digital input	Voltage free contact	8	**DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8** Current consumption: 5 mA
Analog outputs	0 / 10 V DC optoins.	2	**AO3, AO4** Analog outputs optoinsulated 0 – 10 V DC 10 mA max for each output External power supply 24 V AC / V DC
	PWM, PPM	2	**AO1, AO2** Analog outputs selectable via software between: • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM) • pulsing output, at modulation of impulse width (PWM) with range 20 Hz – 1 KHz: - open circuit voltage: 6.8 V - minimum load: 1 kΩ
Digital output	Relay	8	Insulation between relay: functional Insulation between relays and the extra-low voltage parts: reinforced Total current load limit: 32 A **C1-NO1, C2-NO2** High inrush current (80 A - 20 ms) normally open contact relays 16 A • characteristics of each relay: - 10 A – 250 V AC for resistive loads - 100 000 cycles - 3.5 A – 230 V AC for inductive loads - 230 000 cycles with cos(phi) = 0.5 - UL: 240 V AC - 10 A resistive - 8 FLA - 40 LRA - 640 V A pilot duty 30 000 cycles **C5-NO5, C6-NO6** Normally open contact relays 8 A • characteristics of each relay: - 6 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30 000 cycles **C3-NO3-NC3, C4-NO4-NC4, C7-NO7-NC7, C8-NO8-NC8** Changeover contacts relay 8 A • characteristics of each relay: - 6 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30 000 cycles

Technical data and ordering

Ordering

Type	Description	Code no.
MCX08M	MCX08M, 24 V, LCD, RS485, RTC, S	080G0028
MCX08M	MCX08M, 230 V, LCD, RS485, RTC, S	080G0029
MCX08M	MCX08M, 24 V, RS485, RTC, S	080G0034
MCX08M	MCX08M, 24 V, LCD, RS485, RTC, Industrial Pack (24 pieces)	080G0118
MCX08M	MCX08M, 24 V, RS485, RTC, Industrial Pack (24 pieces)	080G0122
MCX08M	MCX08M, 230 V, RS485, RTC, Industrial Pack (24 pieces)	080G0123
MCX08M	MCX08M, 230 V, RS485, RTC, 2SSR, Industrial Pack (24 pieces)	080G0292

Accessory

Type	Description	Code no.
ACCCNX	MCX08M CONNECTORS KIT	080G0180

Note: industrial pack (I), 24 pieces, don't include standard kit connectors (Code no. 080G0180)

Quick Selection Notes:

MCX 15B - Programmable controller

MCX15B is fitted with or without graphic LCD display. It is an electronic controller that stands on the top of the MCX range, thanks to the large number of its inputs and outputs.

It holds all the typical functionalities of MCX controllers: programmability, connection to the CANbus local network and Up to two Modbus RS485 opto-insulated serial interface. Furthermore it is available in two models, powered at 110 – 230 V AC or 24 V AC.



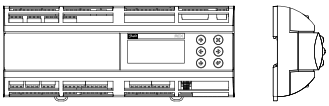


Facts

- 7 analog and 8 digital inputs
- 3 analog and 6 digital outputs
- Power supply 24 V AC and 110 – 230 V AC
- Drives bipolar and unipolar electronic expansion valves
- SD/MMC card slot for easy software upload and datalogging
- Remote access to data through CANbus connection for additional display and keyboard
- RTC clock for managing weekly time programs and data logging information
- Ethernet / WebServer option
- Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display and without display for showing the desired information
- Dimensions 8 DIN modules

Technical data and ordering

MCX15B – Programmable controller



Technical data

FEATURES	DESCRIPTION
Power supply	85 – 265 V AC, 50 – 60 Hz. Maximum power consumption: 26 V A
	Insulation between power supply and the extra-low voltage: reinforced
	20 – 60 V DC and 24 V AC ±15% 50 / 60 Hz. Maximum power consumption:12 W, 20 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	Self extinguishing V0 according to IEC 60695-11-10 and glowing / hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T60 / UL: 0T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP40 only on the front cover
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category II
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC, 0 – 1 V, 0 – 5 V	4	**AI7, AI8, AI9, AI10** Analog inputs selectable via software between: • NTC temperature probes, default: 10 kΩ at 25 °C • pressure transducers with 0 – 5 V output
	Universal	6	**AI1, AI2, AI3, AI4, AI5, AI6** Universal analog inputs selectable via software between: • ON / OFF (current: 20 mA) • 0 – 1 V, 0 – 5 V, 0 – 10 V • 0 – 20 mA, 4 – 20 mA • NTC (10 kΩ at 25 °C) • Pt1000 12 V+ power supply 12 V DC, 200 mA max for 4 – 20 mA transmitter (total on all outputs) 5 V+ power supply 5 V DC, 210 mA max for 0 – 5 V transmitter (total on all outputs)
Digital inputs	24 V optoins.	18	**DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8, DI9, DI10, DI11, DI12, DI13, DI14, DI15, DI16, DI17, DI18** Digital Inputs optoinsulated 24 V AC 50 / 60 Hz o 24 V DC
	230 V AC optoins.	4	**DIH1, DIH2, DIH3, DIH4** • Inputs optoinsulated, 230 V AC 50 / 60 Hz. Basic insulation • Rated current: 2 mA at 230 V AC; 1 mA at 110 V AC *NOTE: when the 230 V AC DH1 input is used, the corresponding 24 V DI1 input is not available anymore; the same for the couple of inputs DIH2 and DI2, DIH3 and DI3, DIH4 and DI4*
Analog outputs	0 – 10 V	4	**AO1, AO2, AO3, AO4** • Analog outputs optoinsulated 0 – 10 V DC 10 mA max for each output • External power supply 24 V AC / V DC
	PWM, PPM	2	**AO5, AO6** Analog outputs selectable via software between: • pulsing output, synchronous with the line, at modulation of impulse position (PPM) or modulation of impulse width (PWM) • pulsing output, at modulation of impulse width (PWM) with range 20 Hz – 1 KHz: - open circuit voltage: 6.8 V - minimum load: 1 kΩ

Technical data and ordering

I/O	TYPE	NUM	SPECIFICATIONS
Digital output	Relay	15	Concerning the insulation distance there are three groups of relays: group 1: relays 1 – 8 group 2: relays 9 – 13 group 3: relays14 – 15 • Insulation between relays of the same group: functional • Insulation between relays of different groups: reinforced • Insulation between relays and the extra-low voltage parts: reinforced • Total current load limit: 92 A **C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5, C6-NO6, C7-NO7, C8-NO8 C9-NO9** Normally open contact relays 8 A • characteristics of each relay: - 6 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 4 A resistive - 3.6 FLA - 21.6 LRA - 346 VA pilot duty 30 000 cycles **C10-NO10-NC10, C11-NO11-NC11, C12-NO12-NC12, C13-NO13-NC13** Changeover contacts relay 8 A • characteristics of each relay: - 6 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 4 A resistive - 3.6 FLA - 21.6 LRA - 346 V A pilot duty 30 000 cycles **C14-NO14-NC14, C15-NO15-NC15** High inrush current (80 A - 20 ms) changeover contacts relay 16 A • characteristics of each relay: - 7 A – 250 V AC for resistive loads - 100 000 cycles - 3.5 A – 230 V AC for inductive loads - 230 000 cycles with cos(phi) = 0.4 - UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30 000 cycles Using of device in case of Tamb = 70 °C has to be according to following requirements: • maximum load admitted for 8 A relay: 4 A – 250 V AC • maximum load admitted for 16 A relay: 5 A – 250 V AC

Ordering

Type	Description	Code no.
MCX15B	MCX15B, 24 V, LCD, RS485, RTC, S	080G0036
MCX15B	MCX15B, 230 V, LCD, RS485, RTC, S	080G0037
MCX15B	MCX15B, 24 V, RS485, RTC, S	080G0042
MCX15B	MCX15B, 230 V, LCD, RS485, RTC, Industrial Pack (12 pieces)	080G0127
MCX15B	MCX15B, 24 V, RTC, Industrial Pack (12 pieces)	080G0130
MCX15B	MCX15B, 24 V, RS485, RTC, Industrial Pack (12 pieces)	080G0132

Accessory

Type	Description	Code no.
ACCCNX	MCX15B CONNECTORS KIT	080G0181

Note: industrial pack (I), 12 pieces, don't include standard kit connectors (Code no. 080G0181)

Quick Selection Notes:

MCX 152V - Programmable controller

MCX152V is a standard MCX electronic controller that stands on the top of MCX range thanks to its large number of input and output and two integrated electronic expansion valves drivers. It is available in the version with or without graphic LCD display, and 110 – 230 V AC or 24 V AC power supply.
It holds all the typical functionalities of MCX controllers: programmability, connection to the CANbus local network and up to two Modbus RS485 serial communication interfaces.
It is moreover fitted with the slot for SD / MMC memory card and Ethernet connector. The memory card assures SW download and the datalogging function; the Ethernet port allows the SW download, monitoring with web pages, datalogging and the alarms warning.



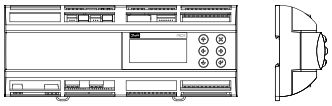


Facts

- 14 analog and 18 digital inputs
- 6 analog and 15 digital outputs
- Power supply 24 V AC and 110 – 230 V AC
- Up to two drives bipolar and unipolar electronic expansion valves
- SD / MMC card slot for easy software upload and datalogging
- Remote access to data through CANbus connection for additional display and keyboard
- RTC clock for managing weekly time programs and data logging information
- Ethernet/WebServer option
- Up to two Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display and without display for showing the desired information
- Dimensions 16 DIN modules

Technical data and ordering

MCX152V – Programmable controller



Technical data

FEATURES	DESCRIPTION
Power supply	85 – 265 V AC, 50 – 60 Hz. Maximum power consumption: 27 W, 48 V A.
	Insulation between power supply and the extra-low voltage: reinforced
	24 V AC ±15%, 50 / 60 Hz. Maximum power consumption: 27 W, 43 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	Self extinguishing V0 according to IEC 60695-11-10 and glowing / hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP40 only on the front cover
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category II
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs			Max 15 V input voltage • Do not connect voltage sources without current limitation (overall 80 mA) to analog inputs while unit is not powered • Open circuit HW diagnostics available for all analog inputs
	0 – 1 V, 0 – 5 V, 0 – 10 V	14	**AI1, AI2, AI3, AI4, AI5, AI6, AI7, AI8, AI9, AI10, AI11, AI12, AI13, AI14**
	NTC	14	**AI1, AI2, AI3, AI4, AI5, AI6, AI7, AI8, AI9, AI10, AI11, AI12, AI13, AI14** NTC temperature probes, default: 10 kΩ at 25 °C
	0 – 20 mA; 4 – 20 mA	8	**AI1, AI2, AI3, AI5, AI8, AI9, AI10, AI12**
	Pt1000	8	**AI1, AI2, AI3, AI7, AI8, AI9, AI10, AI14**
	Differential input	2	AI5(-), AI6(+); AI12(-), AI13(+) Differential input, DM Voltage 0..300 mV; CM voltage max 14 V
	Auxiliary Supplies	2	15 V+ and 5 V+ 5 V+ max: 140 mA (total on all outputs) 15 V+ max: 200 mA (total on all outputs)
Digital input	Voltage free contacts	16	**DI1, DI2** (Frequency input) min. pulse time 2.5 ms **DI3, DI4, DI5, DI6, DI7, DI8, DI9, DI10, DI11, DI12, DI13, DI14, DI15, DI16** Min pulse time 64 ms
	24 V optoinulated	2	**DI17, DI18** Digital Inputs optoinsulated 24 V AC 50 / 60 Hz or 24 V DC Rated current: 5 mA
	230 V AC optoins	2	**DI17, DI18** Inputs optoinsulated, 230 V AC 50 / 60 Hz. Basic insulation. Rated current: 2 mA at 230 V AC; 1 mA at 110 V AC *NOTE: when the 230 V AC, DI17H input is used, the corresponding 24 V DI17 input is not available anymore; the same for the couple of inputs DI18H and DI18*
Analog outputs	0 – 10 V DC	6	**AO1, AO2, AO3, AO4, AO5, AO6** Current max: 10 mA
	PWM, PPM	2	**AO3, AO6** • pulse output, synchronous with mains, at modulation of impulse position (PPM) or modulation of impulse width (PWM): 6.8 V open circuit • pulse output, PWM with range from 20 Hz – 1 kHz: 6.8 V open circuit

Technical data and ordering

I/O	TYPE	NUM	SPECIFICATIONS
Digital output	Relay	15	Concerning the insulation distance there are three groups of relays: group 1: relays 1 – 8 group 2: relays 9 – 12 group 3: relays 13 – 15 • Insulation between relays: functional • Insulation between relays of group 1 and 2 and 3: reinforced • Insulation between relays and the extra-low voltage parts: reinforced C1-NO1 to C12-NO12 Normally open contact relays 5 A • characteristics of each relay: - 5 A – 250 V AC for resistive loads - 100 000 cycles - 3 A – 250 V AC for inductive load - 100 000 cycles with cos(phi) = 0.4 - UL: 1/8 hp, C300 pilot duty, 125 / 250 V AC, 30 000 cycles C13-NO13 to C15-NO15 Normally open contact relays 16 A • characteristics of each relay: - 7 A – 250 V AC for resistive loads - 100 000 cycles - 3.5 A – 250 V AC for inductive load - 230 000 cycles with cos(phi) = 0.4 - UL: 6 A resistive, 240 VA, 30.000 cycles, 1/2 hp, 470 V A pilot duty, 240 V AC, 30 000 cycles C1-NO1 to C3-NO3, C13-NO13 to C15-NO15 Optionally they can be solid state relays • characteristics of each relay: - 15-280 Vrms, 1 A - UL: 1 A resistive, 240 V AC, 30 000 cycles
Stepper motor		2	ST1, ST2, ST3, ST4 • Bipolar and unipolar stepper motor output: - Danfoss ETS Valves (green, red, black, white) - Saginomyia UKV / SKV / VKV / PKV (black, red, yellow, orange) • Other Valves: - drive mode 1/8 microstep - peak phase current: 500 mA - max drive voltage 30 V - max output power 5 W
Battery backup		1	BATT 18 – 24 V DC: leakage current max 12 µA max battery current: 0.85 A at18 V
Memory card		1	SD / MMC Max 2 GB: • for data logging make sure that the memory card is firm in place avoid installations with vibrations

Ordering

Type	Description	Code no.
MCX152V	MCX152 V, 24 V, LCD, 2 RS485, ETH, S	080G0284
MCX152V	MCX152 V, 230 V, LCD, 2 RS485, ETH, S	080G0285
MCX152V	MCX152 V, 24 V, 2 RS485, S	080G0313

Quick Selection Notes:

MCX 20B - Programmable controller

MCX20B is fitted with or without graphic LCD display.
It is an electronic controller that stands on the top of the MCX range, thanks to the large number of its inputs and outputs. It holds all the typical functionalities of MCX controllers: programmability, connection to the CANbus local network and up to two Modbus RS485 opto-insulated serial interface.
Furthermore it is available in two models, powered at 110 – 230 V AC or 24 V AC

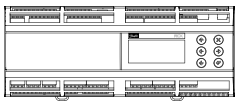




Facts

- 16 analog and 22 digital inputs
- 6 analog and 20 digital outputs
- Power supply 24 V AC / 20 – 60 V DC and 110 – 230 V AC
- Remote access to data through CANbus connection for additional display (LCD available) and keyboard
- RTC clock for managing weekly time programs and data logging information
- Up to two Modbus RS485 opto-insulated serial interface
- Available with graphic LCD display and without display for showing the desired information
- Dimensions 16 DIN modules

Technical data and ordering



MCX20B – Programmable controller

Technical data

FEATURES	DESCRIPTION
Power supply	85 – 265 V AC, 50 – 60 Hz. Maximum power consumption: 31 V A
	Insulation between power supply and the extra-low voltage: reinforced
	20 – 60 V DC or 24 V AC ±15%, 50 / 60 Hz. Maximum power consumption: 17 W, 25 V A
	Insulation between power supply and the extra-low voltage: functional
Plastic housing	DIN rail mounting complying with EN 60715
	Self extinguishing V0 according to IEC 60695-11-10 and glowing / hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T60 / UL: 0T55, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP40 only on the front cover
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category II
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

I/O	TYPE	NUM	SPECIFICATIONS
Analog inputs	NTC, 0 – 1 V 0 – 5 V	6	**AI7, AI8, AI9, AI10, AI15, AI16** Inputs selectable via software between: • NTC temperature probes, default: 10 kΩ at 25 °C • pressure transducers with 0 – 5 V output
	Universal	10	**AI1, AI2, AI3, AI4, AI5, AI6, AI11, AI12, AI13, AI14** Universal analog inputs selectable via software between: • ON / OFF (current: 20 mA) • 0 – 1 V, 0 – 5 V, 0 – 10 V • 0 – 20 mA, 4 – 20 mA • NTC (10 kΩ at 25 °C) • Pt1000 12 V+ power supply 12 V DC, 400 mA max for 4 – 20 mA transmitter (total on all outputs) 5 V+ power supply 5 V DC, 410 mA max for 0 – 5 V transmitter (total on all outputs)
Digital inputs	24 V optoinsulated	22	**DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8, DI9, DI10, DI11, DI12, DI13, DI14, DI15, DI16, DI17, DI18, DI19, DI20, DI21, DI22** • Inputs optoinsulated, 24 V AC 50/60 Hz or 24 V DC • Rated current: 5 mA
	230 V AC optoinsulated	4	**DIH1, DIH2, DIH3, DIH4** • Inputs optoinsulated, 230 V AC 50 / 60 Hz. Basic insulation • Rated current: 2 mA at 230 V AC; 1 mA at 110 V AC *NOTE: when the 230 V AC DH1 input is used, the corresponding 24 V DI1 input is not available anymore; the same for the couple of inputs DIH2 and DI2, DIH3 and DI3, DIH4 and DI4*
Analog outputs	0 – 10 V	6	**AO1, AO2, AO3, AO4, AO5, AO6** Analog outputs optoinsulated 0 – 10 V DC 10 mA max for each output: • 40 mA max totally on 6 outputs • External power supply 24 V AC / DC

Technical data and ordering

I/O	TYPE	NUM	SPECIFICATIONS
Digital output	Relay	20	Concerning the insulation distance there are three groups of relays: group 1: relays 1 – 8 group 2: relays 9 – 13 group 3: relays 14 – 20 • Insulation between relays of the same group: functional • Insulation between relays of different groups: reinforced • Insulation between relays and the extra-low voltage parts: reinforced • Total current load limit: 123 A **C1-NO1, C2-NO2, C3-NO3, C4-NO4, C5-NO5, C6-NO6, C7-NO7, C8-NO8, C9-NO9, C17-NO17, C18-NO18, C19-NO19, C20-NO20** Normally open contact relays 8 A • characteristics of each relay: - 6 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 4 A resistive - 3.6 FLA - 21.6 LRA - 346 V A pilot duty 30 000 cycles **C10-NO10-NC10, C11-NO11-NC11, C12-NO12-NC12, C13-NO13-NC13** Changeover contacts relay 8 A • characteristics of each relay: - 6 A – 250 V AC for resistive loads - 100 000 cycles - 4 A – 250 V AC for inductive loads - 100 000 cycles with cos(phi) = 0.6 - UL: 240 V AC - 4 A resistive - 3.6 FLA - 21.6 LRA - 346 V A pilot duty 30 000 cycles **C15-NO15, C16-NO16** High inrush current (80 A - 20 ms) normally open contact relays 16 A • characteristics of each relay: - 7 A – 250 V AC for resistive loads - 100 000 cycles - 3.5 A – 230 V AC for inductive loads - 230 000 cycles with cos(phi) = 0.5 - UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30 000 cycles **C14-NO14-NC14** High inrush current (80 A - 20 ms) changeover contacts relay 16 A • characteristics of each relay: - 7 A – 250 V AC for resistive loads - 100 000 cycles - 3.5 A – 230 V AC for inductive loads - 230 000 cycles with cos(phi) = 0.5 - UL: 240 V AC - 6 A resistive - 4.9 FLA - 29.4 LRA - 470 V A pilot duty 30 000 cycles Using of device in case of Tamb = 70 °C has to be according to following requirements: • maximum load admitted for 8 A relay: 4 A – 250 V AC • maximum load admitted for 16 A relay: 5 A – 250 V AC

Ordering

Type	Description	Code no.
MCX20B	MCX20B, 230 V, LCD, RS485, RTC, S	080G0045
MCX20B	MCX20B, 24 V, LCD, 2XRS485, RTC, S	080G0057
MCX20B	MCX20B, 24 V, 2XRS485, RTC, S	080G0059
MCX20B	MCX20B, 230 V, LCD, RS485, RTC, Industrial Pack (12 pieces)	080G0139
MCX20B	MCX20B, 24 V, RTC, Industrial Pack (12 pieces)	080G0142
MCX20B	MCX20B, 230 V, RS485, RTC,Industrial Pack (12 pieces)	080G0145
MCX20B	MCX20B, 24 V, 2XRS485, RTC, Industrial Pack (12 pieces)	080G0146

Accessory

Type	Description	Code no.
ACCCNX	MCX20B CONNECTORS KIT	080G0182

Note: industrial pack (I), 12 pieces, don't include standard kit connectors (Code no. 080G0182)

Quick Selection Notes:

MMIGRS2 - User interface

MMIGRS2 is MCX's family remote interface. It's fitted with a graphic display that allows a complete customization of the user interface. The connection with every unit of the MCX range is made through the CANbus network.

All the information about the user interface is loaded inside the MCX controller; that's why there is no need of programming the MMIGRS2 interface.
MMIGRS2 is powered externally or from the controller which it is connected to and automatically shows its user interface



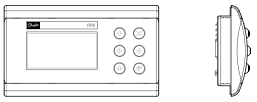


Facts

- Full graphic LCD display, 128x64 dots resolution
- Easy connection to MCX CANbus network through telephone plug and CAN connector
- No need to be programmed: information about user interface is loaded from the MCX controller
- Powered by the MCX which it is connected to
- Dimensions 88x150 mm
- Panel and wall mounting
- IP64 protection rating on panel version
- MMIGRS2CC:
  - 2 dedicated keys for easy access to alarm and on / off functions
  - 3 coloured back lighted keys

Technical data and ordering

MMIGRS2 – User interface



Technical data

FEATURES	DESCRIPTION
Power supply	From the MCX through the RJ11 telephone connector
	12 – 30 V DC (separate power supply is recommended)
	24 V AC 10% – -15% (separate power supply is recommended)
	Maximum power consumption: 1.5 W
Plastic housing	Self extinguishing V0 according to IEC 60695-11-10 and glowing/hot wire test at 960 °C according to IEC 60695-2-12
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥ 250 V according to IEC 60112
Operating conditions	CE: -20T60 / UL: -20T60, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP64 ~ NEMA3R (panel version)
	IP40 (wall version)
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category II
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)
	UL approval: UL file E31024

Ordering

Type	Description	Code no.
MMIGRS2	MMIGRS2, REMOTE DISPLAY, PANEL, S	080G0294
MMIGRS2	MMIGRS2, REMOTE DISPLAY, WALL, S	080G0295
MMIGRS2	MMIGRS2, REMOTE DISPLAY, PANEL, Industrial Pack (27 pieces)	080G0297
MMIGRS2CC	MMIGRS2CC, Close Control, PANEL, Industrial Pack (27 pieces)	080G0298
MMIGRS2CC	MMIGRS2CC, Close Control, WALL, S	080G0299

Accessory

Type	Description	Code no.
ACCCBI	ACCCBI, TELEPHONE CABLE USER INTERFACE CONNECTOR, 1.5 m CABLE	080G0075
ACCCBI	ACCCBI, TELEPHONE CABLE USER INTERFACE CONNECTOR, 3 m CABLE	080G0076

Note: industrial pack (I), 27 pieces

MMILDS - Remote display

MMILDS is MCX's family remote interface. It's fitted with a LED display for displaying data from a MCX or from 2 probes that can be locally connected. The connection with any MCX controller is through the CAN bus network.

The power supply can come from controller which it is connected. All the information about the user interface is loaded inside the MCX controller; that's why there is no need of programming the MMILDS interface.



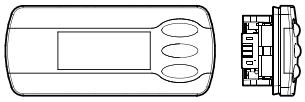


Facts

- LED display 3 ½ digit
- Easy connection to MCX CANbus network through wired connector kit
- Connections for 2 external probes
- Powered by the MCX which it is connected to
- Dimensions 84x36 mm
- Panel mounting

Technical data and ordering

MMILDS – Remote display



Technical data

FEATURES	DESCRIPTION
Power supply	From the MCX through the RJ12 telephone connector
	12 V DC ± 20% external power supply
	12 V AC ± 15% external transformers
	Maximum power consumption: 1.5 W
Analog input	AI1: 0 – 20 mA, 4 – 20 mA, 0 – 5 V, 0 – 1 V
	AI2: NTC, default 10 KΩ at 25 °C
Operating conditions	CE: -20T60, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and / or II appliances
Index of protection	IP65
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category A
Immunity against voltage surges	Category I
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)

Ordering

Type	Description	Code no.
MMILDS	MMILDS, 12 V, LED, CAN, REMOTE DISPLAY, PANEL, S	080G0232
MMILDS	MMILDS, 12 V, LED, CAN, REMOTE DISPLAY, PANEL, Industrial Pack (25 pieces)	080G0233

Accessory

Type	Description	Code no.
ACCCBI	ACCCBI, MMILDS CABLE RJ12/JST PH, 2 m CABLE	080G0239

Note: industrial pack (I), 25 pieces

MMIMYK - Programmable controller

MMIMYK is the advanced "*all in one*" device that performs up to three different functions:
- Programming module; - Gateway; - Data logger.

It has a bright graphic display and a keyboard that enable to configure the module to run several functions. It has also a slot for SD / MMC card (Multi Media Card) to extend the memory capacity.



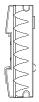


Facts

- Full graphic OLED display, 128x64 dots resolution
- Easy connection to MCX CANbus network through telephone plug
- SD / MMC card slot for easy software upload and datalogging
- Modbus RS485 serial interface
- Powered by the MCX which it is connected to or the other way round
- Can execute an application like any MCX device
- Dimensions 105x72 mm
- Mounting DIN rail or portable

Technical data and ordering





MMIMYK – User interface

Technical data

FEATURES	DESCRIPTION
Power supply	From the MCX through the RJ11 telephone connector
	12 V DC (from DC connector)
	24 V AC (from screw plug-in connector type pitch 3.5 mm): on this supply it is advisable to use a dedicated transformer 24 V AC - 10 V A
	From USB 2.0 (maximum 500 mA)
Plastic housing	DIN rail mounting complying with EN 60715
Ball test	125 °C according to IEC 60730-1. Leakage current: ≥250 V according to IEC 60112
Operating conditions	CE: -20T60, 90% RH non-condensing
Storage conditions	-30T80, 90% RH non-condensing
Integration	In Class I and/or II appliances
Index of protection	IP20 only on the front cover
Period of electric stress across insulating parts	Long
Resistance to heat and fire	Category D
Immunity against voltage surges	Category I
Software class and structure	Class A
Approvals	CE compliance: This product is designed to comply with the following EU standards: • Low voltage guideline: 73 / 23 / EEC • Electromagnetic compatibility EMC: 89 / 336 / EEC and with the following norms: - EN61000-6-1, EN61000-6-3 (immunity for residential, commercial and light-industrial environments) - EN61000-6-2, EN61000-6-4 (immunity and emission standard for industrial environments) - EN60730 (Automatic electrical controls for household and similar use)

Ordering

Type	Description	Code no.
MMIMYK	MMIMYK, PC/MCX INTERFACE AND MCX PROGRAMMING, DATA LOGGING, S	080G0073

GD - Gas detecting sensor

Danfoss Gas detecting sensors, type GD are a range of products designed to meet all industrial refrigeration and air conditioning application requirements.

GD detects a wide range of commonly used refrigerants including Ammonia, Carbon Dioxide, Halo-Carbons and Hydro-Carbons.

Features
GD



Alarm levels
can be set locally

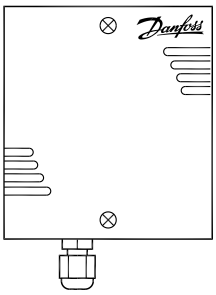
Manual or automatic
alarm reset optional

Can be set locally
as stand alone or to an external device

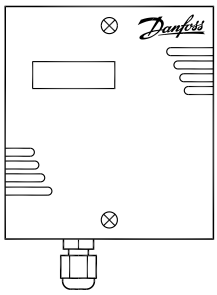
Facts

- GD is specifically developed for refrigeration applications
- Interchangeable precalibrated sensors
- Optional models:
  - LCD display
  - IP65 enclosure
  - EExd (Explosion Protected)
- Linear analog outputs, current [mA] / volt [V] proportional to the gas concentration
- Two digital outputs. Low Level and High Level Alarm
- Adjustable setting for alarm levels and output contacts with optional NO or NC switches
- GD can be connected directly to a Danfoss monitoring unit system
- Available with a range of different sensor technologies to monitor industrial refrigeration gases:
  - Electro-Chemical
  - Semi-Conductor
  - Catalytic
  - Infra-Red

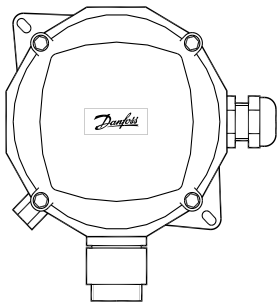
Product range



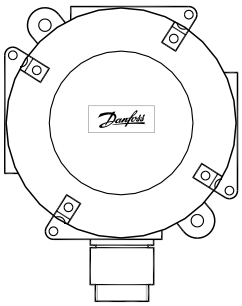
Standard



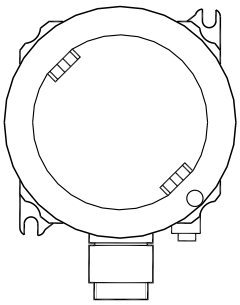
LCD display



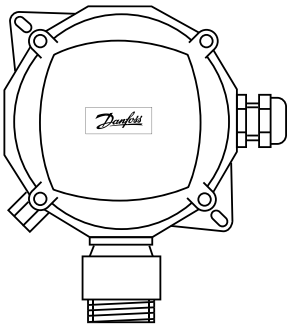
IP65 with stainless steel



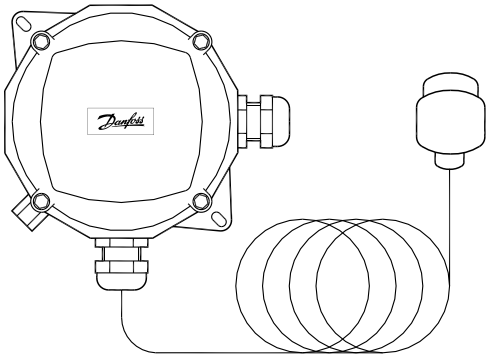
EExd Low temperature sensor head



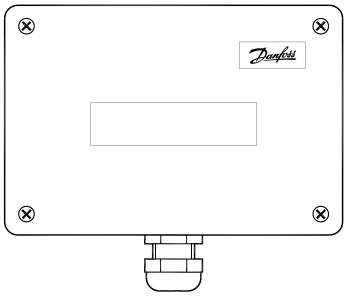
EExd Low temperature for CO_2



IP65 enclosure



IP66 enclosure 5m remote IP65 sensor
IP66 enclosure 5m remote IP65 EExd sensor



Remote LCD display IP41

Standard
Basic standard model for machine / engine rooms and cold rooms.

Standard with LCD display
Basic standard model for machine / engine rooms with the actual reading of present ppm level in the room and Alarm messages.

IP65
Two models with IP65 available:
- IP65 with stainless steel sensor head
- Temperature down to -20 °C / -4 °F
- IP65 enclosure. Temperature down to -40 °C / -40 °F

EExd
Like Standard but applicable in explosive areas Zone 1 and 2 and higher IP (NEMA).
The sensor is mounted in an external Stainless Steel head.

Remote LCD (accessory)
Remote LCD display with 5 m cable.

Remote sensor
Models with 5 m cable. Can be used in connection with safety valves / vent pipe applications.
Also available with remote EExd sensor.

Technical data

GD - Gas detecting sensors

Technical data

Features	Description
Refrigerants	Ammonia (R717)
	Type GDA: 0 – 100 ppm, 0 – 300 ppm, 0 – 1.000 ppm, 0 – 10.000 ppm, 0 – 30.000 ppm
	Carbon Dioxide (R744)
	Type GDC: 0 – 10.000 ppm, 0 – 20.000 ppm, 0 – 40.000 ppm
	Halo-Carbon - HCFC (R22, R123)
	Type GDHC: 0 – 1.000 ppm
	HFC (R404A, R410A, R134a, R407C, R507)
	Type GDHF: 0 – 1.000 ppm
	Hydro-carbon - Propane (R290), R600, R600a, R1270
	Type GDH: 0 – 5.000 ppm
Versions / temperature range	Standard, LCD display, IP65 and EExd: -20 – 50 °C
	Low temperature model: -40 – 50 °C
Cable connection	1 gland for 6 – 13 mm / 0.2 – 0.5 inch, 1 cable ø20 mm / 0.8 inch hole with blanking plug
	1 extra gland can be fitted (only Standard, LCD display and EExd)
Approvals	CE: EN55011 EN61326 Following the provisions of 89 / 336 / EEC, EMC directives and, Cenelec EN61010-2 : 2001 Following the provisions of 73 / 23 / EEC, Low Voltage directive (LVD) ATEX for EExd model: Directive 94 / 9 / EC Group 2, Category2, G and D, Zones 1 and 2

Models / Sensor	Standard Basic	Standard Basic with LCD display	IP65 with stainless steel sensor head	IP65 enclosure		EExd model	EExd model Low Temperature	IP66 enclosure 5 m remote IP65 sensor	IP66 enclosure 5 m remote IP65 EExd sensor	Remote LCD display IP41 5 m cable [3]
Temperature range										
EC [1]	-20 – 40 °C -4 – 104 °F	0 – 40 °C 32 – 104 °F	-20 – 40 °C -4 – 104 °F	-20 – 40 °C -4 – 104 °F	-40 – 40 °C -40 – 104 °F	-20 – 40 °C -4 – 104 °F	-40 – 40 °C -40 – 104 °F	-20 – 40 °C -4 – 104 °F	-20 – 40 °C -4 – 104 °F	0 – 40 °C 32 – 104 °F
SC, CT	-20 – 50 °C -4 – 122 °F	0 – 50 °C 32 – 122 °F	-20 – 50 °C -4 – 122 °F	-40 – 50 °C / -40 – 122 °F		-20 – 50 °C -4 – 122 °F	-40 – 50 °C -40 – 122 °F	-20 – 50 °C -4 – 122 °F	-20 – 50 °C -4 – 122 °F	0 – 50 °C 32 – 122 °F
IR	0 – 50 °C 32 – 122 °F	0 – 50 °C 32 – 122 °F	-20 – 50 °C -4 – 122 °F	-40 – 50 °C / -40 – 122 °F		-20 – 50 °C -4 – 122 °F	not available	not available	not available	0 – 50 °C 32 – 122 °F
Electrical data										
EC SC, CT	12 – 24 V DC, 0.23 A 12 – 24 V AC, 4 W					12 – 24 V DC, 0.23 A 12 – 24 V AC, 4 W	12 – 24 V DC, 0.23 A 12 – 24 V AC, 4 W	12 – 24 V DC, 0.23 A 12 – 24 V AC, 4 W		Supplied from connector on GD motherboard
IR	12 – 24 V DC, 0.3 A					12 – 24 V DC, 0.24 A	not available	not available	not available	
Enclosure										
EC	IP30 (~NEMA 1)	IP30 (~NEMA 1)	IP65 (~NEMA 4)	IP65 (~NEMA 4)		IP65 (~NEMA 4)	IP65 (~NEMA 4)	[2] IP66 (~NEMA 4x)	[2] IP66 (~NEMA 4x)	IP41 (~NEMA 1)
SC, CT										
IR							not available	not available	not available	

[1] Two models
[2] Remote sensor: IP65
[3] For all models except EExd and EExd Low Temperature

Sensor head

Models / Sensor	Standard Basic	Standard Basic with LCD display	IP65 for High RH and Fast response	IP65 enclosure	EExd model	EExd model Low Temperature	IP66 enclosure 5 m remote IP65 sensor	IP66 enclosure 5 m remote IP65 EExd sensor
Thread on external sensor								
EC	–	–	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm	M 42 x 1.5 mm
SC	–	–	M 42 x 1.5 mm	M 42 x 1.5 mm	1"5 / 16 x 20 UNF	1"5 / 16 x 20 UNF	M 42 x 1.5 mm	1"5 / 16 x 20 UNF
CT	–	–	M 35 x 1.5 mm	M 42 x 1.5 mm	1"5 / 16 x 20 UNF	M 35 x 1.5 mm	M 35 x 1.5 mm	M 35 x 1.5 mm
IR	–	–	M 42 X 1.5 mm	M 42 x 1.5 mm	M 42 X 1.5 mm	not available	not available	not available
Material for external sensor								
EC	–	–	Stainless Steel	Plastic	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
SC, CT	–	–	Stainless Steel	Plastic	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
IR	–	–	Stainless Steel	Plastic	Stainless Steel	not available	not available	not available

Ordering complete GD gas detecting sensors

GD - Standard basic

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5000
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	148H5060
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5010
			0 – 1000	25 / 500	0	Electro-chemical	148H5050
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	148H5040
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5020
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	148H5030
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	148H5070
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	[1])
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	[1])
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5100
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5110
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5120
Hydro-Carbon	R290, R600, R600a, R1270	GDH SC 5000	0 – 5000	800 / 2500	–	Semi-Conductor	148H5190

GD - Standard basic with LCD display

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5001
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	[1])
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5011
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	[1])
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5021
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	148H5031
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	148H5071
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	[1])
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	[1])
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5101
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5111
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5121
Hydro-Carbon	R290, R600, R600a, R1270	GDH SC 5000	0 – 5000	800 / 2500	–	Semi-Conductor	148H5191

IP65 with stainless steel sensor head

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5002
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	[1])
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5012
			0 – 1000	25 / 500	0	Electro-chemical	148H5052
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	148H5042
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5022
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	148H5032
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5102
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5112

IP65 (-20 – 40 °C / -4 – 104 °F)

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5009
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5019
			0 – 1000	25 / 500	0	Electro-chemical	148H5059

[1]) *Please contact your local Danfoss sales office*

Ordering complete GD gas detecting sensors

IP65 (-40 – 50 °C / -40 – 122 °F)

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	148H5049
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5029
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	148H5039
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	148H5072
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	148H5082
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	148H5092
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5109
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5119
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5129

IP65 (-40 – 40 °C / -40 – 104 °F)

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5005
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	148H5065
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5015
			0 – 1000	25 / 500	0	Electro-chemical	148H5055

EExd

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5003
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5013
			0 – 1000	25 / 500	0	Electro-chemical	148H5053
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	[1]
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5023
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	148H5033
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	148H5073
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	[1]
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	[1]
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1]
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5113
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1]
Hydro-Carbon	R290, R600, R600a, R1270	GDH SC 5000	0 – 5000	800 / 2500	–	Semi-Conductor	148H5193

EExd Low Temperature

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5006
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	[1]
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5016
			0 – 1000	25 / 500	0	Electro-chemical	[1]
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	[1]
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5026
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	[1]
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	[1]
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	[1]
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	[1]
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1]
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1]
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1]

[1]) Please contact your local Danfoss sales office

Ordering complete GD gas detector

IP66 enclosure, 5 m remote, IP65 sensor

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	148H5007
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	[1])
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	148H5017
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	[1])
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5027
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	[1])
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	[1])
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	[1])
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	[1])
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5107
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5117
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	148H5127

IP66 enclosure, 5 m remote, IP65 EExd sensor

Ordering

Type of gas	Refrigerant	Type	Range [ppm]	Alarm limits Low / High [ppm]	Respons delay [s]	Sensor type	Code no.
Ammonia - NH_3	R717	GDA EC 100	0 – 100	25 / 35	0	Electro-chemical	[1])
		GDA EC 300	0 – 300	100 / 200	0	Electro-chemical	[1])
		GDA EC 1000	0 – 1000	500 / 1000	0	Electro-chemical	[1])
		GDA SC 1000	0 – 1000	80 / 250	0	Semi-Conductor	[1])
		GDA SC 10000	0 – 10000	5000 / 9000	0	Semi-Conductor	148H5028
		GDA CT 30000	0 – 30000	3000 / 28000	0	Catalytic	[1])
Carbon Dioxide - CO_2	R744	GDC IR 10000	0 – 10000	5000 / 9000	0	Infrared	[1])
		GDC IR 20000	0 – 20000	10000 / 18000	0	Infrared	[1])
		GDC IR 40000	0 – 40000	20000 / 36000	0	Infrared	[1])
Halo-Carbon	HCFC R22, R123	GDHC SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1])
	HFC R404A, R507	GDHF SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1])
	HFC R134a	GDHF-R3 SC 1000	0 – 1000	500 / 900	0	Semi-Conductor	[1])

[1]) *Please contact your local Danfoss sales office*

Ordering

GD sensor PCB

Ordering

Type	Description	Code No.
GDA EC 100	Sensor PCB	148H5200
GDA EC 1000	Sensor PCB	148H5201
GDA SC 10000	Sensor PCB	148H5202
GDA CT 30000	Sensor PCB	148H5203
GDC IR 10000	Sensor PCB for Standard Basic and Standard Basic with LCD display	148H5204
GDHC SC 1000	Sensor PCB	148H5205
GDHF SC 1000	Sensor PCB	148H5206
GDA EC 100	Sensor PCB Ext for IP65 / EExd enclosure	148H5208
GDA EC 1000	Sensor PCB Ext for IP65 / EExd enclosure	148H5209
GDA SC 10000	Sensor PCB Ext for IP65 enclosure	148H5210
GDA CT 30000	Sensor PCB Ext for IP65 / EExd enclosure	148H5211
GDHC SC 1000	Sensor PCB Ext for IP65 enclosure	148H5212
GDHF SC 1000	Sensor PCB Ext for IP65 enclosure	148H5213
GDA EC 300	Sensor PCB Ext for IP65 / EExd enclosure	148H5240
GDA EC 300	Sensor PCB	148H5215
GDA SC 10000	Sensor PCB Ext for EExd enclosure / EExd Low Temperature enclosure	148H5241
GDHF SC 1000	Sensor PCB Ext for EExd enclosure	148H5243
GDHF-R3 SC 1000	Sensor PCB	148H5246
GDHF-R3 SC 1000	Sensor PCB Ext for IP65 enclosure	148H5247
GDA SC 1000	Sensor PCB	148H5249
GDC IR 10000	Sensor PCB Ext for EExd enclosure	148H5250
GDA SC 1000	Sensor PCB Ext for IP65 enclosure	148H5254
GDH SC 5000	Sensor PCB Ext for EExd enclosure	148H5260
GDA SC 10000	Sensor PCB with 5 m remote IP65 sensor. For IP66 enclosure	148H5261
GDHC SC 1000	Sensor PCB with 5 m remote IP65 sensor. For IP66 enclosure	148H5262
GDHF SC 1000	Sensor PCB with 5 m remote IP65 sensor. For IP66 enclosure	148H5263
GDHF-R3 SC 1000	Sensor PCB with 5 m remote IP65 sensor. For IP66 enclosure	148H5264
GDA SC 10000	Sensor PCB with 5 m remote IP65 EExd sensor. For IP66 enclosure	148H5265
GDH SC 5000	Sensor PCB	148H5267
GDA EC 100	Sensor PCB Ext for EExd Low Temperature enclosure	148H5268
GDA EC 1000	Sensor PCB Ext for EExd Low Temperature enclosure	148H5269
GDA EC 100	Sensor PCB with 5 m remote IP65 sensor. For IP66 enclosure	148H5273
GDA EC 1000	Sensor PCB with 5 m remote IP65 sensor. For IP66 enclosure	148H5275

Accessories

Ordering

Description	Code No.
GD Test Kit • GD Tester all models. To test mother PCB at Sensor PCB replacement • Beaker M42 • EC / SC / CT-Adapter. Fit Beaker M42 • M35 Adapter. Fit Beaker M42	148H5230
GD mother PCB all models	148H5232
GD Tester for mother PCB, all models	148H5239
I-PACK (10) GD Ampoules 100 ppm ammonia	148H5234
I-PACK (10) GD Ampoules 1000 ppm ammonia	148H5235
I-PACK (10) GD Ampoules 2000 ppm CO_2	148H5236
Remote LCD display IP41	148H5238

Quick Selection Notes:

DGS - Gas sensors

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



RS485 Modbus
for data communication and integration into a complete ADAP-KOOL® system

Utilizing
either Semi-Conductor (SC) or Infrared (IR) technologies

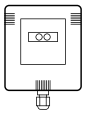
Can be used
in stand-alone or integrated systems, where continuous real-time, automatic monitoring with Danfoss ADAP-KOOL® Refrigeration Control and Monitoring System and / or Building Management Systems is applied

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 (CO_2 / R744)
  - Hydrocarbons (e.g. R290, R600a)
  - 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 *Note: Semi-Conductor sensors are non-selective, but calibrated to a specfic gas*		

Danfoss DGS - IP41 Enclosure Versions

Ordering

Refrigerant	Type	Description	Code no.
R404A, R507	DGS-SC	Gas Detector (IP41) Std. default R404A / R507 (min. -20 °C)	080Z2998
R134a	DGS-SC	Gas Detector (IP41) std. default R134a (min. -20 °C)	080Z2942
R407A	DGS-SC	Gas Detector (IP41) std. default R407A (min. -20 °C)	080Z2943
R407F	DGS-SC	Gas Detector (IP41) std. default R407F (min. -20 °C)	080Z2956
R410A	DGS-SC	Detector (IP41) std. default R410 (min. -20 °C)	080Z2988
CO_2 (R744)	DGS-IR-CO_2	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

Refrigerant	Type	Description	Code no.
R404A, R507	DGS-SC	Gas Detector (IP66) Std. default R404A / R507 (min. -40 °C)	080Z2999
R134a	DGS-SC	Gas Detector (IP66) std. default R134a (min. -40 °C)	080Z2989
R407A	DGS-SC	Gas Detector (IP66) std. default R407A (min. -40 °C)	080Z2944
R407F	DGS-SC	Gas Detector (IP66) std. default R407F (min. -40 °C)	080Z2957
R410A	DGS-SC	Detector (IP66) std. default R410 (min. -40 °C)	080Z2987
CO_2 (R744)	DGS-IR-CO_2	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

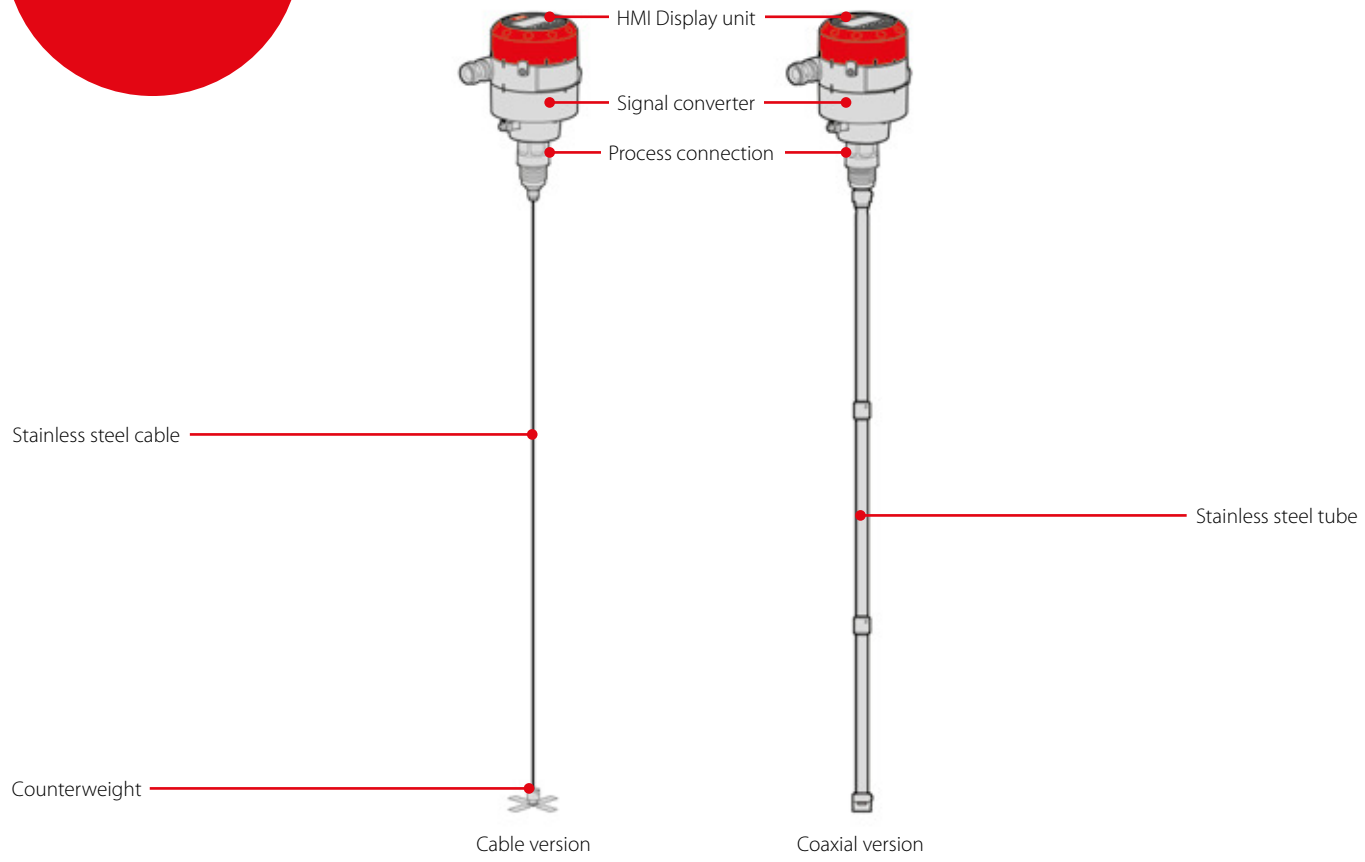
Note: For R448A / R449A, Please Contact Danfoss

AKS 4100 / AKS 4100U - Liquid level sensor

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 techhology 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



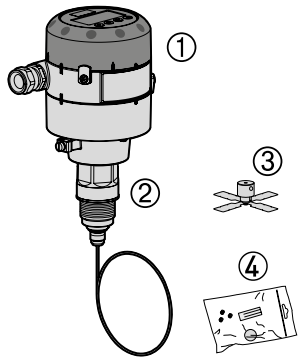
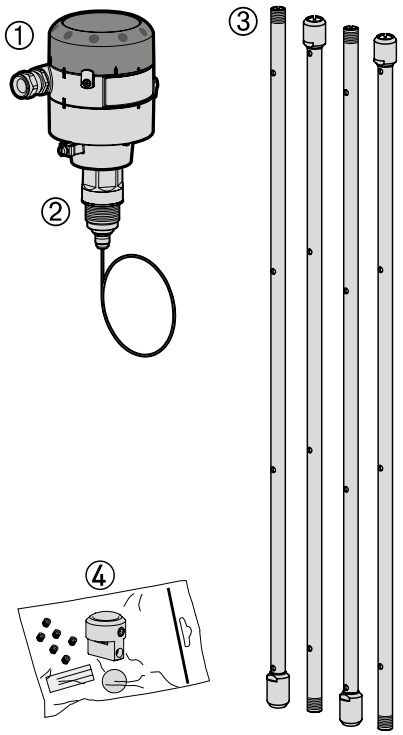
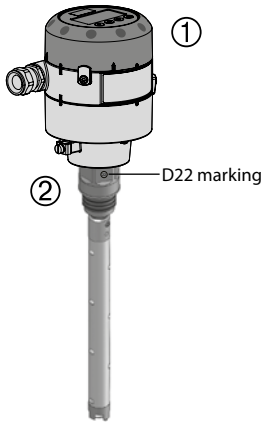
Facts

- 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 (εr) 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: ¾ inch NPT

CABLE version:	COAXIAL D14 version:	COAXIAL D22 version:
		

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 crews (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: Halogen Free / Environmently friendly: R717 / NH_3 / R744 CO_2 / HCFC and non flammable HFC
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 × 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

Liquid dielectric constant (εr)	Cable version to be used in R717 / NH_3, HCFC and HFC εr, liquid > 5.6 Coaxial version is mandatory in R744 / CO_2 εr, liquid > 1.3
Vibration resistance	EN 60721-3-4 (1...9 Hz: 3 mm / 10...200 Hz:1g; 10g shock half-wave sinusoidal: 11 ms)
Enclosure rating	IP66 / IP67 equivalent to NEMA type 4X (housing) and type 6P (probe)

Process connections

Thread	
Cable Ø2 mm / 0.08 in	AKS 4100: G1 inch pipe thread. Aluminium gasket included AKS 4100U: ¾ inch NPT
Coaxial	AKS 4100: G1 inch pipe thread. Aluminium gasket included AKS 4100U: ¾ inch NPT

Electrical connections

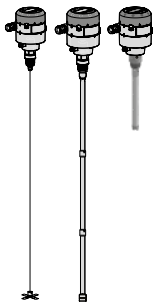
Power supply	Terminals output: 14 – 30 V DC. Min. / Max. Value for an output of 22 mA at the terminal Ambient temperature limitations: -40 – 80 °C / -40 – 176 °F: 16 – 30 V DC -20 – 80 °C / -4 – 176 °F: 14 – 30 V DC
Current output load	RL [Ω] ≤ ((Uext -14 V) / 20 mA) – Default (Error output set to 3.6 mA) RL [Ω] ≤ ((Uext -14 V) / 22 mA) – (Error output set to 22 mA)
Cable gland	AKS 4100: PG 13, M20×1.5; (cable diameter: 6 – 8 mm / 0.24 – 0.31 in AKS 4100U: ½ 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 4100 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 with / without	Code no.
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/NH_3

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.

Quick Selection Notes:

AKS - Pressure transmitters

AKS 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 pressure transmitters utilize temperature calibrations methods and sensing technologies optimized for the refrigeration and air-conditioning segments.

Features AKS



Facts

- Designed for precise and energy optimized control
- Robust design optimized for
  - air-conditioning
  - refrigeration plant
  - supermarket installation
  - natural refrigerants like CO_2 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]
	-1 – 12	33	EN 175301-803-A without plug	Thread ISO 228/1 – G 3/8 A (BSP)	060G1038
AKS 2050	-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 Aboslute
[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

EKS / AKS - Temperature sensor

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

AKS21 sensor system for controlling extreme high and low temperatures

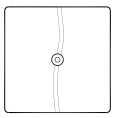
AKS 11 temperature sensor for reliable super heat control to optimize accuracy and process efficiency

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 °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 Ω (EKS 111), NTC 5000 Ω (EKS 211), or NTC 1000 Ω (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

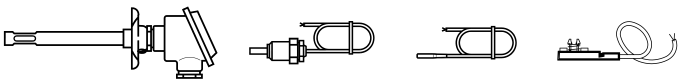
EKS - Temperature sensors for measuring temperatures

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

NSK - Pressure sensors

Saginomiya type NSK pressure sensors are compact, light weight, high reliability double diaphragm sensors in which pressure is conducted to the silicon chip through high purity silicone oil that is in turn sealed in place by the stainless steel diaphragm.

This structure allows NSK sensors to be used in a wide variety of fluids.
The diffusion silicon chip contains a bridge circuit and a unique temperature- compensated

Features
NSK



Facts

Application:
- Sensing pressure in room and packaged air-conditioning systems
- Chillers
- Boiler water and vapour
- Air, water, and oil pumping and circulation systems

- UL and cUL recognized, UL File No. E43867
- CE approval: EMC
- Ratiometric: 0.5 – 4.5 V DC
- Pressure range: 0 – 150 bar / 0 – 725 psi (gauge pressure)

Technical data and ordering

Packard connector

Ordering

Standard models with 1/4 inch Female Flare connections with schrader depressor

Type	Pressure rang [bar]	Max. working pressure [bar]	Total accuracy [%FS]	Output voltage [VDC]	Body color	Catalog no.	Code no.
NSK	–	–	± 2.5 [1])	0.5 – 4.5	Green	NSK-BE010I-U106	061H5132
	–	–	± 2.5 [1])	0.5 – 4.5	Green	NSK-BE014I-U106	061H5133
	–	–	± 2.5 [1])	0.5 – 4.5	Green	NSK-BE021I-U106	061H5134
	–	–	± 2.0 [1])	0.5 – 4.5	Black	NSK-BE034I-U106	061H5135
	–	–	± 2.5 [1])	0.5 – 4.5	Black	NSK-BE050I-U106	061H5136

[1]) at -4 – 248 °F / -20 – 120 °C
Note: For other pressure connections, please contact Danfoss

Packard connector

Ordering

Standard models with 1/4 inch Female Flare connections with schrader depressor

Type	Pressure rang [bar]	Max. working pressure [bar]	Total accuracy [%FS]	Output voltage [VDC]	Body color	Catalog no.	Code no.
NSK	–	–	± 2.5 [1])	0.5 – 4.5	Brown	NSK-BC010I-U002	061H5115
	–	–	± 2.5 [1])	0.5 – 4.5	Brown	NSK-BC014I-U002	061H5116
	–	–	± 2.5 [1])	0.5 – 4.5	Brown	NSK-BC021I-U002	061H5117
	–	–	± 2.0 [1])	0.5 – 4.5	Black	NSK-BC034I-U002	061H5118
	–	–	± 2.5 [1])	0.5 – 4.5	Black	NSK-BC050I-U002	061H5119

[1]) at -4 – 248 °F / -20 – 120 °C
Note: For other pressure connections, please contact Danfoss

Secop reciprocating compressors produced for Danfoss - Direct current

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.



Features
Reciprocating compressors



- Efficient and reliable
- Lasting performance
- Low weight
- Silent operation
- Models available for solar supply
- Compact design
- Energy optimisation
- Built in speed control, thermostat signal, thermal protection

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 ***	Code numbers	Electronic units (voltages & code numbers)														
		Standard 12 – 24 V DC 101N0210	EMI 12 – 24 V DC 101N0220	High Start 12 – 24 V DC 101N0230	High Speed 12 – 24 V DC 101N0290	AEO EMI 12 – 24 V DC 101N0320	AEO High Start 12 – 24 V DC 101N0330	Solar 10 – 30 V DC 101N0400	Solar 20 – 45 V DC 101N0410	AC/DC converter 12 – 24 V DC & 100 – 240 V AC 101N0500	Automotive 12 – 24 V DC 101N0600 101N0630	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	101Z0200	x	x	–	–	x	–	x	x	x	x	–	–	–	–	–
BD35F (inch con.)	101Z0204	x	x	–	–	x	–	x	x	x	x	–	–	–	–	–
BD35F-B	101Z0205	x	x	–	–	x	–	–	–	x	x	–	–	–	–	–
BD35F-HD	101Z0206	x	–	–	–	–	–	–	–	–	–	–	–	–	–	–
BD50F	101Z1220	x	x	x	–	x	x	–	–	x	–	–	–	–	–	–
BD50F (inch con.)	101Z0203	x	x	x	–	x	x	–	–	x	–	–	–	–	–	–
BD80F	101Z0280	–	–	–	x	–	–	–	–	–	–	–	–	–	–	–
BD250GH.2	101Z0406	–	–	–	x	–	–	–	–	–	–	–	–	–	–	–
BD250GH.2 (48V)	101Z0405	–	–	–	–	–	–	–	–	–	–	–	–	–	–	x
BD350GH (12V)	102Z3015	–	–	–	–	–	–	–	–	–	–	x+x	–	–	–	–
BD350GH (24V)	102Z3016	–	–	–	–	–	–	–	–	–	–	–	x+x	x	–	–
BD350GH (48V)	102Z3031	–	–	–	–	–	–	–	–	–	–	–	–	–	x	–
BD350GH Twin (12V)	102Z3018	–	–	–	–	–	–	–	–	–	–	x+x x	–	–	–	–
BD350GH Twin (24V)	102Z3017	–	–	–	–	–	–	–	–	–	–	–	x+x	x x	–	–
BD220CL *	102Z3020	–	–	–	–	–	–	–	–	–	–	x+x	–	–	–	–
BD35K **	101Z0211	x	x	–	–	–	–	x	x	–	–	–	–	–	–	–
BD80CN ***	101Z0403	–	–	x	–	–	x	–	–	–	–	–	–	–	–	–
BD100CN ***	101Z0401	–	–	–	x	–	–	–	–	–	–	–	–	–	–	–
TOOL4COOL® applicable		–	–	–	–	–	–	–	–	–	–	x	–	x	x	x

Compressors R134a	Code numbers	Electronic units (voltages & 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	109Z0102	–	–	–	–	x
BD1.4F-FSD	109Z0305	–	x	–	x	–
BD1.4F-VSD	109Z0200	x	–	x	–	–
BD1.4F-VSD-HD	109Z0250	x	–	–	–	–
BD1.4F-VSD (inch connectors)	109Z0202	x	–	x	–	–
BD1.4F-VSD-HD (inch connectors)	109Z0251	x	–	–	–	–
TOOL4COOL® applicable		x	x	x	x	x

Applications	Compressors														
	BD1.4F-AUTO	BD1.4F-VSD	BD1.4F-VSD-HD	BD1.4F-FSD	BD35F	BD35F-B	BD35F-HD	BD35K	BD50F	BD80F	BD80CN	BD100CN	BD150F	BD250GH	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	x	–	–	–	–	–	–
Car minbars (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	–	–	26 | 32	36 | 44	40 | 50	51 | 62	70 | 86	94 | 115	122 | 150	–	–	–	–	–
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
BD350GH Twin (12 V)	–	–	–	251 | 312	279 | 346	337 | 418	440 | 546	564 | 698	710 | 880	880 | 1092	1080 | 1340	1176 | 1462	1308 | 1628	1572 | 1958
BD350GH Twin (24 V)	–	–	–	252 | 312	278 | 346	338 | 418	440 | 546	564 | 698	710 | 880	880 | 1092	1080 | 1340	1176 | 1462	1308 | 1628	1572 | 1958
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 /-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-FSD	–	–	5 | 6	13 | 17	16 | 21	23 | 29	35 | 44	49 | 62	66 | 82	85 | 106	–	–	–	–
BD1.4F-AUTO	–	–	–	14 | 18	18 | 22	24 | 31	36 | 45	50 | 62	66 | 83	86 | 106	108 | 134	–	–	–

Compressors R134a R404A/R507 * R600a **, R290 ***	Code numbers	Power consumption [W] at max. speed **** Evaporating temperature [°C]													
		-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15
BD35F /-B /-HD	101Z0200 /0204 /0205 /0206	–	–	36	43	45	51	60	69	79	–	–	–	–	–
BD50F	101Z1220 /0203	–	–	47	59	63	71	83	95	108	–	–	–	–	–
BD80F	101Z0280	–	–	69	87	93.0	105	123	144	168	–	–	–	–	–
BD250GH.2	101Z0406	–	–	–	68	72	82	95	108	122	138	156	165	177	202
BD250GH.2 (48V)	101Z0405	–	–	–	72	77	85	99	113	128	143	160	167	177	196
BD350GH (12V)	102Z3015	–	–	–	140	149	168	197	228	259	292	325	340	358	391
BD350GH (24V)	102Z3016	–	–	–	122	129	144	169	194	221	248	276	288	303	330
BD350GH (48V)	102Z3031	–	–	–	131	139	155	181	208	236	265	294	307	323	352
BD350GH Twin (12V)	102Z3018	–	–	–	280	298	336	394	456	518	584	650	680	716	782
BD350GH Twin (24V)	102Z3017	–	–	–	244	258	288	338	388	442	496	552	576	606	660
BD220CL *	102Z3020	121	147	173	200	209	227	255	284	314	–	–	–	–	–
BD35K **	101Z0211	–	–	35	43	45	50	56	63	70	–	–	–	–	–
BD80CN ***	101Z0403	47	55	63	72	75	81	89	97	–	–	–	–	–	–
BD100CN ***	101Z0401	57	69	81	93	96	104	115	125	–	–	–	–	–	–
BD1.4F-VSD /-HD	109Z0200 /0202 /0250 /0251	–	–	27	34	36	41	48	55	61	68	76	79	83	90
BD1.4F-FSD	109Z0305	–	–	16	23	25	29	35	40	44	49	–	–	–	–
BD1.4F-AUTO	109Z0102	–	–	–	26	28	30	35	40	45	50	56	–	–	–

Quick Selection Notes:

Secop reciprocating compressors produced for Danfoss - Light commercial

Specially optimised for use in household and light commercial applications, hermetic reciprocating compressors from Secop for Danfoss provide high cooling capacity in an energy saving design.

Compressor models are available for R134a, R290, R404A / R507A, R407C and R600a, 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

Secop inverter reciprocating compressors produced for Danfoss - Light Commercial

Cut a slice out of your energy bill with variable speed techology in supermarket and convenience store cabinets with SLV compressors. SLV inverter compressor with intelligent 220 V 50 / 60 Hz controller is the natural choice when you need a versatile package for a wide range of light commercial LBP and MBP applications like freezers and cabinets.

SLV compressors are available for R404A / R507 and the environmentally friendly refrigerant, R290.





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

- Easy integration in existing and new monitoring systems
- Simpler installation, less room for errors, easier field service
- Reduces food losses and increases food quality
- Lower noise level

Technical data and ordering

Reciprocating compressors - Light Commercial

R134a

Application	Compressor	Code numbers		Capacity [W] at test conditions															Power consumption [W]				Displacement
		Compressor	Compressor with oil cooling	Evaporating temperature [°C]																			
				-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	20	-35	-25	-10	5	[cm³]
HBP / MBP / (LBP)	PL35G	101G0250	–	–	–	28	31.6	39.3	53	69.4	82	89	112	140	153	172	209	–	–	48	66.6	90	2.00
	TL2.5G	102G4251	–	11	22.4	35.5	40.5	50.9	69	90.4	107	116	145	179	196	219	264	–	47.6	59.6	83.9	113	2.61
	TL3G	102G4350	–	–	25.3	40.9	46.7	59.1	80.5	106	125	136	170	211	231	258	312	–	–	65.8	96.2	133	3.13
	TL4G	102G4452	–	–	40.8	58.3	65.3	80.3	107	140	165	180	226	280	306	342	413	–	–	82.7	118	154	3.86
	TL5G	102G4550	–	–	55.6	79	87.9	107	139	178	208	224	278	341	372	414	497	–	–	100	149	205	5.08
	FR6G	103G6660	–	–	47.7	83.3	96.5	124	171	226	267	290	365	452	494	552	–	–	–	109	172	241	6.23
	FR7.5G	103G6680	103G6690	–	61.7	99	113	142	193	254	299	325	408	505	553	618	–	–	–	126	194	272	6.93
	FR8.5G	103G6780	103G6790	–	84.9	123	138	171	228	298	351	381	478	592	647	722	–	–	–	151	231	321	7.95
	FR10G	103G6880	103G6890	–	91.9	136	152	188	250	324	380	412	516	638	697	779	–	–	–	179	265	362	9.05
	FR11G	103G6980	–	–	115	170	191	233	307	395	463	501	628	780	–	–	–	–	–	202	317	445	11.15
	SC10G	104G8000	–	23	60	113	135	183	268	369	445	486	618	764	833	925	1100	–	93	181	290	383	10.29
	SC12G	104G8240	104G8250	64.6	113	175	199	252	348	464	553	603	768	960	1054	1182	1437	–	148	227	355	493	12.87
	SC15G	104G8520	104G8530	–	–	164	206	290	424	568	672	728	908	1110	1207	1340	1600	–	–	233	440	595	15.28
	SC18G	104G8820	104G8830	–	–	283	318	394	526	684	804	870	1087	1337	1459	1624	1950	–	–	331	507	695	17.69
	SC21G	104G8140	–	–	–	333	370	453	606	792	934	1012	1268	1560	1700	1889	2257	–	–	382	575	789	20.95
	SC12/ 12G	104G8280	–	129	226	350	399	505	696	928	1106	1206	1535	1920	2108	2364	2875	–	296	454	710	986	2×12.87
	SC15/ 15G	104G8580	–	–	–	328	413	581	847	1137	1344	1457	1815	2220	2415	2679	3201	–	–	465	879	1190	2×15.28
	SC18/ 18G	104G8880	–	–	–	566	636	788	1052	1368	1607	1740	2174	2674	2918	3248	3900	–	–	662	1014	1390	2×17.69
	SC21/ 21G	104G8180	–	–	–	667	741	907	1212	1584	1868	2025	2536	3120	3400	3778	4511	–	–	771	1156	1581	2×20.95
LBP	PL50F	101G0222	–	14.2	26.2	40	45.1	55.8	74.1	95.2	111	120	148	–	–	–	–	–	43.6	60	85.6	–	2.50
	TLS3FT	102G4324	–	21	34	50	56	69	92	120	–	–	–	–	–	–	–	–	45	62	92	–	3.13
	TLS4FT	102G4424	–	27	43	63	71	88	117	152	–	–	–	–	–	–	–	–	68	87	123	–	3.86
	TLS5FT	102G4524	–	47.8	70.7	98	109	131	170	216	–	–	–	–	–	–	–	–	84.5	114	165	–	5.08
	TLES5.7FT.3	102G4615	–	66.3	90.3	120	132	156	200	253	–	–	–	–	–	–	–	–	90	120	170	–	5.70
	NL6.1FT	105G6620	–	60	84	115	127	152	198	253	–	–	–	–	–	–	–	–	93	123	184	–	6.13
	NL7.3FT	105G6726	–	71	100	136	150	181	235	299	–	–	–	–	–	–	–	–	108	145	220	–	7.27
	NL8.4FT	105G6865	–	87	120	162	178	213	275	350	–	–	–	–	–	–	–	–	127	169	252	–	8.35
	NL10FT	105G6829	105G6839	115	158	210	235	274	352	444	–	–	–	–	–	–	–	–	159	215	316	–	10.10
	SC12FT	104G8205	104G8215	103	163	233	259	314	408	517	599	645	–	–	–	–	–	–	184	265	380	–	12.87
	SC15FT	104G8505	104G8515	126	197	280	311	376	489	620	718	772	–	–	–	–	–	–	223	311	451	–	15.28
	SC18FTX	104G8805	–	144	229	325	361	437	567	719	833	896	–	–	–	–	–	–	257	365	517	–	17.69
	SC21FTX 50 Hz	104G8105	–	192	296	415	460	553	713	901	1041	1119	–	–	–	–	–	–	296	428	613	–	20.95
	SC21FTX 60 Hz	104G8106	–	240	345	470	518	620	800	1012	1173	1262	–	–	–	–	–	–	342	475	707	–	20.95
MBP	NL6.1MF	105G6660	–	–	–	–	–	141	189	245	288	312	390	482	527	588	709	–	–	–	187	243	6.13
	NL7.3MF	105G6772	–	–	–	–	–	179	236	304	356	385	480	591	645	719	867	–	–	–	227	298	7.27
	NL8.4MF	105G6879	–	–	–	–	–	213	277	353	412	445	553	679	741	825	994	–	–	–	261	349	8.35
	NL10MF	105G6885	–	–	–	–	–	266	346	441	513	554	687	843	919	1023	1231	–	–	–	323	435	10.10
	NL11MF	105G6151	–	–	–	–	–	292	380	485	565	609	756	927	1011	1125	1354	–	–	–	360	495	11.15
	NLE10MF	105G6888	–	88	137	194	216	262	343	440	513	554	688	845	922	–	–	–	134	198	308	426	10.10
	GS26MFX	107B0700	–	–	–	–	–	754	989	1266	1476	1591	1970	2411	2626	–	–	–	–	–	696	942	26.30
	GS34MFX	107B0701	–	–	–	–	–	998	1296	1648	1918	2063	2550	3115	3392	–	–	–	–	–	909	1234	33.80
HBP	TL4GH	102G4455	–	–	–	–	–	–	104	140	167	182	230	287	315	353	429	–	–	–	121	159	3.86
	FR7GH	103G6683	103G6692	–	–	–	–	–	199	255	301	327	417	525	580	655	807	–	–	–	192	258	6.93
	SC10GH	104G8041	–	–	–	–	–	–	233	352	434	478	613	762	832	927	113	1323	–	–	281	395	10.29
	SC12GH	104G8261	–	–	–	–	–	–	–	429	524	577	752	957	1058	1196	1471	1787	–	–	356	487	12.87
	SC15GH	104G8561	–	–	–	–	–	–	–	559	664	723	915	1139	1429	1398	1698	2041	–	–	424	565	15.28
	SC18GH	104G8860	–	–	–	–	–	–	539	676	789	855	1077	1340	1469	1645	1990	–	–	–	498	697	17.69
	SC18GH	104G8861	–	–	–	–	–	–	485	639	758	825	1047	1310	1440	1618	1976	2389	–	–	452	605	17.69
	SC15GHH	–	104G8571	–	–	–	–	–	435	570	670	726	911	1135	1247	1405	1731	–	–	–	377	505	15.28
	GS26GHX	107B0702	–	–	–	–	–	–	937	1198	1400	1510	1880	2316	2531	2826	3417	4098	–	–	737	970	26.30

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
1 = 198 – 254 V, 50Hz 5 = 198 – 254 V, 60Hz, MBP
2 = 187 – 254 V, 50Hz, LBP 6 = 207 – 254 V, 60Hz, HBP
3 = 198 – 254 V, 60Hz, LBP 7 = 187 – 254 V, 50Hz
4 = 198 – 254 V, 60Hz 8 = 187 – 254 V, 60Hz

Compressor cooling
S *= Static cooling normally sufficient*
O *= Oil cooling*
F_1 *= Fan cooling 1.5 m/s*
(compressor compartment temp. equal to ambient temperature)
F_2 *= 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.*

Electrical Equipment
*** Cover, clamp, gasket parts of compressor*

Technical data and ordering

Recommended compressor cooling at ambient temperatures									Voltage and frequency	Electrical equipment							Dimensions [mm]					
32 °C			38 °C			43 °C				LST (RSIR)		HST (CSIR)		HST(CSR)	LST / HST		Height		Connectors location / I.D			
LBP	MBP	HBP	LBP	MBP	HBP	LBP	MBP	HBP		PTC starting device		Starting relay	Starting capacitor	Starting device					Suction	Process	Discharge	Oil cooler
										Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Spades 6.3 mm	Spades 6.3 mm	Cord relief	Cover	A	B	C	D	E	F
–	F_2	F_2	–	F_2	F_2	–	–	–	1/5	103N0011	103N0018	117U6021	117U5014	–	103N1010	103N0491	137	135	6.2	6.2	5.0	–
S	S	S	S	S	S	S	S	F_2	1/2/3/6	103N0011	103N0018	117U6007	117U5014	–	103N1010	103N2011	163	159	6.2	6.2	5.0	–
S	S	F_2	S	S	F_2	S	S	F_2	1/2/3	103N0011	103N0018	117U6009	117U5014	–	103N1010	103N2010	163	159	6.2	6.2	5.0	–
S	S	F_2	S	S	F_2	S	S	F_2	1/2/3	103N0011	103N0018	117U6004	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0	–
S	S	F_2	S	S	F_2	S	S	F_2	1/2/3	103N0011	103N0018	117U6000	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0	–
S	F_2	F_2	S	F_2	F_2	S	F_2	F_2	1/2/3	103N0011	103N0018	117U6000	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2	–
S	F_2	F_2	S	F_2	F_2	O/F_1	F_2	F_2	1/2/3	103N0011	103N0018	117U6001	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
S	F_2	F_2	S	F_2	F_2	O/F_1	F_2	F_2	1/2/3	103N0011	103N0018	117U6015	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
S	F_2	F_2	S	F_2	F_2	O/F_1	F_2	F_2	1/2/3	103N0011	103N0018	117U6010	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2	6.2
F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	1/2	103N0011	103N0018	117U6010	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2	–
F_1	F_2	F_2	F_1	F_2	F_2	F_1	F_2	F_2	1/2/3	103N0011	–	117U6002	117U5017	–	103N1004	103N2009	199	193	8.2	6.2	6.2	–
O/F_1	F_2	F_2	O/F_1	F_2	F_2	O/F_1	F_2	F_2	1/2/3	103N0011	–	117U6003	117U5017	–	103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
O/F_1	F_2	F_2	O/F_1	F_2	F_2	O/F_1	F_2	F_2	1/2/3	–	–	117U6005	117U5017	–	103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
O/F_1	F_2	F_2	O/F_1	F_2	F_2	O/F_1	F_2	F_2	1/2/3	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	10.2	6.2	6.2	6.2
F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	1/2/3	–	–	–	–	117-7029	103N1004	103N2009	219	213	10.2	6.2	6.2	–
F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	1	–	–	117U6003	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2	–
F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	1	–	–	117U6005	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2	–
F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	1	–	–	117U6019	117U5017	–	103N1004	103N2009	259	254	16	6.2	6.2	–
F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	F_2	1	–	–	–	–	117-7029	103N1004	103N2009	259	254	16	6.2	6.2	–
–	F_2	–	–	F_2	–	–	F_2	–	1	–	–	117U6021	117U5014	–	103N1010	103N0491	137	135	6.2	6.2	5.0	–
S	–	–	S	–	–	S	–	–	2	103N0011	103N0018	117U6007	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0	–
S	–	–	S	–	–	S	–	–	2	103N0011	103N0018	117U6004	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0	–
S	–	–	S	–	–	S	–	–	2	103N0011	103N0018	117U6000	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0	–
S	–	–	S	–	–	S	–	–	2	103N0011	103N0018	117U6004	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0	–
S	–	–	S	–	–	S	–	–	2/3	103N0011	103N0018	117U6000	117U5015	–	103N1010	103N2010	188	182	6.2	6.2	5.0	–
S	–	–	S	–	–	F_1	–	–	2	103N0011	103N0018	117U6001	117U5015	–	103N1010	103N2010	188	182	6.2	6.2	5.0	–
S	–	–	F_1	–	–	F_1	–	–	2	103N0011	103N0018	117U6001	117U5015	–	103N1010	103N2010	190	184	6.2	6.2	5.0	–
S	–	–	O/F_1	–	–	O/F_1	–	–	2	103N0011	103N0018	117U6002	117U5015	–	103N1010	103N2010	203	197	8.2	6.2	6.2	6.2
O/F_1	–	–	O/F_1	–	–	F_2*	–	–	2/3	103N0011	–	117U6003	117U5017	–	103N1004	103N2009	209	203	8.2	6.2	6.2	6.2
F_1	–	–	F_1	–	–	F_2	–	–	2/3	103N0011	–	117U6005	117U5017	–	103N1004	103N2009	209	203	10.2	6.2	6.2	6.2
F_2	–	–	F_2	–	–	F_2	–	–	2/3	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	10.2	6.2	6.2	–
F_2	–	–	F_2	–	–	F_2	–	–	2	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	10.2	6.2	6.2	–
F_2	–	–	F_2	–	–	F_2	–	–	8	–	–	–	–	117-7039	103N1004	103N2008	219	213	10.2	6.2	6.2	–
–	F_1	F_1	–	F_1	F_1	–	F_1	F_1	5/7	103N0011	103N0018	117U6015	117U5015	–	103N1010	103N2011	190	184	8.2	6.2	6.2	–
–	F_1	F_1	–	F_1	F_1	–	F_1	F_1	5/7	103N0011	103N0018	117U6016	117U5015	–	103N1010	103N2011	197	191	8.2	6.2	6.2	–
–	F_1	F_1	–	F_1	F_1	–	F_1	F_1	5/7	103N0011	103N0018	117U6016	117U5015	–	103N1010	103N2011	197	191	8.2	6.2	6.2	–
–	F_1	F_1	–	F_1	F_1	–	F_1	F_1	5/7	103N0011	103N0018	117U6022	117U5018	–	103N1010	103N2011	203	197	8.2	6.2	6.2	–
–	F_2	F_2	–	F_2	F_2	–	F_2	F_2	7	103N0011	103N0018	117U6022	117U5018	–	103N1010	103N2011	203	197	8.2	6.2	6.2	–
F_1	F_1	–	F_1	F_1	–	F_1	F_1	–	1	103N0011	103N0018	117U6003	117U5015	–	103N1010	103N2011	203	197	8.2	6.2	6.2	–
–	F_2	–	–	F_2	–	–	F_2	–	1	Starting device (start relay, start & run capacitor):117-7055					107B9100/9101/9104**		259	247	12.9	6.5	8.2	–
–	F_2	–	–	F_2	–	–	F_2	–	1	Starting device (start relay, start & run capacitor):117-7056					107B9100/9101/9104**		259	247	12.9	6.5	8.2	–
–	–	F_2	–	–	F_2	–	–	F_2	1/4	–	–	117U6000	117U5014	–	103N1010	103N2011	173	169	6.2	6.2	5.0	–
–	–	O/F_1	–	–	O/F_1	–	–	O/F_1	1/4	–	–	117U6016	117U5015	–	103N1010	103N2011	196	191	8.2	6.2	8.2	8.2
–	–	F_2	–	–	F_2	–	–	F_2	1/4	–	–	117U6005	117U5017	–	103N1004	103N2008	199	193	10.2	6.2	8.2	–
–	–	F_2	–	–	F_2	–	–	F_2	1/4	–	–	117U6011	117U5017	–	103N1004	103N2008	209	203	10.2	6.2	8.2	–
–	–	F_2	–	–	F_2	–	–	F_2	1/4	–	–	117U6011	117U5017	–	103N1004	103N2008	209	203	10.2	6.2	8.2	–
–	–	F_2	–	–	F_2	–	–	F_2	1	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	10.2	6.2	8.2	–
–	–	F_2	–	–	F_2	–	–	F_2	1/4	–	–	–	–	117-7039	103N1004	103N2008	219	213	10.2	6.2	8.2	–
–	–	O	–	–	O	–	–	O	1	–	–	–	–	117-7027	103N1004	103N2009	209	203	10.2	6.2	8.2	8.2
–	–	F_2	–	–	F_2	–	–	F_2	1	Starting device (start relay, start & run capacitor):117-7070					107B9100/9101/9104**		259	247	12.9	6.5	8.2	–

Test conditions EN 12900 CECOMAF (220 V / 50 Hz)
Compressors: PL / TL / TLS / TLES / NL / NLE / FR / SC
Condensing temperature: 55 °C
Ambient temperature: 32 °C
Suction gas temperature: 32 °C
Liquid temperature: 55 °C

Test conditions EN 12900 MBP (220 V / 50 Hz)
Compressors: GS
Condensing temperature: 45 °C
Ambient temperature: 32 °C
Suction gas temperature: 20 °C
Liquid temperature: no sub cooling

Test conditions EN 12900 HBP (220 V / 50 Hz)
Compressors: GS
Condensing temperature: 45 °C
Ambient temperature: 32 °C
Suction gas temperature: 20 °C
Liquid temperature: no sub cooling

Technical data and ordering

Reciprocating compressors - Light Commercial

R404A / R507 / R407C - 50Hz

Refrigerant	Application	Frequency	Compressor	Code numbers	Capacity (W) at test conditions															Power consumption [W]				Displacement
					Evaporating temperature [°C]																			
					-45	-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	15	-35	-25	-10	5	[cm³]
R404A/ R507	LBP	50 Hz	TL4CL	102U2071	52	65	84	110	142	155	182	230	286	328	352	–	–	–	–	–	105	140	198	–	3.86
			TL4.5CLX	102U2111	–	80	106	139	181	197	232	294	366	–	–	–	–	–	–	–	138	181	252	–	4.63
			FR6CL	103U2670	77	108	145	189	243	263	307	383	473	541	578	–	–	–	–	–	180	242	353	–	6.23
			FR7.5CL	103U2790	86	114	154	202	262	285	333	418	515	587	630		–	–	–	–	197	267	395	–	6.93
			FR8.5CL	103U2890	99	126	168	222	290	317	372	468	577	–	–	–	–	–	–	–	231	315	472	–	7.95
			NL7CLX	105F3710	102	146	199	263	340	369	430	536	657	746	796	–	–	–	–	–	214	274	381	–	7.27
			NL8.4CLX	105F3800	111	158	216	287	370	402	583	715	812	866	–	–	–	–	–	–	238	305	428	–	8.35
			SC10L	104L2523	–	–	168	258	365	405	489	634	800	923	991	–	–	–	–	–	243	350	530	–	10.29
			SC10CLX	104L2533	–	–	166	255	360	400	483	625	789	910	977	1190	1430	–	–	–	258	352	508	–	10.29
			SC12CL	104L2623	58	140	237	353	490	541	650	835	1048	1205	1292	–	–	–	–	–	316	445	654	–	12.87
			SC12CLX.2	104L2697	130	205	294	399	522	569	666	834	1026	–	–	–	–	–	–	–	365	475	659	–	12.87
			SC15CLX.2	104L2896	159	250	358	486	637	694	813	1017	1251	1424	–	–	–	–	–	–	433	565	783	–	15.28
			SC18CLX.2	104L2197	194	306	439	595	780	849	995	1245	1532	–	–	–	–	–	–	–	517	680	949	–	17.68
			SCE18CLX.2	104L2196	194	306	439	595	780	849	995	1245	1532	–	–	–	–	–	–	–	459	621	888	–	17.68
			SC21CL	104L2322	226	325	455	617	813	887	1042	1306	1606	–	–	–	–	–	–	–	534	702	989	–	20.95
			GS26CLX	107B0500	325	497	703	949	1240	1348	1580	1974	2427	–	–	–	–	–	–	–	669	888	1285	–	26.30
			GS34CLX	107N0501	–	729	1003	1330	1715	1857	2165	2687	3289	–	–	–	–	–	–	–	924	1196	1721	–	33.80
			SC12/12CL	104L4088	115	279	475	706	980	1083	1299	1670	2096	2411	2583	–	–	–	–	–	633	891	1308	–	2x12.87
			SC15/15CL	104L4089	–	302	599	905	1230	1347	1584	1976	2417	2739	2916	–	–	–	–	–	801	1120	1580	–	2x15.28
			SC18/18CL	104L4090	333	541	789	1083	1430	1562	1836	2307	2849	3249	3469	–	–	–	–	–	910	1230	1788	–	2x17.68
			SC21/21CL	104L4094	452	650	910	1235	1626	1774	2084	2613	3213	–	–	–	–	–	–	–	1068	1404	1978	–	2x20.95
		60 Hz	SC10CLX	104L2533	–	–	224	335	455	499	588	738	906	–	–	–	–	–	–	–	304	430	623	–	10.29
			SC12CLX.2	104L2699	141	233	343	473	626	683	804	1011	1248	–	–	–	–	–	–	–	401	515	705	–	12.87
			SC12CLX.2	104L2697	141	233	343	473	626	683	804	1011	1248	–	–	–	–	–	–	–	398	541	777	–	12.87
			SC15CLX.2	104L2897	194	305	437	593	776	846	991	1239	1525	–	–	–	–	–	–	–	469	611	848	–	15.28
			SC18CLX.2	104L2195	113	338	542	737	938	1010	1157	1410	1708	–	–	–	–	–	–	–	563	752	990	–	17.68
			SC10/10CLX	104L4033	–	–	448	670	910	998	1176	1476	1812	–	–	–	–	–	–	–	608	860	1246	–	2x10.29
			SC12/12CLX	104L4034	–	292	564	858	1180	1298	1540	1944	2400	–	–	–	–	–	–	–	752	1080	1568	–	2x12.87
			SC15/15CLX	104L4097	–	358	702	1060	1440	1576	1856	2316	2834	–	–	–	–	–	–	–	828	1220	1728	–	2x15.28
	MBP	50 Hz	NF7MLX	105F3720	–	–	–	–	–	–	–	511	635	726	777	940	1125	1215	1336	–	–	–	408	488	7.27
			SC10MLX	104L2506	–	–	–	–	–	465	546	687	855	981	1051	1278	1537	1663	–	–	–	–	518	633	10.29
			SC12MLX	104L2606	–	–	–	–	–	572	669	838	1038	1188	1272	1542	1852	2001	–	–	–	–	620	762	12.87
			SC15MLX	104L2869	–	–	–	–	–	710	829	1038	1285	1471	1574	1909	2293	2478	–	–	–	–	780	979	15.28
			SC18MLX	104L2139	–	–	–	–	–	831	968	1210	1497	1712	1832	2220	2665	2880	–	–	–	–	860	1080	17.68
			SC18MLX.3	104L2146	–	–	–	–	–	876	1018	1266	1557	1779	1898	2292	2743	2964	–	–	–	–	878	1096	17.68
			GS21MLX	107B0502	–	–	–	–	–	–	1096	1394	1748	2018	2164	2650	3211	3483	–	–	–	–	965	1252	21.20
			GS26MLX	107B0503	–	–	–	–	–	–	1426	1810	2254	2586	2764	3351	4022	4345	–	–	–	–	1210	1532	26.30
			GS34MLX	107B0504	–	–	–	–	–	–	1929	2408	2953	3358	3575	4283	5088	5476	–	–	–	–	1725	2235	33.80
		60 Hz	NF7MLX	105F3720	–	–	–	–	–	413	489	618	768	879	940	1137	1362	1470	–	–	–	–	473	629	7.27
			SC10MLX	104L2506	–	–	–	–	–	547	646	816	1015	1164	1246	1510	1812	1958	–	–	–	–	612	817	10.29
			SC12MLX	104L2606	–	–	–	–	–	659	773	970	1199	1370	1465	1770	2118	2286	–	–	–	–	729	975	12.87
			SC15MLX.2	104L2803	–	–	–	–	–	784	915	1145	1418	1623	1737	2107	2531	2735	–	–	–	–	860	1080	15.28
			SC18MLX	104L2138	–	–	–	–	–	986	1140	1412	1732	1972	2106	2538	3034	3273	–	–	–	–	1051	1317	17.68
	HBP	50 Hz	TL4DL	102U2038	–	–	–	–	–	–	196	229	281	324	349	432	527	572	631	–	–	–	203	256	3.86
			FR6DL	103U2680	–	–	–	–	–	–	317	385	471	538	576	698	840	907	999	1177	–	–	354	456	6.23
			SC10DL	104L2525	–	–	–	–	–	–	471	611	775	899	968	1192	1450	1576	1747	2085	–	–	479	590	10.29
			SC12DL	104L2625	–	–	–	–	–	–	609	806	1028	1190	1279	1565	1890	2046	2258	2674	–	–	624	750	12.87
			SC15DL	104L2856	–	–	–	–	–	–	759	964	1207	1391	1493	1825	2210	2397	2652	3156	–	–	722	865	15.28
			SC10/10DL	104L4091	–	–	–	–	–	–	943	1222	1550	1798	1935	2383	2900	3152	3494	4169	–	–	957	1180	2x10.29
			SC12/12DL	104L4092	–	–	–	–	–	–	1217	1612	2055	2380	2559	3130	3780	4092	4516	5348	–	–	1248	1500	2x12.87
			SC15/15DL	104L4093	–	–	–	–	–	–	1518	1928	2414	2781	2985	3651	4420	4795	5304	6311	–	–	1445	1730	2x15.28
R407C	MBP/ HBP	50 Hz	SC10DL	104L2525	–	–	–	–	–	–	–	480	636	755	821	1039	1293	1417	1588	1927	–	–	394	510	10.29
			SC12DL	104L2625	–	–	–	–	–	–	–	632	831	981	1065	1340	1660	1817	2031	2456	–	–	512	643	12.87
			SC15DL	104L2856	–	–	–	–	–	–	–	777	1011	1192	1293	1629	2023	2217	2483	3014	–	–	590	726	15.28
			SC10/10DL	104L4091	–	–	–	–	–	–	–	961	1272	1509	1642	2077	2586	2835	3176	3855	–	–	788	1020	2x10.29
			SC12/12DL	104L4092	–	–	–	–	–	–	–	1263	1662	1962	2130	2680	3321	3634	4062	4913	–	–	1025	1287	2x12.87
			SC15/15DL	104L4093	–	–	–	–	–	–	–	1554	2022	2383	2586	3257	4047	4434	4966	6027	–	–	1180	1452	2x15.28

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
1 = 198 – 254 V, 50Hz
2 = 187 – 254 V, 50Hz, LBP
3 = 198 – 254 V, 60Hz, LBP
4 = 198 – 254 V, 60Hz
5 = 198 – 254 V, 60Hz, MBP
6 = 207 – 254 V, 60Hz, HBP
7 = 187 – 254 V, 50Hz
8 = 187 – 254 V, 60Hz

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*

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.*

Technical data and ordering

Recommended compressor cooling at ambient temperatures									Voltage and frequency	Electrical equipment							Dimensions [mm]				
32 °C			38 °C			43 °C				LST (RSIR)		HST (CSIR)		HST(CSR)	LST / HST		Height		Connectors location / I.D		
										PTC starting device		Starting relay	Starting capacitor	Starting device					Suction	Process	Dis-charge
LBP	MBP	HBP	LBP	MBP	HBP	LBP	MBP	HBP		Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Spades 6.3 mm	Spades 6.3 mm	Cord relief	Cover	A	B	C	D	E
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6000	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0
F_2	–	–	F_2	–	–	F_2	–	–	7	–	–	117U6001	117U5014	–	–	117U1022	173	169	6.2	6.2	5.0
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6015	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6016	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	1	–	–	117U6010	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2
F_1	F_1	–	F_1	F_1	–	F_2	F_2	–	1	103N0011	103N0018	117U6002	117U5015	–	103N1010	103N2010	203	197	8.2	6.2	6.2
F_2	F_2	–	F_2	F_2	–	F_2	F_2	–	7	103N0011	103N0018	117U6003	117U5015	–	103M1010	103N2010	203	197	8.2	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6003	117U5017	–	103N1004	103N2009	209	203	8.2	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1/3	–	–	117U6005	117U5017	–	103N1004	103N2008	209	203	8.2	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6005	117U5017	–	103N1004	103N2009	209	203	8.2	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	1/4	–	–	117U6019	117U5017	–	103N1004	103N2008	219	213	8.2	6.2	6.2
F_2	–	–	F_2	–	–	F_2	–	–	1	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	8.2	6.2	6.2
F_2	–	–	F_2	–	–	F_2	–	–	1	–	–	117U6013	117U5012	–	103N1004	103N2009	219	213	10.2	6.2	6.2
F_2	–	–	F_2	–	–	F_2	–	–	1	–	–	–	–	117-7027	103N1004	103N2009	219	213	10.2	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	1	–	–	–	–	117-7027	103N1004	103N2009	219	213	10.2	6.2	6.2
F_2	–	–	F_2	–	–	F_2	–	–	1	Starting device (start. Relay, start & run capacitor): 117-7056					107B9100/ 9101/ 9104		259	247	12.9	6.5	8.2
F_2	–	–	F_2	–	–	–	–	–	1	Starting device (start. Relay, start & run capacitor): 117-7074					107B9100/ 9101/ 9104		279	267	12.9	6.5	8.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6005	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	117U6019	117U5017	–	103N1004	103N2009	259	254	12	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1	–	–	–	–	117-7027	103N1004	103N2009	259	254	16	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	1	–	–	–	–	117-7027	103N1004	103N2009	259	254	16	6.2	6.2
F_2	F_2	–	F_2	F_2	–	–	–	–	1/3	–	–	117U6005	117U5017	–	103N1004	103N2008	209	203	8.2	6.2	6.2
F_2	–	–	F_2	–	–	F_2	–	–	8	–	–	–	–	117-7027	103N1004	103N2008	219	213	9.7	6.5	6.5
F_2	–	–	F_2	–	–	F_2	–	–	1/4	–	–	117U6019	117U5017	–	103N1004	103N2008	219	213	8.2	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	8	–	–	–	–	117-7039	103N1004	103N2008	219	213	9.7	6.5	6.5
F_2	–	–	F_2	–	–	F_2	–	–	8	–	–	–	–	117-7066	103N1004	103N2008	219	213	9.7	6.5	6.5
F_2	F_2	–	F_2	F_2	–	–	–	–	4	–	–	117U6005	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	4	–	–	117U6019	117U5017	–	103N1004	103N2009	259	254	12	6.2	6.2
F_2	–	–	F_2	–	–	–	–	–	4	–	–	–	–	117-7029	103N1004	103N2009	259	254	12	6.2	6.2
–	F_2	–	–	F_2	–	–	F_2	–	7	–	–	117U4139	117U5018	–	2×117U0349	117U1021	203	197	9.7	6.5	6.5
–	F_2	–	–	F_2	–	–	F_2	–	7	–	–	117U6011	117U5017	–	103N1004	103N2008	209	203	8.2	6.5	6.5
–	F_2	–	–	F_2	–	–	F_2	–	7	–	–	117U6011	117U5017	–	103N1004	103N2008	219	213	8.2	6.5	6.5
–	F_2	–	–	F_2	–	–	–	–	1	–	–	117U6013	117U5012	–	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	–	–	F_2	–	–	–	–	1	–	–	–	–	117-7027	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	–	–	F_2	–	–	–	–	1	–	–	–	–	117-7027	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	–	–	F_2	–	–	F_2	–	1	Starting device (start. Relay, start & run capacitor): 117-7070					107B9100/ 9101/ 9104		259	247	12.9	6.5	8.2
–	F_2	–	–	F_2	–	–	F_2	–	1	Starting device (start. Relay, start & run capacitor): 117-7072					107B9100/ 9101/ 9104		279	267	16.1	6.5	9.7
–	F_2	–	–	F_2	–	–	F_2	–	1	Starting device (start. Relay, start & run capacitor): 117-7056					107B9100/ 9101/ 9104		279	267	16.1	6.5	9.7
–	F_2	–	–	F_2	–	–	F_2	–	8	–	–	117U4139	117U5018	–	2×117U0349	117U1021	203	197	9.7	6.5	6.5
–	F_2	–	–	F_2	–	–	F_2	–	8	–	–	117U6011	117U5017	–	103N1004	103N2008	209	203	8.2	6.5	6.5
–	F_2	–	–	F_2	–	–	F_2	–	8	–	–	117U6011	117U5017	–	103N1004	103N2008	219	213	8.2	6.5	6.5
–	F_2	–	–	F_2	–	–		–	8	–	–	–	–	117-7058	103N1004	103N2008	219	213	9.7	6.5	6.5
–	F_2	–	–	F_2	–	–	F_2	–	8	–	–	–	–	117-7066	103N1004	103N2008	219	213	9.7	6.5	6.5
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6001	117U5014	–	103N1010	103N2010	173	169	6.2	6.2	5.0
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6010	117U5015	–	103N1010	103N2010	196	191	8.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6005	117U5017	–	103N1004	103N2009	209	203	8.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	–	–	117-7029	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6005	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6019	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	–	–	117-7029	103N1004	103N2009	259	254	16	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6005	117U5017	–	103N1004	103N2009	209	203	8.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6019	117U5017	–	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	–	–	117-7029	103N1004	103N2009	219	213	10.2	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6005	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	117U6019	117U5017	–	103N1004	103N2009	249	244	12	6.2	6.2
–	F_2	F_2	–	F_2	F_2	–	–	–	1	–	–	–	–	117-7029	103N1004	103N2009	259	254	16	6.2	6.2

Test conditions
EN 12900-CECOMAF
Compressors: TL / NL / NF / FR / SC
Application: R404A / R507
Condensing temperature: 45 °C
Ambient and suction gas temperature: 32 °C
Liquid temperature: No sub cooling

Test condition
EN 12900-MBP
Compressors: GS
Application: R404A / R507
Condensing temperature: 45 °C
Ambient temperature: 32 °C
Suction gas temperature: 20 °C
Liquid temperature: No sub cooling

Test condition
EN 12900-LBP
Compressors: GS
Application: R404A / R507
Condensing temperature: 40 °C
Ambient temperature: 32 °C
Suction gas temperature: 20 °C
Liquid temperature: No sub cooling

Test condition
EN 12900-CECOMAF
Compressors: SC
Application: R407
Condensing temperature: 45 °C
Ambient and suction gas temperature: 32 °C
Liquid temperature: No sub cooling

Technical data and ordering

Reciprocating compressors - Light Commercial

R290

Voltage	Application	Motor types	Compressor	Code numbers	Capacity [W] at EN12900 / CECOMAF														Power consumption [W]		Displacement	Recommended compressor cooling at ambient temperatures					
					Evaporating temperature [°C]																	32 °C		38 °C		43 °C	
					-40	-35	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	5	7.2	10	-25	-10	[cm³]	LBP	MBP	LBP	MBP	LBP	MBP
220 - 240 V 50 Hz	LBP/MBP	LST/HST	TL3CN	102H4380	38	54	75	99	108	128	161	200	228	244	294	351	–	–	108	135	3.13	F1	F1	F1	F1	F1	F1
			TL4CN	102H4490	57	78	103	132	143	166	205	250	283	302	360	426	–	–	127	162	3.86	F1	F1	F1	F1	F1	F1
			TL5CN	102H4590	81	109	143	183	198	230	283	345	391	416	496	586	–	–	162	211	5.08	F1	F1	F1	F1	F1	F1
			NL7CN	105H6756	118	166	223	290	315	368	458	561	637	679	814	965	–	–	221	291	7.27	F1	F1	F1	F1	F1	F2
			NL9CN	105H6856	138	194	259	335	364	423	526	643	730	778	930	1102	–	–	250	334	8.35	F1	F1	F1	F1	F2	F2*
			NL9CN	105H6780	138	194	259	335	364	423	526	643	730	778	930	1102	–	–	250	334	8.35	F1	F1	F1	F1	F2	F2*
	LBP/MBP	HST	SC10CNX	104H8065	126	179	245	325	355	420	531	660	748	809	979	1172	–	–	274	362	10.29	F2	F2	F2	F2	F2	F2
			SC12CNX	104H8265	178	250	331	426	462	540	678	846	976	1050	1293	1582	–	–	344	456	12.87	F2	F2	F2	F2	F2	F2
			SC12CNX	104H8267	178	250	331	426	462	540	678	846	976	1050	1293	1582	–	–	344	456	12.87	F2	F2	F2	F2	F2	F2
			SC15CNX	104H8565	195	297	415	550	601	707	887	1093	1245	1328	1594	1894	–	–	420	560	15.28	F2	F2	F2	F2	F2	F2
			SC15CNX	104H8576	195	297	415	550	601	707	887	1093	1245	1328	1594	1894	–	–	420	560	15.28	F2	F2	F2	F2	F2	F2
			SC18CNX	104H8865	219	341	480	640	700	824	1033	1272	1448	1543	1849	2193	–	–	500	707	17.69	F2	F2	F2	F2	F2	F2
			SC18CNX	104H8867	219	341	480	640	700	824	1033	1272	1448	1543	1849	2193	–	–	500	707	17.69	F2	F2	F2	F2	F2	F2
	LBP	HST	SC12CNX.2	104H8266	186	258	346	453	493	578	725	895	–	–	–	–	–	–	379	502	12.87	F2	-	F2	-	F2	-
			SC15CNX.2	104H8566	252	332	434	560	609	714	900	1120	–	–	–	–	–	–	445	610	15.28	F2	-	F2	-	F2	-
			SC18CNX.2	104H8866	244	384	531	689	747	863	1057	1273	–	–	–	–	–	–	541	682	17.69	F2	-	F2	-	F2	-
			SC21CNX.2	104H8166	339	492	654	828	891	1020	1233	1471	–	–	–	–	–	–	623	855	20.95	F2	-	F2	-	F2	-
	MBP	HST	SC10MNX	104H8075	–	149	234	332	368	445	575	724	834	894	1088	1307	1412	1554	295	405	10.29	-	F2	-	F2	-	F2
			SC12MNX	104H8275	–	224	327	446	490	582	738	918	1050	1123	1356	1620	1747	1918	392	503	12.87	-	F2	-	F2	-	F2
			SC15MNX	104H8575	–	–	–	–	611	715	893	1098	1249	1332	1598	1900	2044	2239	-	597	15.28	-	F2	-	F2	-	F2
			SC18MNX	104H8875	–	–	–	675	730	844	1039	1263	1428	1519	1810	2140	2298	2512	544	709	17.69	-	F2	-	F2	-	F2

Voltage	Application	Motor types	Compressor	Code numbers	Capacity [BTU/h] at ASHRAE															Power consumption [W]			Displacement	Recommended compressor cooling at ambient temperatures					
					Evaporating temperature [°F]																			32 °C		38 °C		43 °C	
					-49	-40	-30	-20	-13	-10	0	10	14	20	30	40	41	45	-13	14	41	[cu. inch]	LBP	MBP	LBP	MBP	LBP	MBP
115V 60 Hz	LBP/MBP	HST	SC10CNX.2	104H7070	–	204	571	1007	1359	1523	2133	2848	3167	3682	4649	5762	5882	6378	366	495	573	0.63	F2	F2	F2	F2	F2	F2
			SC12CNX.2	104H7270	268	589	1005	1500	1899	2085	2776	3587	3949	4533	5627	6887	7022	7583	456	606	731	0.78	F2	F2	F2	F2	F2	F2

Applications
LBP = *Low Back Pressure*
MBP = *Medium Back Pressure*
HBP = *High Back Pressure*

Compressor cooling
S = *Static cooling normally sufficient*
O = *Oil cooling*
F_1 = *Fan cooling 1.5 m/s (compressor compartment temp. equal to ambient temperature)*
F_2 = *Fan cooling 3.0 m/s necessary*
*** = *Run capacitor 4 µF compulsory in 43°C ambient temperature at MBP conditions.*

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 = *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 (220 V / 50 Hz)
Compressors: TL / NL / SC-CNX and CNX 2
Condensing temperature: 45 °C
Ambient and suction gas temperature: 32 °C
Liquid temperature: No sub cooling

Test condition
EN 12900-MBP (220 V / 50 Hz)
Compressors: SC-MNX
Condensing temperature: 45 °C
Ambient temperature: 32 °C
Suction gas temperature: 20 °C
Liquid temperature: No sub cooling

Test condition
ASHRAE-LBP (115 V / 60 Hz)
Compressors: SC-CNX 2
Condensing temperature: 130 °F
Ambient temperature: 90 °F
Suction gas temperature: 90 °F
Liquid temperature: 90 °F

Technical data and ordering

Electrical equipment										Dimensions [mm]				
LST (RSIR)		LST (RSCR)		HST (CSIR)		HST (CSR)		LST / HST		Height		Connectors location / I.D		
PTC starting device		PTC starting device		Starting relay	Starting capacitor	Starting device	Starting kit					Suction	Process	Dis-charge
Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Spades 6.3 mm	Spades 6.3 mm	Spades 6.3 mm	Cord relief	Cover	A	B	C	D	E
103N0011	103N0018	–	–	117U7004	117U5014	–	–	103N1010	103N2010	163	159	6.2	6.2	5
103N0011	103N0018	–	–	117U7004	117U5014	–	–	103N1010	103N2010	173	169	6.2	6.2	5
103N0011	103N0018	103N0016	103N0021	117U7000	117U5014	–	–	103N1010	103N2010	173	169	6.2	6.2	5
103N0011	103N0018	103N0016	103N0021	117U7002	117U5015	–	–	103N1010	103N2010	203	197	8.2	6.2	6.2
103N0011	103N0018	103N0016	103N0021	117U7002	117U5015	–	–	103N1010	103N2010	203	197	8.2	6.2	6.2
103N0011	103N0018	103N0016	103N0021	117U7002	177U5015	–	–	103N1010	103N2010	203	197	9.7	6.5	6.5
–	–	–	–	–	–	117-7025	117-9719	103N1004	103N2009	209	203	8.2	6.2	6.2
–	–	–	–	–	–	117-7025	117-9719	103N1004	103N2009	209	203	8.2	6.2	6.2
–	–	–	–	–	–	117-7025	117-9719	103N1004	103N2009	209	203	9.7	6.5	6.5
–	–	–	–	–	–	117-7031	117-9711	103N1004	103N2009	209	203	10.2	6.2	6.2
–	–	–	–	–	–	117-7031	117-9711	103N1004	103N2009	209	203	9.7	6.5	6.5
–	–	–	–	–	–	117-7052	117-9718	103N1004	103N2009	209	203	10.2	6.2	6.2
–	–	–	–	–	–	117-7052	117-9718	103N1004	103N2009	209	203	9.7	6.5	6.5
–	–	–	–	117U7003	117U5017	–	–	103N1004	103N2009	209	203	8.2	6.2	6.2
–	–	–	–	117U7005	117U5017	–	–	103N1004	103N2009	209	203	8.2	6.2	6.2
–	–	–	–	117U7011	117U5017	–	–	103N1004	103N2009	209	203	10.2	6.2	6.2
–	–	–	–	117U7013	117U5012	–	–	103N1004	103N2009	219	213	10.2	6.2	6.2
–	–	–	–	117U7005	117U5017	–	–	103N1004	103N2008	209	203	8.2	6.2	6.2
–	–	–	–	117U7019	117U5017	–	–	103N1004	103N2008	219	213	8.2	6.2	6.2
–	–	–	–	117U7019	117U5017	–	–	103N1004	103N2008	219	213	8.2	6.2	6.2
–	–	–	–	117U7011	117U5017	–	–	103N1004	103N2008	219	213	8.2	6.2	6.2

Electrical equipment										Dimensions [in]				
LST (RSIR)		LST (RSCR)		HST (CSIR)		HST (CSR)		LST / HST		Height		Connectors location / I.D		
PTC starting device		PTC starting device		Starting relay	Starting capacitor	Starting device	Starting kit					Suction	Process	Dis-charge
Spades ¼ in	Spades 3/16 in	Spades ¼ in	Spades 3/16 in	Spades ¼ in	Spades ¼ in	Spades ¼ in	Spades ¼ in	Cord relief	Cover	A	B	C	D	E
–	–	–	–	117U7020	117U5023	–	–	103N1004	103N2008	8.23	8.00	0.378	0.252	0.252
–	–	–	–	117U7020	117U5023	–	–	103N1004	103N2008	8.23	8.00	0.378	0.252	0.252

Technical data and ordering

R600a

Level	Generation	Compressor	Code numbers	Capacity [W] at EN12900 / CECOMAF								EN 12900 (CECOMAF) at LBP rating point -25 °C / 55 °C			ASHRAE subcooled at LBP rating point -23.3 °C / 54.4 °C						Displace-ment
				Evaporating temperature [°C]								Cooling Capacity	COP without Run Capaci-tor	COP with Run Capacitor	Cooling Capacity		COP without Run Capacitor		COP with Run Capacitor		
				-35	-30	-20	-15	-10	-5	0	5	[W]	[W]/[W]	[W/W]	[W]	[kcal/h]	[W/W]	[kcal/Wh]	[W]/[W]	[kcal/Wh]	[cm³]
Energy-optimized	1	PLE35K	101H0360	–	–	38	52	68	87	109	–	27	–	0.68	38	33	–	–	0.90	0.77	3.00
	3	TLES4KK.3	102H4438	19	29	57	75	96	–	–	–	42	0.90	–	57	49	1.18	–	–	–	4.01
		TLES4.8KK.3	102H4538	28	40	73	94	119	–	–	–	55	1.00	–	74	65	1.30	–	–	–	4.78
		TLES5.7KK.3	102H4638	36	50	89	114	144	–	–	–	68	1.02	–	91	79	1.32	–	–	–	5.70
		TLES6.5KK.3	102H4738	45	61	105	134	168	–	–	–	81	1.02	–	108	94	1.31	–	–	–	6.49
		TLES7.5KK.3	102H4838	53	71	122	155	194	–	–	–	94	1.02	1.07	126	108	1.32	1.14	1.38	1.19	7.48
		TLES8.7KK.3	102H4938	62	83	143	181	228	–	–	–	110	1.03	1.08	147	126	1.33	1.14	1.39	1.19	8.67
		TLES10KK.3	102H4038	73	97	162	205	255	–	–	–	126	0.98	1.06	168	145	1.26	1.08	1.36	1.17	10.14
	4	NLE8.8KK.4	105H6800	63	84	141	179	223	–	–	–	110	1.18	1.22	147	127	1.51	1.30	1.56	1.34	8.76
		NLE10KK.4	105H6867	74	98	164	207	257	–	–	–	128	1.19	1.23	170	146	1.51	1.30	1.57	1.35	10.09
		NLE11KK.4	105H6952	82	109	184	232	290	–	–	–	143	1.19	1.22	191	165	1.52	1.31	1.56	1.34	11.15
		NLE13KK.4	105H6959	99	131	217	274	340	–	–	–	170	1.18	1.23	226	194	1.50	1.29	1.57	1.35	13.25
		NLE15KK.4	105H6968	110	146	243	307	382	–	–	–	190	1.20	1.25	253	213	1.53	1.32	1.59	1.37	14.65

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*

Starting devices
LST = *Low Starting Torque*
HST = *High Starting Torque*

Compressor cooling
S = *Static cooling normally sufficient*
O = *Oil cooling*
F_1 = *Fan cooling 1.5 m/s*
(compressor compartment temp. equal to ambient temperature)
F_2 = *Fan cooling 3.0 m/s necessary*

Voltage and frequencies
1 = 198 – 254 V, 50Hz
2 = 187 – 254 V, 50Hz
3 = 198 – 254 V, 60Hz, LBP, F_1
4 = 198 – 254 V, 50 - 60Hz
Note: To fulfil the requirements of EN 60355-2-34 the protection screen 103N0476 must be applied to the PTC starting device.

Run capacitors
117-7117.....4 µF
117-7119.....4 µF

Test conditions
EN 12900-CECOMAF (220 V / 50 Hz)
Application: R600a
Condensing temperature: 55 °C
Ambient and suction gas temperature: 32 °C
Liquid temperature: 55 °C

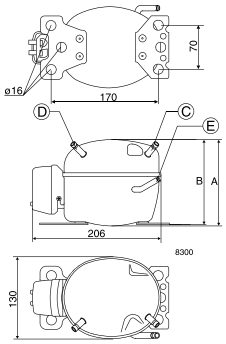
Test condition
ASHRAE (220 V / 50 Hz)
Application: R600a
Condensing temperature: 54.4 °C
Ambient and suction gas temperature: 32 °C
Liquid temperature: 32 °C

Technical data and ordering

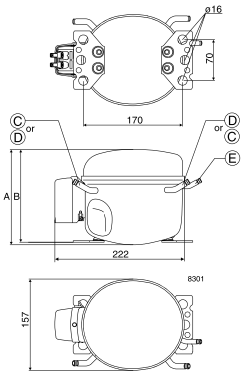
Recommended compressor cooling at ambient temperatures			Voltage and frequency	Electrical equipment								Dimensions [mm]				
32 °C	38 °C	43 °C		LST (RSIR)		LST (RSCR)		Run capacitor		LST / HST		Height		Connectors location / I.D		
				PTC device w/o run capacitor connector		PTC device with run capacitor connector		1 optional 2 compulsory						Suction	Process	Discharge
LBP	LBP	LBP		Spades 4.8 mm	Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Spades 4.8 mm	Spades 6.3 mm	Cord relief	Cover	A	B	C	D	E
S*	S*	–	1	–	–	103N0021	103N0016	117-7119[2]	117-7117[2]	103N1010	103N0491	137	135	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	163	159	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	163	159	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	163	159	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	163	159	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	163	159	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	163	159	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	173	169	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	190	183	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	190	183	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	190	183	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	190	183	6.2	6.2	5.0
S	S	S	1	103N0018	103N0011	103N0021	103N0016	117-7119[1]	117-7117[1]	103N1010	103N2010	197	190	6.2	6.2	5.0

Diagram and dimensions

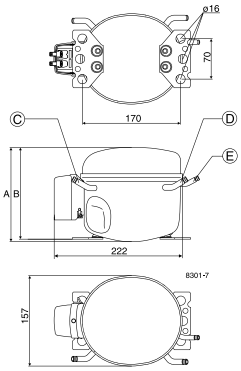
PL / PLE



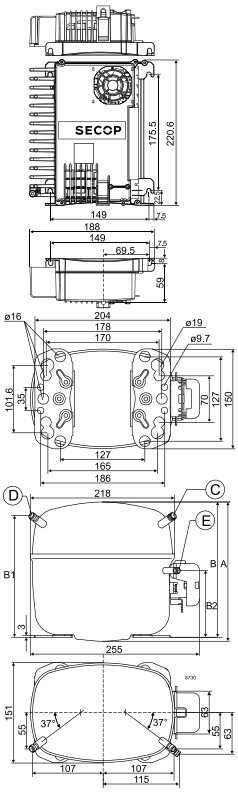
TL



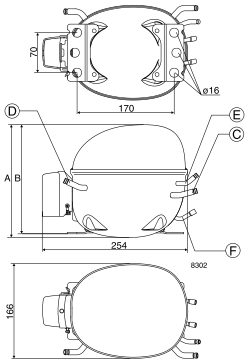
TLS / tLES / tLX



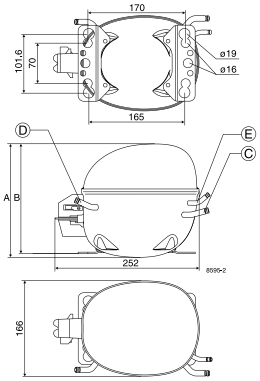
SLV



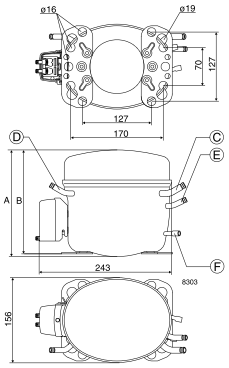
NL / NLE / NLX



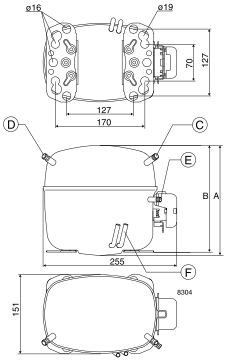
NF



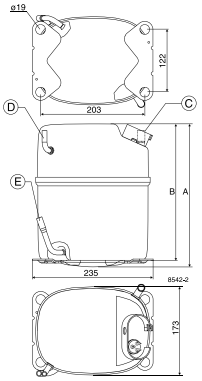
FR



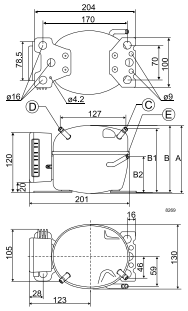
SC



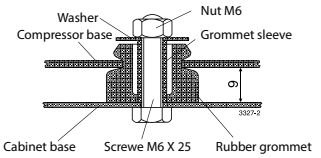
GS



BD

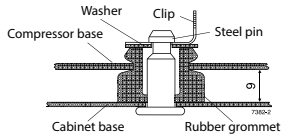


Mounting accessories



Bolt joint for
one compressor: 118-1917
in quantities: 118-1918

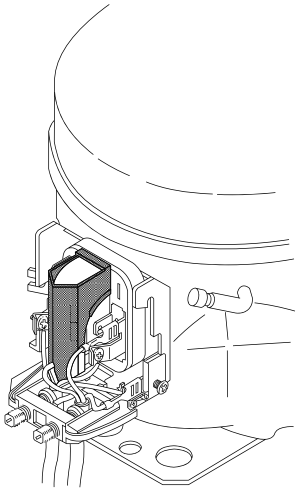
Bolt joint for
one GS compressor: 107B9150 (M8 × 40, base plate distance: 17 mm)



Snap-on
in quantities: 118-1919

Protection Screen for PTC

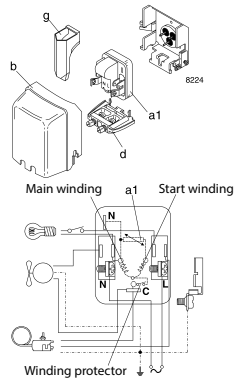
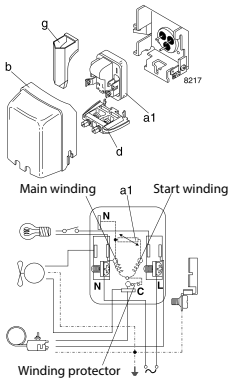
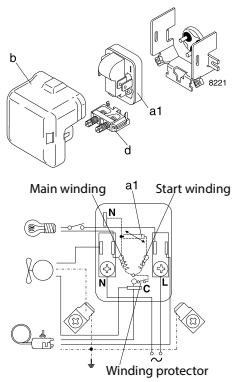
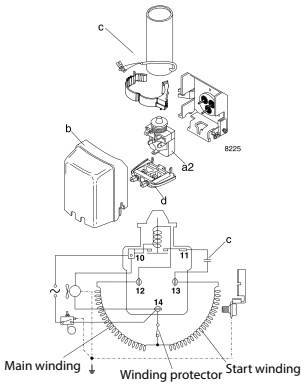
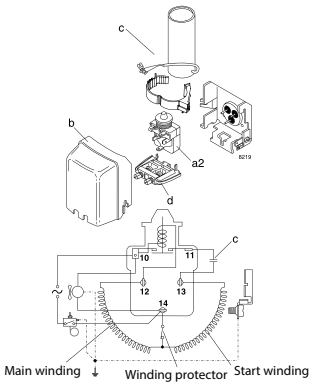
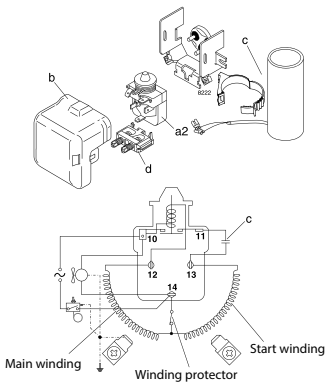
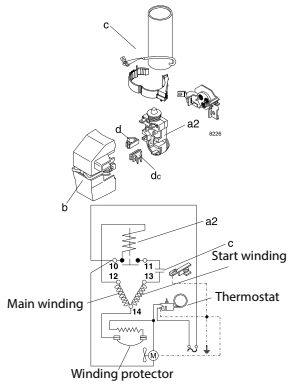
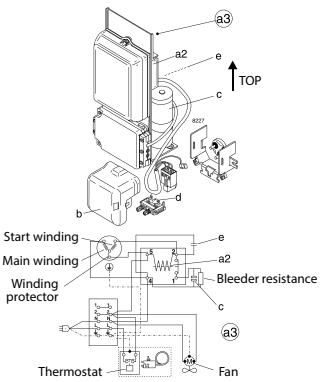
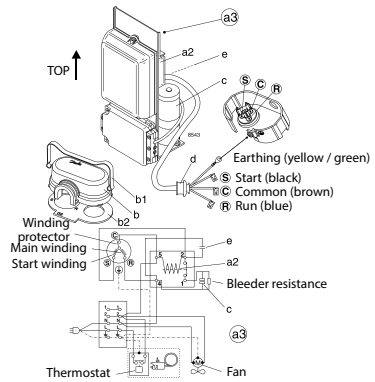
Note:
to fulfil the requirements of EN 60355-2-34 the protection screen 103N0476 must be applied to the PTC starting device



Compressor design	Optimization level	Compressor size	Application range	Start characteristics	Generation
PL TL NL FR SC GS	***Blank*** Standard energy level ***S*** Semi-direct intake ***E*** Energy-optimized	***Nominal*** displacement in cm^3 ***Exception***: For PL compressors the capacity at rating point is stated	***CL R404A / R507*** LBP ***CN R290*** LBP (MBP) ***DL R404A / R507*** HBP ***F R134a*** LBP / (MBP) ***FT R134a*** LBP tropical ***G R134a*** LBP / MBP/hBP ***GH R134a*** Heat Pumps ***GHH R134a*** Heat Pumps optimized ***K R600a*** LBP / (MBP) ***MF R134a*** MBP ***ML R404A / R507*** MBP	***Blank =>*** universal (principal rule) ***X = HST*** characteristics (expansion valve)	***Blank =>*** first generation ***.2 =>*** second generation ***.3 =>*** third generation etc.

Examples					
TL	ES	5.7	FT		.3
NL	E	10	MF		
SC		15	CN	X	.2

Diagram and dimensions

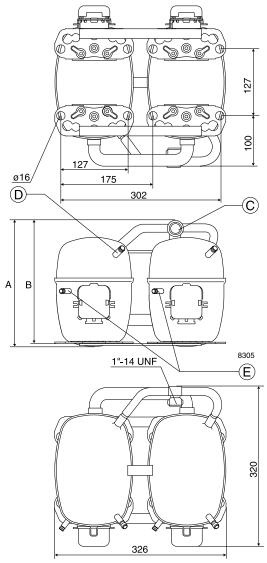
LST / RSIR - PL	LST / RSIR - TL-TLS-TLES-NL-NLE-FR	LST / RSIR - SC
		
HST / CSIR - PL	**HST / CSIR - TL-TLS-TLES-NL-NLE-FR**	**HST / CSIR - SC**
		
HST / CSIR - NF	**HST / CSR - SC**	**HST / CSR - GS**
		

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

SC10 / 10, SC12 / 12 and SC15 / 15:

Service valve for 12 mm tube	*118-7350*
Solder connector for 12 mm tube	*104B0584*

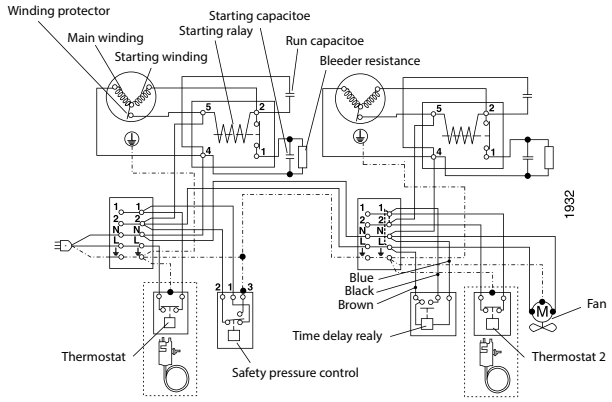
SC18 / 18 and SC21 / 21:

Service valve for 16 mm tube	*118-7351*
Solder connector for 16 mm tube	*118-7405*

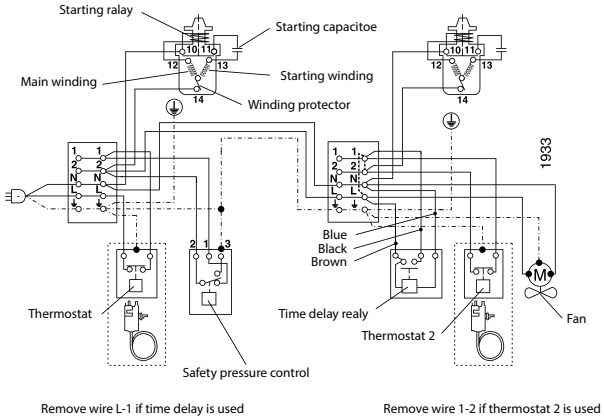
SC10 / 10, SC12 / 12, SC15 / 15, SC18 / 18 and SC21 / 21:

Seal ring for service valve and solder connector	*118-3638*
Time-delay relay	*117N0001*
Check valve (to be used with time-delay relay)	*020-1014*

HST / CSR - SC Twin



HST / CSIR - SC Twin



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
F_1) Fan cooling 1.5 m/s
(compressor compartment temperature equal to ambient temperature)
F_2) 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

Quick Selection Notes:

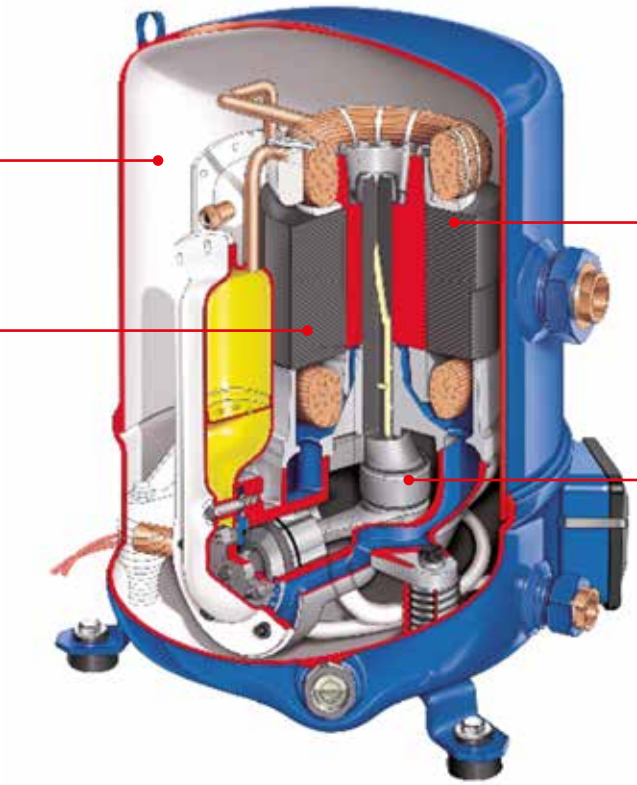
MT / MTZ / NTZ - Reciprocating compressors

Maneurop® MT and MTZ series compressors are of the hermetic reciprocating type and are designed for medium and high evaporating temperature applications.

Available in a large variety of single and tandem models for refrigerants R404A, R134a, R407A / F, the compressors fit in lots of different applications.



Features
MT / MTZ / NTZ



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

MT / MTZ / NTZ - Reciprocating compressors

Technical data

Type		4 460 / 3 / 60 400 / 3 / 50	5 230 / 1 / 50	6 230 / 3 / 50	7 575 / 3 / 60 500 / 3 / 50	Swept volume [cm³/rev]	Displacement [m³/h] at 2900 [rpm]	Cylinder number	Oil charge [dm³]	Net weight [kg]
Low back pressure applications	NTZ048	120F0001	120F0087	–	–	48	8.4	1	0.95	21
	NTZ068	120F0002	120F0088	–	–	68	11.8	1	0.95	23
	NTZ096	120F0003	–	–	–	96	16.7	2	1.8	35
	NTZ108	120F0004	–	–	–	108	18.7	2	1.8	35
	NTZ136	120F0005	–	–	–	136	23.6	2	1.8	35
	NTZ215	120F0006	–	–	–	215	37.5	4	3.9	62
	NTZ271	120F0007	–	–	–	271	47.3	4	3.9	64
	NTZ430	120F0024	–	–	–	2 x 215	2 x 37.5	2 x 4	2 x 3.9	138
	NTZ542	120F0025	–	–	–	2 x 271	2 x 47.3	2 x 4	2 x 2.9	142
Medium -High back pressure applications	MT018	MT18-4VI	MT18-5VI	–	–	30	5.3	1	0.95	21
	MT022	MT22-4VI	MT22-5VI	MT22-6VI	–	38	6.6	1	0.95	21
	MT028	MT28-4VI	MT28-5VI	MT28-6VI	–	48	8.4	1	0.95	23
	MT032	MT32-4VI	MT32-5VI	MT32-6VI	–	54	9.4	1	0.95	24
	MT036	MT36-4VI	MT36-5VI	MT36-6VI	–	60	10.5	1	0.95	25
	MT040	MT40-4VI	–	MT40-6VI	–	68	11.8	1	0.95	26
	MT044	MT44-4VI	–	MT44-6VI	MT44-7VI	76	13.3	2	1.8	37
	MT050	MT50-4VI	–	MT50-6VI	MT50-7VI	86	14.9	2	1.8	37
	MT056	MT56-4VI	–	MT56-6VI	MT56-7VI	96	16.7	2	1.8	39
	MT064	MT64-4VI	–	MT64-6VI	–	108	18.7	2	1.8	39
	MT072	MT72-4VI	–	MT72-6VI	–	121	21.0	2	1.8	40
	MT080	MT80-4VI	–	MT80-6VI	–	136	23.6	2	1.8	40
	MT100	MT100-4VI	–	MT100-6VI	MT100-7VI	171	29.8	4	3.9	60
	MT125	MT125-4VI	–	MT125-6VI	MT125-7VI	215	37.5	4	3.9	64
	MT144	MT144-4VI	–	MT144-6VI	MT144-7VI	242	42.1	4	3.9	67
	MT160	MT160-4VI	–	MT160-6VI	MT160-7VI	272	47.3	4	3.9	67
	MTM200	MTM200T4SA	–	–	–	2 x 171	2 x 29.8	2 x 4	2 x 3.9	134
	MTM250	MTM250T4SA	–	–	–	2 x 215	2 x 37.5	2 x 4	2 x 3.9	142
	MTM288	MTM288T4SA	–	–	–	2 x 242	2 x 42.1	2 x 4	2 x 3.9	148
	MTM320	MTM320T4SA	–	–	–	2 x 272	2 x 47.3	2 x 4	2 x 3.9	148
	MTZ018	MTZ18-4VI	MTZ18-5VI	MTZ18-6VI	–	30	5.3	1	0.95	21
	MTZ022	MTZ22-4VI	MTZ22-5VI	MTZ22-6VI	–	38	6.6	1	0.95	21
	MTZ028	MTZ28-4VI	MTZ28-5VI	MTZ28-6VI	–	48	8.4	1	0.95	23
	MTZ032	MTZ32-4VI	MTZ32-5VI	MTZ32-6VI	MTZ32-7VI	54	9.4	1	0.95	24
	MTZ036	MTZ36-4VI	MTZ36-5VI	MTZ36-6VI	MTZ36-7VI	60	10.5	1	0.95	25
	MTZ040	MTZ40-4VI	–	MTZ40-6VI	–	68	11.8	1	0.95	26
	MTZ044	MTZ44-4VI	–	MTZ44-6VI	MTZ44-7VI	76	13.3	2	1.8	37
	MTZ050	MTZ50-4VI	–	MTZ50-6VI	MTZ50-7VI	86	14.9	2	1.8	37
	MTZ056	MTZ56-4VI	–	MTZ56-6VI	MTZ56-7VI	96	16.7	2	1.8	39
	MTZ064	MTZ64-4VI	–	MTZ64-6VI	–	108	18.7	2	1.8	39
	MTZ072	MTZ72-4VI	–	MTZ72-6VI	–	121	21.0	2	1.8	40
	MTZ080	MTZ80-4VI	–	MTZ80-6VI	–	136	23.6	2	1.8	40
	MTZ100	MTZ100-4VI	–	MTZ100-6VI	MTZ100-7VI	171	29.8	4	3.9	60
	MTZ125	MTZ125-4VI	–	MTZ125-6VI	MTZ125-7VI	215	37.5	4	3.9	64
	MTZ144	MTZ144-4VI	–	MTZ144-6VI	MTZ144-7VI	242	42.1	4	3.9	67
	MTZ160	MTZ160-4VI	–	MTZ160-6VI	MTZ160-7VI	272	47.3	4	3.9	67
	MTZ200	MTZ200T4SA	–	–	–	2 x 171	2 x 29.8	2 x 4	2 x 3.9	134
	MTZ250	MTZ250T4SA	–	–	–	2 x 215	2 x 37.5	2 x 4	2 x 3.9	142
	MTZ288	MTZ288T4SA	–	–	–	2 x 242	2 x 42.1	2 x 4	2 x 3.9	148
	MTZ320	MTZ320T4SA	–	–	–	2 x 272	2 x 47.3	2 x 4	2 x 3.9	148

Technical data and ordering

MTZ - R134a - 50 Hz - Reciprocating compressors

Performance table

Type	To	-15		-10		-5		0		5		10		15		20	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	700	0.61	1 050	0.69	1 470	0.76	1 970	0.82	2 570	0.87	3 270	0.91	4 090	0.93	5 020	0.93
MTZ022	45	940	0.72	1 370	0.81	1 900	0.91	2 550	0.99	3 320	1.06	4 240	1.11	5 310	1.15	6 560	1.16
MTZ028	45	1 230	0.91	1 720	1.02	2 350	1.13	3 130	1.23	4 090	1.34	5 260	1.43	6 650	1.51	8 300	1.58
MTZ032	45	1 430	1.09	2 020	1.25	2 770	1.40	3 690	1.54	4 810	1.66	6 160	1.76	7 760	1.83	9 630	1.86
MTZ036	45	2 050	1.29	2 740	1.45	3 580	1.60	4 590	1.74	5 780	1.86	7 170	1.97	8 790	2.05	10 660	2.10
MTZ040	45	2 450	1.47	3 160	1.61	4 000	1.75	4 980	1.89	6 100	2.01	7 390	2.12	8 860	2.21	10 520	2.27
MTZ044	45	2 070	1.62	2 900	1.80	3 940	1.96	5 210	2.12	6 760	2.25	8 610	2.35	10 800	2.42	13 350	2.45
MTZ050	45	2 400	1.79	3 380	2.01	4 600	2.21	6 090	2.40	7 880	2.56	10 020	2.69	12 540	2.78	15 480	2.83
MTZ056	45	2 680	1.95	3 790	2.20	5 150	2.44	6 820	2.66	8 810	2.85	11 180	3.01	13 970	3.13	17 200	3.20
MTZ064	45	3 030	2.14	4 300	2.43	5 860	2.71	7 750	2.97	10 010	3.20	12 680	3.40	15 810	3.54	19 440	3.63
MTZ072	45	3 650	2.34	5 110	2.67	6 880	2.99	9 000	3.30	11 500	3.58	14 450	3.83	17 870	4.03	21 810	4.18
MTZ080	45	4 430	2.76	6 060	3.11	8 020	3.46	10 360	3.80	13 120	4.13	16 360	4.42	20 100	4.69	24 420	4.91
MTZ100	45	4 660	3.25	6 550	3.65	8 860	4.02	11 680	4.35	15 050	4.63	19 050	4.84	23 730	4.96	29 170	4.98
MTZ125	45	5 870	3.63	8 230	4.17	11 090	4.69	14 520	5.16	18 590	5.57	23 380	5.89	28 950	6.09	35 380	6.18
MTZ144	45	7 880	4.85	10 680	5.40	14 060	5.94	18 090	6.46	22 850	6.93	28 420	7.34	34 870	7.67	42 290	7.92
MTZ160	45	8 770	5.23	11 800	5.84	15 470	6.45	19 890	7.06	25 130	7.65	31 300	8.21	38 480	8.72	46 760	9.18
MTZ200	45	9 320	6.50	13 090	7.29	17 730	8.04	23 350	8.70	30 100	9.26	38 090	9.68	47 460	9.92	58 340	9.96
MTZ250	45	11 740	7.25	16 460	8.35	22 180	9.39	29 040	10.33	37 190	11.14	46 760	11.77	57 910	12.19	70 770	12.35
MTZ288	45	15 750	9.71	21 370	10.81	28 130	11.89	36 190	12.91	45 710	13.85	56 840	14.67	69 750	15.35	84 580	15.84
MTZ320	45	17 540	10.46	23 600	11.67	30 950	12.90	39 780	14.11	50 260	15.29	62 590	16.41	76 950	17.44	93 530	18.37

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 - 60 Hz - Reciprocating compressors

Performance table

Type	To	-15		-10		-5		0		5		10		15		20	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
MTZ018	45	1070	0.73	1480	0.82	2010	0.91	2670	0.99	3470	1.06	4440	1.12	5600	1.16	6960	1.17
MTZ022	45	1430	0.90	2000	1.03	2700	1.15	3550	1.26	4580	1.36	5790	1.43	7220	1.48	8890	1.50
MTZ028	45	1890	1.14	2680	1.32	3600	1.50	4670	1.66	5900	1.80	7320	1.91	8940	1.98	10770	2.02
MTZ032	45	2050	1.37	2880	1.58	3870	1.78	5040	1.96	6430	2.12	8030	2.24	9890	2.31	12010	2.34
MTZ036	45	2580	1.53	3530	1.79	4660	2.04	5980	2.27	7530	2.48	9310	2.64	11350	2.77	13680	2.84
MTZ040	45	3120	1.68	4190	1.99	5440	2.28	6900	2.57	8590	2.82	10530	3.04	12740	3.22	15250	3.35
MTZ050	45	3090	1.97	4460	2.25	6110	2.49	8080	2.69	10400	2.87	13120	3.01	16280	3.12	19910	3.20
MTZ056	45	3420	2.20	5010	2.56	6910	2.87	9170	3.15	11850	3.38	14970	3.57	18590	3.72	22750	3.84
MTZ064	45	4040	2.42	5820	2.81	7950	3.15	10480	3.44	13440	3.69	16890	3.91	20870	4.09	25430	4.24
MTZ072	45	4670	2.78	6680	3.19	9060	3.58	11880	3.93	15170	4.25	19000	4.54	23420	4.78	28490	4.99
MTZ080	45	5540	3.17	7710	3.64	10310	4.06	13410	4.46	17070	4.82	21370	5.17	26350	5.51	32080	5.85
MTZ100	45	6010	3.80	8650	4.37	11810	4.92	15570	5.41	20010	5.83	25200	6.16	31200	6.37	38090	6.43
MTZ125	45	7680	4.33	10880	5.02	14740	5.71	19340	6.37	24780	6.98	31140	7.53	38510	7.99	46990	8.35
MTZ144	45	11010	6.06	14700	6.84	19030	7.56	24060	8.21	29850	8.74	36490	9.14	44040	9.36	52580	9.37
MTZ160	45	12270	6.52	16380	7.40	21180	8.26	26740	9.07	33120	9.82	40410	10.48	48690	11.03	58010	11.43
MTZ200	45	12030	7.59	17290	8.75	23620	9.84	31150	10.83	40030	11.67	50400	12.32	62400	12.73	76190	12.86
MTZ250	45	15370	8.65	21770	10.04	29480	11.42	38690	12.73	49560	13.96	62280	15.05	77030	15.98	93980	16.70
MTZ288	45	22010	12.12	29410	13.67	38060	15.12	48110	16.42	59710	17.49	72990	18.27	88090	18.71	105160	18.75
MTZ320	45	24540	13.05	32770	14.79	42360	16.51	53470	18.14	66240	19.64	80830	20.96	97370	22.05	116030	22.86

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 / 60 Hz*

Technical data and ordering

MTZ - R404A / R507A - 50 Hz - Reciprocating compressors

Performance table

Type	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	1 400	1.09	1 900	1.21	2 520	1.31	3 250	1.40	4 110	1.47	5 120	1.53
MTZ022	45	640	0.86	980	1.03	1 410	1.19	1 960	1.34	2 620	1.48	3 440	1.61	4 410	1.72	5 550	1.82	6 880	1.90
MTZ028	45	760	1.05	1 250	1.30	1 850	1.53	2 570	1.75	3 430	1.96	4 450	2.14	5 640	2.31	7 040	2.45	8 640	2.56
MTZ032	45	1 040	1.20	1 580	1.46	2 240	1.71	3 030	1.94	3 980	2.16	5 110	2.36	6 440	2.55	7 980	2.71	9 760	2.86
MTZ036	45	1 300	1.50	1 930	1.78	2 690	2.06	3 600	2.33	4 670	2.58	5 930	2.81	7 400	3.01	9 100	3.19	11 050	3.34
MTZ040	45	1 600	1.70	2 320	2.05	3 160	2.37	4 160	2.67	5 330	2.95	6 700	3.20	8 290	3.44	10 130	3.65	12 230	3.84
MTZ044	45	1 320	2.00	1 970	2.29	2 800	2.59	3 850	2.88	5 150	3.16	6 750	3.42	8 690	3.64	11 010	3.83	13 750	3.96
MTZ050	45	1 680	2.27	2 440	2.61	3 420	2.95	4 640	3.29	6 150	3.61	8 000	3.90	10 220	4.15	12 870	4.36	15 990	4.50
MTZ056	45	1 650	2.40	2 640	2.81	3 840	3.22	5 280	3.62	7 000	4.00	9 030	4.35	11 420	4.66	14 190	4.90	17 390	5.08
MTZ064	45	2 080	2.77	3 200	3.21	4 560	3.66	6 190	4.11	8 130	4.54	10 420	4.94	13 090	5.30	16 190	5.61	19 760	5.84
MTZ072	45	2 490	3.05	3 730	3.52	5 220	4.01	7 010	4.50	9 150	4.99	11 680	5.45	14 640	5.88	18 080	6.26	22 040	6.59
MTZ080	45	2 770	3.63	4 250	4.17	6 010	4.72	8 080	5.29	10 520	5.84	13 360	6.38	16 640	6.88	20 400	7.34	24 680	7.73
MTZ100	45	3 240	4.01	4 930	4.80	6 960	5.53	9 390	6.18	12 280	6.76	15 700	7.26	19 710	7.70	24 370	8.06	29 760	8.34
MTZ125	45	4 660	5.16	6 620	6.02	9 060	6.86	12 060	7.67	15 710	8.44	20 080	9.16	25 250	9.83	31 300	10.44	38 310	10.98
MTZ144	45	5 700	6.08	8 060	7.05	10 920	8.00	14 370	8.91	18 490	9.78	23 380	10.60	29 110	11.36	35 770	12.06	43 450	12.69
MTZ160	45	6 280	6.80	8 870	7.95	12 010	9.04	15 790	10.08	20 310	11.08	25 640	12.05	31 900	13.01	39 160	13.97	47 540	14.95
MTZ200	45	6 480	8.02	9 860	9.60	13 920	11.05	18 770	12.36	24 560	13.52	31 400	14.53	39 420	15.39	48 750	16.11	59 510	16.68
MTZ250	45	9 320	10.32	13 230	12.05	18 110	13.73	24 120	15.34	31 420	16.88	40 160	18.32	50 500	19.66	62 600	20.88	76 620	21.96
MTZ288	45	11 410	12.17	16 120	14.11	21 840	16.00	28 740	17.82	36 990	19.56	46 760	21.20	58 220	22.72	71 550	24.12	86 900	25.37
MTZ320	45	12 550	13.61	17 740	15.90	24 030	18.08	31 590	20.15	40 610	22.15	51 280	24.10	63 790	26.03	78 330	27.95	95 070	29.90

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 / R507A - 60 Hz - Reciprocating compressors

Performance table

Type	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	400	0.78	840	1.06	1370	1.29	2000	1.48	2750	1.64	3620	1.76	4650	1.85	5830	1.91	7180	1.96
MTZ022	45	950	1.08	1480	1.30	2110	1.51	2880	1.70	3790	1.87	4880	2.03	6160	2.17	7650	2.29	9370	2.39
MTZ028	45	1440	1.42	2120	1.71	2920	1.98	3860	2.23	4960	2.45	6250	2.66	7730	2.84	9440	2.99	11380	3.13
MTZ032	45	1570	1.52	2290	1.84	3150	2.15	4180	2.44	5420	2.72	6870	2.97	8590	3.19	10580	3.37	12880	3.51
MTZ036	45	1630	1.67	2490	2.01	3530	2.35	4770	2.69	6250	3.03	7990	3.36	10030	3.67	12400	3.97	15120	4.24
MTZ040	45	1930	1.93	2910	2.32	4080	2.69	5480	3.06	7140	3.42	9090	3.77	11380	4.12	14020	4.47	17050	4.82
MTZ050	45	2290	2.29	3530	2.80	5020	3.27	6790	3.69	8870	4.06	11320	4.38	14170	4.66	17460	4.90	21240	5.10
MTZ056	45	2510	2.41	3960	3.07	5680	3.64	7720	4.14	10120	4.58	12910	4.98	16140	5.35	19840	5.69	24060	6.03
MTZ064	45	3050	2.83	4600	3.53	6450	4.15	8650	4.70	11240	5.21	14290	5.67	17840	6.10	21950	6.51	26650	6.90
MTZ072	45	3670	3.44	5360	4.16	7400	4.83	9850	5.45	12770	6.01	16230	6.53	20260	7.00	24940	7.41	30320	7.78
MTZ080	45	4570	4.02	6440	4.91	8680	5.72	11360	6.47	14540	7.16	18280	7.80	22640	8.40	27690	8.96	33490	9.51
MTZ100	45	4390	4.61	6700	5.63	9440	6.54	12710	7.35	16560	8.06	21080	8.69	26350	9.23	32430	9.70	39390	10.10
MTZ125	45	6750	6.37	9570	7.47	12900	8.52	16830	9.52	21460	10.45	26860	11.30	33130	12.06	40350	12.72	48620	13.28
MTZ144	45	8350	7.40	11570	8.66	15400	9.83	19940	10.92	25300	11.95	31590	12.94	38900	13.92	47360	14.91	57040	15.91
MTZ160	45	9270	8.38	12730	9.64	16850	10.93	21730	12.23	27500	13.53	34260	14.80	42140	16.05	51240	17.26	61680	18.40
MTZ200	45	8780	9.21	13390	11.26	18890	13.08	25410	14.70	33120	16.13	42170	17.37	52700	18.46	64850	19.40	78790	20.21
MTZ250	45	13500	12.74	19140	14.94	25800	17.05	33670	19.04	42920	20.89	53720	22.59	66260	24.12	80710	25.45	97230	26.56
MTZ288	45	16700	14.81	23140	17.33	30800	19.65	39880	21.83	50600	23.89	63180	25.89	77810	27.85	94710	29.81	114090	31.82
MTZ320	45	18540	16.75	25470	19.28	33700	21.86	43460	24.46	55000	27.05	68530	29.61	84280	32.11	102480	34.51	123360	36.80

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 / 60 Hz*
Voltage: *400 V / 3 / 60 Hz*

Technical data and ordering

MTZ - R407A - 50 Hz - Reciprocating compressors

Performance table

Type	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
MTZ018-4	45	260	0.49	510	0.63	830	0.76	1240	0.90	1740	1.02	2340	1.14	3070	1.24	3930	1.32	4940	1.39
MTZ022-4	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
MTZ028-4	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
MTZ032-4	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
MTZ036-4	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
MTZ040-4	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
MTZ050-4	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
MTZ056-4	45	1160	1.43	2030	1.84	3120	2.24	4470	2.62	6120	2.98	8100	3.32	10460	3.63	13240	3.91	16480	4.15
MTZ064-4	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
MTZ072-4	45	1710	1.93	2850	2.46	4260	2.98	6010	3.49	8130	3.98	10670	4.44	13680	4.88	17190	5.27	21260	5.61
MTZ080-4	45	2130	2.23	3520	2.91	5190	3.57	7180	4.18	9540	4.76	12330	5.31	15590	5.81	19360	6.28	23710	6.72
MTZ100-4	45	2170	2.83	3860	3.64	5880	4.41	8300	5.11	11200	5.74	14620	6.31	18640	6.80	23310	7.22	28700	7.56
MTZ125-4	45	3130	3.65	5130	4.56	7610	5.46	10650	6.33	14330	7.17	18710	7.96	23890	8.70	29950	9.36	36940	9.95
MTZ144-4	45	3830	4.33	6270	5.37	9190	6.39	12700	7.38	16870	8.32	21780	9.21	27540	10.04	34220	10.81	41910	11.49
MTZ160-4	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
MTZ200-4	45	4300	5.65	7700	7.29	11800	8.81	16600	10.21	22400	11.48	29200	12.61	37300	13.60	46600	14.44	57400	15.13
MTZ250-4	45	6300	7.31	10300	9.12	15200	10.91	21300	12.66	28700	14.34	37400	15.92	47800	17.39	59900	18.73	73900	19.89
MTZ288-4	45	7700	8.66	12500	10.74	18400	12.78	25400	14.75	33700	16.64	43600	18.42	55100	20.09	68400	21.61	83800	22.99
MTZ320-4	45	8400	9.69	13800	12.10	20200	14.42	27900	16.66	37000	18.84	47800	20.96	60400	23.02	74900	25.06	91700	27.06

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 - 60 Hz - Reciprocating compressors

Performance table

Type	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
MTZ018-4	45	310	0.58	620	0.75	1000	0.92	1490	1.07	2080	1.23	2810	1.36	3690	1.48	4720	1.59	5930	1.66
MTZ022-4	45	520	0.72	910	0.93	1420	1.13	2070	1.32	2870	1.51	3840	1.68	5000	1.83	6360	1.97	7950	2.07
MTZ028-4	45	620	0.89	1190	1.19	1890	1.48	2740	1.75	3760	2.00	4970	2.23	6400	2.44	8070	2.63	9990	2.78
MTZ032-4	45	840	1.02	1490	1.34	2270	1.64	3220	1.93	4360	2.21	5710	2.46	7300	2.70	9150	2.92	11290	3.11
MTZ036-4	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
MTZ040-4	45	1290	1.45	2190	1.88	3230	2.28	4450	2.66	5860	3.02	7510	3.35	9410	3.65	11600	3.92	14110	4.16
MTZ050-4	45	1370	1.64	2330	2.08	3540	2.50	5030	2.90	6840	3.28	9020	3.62	11600	3.93	14630	4.21	18140	4.43
MTZ056-4	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
MTZ064-4	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
MTZ072-4	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
MTZ080-4	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
MTZ100-4	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
MTZ125-4	45	3750	4.39	6150	5.47	9130	6.55	12780	7.59	17190	8.60	22460	9.55	28670	10.44	35930	11.24	44330	11.94
MTZ144-4	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
MTZ160-4	45	5060	5.81	8280	7.26	12140	8.65	16750	10.00	22220	11.30	28670	12.57	36210	13.82	44960	15.03	55030	16.24
MTZ200-4	45	5200	6.78	9300	8.75	14100	10.57	19900	12.25	26900	13.77	35100	15.13	44700	16.32	55900	17.33	68900	18.15
MTZ250-4	45	7500	8.77	12300	10.94	18300	13.09	25600	15.19	34400	17.20	44900	19.11	57300	20.87	71900	22.47	88700	23.87
MTZ288-4	45	9200	10.39	15000	12.89	22100	15.33	30500	17.70	40500	19.96	52300	22.10	66100	24.10	82100	25.94	100600	27.58
MTZ320-4	45	10100	11.63	16600	14.52	24300	17.30	33500	19.99	44400	22.61	57300	25.15	72400	27.63	89900	30.07	110100	32.47

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*

Technical data and ordering

MTZ - R407F - 50 Hz - Reciprocating compressors

Performance table

Type	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
MTZ018-4	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
MTZ022-4	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
MTZ028-4	45	1030	1.09	1660	1.31	2420	1.54	3320	1.76	4390	1.97	5650	2.15	7130	2.31	8830	2.42
MTZ032-4	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
MTZ036-4	45	1610	1.49	2430	1.76	3390	2.04	4520	2.32	5860	2.57	7410	2.81	9210	3.01	11290	3.16
MTZ040-4	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
MTZ050-4	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
MTZ056-4	45	2180	2.04	3340	2.40	4770	2.78	6500	3.16	8590	3.51	11080	3.84	14020	4.11	17460	4.33
MTZ064-4	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
MTZ072-4	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
MTZ080-4	45	3790	3.23	5560	3.84	7650	4.44	10140	5.04	13070	5.61	16500	6.13	20490	6.60	25100	7.01
MTZ100-4	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
MTZ125-4	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
MTZ144-4	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
MTZ160-4	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
MTZ200-4	45	8200	8.01	12500	9.45	17700	10.84	23800	12.14	31000	13.33	39500	14.35	49400	15.18	60800	15.78
MTZ250-4	45	11000	10.14	16300	11.76	22700	13.46	30400	15.16	39700	16.81	50600	18.34	63400	19.67	78300	20.75
MTZ288-4	45	13500	11.85	19700	13.69	27100	15.62	35800	17.57	46200	19.45	58300	21.19	72400	22.73	88700	23.98
MTZ320-4	45	14800	13.40	21700	15.50	29700	17.68	39300	19.90	50600	22.11	63900	24.27	79300	26.32	97100	28.23

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 - 60 Hz - Reciprocating compressors

Performance table

Type	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
MTZ018-4	45	650	0.84	1060	0.99	1580	1.15	2220	1.30	2990	1.44	3910	1.57	5010	1.67	6280	1.73
MTZ022-4	45	970	1.04	1520	1.22	2210	1.41	3050	1.60	4070	1.77	5300	1.93	6740	2.06	8430	2.16
MTZ028-4	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
MTZ032-4	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
MTZ036-4	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
MTZ040-4	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
MTZ050-4	45	2500	2.26	3790	2.69	5370	3.10	7270	3.48	9560	3.82	12290	4.13	15490	4.40	19220	4.62
MTZ056-4	45	2610	2.44	4010	2.88	5720	3.34	7800	3.79	10310	4.22	13300	4.61	16830	4.94	20950	5.19
MTZ064-4	45	3210	2.85	4840	3.41	6840	3.97	9280	4.53	12210	5.07	15710	5.55	19850	5.97	24690	6.30
MTZ072-4	45	3680	3.28	5490	3.86	7690	4.45	10370	5.05	13570	5.63	17370	6.17	21830	6.64	27030	7.02
MTZ080-4	45	4540	3.88	6670	4.60	9180	5.33	12170	6.05	15680	6.73	19800	7.36	24590	7.92	30120	8.41
MTZ100-4	45	4910	4.81	7520	5.67	10610	6.51	14270	7.29	18600	8.00	23690	8.61	29610	9.11	36480	9.47
MTZ125-4	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
MTZ144-4	45	8080	7.11	11810	8.22	16240	9.38	21500	10.54	27710	11.67	34990	12.72	43460	13.64	53240	14.39
MTZ160-4	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
MTZ200-4	45	9800	9.62	15000	11.34	21200	13.01	28600	14.57	37200	15.99	47400	17.22	59200	18.22	73000	18.94
MTZ250-4	45	13300	12.17	19600	14.11	27300	16.15	36500	18.19	47600	20.17	60700	22.00	76100	23.61	93900	24.90
MTZ288-4	45	16200	14.22	23600	16.43	32500	18.75	43000	21.08	55400	23.34	70000	25.43	86900	27.27	106500	28.77
MTZ320-4	45	17800	16.08	26000	18.60	35700	21.21	47200	23.88	60800	26.53	76700	29.12	95200	31.59	116500	33.88

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*

Technical data and ordering

MTZ - R407C - 50 Hz - Reciprocating compressors

Performance table

Type	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	1 180	0.82	1 750	0.94	2 430	1.04	3 240	1.13	4 180	1.20	5 270	1.25	6 530	1.30
MTZ022	45	1 770	1.07	2 490	1.24	3 330	1.39	4 320	1.50	5 460	1.60	6 790	1.67	8 310	1.73
MTZ028	45	2 160	1.30	3 110	1.52	4 220	1.72	5 520	1.89	7 030	2.03	8 770	2.13	10 800	2.21
MTZ032	45	2 710	1.50	3 740	1.75	4 940	1.95	6 330	2.12	7 940	2.27	9 800	2.38	11 900	2.48
MTZ036	45	3 270	1.81	4 400	2.10	5 710	2.36	7 200	2.57	8 920	2.73	10 900	2.86	13 100	2.95
MTZ040	45	3 890	2.18	5 150	2.48	6 610	2.74	8 290	2.98	10 200	3.18	12 400	3.35	15 000	3.48
MTZ044	45	3 390	2.21	4 770	2.47	6 420	2.72	8 390	2.94	10 700	3.14	13 400	3.28	16 500	3.38
MTZ050	45	3 880	2.42	5 450	2.74	7 330	3.04	9 570	3.32	12 200	3.57	15 300	3.78	18 800	3.94
MTZ056	45	4 460	2.67	6 260	3.05	8 420	3.43	11 000	3.78	14 000	4.10	17 500	4.38	21 500	4.60
MTZ064	45	5 020	2.91	7 060	3.36	9 490	3.80	12 400	4.22	15 700	4.61	19 600	4.96	24 100	5.25
MTZ072	45	5 850	3.30	8 110	3.81	10 800	4.32	13 900	4.80	17 600	5.25	21 900	5.64	26 700	5.98
MTZ080	45	6 850	3.76	9 380	4.35	12 400	4.93	15 800	5.48	19 900	6.00	24 500	6.46	29 800	6.85
MTZ100	45	7 870	4.81	11 000	5.47	14 800	6.04	19 300	6.52	24 500	6.92	30 700	7.26	37 800	7.56
MTZ125	45	11 500	6.13	15 500	6.97	20 100	7.69	25 600	8.31	31 900	8.84	39 300	9.30	47 700	9.69
MTZ144	45	12 700	7.07	17 000	7.92	22 200	8.70	28 200	9.42	35 300	10.04	43 500	10.58	52 900	11.01
MTZ160	45	15 400	8.21	20 200	9.20	25 800	10.09	32 500	10.91	40 300	11.68	49 400	12.42	59 900	13.16
MTZ200	45	15 700	9.61	22 000	10.94	29 600	12.08	38 600	13.03	49 100	13.84	61 400	14.53	75 500	15.11
MTZ250	45	23 000	12.26	30 900	13.93	40 200	15.37	51 100	16.61	63 800	17.68	78 500	18.59	95 400	19.38
MTZ288	45	25 300	14.13	34 000	15.83	44 400	17.41	56 500	18.83	70 600	20.09	87 000	21.16	105 900	22.02
MTZ320	45	30 700	16.43	40 300	18.39	51 700	20.17	65 100	21.81	80 700	23.36	98 800	24.85	119 700	26.32

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*

MTZ - R407C - 60 Hz - Reciprocating compressors

Performance table

Type	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	1690	1.03	2420	1.20	3260	1.33	4250	1.42	5380	1.49	6680	1.54	8170	1.57
MTZ022	45	2320	1.32	3170	1.52	4170	1.68	5340	1.82	6710	1.93	8290	2.02	10120	2.10
MTZ028	45	3160	1.77	4190	1.96	5430	2.14	6910	2.30	8680	2.45	10760	2.58	13190	2.71
MTZ032	45	3590	1.94	4700	2.17	6030	2.37	7620	2.57	9510	2.74	11730	2.89	14320	3.03
MTZ036	45	3900	2.21	5130	2.54	6630	2.86	8450	3.15	10620	3.41	13180	3.63	16160	3.80
MTZ040	45	4310	2.46	5890	2.81	7740	3.18	9890	3.54	12400	3.90	15290	4.23	18610	4.52
MTZ050	45	5310	2.92	7120	3.32	9300	3.66	11910	3.95	15010	4.19	18660	4.38	22940	4.53
MTZ056	45	6050	3.24	8120	3.69	10610	4.07	13580	4.40	17100	4.69	21230	4.96	26040	5.22
MTZ064	45	6620	3.64	9050	4.14	11880	4.56	15170	4.93	18970	5.27	23340	5.58	28350	5.89
MTZ072	45	7840	4.25	10560	4.88	13750	5.43	17480	5.91	21800	6.33	26800	6.70	32530	7.03
MTZ080	45	8480	4.80	11490	5.47	15000	6.08	19130	6.64	23990	7.15	29710	7.64	36400	8.10
MTZ100	45	10390	5.95	14170	6.79	18630	7.47	23870	8.02	30010	8.48	37140	8.88	45370	9.25
MTZ125	45	14650	7.79	19270	8.75	24670	9.63	30960	10.43	38260	11.15	46680	11.82	56340	12.45
MTZ144	45	16610	8.78	21990	9.90	28140	10.88	35190	11.73	43240	12.47	52430	13.11	62860	13.68
MTZ160	45	18680	9.98	24390	11.22	31060	12.42	38850	13.54	47890	14.57	58320	15.46	70290	16.19
MTZ200	45	20770	11.91	28330	13.57	37250	14.93	47750	16.04	60020	16.96	74290	17.76	90740	18.49
MTZ250	45	29310	15.57	38550	17.50	49340	19.26	61910	20.85	76510	22.31	93360	23.65	112680	24.90
MTZ288	45	33220	17.56	43980	19.80	56280	21.76	70370	23.46	86480	24.94	104850	26.23	125710	27.36
MTZ320	45	37360	19.95	48770	22.44	62120	24.84	77690	27.09	95770	29.13	116640	30.91	140590	32.38

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 / 60 Hz*
Voltage: *400 V / 3 / 60 Hz*

Technical data and ordering

MT - R22 - 50 Hz - Reciprocating compressors

Performance table

Type	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
MT018	45	570	0.64	890	0.76	1 300	0.88	1 810	1.00	2 450	1.10	3 220	1.19	4 150	1.26	5 260	1.31	6 550	1.33
MT022	45	740	0.77	1 280	0.95	1 920	1.12	2 670	1.29	3 540	1.44	4 560	1.56	5 720	1.66	7 040	1.73	8 550	1.76
MT028	45	1 460	1.22	2 190	1.43	3 030	1.63	4 000	1.81	5 090	1.98	6 330	2.11	7 720	2.20	9 280	2.25	11 000	2.24
MT032	45	1 550	1.46	2 310	1.68	3 190	1.90	4 230	2.11	5 440	2.31	6 830	2.47	8 420	2.60	10 200	2.69	12 300	2.74
MT036	45	1 960	1.68	2 890	1.90	3 950	2.13	5 150	2.35	6 500	2.56	8 020	2.76	9 710	2.93	11 600	3.07	13 700	3.17
MT040	45	2 050	1.77	3 080	2.08	4 260	2.39	5 590	2.67	7 090	2.93	8 780	3.15	10 700	3.32	12 800	3.42	15 100	3.45
MT044	45	2 350	1.82	3 240	2.13	4 340	2.44	5 680	2.72	7 310	2.98	9 250	3.19	11 600	3.34	14 200	3.43	17 400	3.44
MT050	45	2 560	1.99	3 530	2.31	4 740	2.63	6 230	2.95	8 050	3.25	10 200	3.54	12 800	3.79	15 900	4.00	19 400	4.16
MT056	45	2 660	2.21	3 990	2.64	5 530	3.05	7 320	3.44	9 380	3.78	11 700	4.07	14 400	4.28	17 500	4.40	20 900	4.42
MT064	45	3 090	2.57	4 500	3.02	6 190	3.46	8 190	3.89	10 500	4.28	13 300	4.62	16 500	4.91	20 100	5.11	24 300	5.22
MT072	45	3 470	3.07	5 070	3.47	6 950	3.88	9 130	4.29	11 700	4.69	14 600	5.08	17 900	5.44	21 600	5.76	25 900	6.03
MT080	45	3 950	3.46	5 780	3.91	7 930	4.38	10 400	4.84	13 300	5.30	16 600	5.74	20 400	6.14	24 700	6.51	29 500	6.83
MT100	45	4 570	4.06	6 650	4.66	9 150	5.25	12 100	5.79	15 700	6.27	19 900	6.66	24 700	6.94	30 400	7.09	36 800	7.08
MT125	45	6 690	5.48	9 360	6.17	12 500	6.87	16 400	7.55	20 800	8.18	26 100	8.75	32 200	9.24	39 300	9.63	47 400	9.88
MT144	45	7 700	6.16	10 700	6.94	14 200	7.71	18 500	8.47	23 600	9.17	29 600	9.81	36 600	10.36	44 700	10.80	54 000	11.09
MT160	45	8 660	6.93	11 900	7.79	15 800	8.65	20 600	9.49	26 200	10.28	32 800	11.00	40 500	11.61	49 500	12.10	59 800	12.44
MTM200	45	9 140	8.12	13 300	9.32	18 300	10.49	24 300	11.58	31 400	12.54	39 700	13.32	49 500	13.89	60 700	14.19	73 600	14.17
MTM250	45	13 400	10.95	18 700	12.35	25 100	13.74	32 700	15.09	41 700	16.36	52 200	17.51	64 500	18.49	78 600	19.25	94 800	19.77
MTM288	45	15 400	12.32	21 300	13.87	28 500	15.42	37 000	16.93	47 200	18.35	59 200	19.63	73 200	20.72	89 400	21.59	108 000	22.18
MTM320	45	17 300	13.86	23 800	15.58	31 700	17.30	41 100	18.98	52 300	20.57	65 600	22.00	81 000	23.23	98 900	24.20	119 500	24.88

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*

MT - R22 - 60 Hz - Reciprocating compressors

Performance table

Type	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
MT018	45	690	0.77	1070	0.92	1560	1.06	2170	1.20	2940	1.32	3860	1.43	4980	1.52	6310	1.57	7860	1.60
MT022	45	890	0.92	1540	1.14	2310	1.35	3210	1.54	4250	1.72	5470	1.88	6860	2.00	8450	2.08	10250	2.11
MT028	45	1750	1.46	2630	1.71	3640	1.95	4800	2.18	6110	2.37	7590	2.53	9260	2.64	11140	2.70	13220	2.69
MT032	45	1870	1.75	2770	2.02	3830	2.28	5080	2.54	6520	2.77	8190	2.97	10110	3.13	12290	3.23	14760	3.28
MT036	45	2350	2.01	3470	2.28	4740	2.55	6180	2.82	7800	3.07	9620	3.31	11660	3.51	13920	3.68	16410	3.80
MT040	45	2460	2.13	3700	2.50	5110	2.86	6710	3.21	8510	3.52	10540	3.78	12800	3.98	15310	4.11	18090	4.14
MT050	45	2950	2.43	4260	2.86	5830	3.24	7700	3.56	9900	3.85	12460	4.10	15430	4.31	18850	4.50	22740	4.66
MT056	45	3280	2.68	4820	3.14	6640	3.56	8770	3.93	11250	4.27	14110	4.57	17400	4.85	21150	5.09	25400	5.32
MT064	45	4260	3.24	5790	3.65	7680	4.05	9980	4.43	12720	4.80	15960	5.15	19730	5.48	24080	5.80	29050	6.10
MT072	45	4720	3.39	6560	3.97	8800	4.51	11500	5.03	14700	5.52	18460	5.97	22830	6.39	27850	6.76	33580	7.10
MT080	45	5420	3.97	7600	4.59	10180	5.19	13240	5.76	16820	6.30	21000	6.83	25820	7.35	31350	7.86	37640	8.36
MT100	45	5490	4.87	7980	5.59	10980	6.30	14570	6.95	18830	7.52	23840	7.99	29680	8.33	36430	8.51	44180	8.50
MT125	45	8030	6.57	11230	7.41	15060	8.24	19620	9.06	25020	9.82	31340	10.51	38690	11.09	47180	11.55	56880	11.86
MT144	45	9240	7.39	12790	8.32	17080	9.25	22220	10.16	28320	11.01	35510	11.78	43910	12.44	53630	12.95	64790	13.31
MT160	45	10400	8.31	14300	9.35	19020	10.38	24680	11.39	31410	12.34	39350	13.20	48620	13.94	59360	14.52	71700	14.93
MTM200	45	10970	9.75	15960	11.19	21960	12.59	29140	13.89	37660	15.05	47680	15.99	59360	16.67	72870	17.02	88360	17.00
MTM250	45	16060	13.14	22460	14.81	30120	16.49	39240	18.11	50030	19.64	62680	21.01	77390	22.18	94350	23.10	113770	23.72
MTM288	45	18470	14.79	25580	16.65	34160	18.51	44430	20.32	56640	22.02	71020	23.55	87820	24.87	107260	25.91	129590	26.61
MTM320	45	20790	16.63	28610	18.69	38040	20.77	49350	22.78	62820	24.68	78690	26.40	97240	27.87	118720	29.04	143400	29.85

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 / 60 Hz*

Technical data and ordering

NTZ - R404A / R507A - 50 Hz - Reciprocating compressors

Performance table

Type	To	-45 [1]		-40 [1]		-35 [1]		-30 [2]		-25 [2]		-20 [2]		-15 [2]		-10 [2]	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
NTZ048	45	190	0.35	420	0.59	710	0.84	1 240	1.09	1 700	1.34	2 240	1.57	2 860	1.79	3 570	1.99
NTZ068	45	520	1.02	870	1.28	1290	1.54	2110	1.81	2785	2.09	3570	2.38	4490	2.68	5540	2.99
NTZ096	45	–	–	910	1.29	1 420	1.67	2 430	2.09	3 360	2.53	4 510	2.99	5 900	3.47	7 550	3.97
NTZ108	45	–	–	1120	1.57	1770	2.03	3010	2.49	4080	2.95	5340	3.40	680	3.85	8530	4.29
NTZ136	45	–	–	1 570	2.27	2 360	2.86	3 890	3.47	5 200	4.08	6 750	4.69	8 570	5.29	10 710	5.87
NTZ215	45	1 190	2.31	2 240	3.17	3 540	4.08	5 970	5.01	8 030	5.94	10 440	6.86	13 220	7.72	16 420	8.52
NTZ271	45	2 120	3.57	3 470	4.61	5 140	5.66	8 380	6.73	11 050	7.81	14 190	8.90	17 840	10.00	22 040	11.10
NTZ430	45	2 370	4.61	4 480	6.33	7 080	8.15	11 930	10.02	16 060	11.89	20 880	13.71	26 450	15.44	32 840	17.04
NTZ542	45	4 240	7.14	6 940	9.21	10 290	11.32	16 760	13.46	22 110	15.62	28 380	17.80	35 670	19.99	44 080	22.20

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Qo: *Cooling capacity in [W]*
Pe: *Power input in [kW]*
[1] ***Superheat:*** *10 K* ***Subcooling:*** *0 K* ***Voltage:*** *400 V / 3 / 50 Hz*
[2] **Suction temperature:** *20 °C* ***Subcooling:*** *0 K* ***Voltage:*** *400 V / 3 / 50 Hz*

NTZ - R404A / R507A - 60 Hz - Reciprocating compressors

Performance table

Type	To	-45 [1]		-40 [1]		-35 [1]		-30 [2]		-25 [2]		-20 [2]		-15 [2]		-10 [2]	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
NTZ048	45	220	0.40	500	0.71	850	1.02	1480	1.33	2040	1.62	2690	1.89	3440	2.13	4310	2.33
NTZ068	45	610	1.20	1020	1.51	1530	1.82	2490	2.14	3290	2.47	4220	2.81	5290	3.16	6530	3.53
NTZ096	45	–	–	890	1.40	1630	1.96	2960	2.54	4160	3.12	5560	3.70	7190	4.24	9050	4.75
NTZ108	45	–	–	1240	2.04	2040	2.51	3530	3.04	4860	3.62	6440	4.24	8290	4.88	10460	5.53
NTZ136	45	–	–	1690	2.65	2720	3.31	4620	4.03	6260	4.80	8170	5.60	10380	6.44	12920	7.31
NTZ215	45	1400	2.72	2640	3.74	4170	4.81	7040	5.91	9480	7.01	12320	8.09	15600	9.11	19380	10.05
NTZ271	45	2500	4.22	4090	5.44	6070	6.68	9890	7.94	13040	9.21	16740	10.50	21050	11.80	26010	13.10
NTZ430	45	2800	5.44	5280	7.47	8350	9.62	14080	11.82	18950	14.03	24640	16.18	31210	18.22	38750	20.10
NTZ542	45	5000	8.43	8180	10.87	12140	13.36	19780	15.88	26090	18.43	33490	21.00	42090	23.59	52010	26.20

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Qo: *Cooling capacity in [W]*
Pe: *Power input in [kW]*
[1] ***Superheat:*** *10 K* ***Subcooling:*** *0 K* ***Voltage:*** *400 V / 3 / 60 Hz*
[2] **Suction temperature:** *20 °C* ***Subcooling:*** *0 K* ***Voltage:*** *400 V / 3 / 60 Hz*

Nomenclature and Dimensions

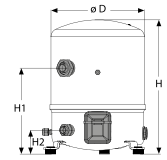
Nomenclature

MT Z 64 HM 4 C VE -

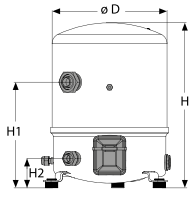
- Compressor type
- Polyolester oil
- Motor power
- Displacement code
- Motor voltage code:
  - **1:** 208 – 230 V / 1 ~ / 60 Hz
  - **3:** 200 – 230 V / 3 ~ / 60 Hz
  - **4:** 400 V / 3 ~ /50 Hz & 460 V / 3 ~ /60 Hz
  - **5:** 220 – 240 V / 1 ~ / 50 Hz
  - **6:** 230 V / 3 ~ / 50 Hz
  - **7:** 500 V / 3 ~ / 50 Hz & 575 V / 3 ~ / 60 Hz
  - **9:** 380 V / 3 ~ / 60 Hz
- Generation index
- Oil equalisation port and sight glass
- Option code

NT Z 048 A 4 L R1 A

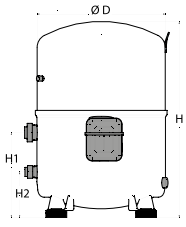
- **Compressor type:**
  NT: New low temperature reciprocating compressors
- **Lubricant:**
  Z: Polyolester
- **Displacement:**
  in [cm³ / rev]
- **Index indicator:**
  UL
- **Motor voltage code**
- **Motor protection:**
  L: Internal Motor Protection
- **Equipment version:**
  (R1: Rotolock connections, oil equalisation connection and sight glass)
- **Evolution index:**
  indicating compressor modifications



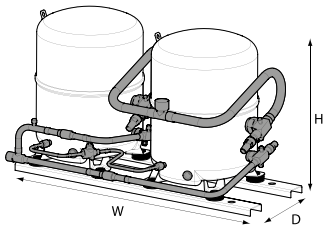
MT / MTZ / NTZ
1 cylinder



MT / MTZ / NTZ
2 cylinders



MT / MTZ / NTZ
4 cylinders



MT / MTZ / NTZ Tandem
2 x 4 cylinders

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

Tandem model [mm]

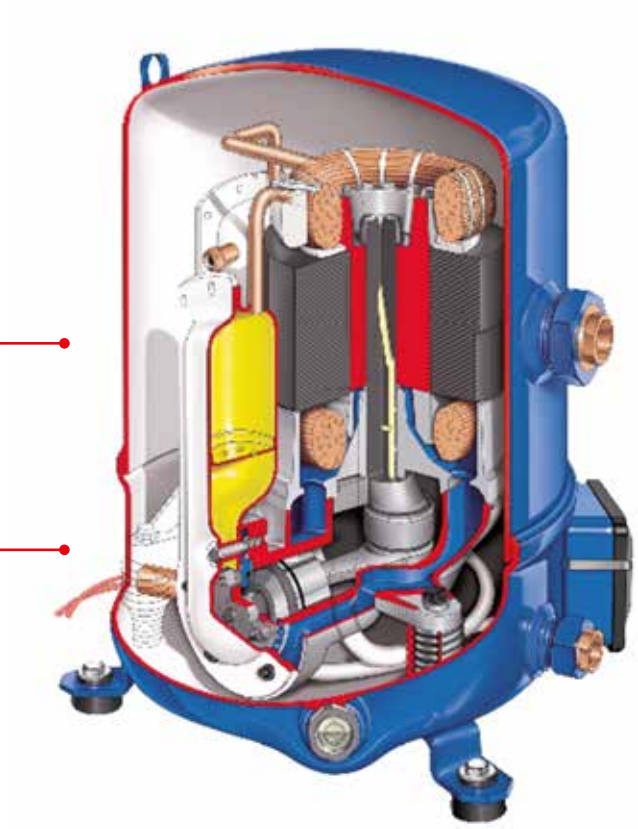
Type	D	H	W	
2 x 4 cylinders	515	544 / 565	925	–

VTZ - Inverter Reciprocating Compressors

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.





Flexibility and precision cooling within a wide capacity range (30 – 90 rps)

High COP across the whole operating range for great energy savings

Highly reliable solution

One qualified "*plug & play*" compressor and drive 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 ± 0.3 °C
- Pre-qualified compressor and drive package
- Drive protection
- Multi-refrigerant capacibility 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 eliminationof components

Technical data and ordering

VTZ - Inverter Reciprocating Compressors - Voltage code G 380 – 480 V and CD302

Ordering

Compressor			Frequency converter				
Type	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
	120B0001	NA	CD302 - 4.0 kW	IP55	H2	no	131B3549
VTZ054-G	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
	120B0005	120B0055	CD302 - 15.0 kW	IP55	H2	no	131B3583
VTZ215-G	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
VTZ242-G	120B0007	120B0053	CD302 - 22.0 kW	IP21	H1	yes	131B3592
	120B0007	120B0053	CD302 - 22.0 kW	IP21	H1	no	131B3593
	120B0007	120B0053	CD302 - 22.0 kW	IP21	H2	yes	131B3594
	120B0007	120B0053	CD302 - 22.0 kW	IP21	H2	no	131B3595
	120B0007	120B0053	CD302 - 22.0 kW	IP55	H1	yes	131B3596
	120B0007	120B0053	CD302 - 22.0 kW	IP55	H1	no	131B3597
	120B0007	120B0053	CD302 - 22.0 kW	IP55	H2	yes	131B3598
	120B0007	120B0053	CD302 - 22.0 kW	IP55	H2	no	131B3599

Technical data and ordering

VTZ - Inverter Reciprocating Compressors - Voltage code J 200 - 240 V and CD302

Ordering

Compressor			Frequency converter				
Type	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	–
	120B0029	NA	CD302 - 4.0 kW	IP55	H2	no	–
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
	120B0030	NA	CD302 - 5.5 kW	IP55	H2	no	131B5358
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
	120B0031	NA	CD302 - 7.5 kW	IP55	H2	no	131B5364
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 compressors

Electrical specification

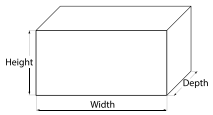
Supply voltage	Compressor Type	Nominal motor power [kW]	RW [Ohm]	RT [Ohm]	RLA [A]	MMT [A]	LRA [A]
200 – 240 V	VTZ038-J	3.59	0.31	0.65	13.5	17	69
	VTZ054-J	5	0.215	0.44	20	25	93
	VTZ086-J	7.8	0.158	0.317	32.5	40.6	88
	VTZ121-J	12.5	0.095	0.156	50	64.4	160
380 – 480 V	VTZ038-G	3.59	1.684	3.37	7.35	9.2	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 compressors

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

Technical data and ordering

VTZ - Inverter reciprocating compressors - R134a - 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
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*

Technical data and ordering

VTZ - Inverter Reciprocating Compressors - 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	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

Technical data and ordering

VTZ - Inverter Reciprocating Compressors - 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	Pe
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	[1])	–
	5100	40	4900	5.67	6900	6.50	9400	7.38	12400	8.29	16200	9.20	20700	10.10	26100	10.99	[1])	–
	5100	50	3400	5.64	5100	6.53	7100	7.49	9600	8.51	12600	9.57	16400	10.65	20900	11.74	[1])	–
	5100	60	–	–	–	–	4900	7.52	6800	8.62	9100	9.79	12100	11.02	15700	12.29	[1])	–
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*
[1]) *Error 3: Evaporating temperature too high. Approximative result*

Technical data and ordering

VTZ - Inverter Reciprocating Compressors - 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
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

Technical data and ordering

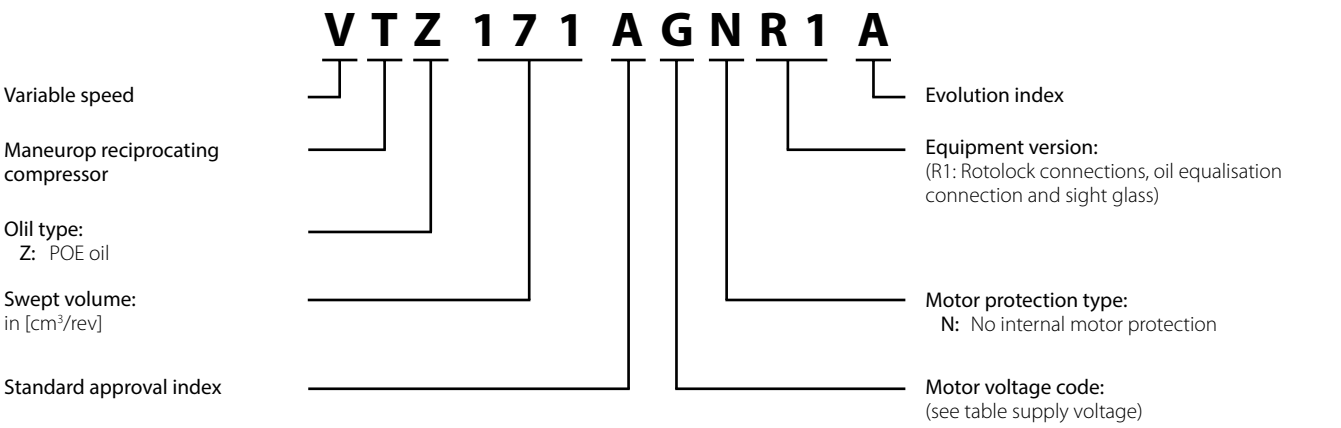
VTZ - Inverter Reciprocating Compressors - R407C - 380 – 480 V

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*

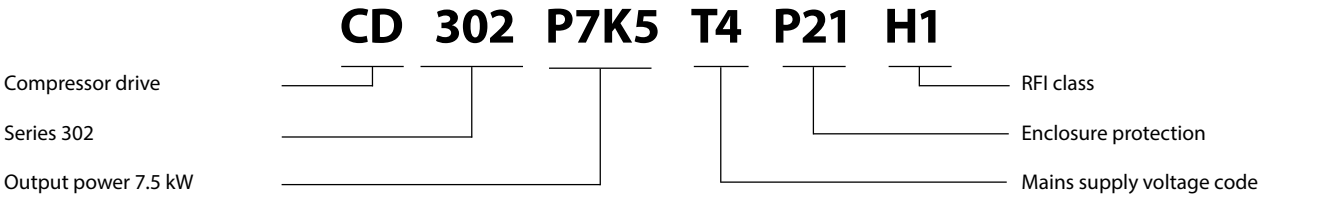
Nomenclature



Compressor specifications

Compressor Type	Swept volume [cm³/rev]	Displacement			Cyl. nbr	Oil charge [dm³]	Net Weight [kg]
		Min speed [m³/h]	50 Hz [m³/h]	Max speed [m³/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

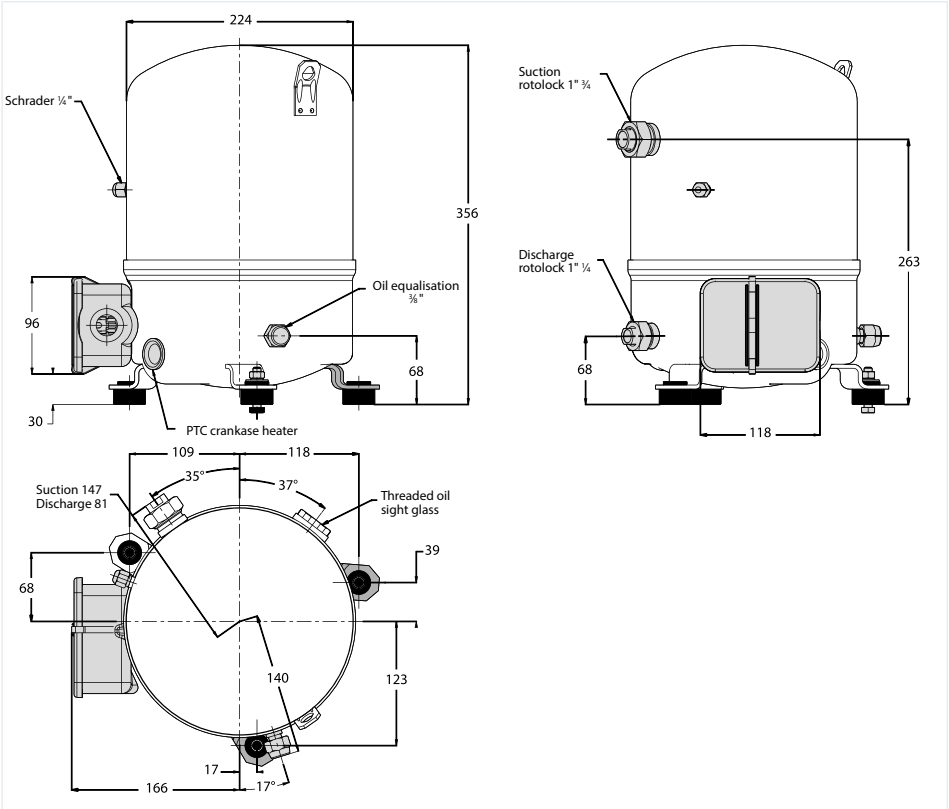


Frequency converter specifications

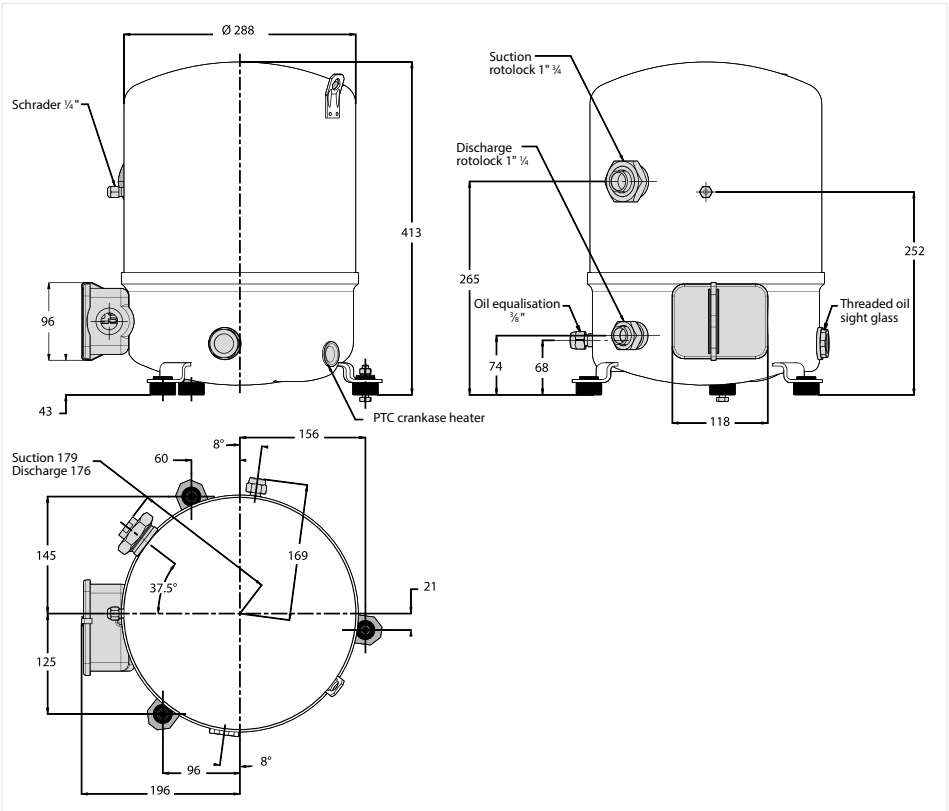
Mains supply voltage	T2: 200 – 240 V ± 10% (3-phase), T4: 380 – 480 V ± 10% (3-phase)
Supply frequency	50 / 60 Hz
Output voltage	0 – 100% of supply voltage
Inputs	6 digital (0 – 24 V), 2 analogue (-10 – 10 V or 0 / 4 V -20 mA, scalable)
Programmable outputs	2 digital (0 – 24 V), 1 analogue, 2 relay
Protection 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

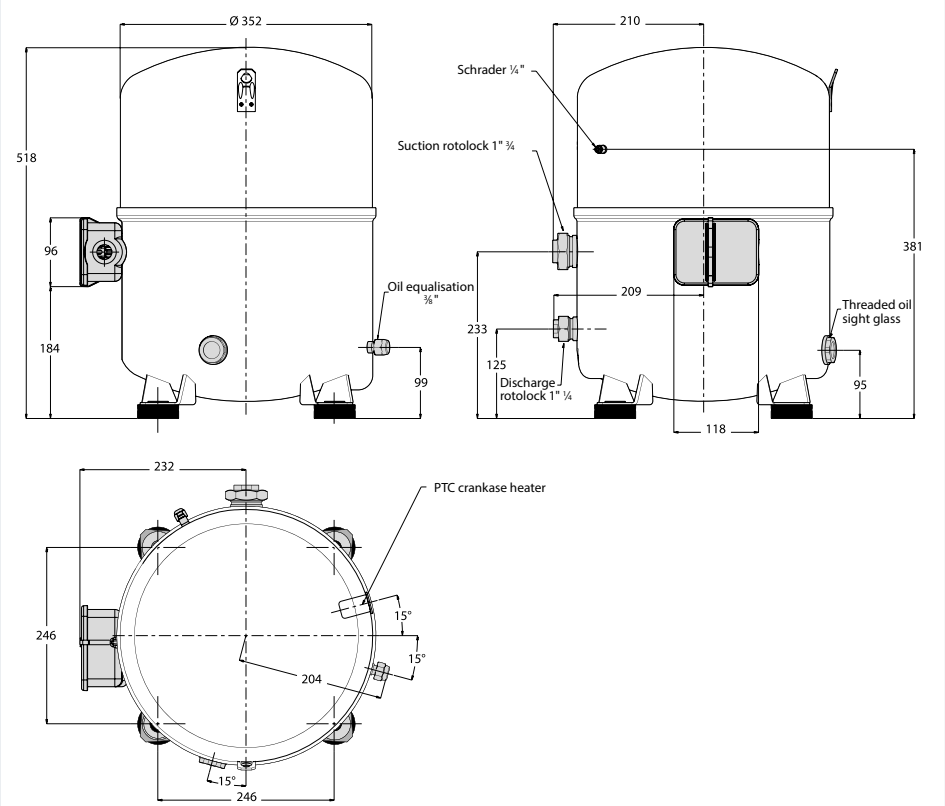


VTZ086 / VTZ121



Dimensions

VTZ171 / VTZ215



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.

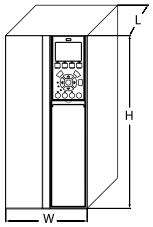
Schrader

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

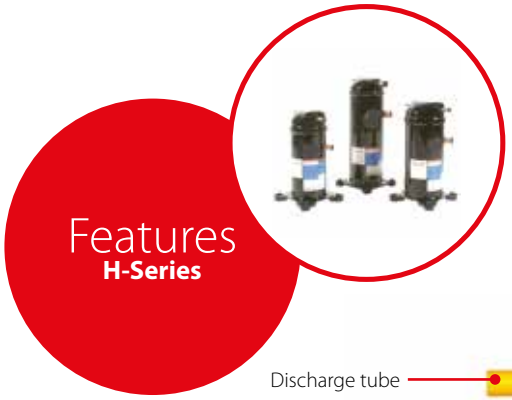
Frequency converter dimensions depend on supply voltage, IP rating and power
The below table gives an overview of the overall dimensions and different drive enclosures (B1 - C3)
Details for each drive enclosure are on the following pages

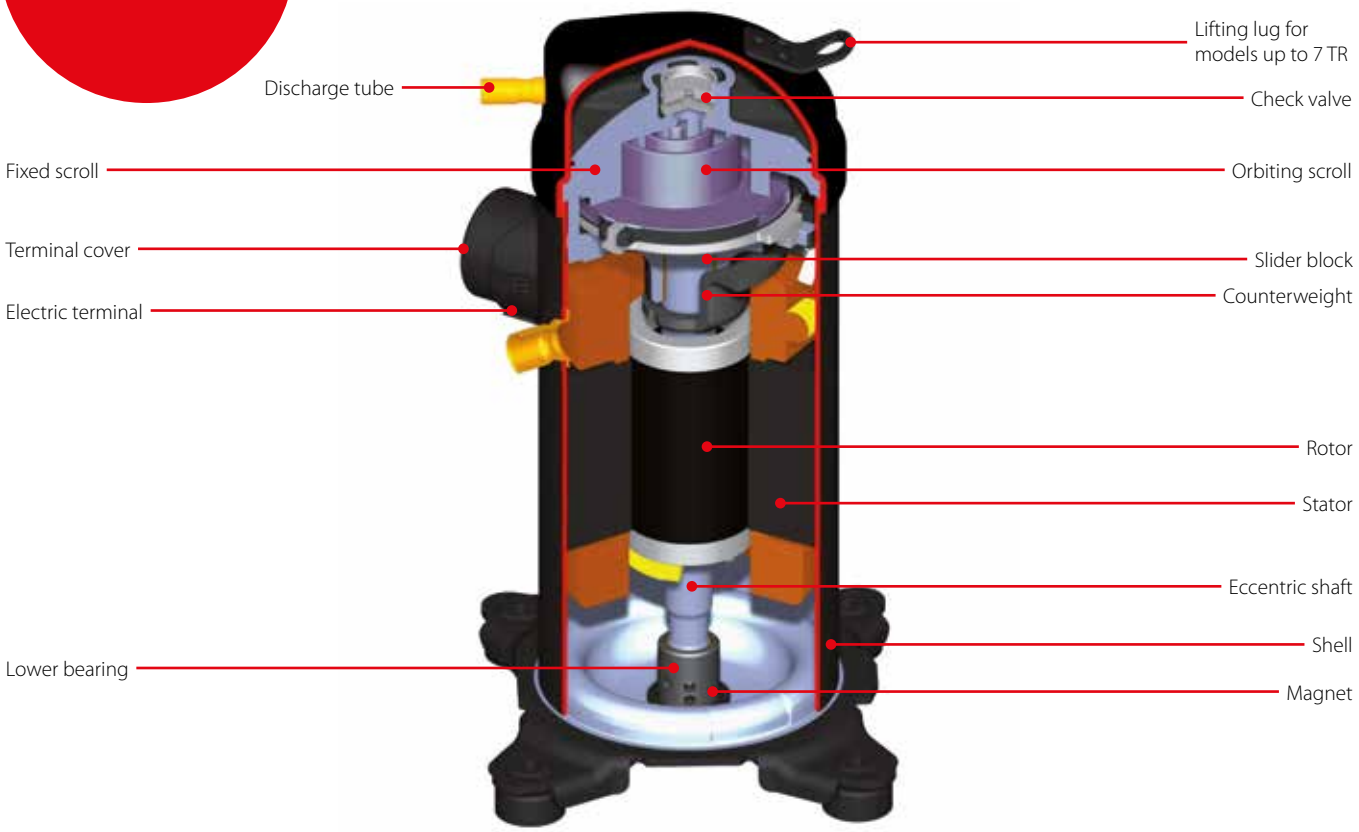
Quick Selection Notes:

H-Series, Scroll Compressors

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, R134a, R410A and R22, 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 compressors - R22 / R407C / R410A - 50 Hz

Technical data

Type		Nominal Cap 60 Hz	Nominal cooling capacity		Power input	A max.	Efficiency		Swept volume	Displacement	Oil charge	Net weight
		[TR]	[W]	[Btu/h]	[kW]	[A]	COP [W]/[W]	EER [Btu/h]/[W]	[cm³/rev]	[m³/h]	[dm³]	[kg]
R22	HRM025T4	2.1	5900	20300	1.86	7	3.20	10.93	33.77	5.88	1.06	31
	HRM032T4	2.7	7800	26800	2.35	9.5	3.34	11.40	43.43	7.56	1.06	31
	HRM032U4	2.7	7800	26800	2.55	9.5	3.08	10.52	43.59	7.58	1.06	31
	HRM034T4	2.8	8200	28000	2.50	9.5	3.28	11.20	46.24	8.05	1.06	31
	HRM034U4	2.8	8300	28500	2.66	9.5	3.14	10.72	46.21	8.04	1.06	31
	HRM038T4	3.2	9200	31500	2.78	10	3.31	11.30	51.67	8.99	1.06	31
	HRM038U4	3.2	9200	31500	2.95	10	3.14	10.72	51.62	8.98	1.06	31
	HRM040T4	3.3	9600	32900	2.88	10	3.34	11.40	54.39	9.46	1.06	31
	HRM040U4	3.3	9700	33100	2.98	10	3.25	11.10	54.4	9.47	1.06	31
	HRM042T4	3.5	10100	34500	3.08	11	3.28	11.20	57.11	9.94	1.06	31
	HRM042U4	3.5	10200	34800	3.13	11	3.25	11.10	57.19	9.95	1.06	31
	HRM045U4	3.8	10900	37300	3.45	12	3.17	10.82	61.45	10.69	1.33	31
	HRM047T4	3.9	11500	39300	3.46	12	3.33	11.37	64.07	11.15	1.33	31
	HRM047U4	3.9	11500	39300	3.57	12	3.22	10.99	64.07	11.15	1.33	31
	HRM048U4	4.0	11500	39300	3.57	12.5	3.22	10.99	64.4	11.21	1.57	37
	HRM051T4	4.3	12400	42300	3.67	13	3.37	11.51	68.83	11.98	1.57	37
	HRM051U4	4.3	12800	43700	3.83	13	3.34	11.40	68.83	11.98	1.57	37
	HRM054T4	4.5	13300	45400	3.84	12.5	3.46	11.81	72.84	12.67	1.57	37
	HRM054U4	4.5	13400	45700	3.97	13	3.37	11.51	72.92	12.69	1.57	37
	HRM058U4	4.8	14300	49000	4.25	15	3.37	11.51	78.17	13.60	1.57	37
	HRM060T4	5.0	14600	49700	4.29	15	3.40	11.61	80.95	14.09	1.57	37
	HRM060U4	5.0	14800	50600	4.40	15	3.37	11.51	80.95	14.09	1.57	37
	HLM068T4	5.7	16900	57600	5.01	15	3.37	11.51	93.08	16.20	1.57	37
	HLM072T4	6.0	17800	60900	5.29	15	3.37	11.51	98.57	17.15	1.57	37
	HLM075T4	6.3	18400	62900	5.37	16	3.43	11.71	102.75	17.88	1.57	37
	HLM078T4	6.5	19400	66400	5.81	16	3.34	11.40	107.48	18.70	1.57	37
	HLM081T4	6.8	20000	68400	5.94	17	3.37	11.51	110.94	19.30	1.57	37
	HCM094T4	7.8	23100	78700	6.80	21	3.39	11.57	126.02	21.93	2.66	44
	HCM109T4	9.1	26700	91100	7.77	24	3.43	11.71	148.79	25.89	2.66	45
	HCM120T4	10.0	29000	99100	8.85	25	3.28	11.20	162.4	28.26	2.66	45
R407C	HRP025T4	2.1	5700	19600	1.86	7	3.08	10.52	33.77	5.88	1.06	31
	HRP034T4	2.8	7900	27100	2.68	9.5	2.96	10.11	46.21	8.04	1.06	31
	HRP038T4	3.2	8800	30200	2.82	11	3.14	10.72	51.62	8.98	1.06	31
	HRP040T4	3.3	9100	31100	3.14	11.5	2.90	9.90	54.4	9.47	1.06	31
	HRP042T4	3.5	9600	32700	3.30	10	2.90	9.90	57.19	9.95	1.06	31
	HRP045T4	3.8	10800	36900	3.58	12	3.02	10.31	61.45	10.69	1.33	31
	HRP047T4	3.9	11100	38000	3.69	12	3.02	10.31	64.07	11.15	1.33	31
	HRP048T4	4.0	11100	37900	3.35	12	3.31	11.30	64.4	11.21	1.57	37
	HRP051T4	4.3	12100	41400	3.83	13	3.17	10.82	68.83	11.98	1.57	37
	HRP054T4	4.5	12600	42900	3.97	12.5	3.17	10.82	72.76	12.66	1.57	37
	HRP058T4	4.8	13500	46000	4.25	14	3.17	10.82	78.17	13.60	1.57	37
	HRP060T4	5.0	13900	47300	4.26	15	3.25	11.10	80.95	14.09	1.57	37
	HLP068T4	5.7	15700	53600	5.10	15	3.08	10.52	93.08	16.20	1.57	37
	HLP072T4	6.0	16600	56700	5.30	15	3.14	10.72	98.65	17.17	1.57	37
	HLP075T4	6.3	18000	61600	5.54	16	3.25	11.10	102.75	17.88	1.57	37
	HLP078T4	6.5	19200	65500	5.83	16	3.29	11.23	107.48	18.70	1.57	37
	HLP081T4	6.8	19500	66500	5.99	17	3.25	11.10	110.94	19.30	1.57	37
	HCP094T4	7.8	21600	73700	6.63	21	3.25	11.10	126.02	21.93	2.66	44
	HCP109T4	9.1	26000	88900	7.93	24	3.28	11.20	148.79	25.89	2.66	45
	HCP120T4	10.0	28100	96100	8.88	25	3.17	10.82	162.4	28.26	2.66	45
R410A	HRH029U4	2.4	7100	24300	2.43	10	2.93	10.00	27.79	4.84	1.06	31
	HRH031U4	2.6	7500	25700	2.68	10	2.81	9.59	29.69	5.17	1.06	31
	HRH032U4	2.7	7700	26200	2.76	10	2.78	9.49	30.64	5.33	1.06	31
	HRH034U4	2.8	8500	29000	2.90	10	2.93	10.00	33.04	5.75	1.06	31
	HRH036U4	3.0	8800	30100	3.13	10	2.81	9.59	34.74	6.04	1.06	31
	HRH038U4	3.2	9300	31600	3.36	12	2.75	9.39	36.54	6.36	1.06	32
	HRH040U4	3.3	10200	34800	3.58	12	2.84	9.70	39.64	6.90	1.33	32
	HRH041U4	3.4	10000	34300	3.43	13	2.93	10.00	39.33	6.84	1.57	37
	HRH044U4	3.7	10800	36900	3.92	13.5	2.75	9.39	42.61	7.41	1.57	37
	HRH047U4	3.9	11300	38700	3.87	13	2.93	10.00	44.43	7.73	1.33	31
	HRH048U4	4.0	11900	40600	4.02	14	2.96	10.11	46.41	8.08	1.33	31
	HRH049U4	4.1	12100	41300	4.05	13.5	2.99	10.21	47.36	8.24	1.57	37
	HRH050U4	4.2	12400	42500	4.20	14	2.96	10.11	48.92	8.51	1.33	31
	HRH051U4	4.3	12900	43900	4.22	13	3.05	10.41	49.32	8.58	1.57	37
	HRH054U4	4.5	13300	45500	4.41	15	3.02	10.31	52.11	9.07	1.57	37
	HRH056U4	4.7	13800	47200	4.58	15	3.02	10.31	54.11	9.42	1.57	37
	HLH061T4	5.1	14800	50700	4.78	15	3.11	10.62	57.78	10.05	1.57	37
	HLH068T4	5.7	16900	57600	5.26	19	3.21	10.96	64.4	11.21	1.57	37
	HLJ072T4	6.0	17800	60900	5.56	19	3.21	10.96	67.97	11.83	1.57	37
	HLJ075T4	6.3	18600	63500	5.77	18	3.22	10.99	70.79	12.32	1.57	37
	HLJ083T4	6.9	20400	69700	6.27	19	3.25	11.10	78.08	13.59	1.57	37
	HCJ090T4	7.5	22300	76200	7.18	19	3.11	10.62	86.85	15.11	2.66	45
	HCJ091T4	7.5	22380	76360	7.03	18.0	3.18	10.87	86.9	15.11	2.46	49
	HCJ105T4	8.8	26000	88700	8.21	25	3.17	10.82	101.6	17.68	2.66	45
	HCJ106T4	8.8	26050	88880	8.07	21.0	3.23	11.01	101.6	17.68	2.46	49
	HCJ120T4	10.0	29600	101100	9.52	27	3.11	10.62	113.07	19.67	2.66	45
	HCJ121T4	10.0	29720	101400	9.22	22.0	3.22	11.0	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 compressors - R22 / R407C / R410A - 60 Hz

Technical data

Type		Nominal Cap. 60 Hz	Nominal cooling capacity		Power input	A max.	Efficiency		Swept volume	Displacement	Oil charge	Net weight
		[TR]	[W]	[Btu/h]	[kW]	[A]	COP [W]/[W]	EER [Btu/h]/[W]	[cm³/rev]	[m³/h]	[dm³]	[kg]
R22	HRM025T4	2.1	7100	24200	2.22	7	3.20	10.93	33.77	7.09	1.06	31
	HRM032T4	2.7	9300	31700	2.78	9.5	3.34	11.40	43.43	9.12	1.06	31
	HRM032U4	2.7	9300	31800	2.94	9.5	3.17	10.82	43.59	9.15	1.06	31
	HRM034T4	2.8	10000	34000	2.98	9.5	3.34	11.40	46.24	9.71	1.06	31
	HRM034U4	2.8	9800	33500	3.07	9.5	3.20	10.93	46.21	9.70	1.06	31
	HRM038T4	3.2	11100	37800	3.25	10	3.40	11.61	51.67	10.85	1.06	31
	HRM038U4	3.2	11100	38000	3.39	10	3.28	11.20	51.62	10.84	1.06	31
	HRM040T4	3.3	11500	39300	3.41	10	3.37	11.51	54.39	11.42	1.06	31
	HRM040U4	3.3	11700	40000	3.57	10	3.28	11.20	54.4	11.42	1.06	31
	HRM042T4	3.5	12200	41500	3.64	11	3.34	11.40	57.11	11.99	1.06	31
	HRM042U4	3.5	12300	42000	3.75	11	3.28	11.20	57.19	12.01	1.06	31
	HRM045U4	3.8	13200	45000	4.01	12	3.28	11.20	61.45	12.90	1.33	31
	HRM047T4	3.9	13900	47500	4.13	12	3.37	11.51	64.07	13.45	1.33	31
	HRM047U4	3.9	13900	47500	4.22	12	3.30	11.27	64.07	13.45	1.33	31
	HRM048U4	4.0	13800	47200	4.25	12.5	3.25	11.10	64.4	13.52	1.57	37
	HRM051T4	4.3	15000	51300	4.46	13	3.37	11.51	68.83	14.45	1.57	37
	HRM051U4	4.3	15000	51300	4.46	13	3.37	11.51	68.83	14.45	1.57	37
	HRM054T4	4.5	15800	54000	4.53	12.5	3.49	11.92	72.84	15.30	1.57	37
	HRM054U4	4.5	15700	53700	4.63	13	3.40	11.61	72.92	15.31	1.57	37
	HRM058U4	4.8	16900	57800	5.02	15	3.37	11.51	78.17	16.42	1.57	37
	HRM060T4	5.0	17500	59700	5.14	15	3.40	11.61	80.95	17.00	1.57	37
	HRM060U4	5.0	17500	59700	5.19	15	3.37	11.51	80.95	17.00	1.57	37
	HLM068T4	5.7	20200	68900	5.94	15	3.40	11.61	93.08	19.55	1.57	37
	HLM072T4	6.0	21300	72800	6.27	15	3.40	11.61	98.57	20.70	1.57	37
	HLM075T4	6.3	22100	75500	6.45	16	3.43	11.71	102.75	21.58	1.57	37
	HLM078T4	6.5	23000	78500	6.70	16	3.43	11.71	107.48	22.57	1.57	37
	HLM081T4	6.8	23900	81500	6.96	17	3.43	11.71	110.94	23.30	1.57	37
	HCM094T4	7.8	27700	94500	8.07	21	3.43	11.71	126.02	26.46	2.66	44
	HCM109T4	9.1	32000	109300	9.33	24	3.43	11.71	148.79	31.25	2.66	45
	HCM120T4	10.0	34900	119300	10.22	25	3.42	11.68	162.4	34.10	2.66	45
R407C	HRP025T4	2.1	6900	23500	2.21	7	3.11	10.62	33.77	7.09	1.06	31
	HRP034T4	2.8	9500	32400	3.24	9.5	2.93	10.00	46.21	9.70	1.06	31
	HRP040T4	3.3	11000	37500	3.70	11.5	2.97	10.14	54.4	11.42	1.06	31
	HRP042T4	3.5	11500	39400	3.90	10	2.96	10.11	57.19	12.01	1.06	31
	HRP047T4	3.9	12700	43300	4.23	12	3.00	10.24	64.07	13.45	1.33	31
	HRP051T4	4.3	14400	49100	4.46	13	3.22	10.99	68.83	14.45	1.57	37
	HRP060T4	5.0	16600	56600	5.33	15	3.11	10.62	80.95	17.00	1.57	37
	HLP072T4	6.0	19900	68100	6.24	15	3.19	10.89	98.65	20.72	1.57	37
	HLP078T4	6.5	23000	78600	6.95	16	3.31	11.30	107.48	22.57	1.57	37
	HLP081T4	6.8	23400	79800	7.14	17	3.27	11.17	110.94	23.30	1.57	37
	HCP094T4	7.8	25900	88400	7.89	21	3.28	11.20	126.02	26.46	2.66	44
	HCP120T4	10.0	33800	115300	10.58	25	3.19	10.89	162.4	34.10	2.66	45
R410A	HRH029U4	2.4	8500	29000	2.84	10	2.99	10.21	27.79	5.84	1.06	31
	HRH031U4	2.6	9100	31000	3.04	10	2.99	10.21	29.69	6.23	1.06	31
	HRH032U4	2.7	9400	32000	3.10	10	3.02	10.31	30.64	6.43	1.06	31
	HRH034U4	2.8	10100	34500	3.38	10	2.99	10.21	33.04	6.94	1.06	31
	HRH036U4	3.0	10400	35400	3.47	10	2.99	10.21	34.74	7.30	1.06	31
	HRH038U4	3.2	11100	37900	3.79	12	2.93	10.00	36.54	7.67	1.06	32
	HRH040U4	3.3	12200	41500	4.03	12	3.02	10.31	39.64	8.32	1.33	32
	HRH041U4	3.4	12100	41300	4.05	13	2.99	10.21	39.33	8.26	1.57	37
	HRH044U4	3.7	13000	44400	4.31	13.5	3.02	10.31	42.61	8.95	1.57	37
	HRH047U4	3.9	13600	46500	4.55	13	2.99	10.21	44.43	9.33	1.33	31
	HRH048U4	4.0	14100	48200	4.68	14	3.02	10.31	46.41	9.75	1.33	31
	HRH049U4	4.1	14300	49000	4.66	13.5	3.08	10.52	47.36	9.95	1.57	37
	HRH050U4	4.2	14800	50500	4.90	14	3.02	10.31	48.92	10.27	1.33	31
	HRH051U4	4.3	15200	51800	4.84	13	3.14	10.72	49.32	10.36	1.57	37
	HRH054U4	4.5	16000	54500	5.14	15	3.11	10.62	52.11	10.94	1.57	37
	HRH056U4	4.7	16700	56900	5.36	15	3.11	10.62	54.11	11.36	1.57	37
	HLH061T4	5.1	18100	61900	5.73	15	3.17	10.82	57.78	12.13	1.57	37
	HLH068T4	5.7	20100	68700	6.30	19	3.20	10.93	64.4	13.52	1.57	37
	HLJ072T4	6.0	21200	72500	6.65	19	3.19	10.89	67.97	14.27	1.57	37
	HLJ075T4	6.3	22300	76200	6.86	18	3.25	11.10	70.79	14.87	1.57	37
	HLJ083T4	6.9	24300	83100	7.55	19	3.22	10.99	78.08	16.40	1.57	37
	HCJ090T4	7.5	26800	91500	8.46	19	3.17	10.82	86.85	18.24	2.66	45
	HCJ091T4	7.5	27140	92600	8.37	17.0	3.24	11.07	86.9	18.24	2.46	49
	HCJ105T4	8.8	31200	106400	9.74	25	3.20	10.93	101.6	21.34	2.66	45
	HCJ106T4	8.8	31670	108050	9.67	20.0	3.28	11.18	101.6	21.34	2.46	49
	HCJ120T4	10.0	35600	121600	11.14	27	3.20	10.93	113.07	23.74	2.66	45
	HCJ121T4	10.0	35940	122620	11.07	21.0	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

R410A - Single pack

Ordering

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
HRH029	U	P	6	120U2277	120U2282	120U2287	–	–	–
HRH031	U	P	6	120U1136	120U1251	120U1191	120U1166	120U1216	–
HRH032	U	P	6	120U1141	120U1256	120U1196	120U1171	120U1221	–
HRH034	U	P	6	120U1146	120U1261	120U2446	120U2650	120U1226	120U2654
HRH036	U	P	6	120U1151	120U1266	120U1201	120U1176	120U1231	–
HRH038	U	P	6	120U1156	120U1271	120U1206	120U1181	120U1236	120U2658
HRH039	U	P	6	120U2466	–	–	–	–	–
HRH040	U	P	6	120U1161	120U1276	120U1211	120U1186	120U1241	–
HRH041	U	P	6	120U1281	120U1451	120U1356	–	120U1406	–
	U	C	6	–	120U2412	–	–	–	–
	U	C	8	–	120U2407	120U2397	–	120U2402	–
HRH044	U	P	6	120U1286	120U1456	120U1361	–	120U1411	–
HRH047	U	P	6	120U2362	–	–	–	–	–
HRH048	U	P	6	120U2582	–	–	–	–	–
HRH049	U	P	6	120U1291	120U1461	120U1366	–	120U1416	–
	U	C	8	–	120U2482	120U2474	–	120U2478	–
HRH050	U	P	6	120U2470	–	–	–	–	–
HRH051	U	P	6	120U1296	120U1466	120U1371	120U1326	120U1421	–
HRH054	U	P	6	120U1301	120U1471	120U1376	120U1331	120U1426	–
HRH056	U	C	6	–	–	120U1386	–	120U2237	–
	U	P	6	120U1306	120U1476	120U1381	120U1336	120U1431	–
HLH061	T	C	6	–	120U2062	120U2052	–	120U2057	120U2450
	T	P	6	120U2042	–	–	120U2047	–	–
	T	C	8	–	120U2494	120U2486	–	120U2490	–
HLH068	T	C	6	–	120U1481	120U1391	–	120U1436	–
	T	P	6	120U1311	–	–	120U1341	–	–
	T	C	8	–	120U2427	120U2417	–	120U2422	–
HLJ072	T	C	6	–	120U1486	120U1396	–	120U2037	–
	T	P	6	120U1316	–	–	120U1346	–	–
	T	C	8	–	120U2177	120U2167	–	120U2498	–
HLJ075	T	C	6	–	120U2272	120U2267	–	120U2262	–
	T	C	8	–	120U2442	120U2432	–	120U2437	–
HLJ083	T	C	6	–	120U1491	120U1401	–	120U1441	120U2387
	T	P	6	120U1321	–	–	120U1351	–	–
	T	C	8	–	120U2182	120U2172	–	120U2502	–
HCJ090	T	C	6	–	120U2307	120U2302	–	120U2312	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	120U2538	–	–	–
HCJ091	T	C	6	–	–	121L3113	–	–	–
	T	C	7	–	–	–	–	–	–
HCJ105	T	C	6	–	120U2327	120U2322	–	120U2332	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	120U2578	–	–	–
HCJ106	T	C	6	–	–	121L3115	–	–	–
	T	C	8	–	–	121L3121	–	–	–
HCJ120	T	C	6	–	120U2347	120U2342	–	120U2352	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	120U2570	120U2562	–	–	–
HCJ121	T	C	6	–	–	121L3117	–	–	–
	T	C	8	–	–	121L3121	–	–	–

Technical data and ordering

R410A - Industrial pack

Ordering

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	120U1213	–
HRH032	U	P	6	120U1138	120U1253	120U1193	120U1168	120U1218	–
HRH034	U	P	6	120U1143	120U1258	120U2443	120U2647	120U1223	120U2651
HRH036	U	P	6	120U1148	120U1263	120U1198	120U1173	120U1228	–
HRH038	U	P	6	120U1153	120U1268	120U1203	120U1178	120U1233	–
HRH039	U	P	6	120U2463	–	–	–	–	–
HRH040	U	P	6	120U1158	120U1273	120U1208	120U1183	120U1238	–
HRH041	U	P	6	120U1278	120U1448	120U1353	–	120U1403	–
	U	C	6	–	120U2409	–	–	–	–
	U	C	8	–	120U2404	120U2394	–	120U2399	–
HRH044	U	P	6	120U1283	120U1453	120U1358	–	120U1408	–
HRH047	U	P	6	120U2359	–	–	–	–	–
HRH048	U	P	6	120U2579	–	–	–	–	–
HRH049	U	P	6	120U1288	120U1458	120U1363	–	120U1413	–
	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	–	120U2259	120U1443
	T	C	8	–	120U2439	120U2429	–	120U2434	–
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	–	–	–
	T	C	7	–	120U2539	120U2531	–	–	–
	T	C	8	–	–	–	–	–	–
HCJ091	T	C	6	–	–	121L3112	–	–	–
	T	C	8	–	–	121L3118	–	–	–
HCJ105	T	C	6	–	120U2324	120U2319	–	120U2329	–
	T	C	7	–	120U2547	120U2571	–	–	–
	T	C	8	–	–	120U2575	–	–	–
HCJ106	T	C	6	–	–	121L3114	–	–	–
	T	C	8	–	–	121L3120	–	–	–
HCJ120	T	C	6	–	120U2344	120U2339	–	120U2349	–
	T	C	7	–	–	120U2555	–	–	–
	T	C	8	–	–	120U2559	–	–	–
HCJ121	T	C	6	–	–	121L3116	–	–	–
	T	C	8	–	–	121L3122	–	–	–

Technical data and ordering

R407C - Single pack

Ordering

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
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	–	–	–
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	120U2192	120U1796	–
HRP054	T	P	6	–	–	120U1691	120U2197	120U1806	–
	T	C	8	–	–	120U2004	–	–	–
HRP058	T	C	8	–	–	120U1706	–	–	–
	T	P	6	–	–	120U1701	120U1596	120U1816	–
HRP060	T	C	8	–	–	120U1731	–	–	–
	T	P	6	–	120U2297	120U1726	120U1606	120U1826	–
HLP068	T	C	6	–	–	120U2014	–	–	–
	T	P	6	–	–	–	120U1621	–	–
HLP072	T	C	6	–	–	120U1756	–	–	–
	T	C	8	–	–	120U2072	–	–	–
	T	P	6	120U1571	–	–	120U1631	–	–
HLP075	T	C	6	–	–	120U1766	–	120U1841	–
	T	P	6	120U1581	–	–	120U1641	–	–
HLP078	T	C	6	–	120U2458	120U2454	–	–	–
HLP081	T	C	6	–	120U1916	120U1781	–	120U1851	–
	T	C	8	–	–	120U1786	–	–	–
	T	P	6	120U1591	–	–	120U1651	–	–
HCP094	T	C	6	–	120U0906	120U0601	–	–	–
	T	C	7	–	–	120U0606	–	–	–
	T	C	8	–	–	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

R407C - Industrial pack

Ordering

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
HRP034	T	P	6	–	–	120U2021	120U2016	–	–
HRP038	T	P	6	–	120U1083	120U1003	120U0958	–	–
HRP040	T	P	6	–	120U1093	120U1013	120U1926	–	–
HRP042	T	P	6	–	120U1103	120U1023	–	–	–
HRP045	T	P	6	–	120U1113	120U1033	–	–	–
HRP047	T	P	6	–	–	120U1043	120U0983	–	–
HRP048	T	C	8	–	–	120U1658	–	–	–
HRP048	T	P	6	–	–	120U1653	–	–	–
HRP051	T	P	6	120U1498	120U1858	120U1678	120U2189	120U1793	–
HRP054	T	P	6	–	–	120U1688	120U2194	120U1803	–
	T	C	8	–	–	120U2001	–	–	–
HRP058	T	C	8	–	–	120U1703	–	–	–
	T	P	6	–	–	120U1698	120U1593	120U1813	–
HRP060	T	C	8	–	–	120U1728	–	–	–
	T	P	6	–	120U2297	120U1723	120U1603	120U1823	–
HLP068	T	C	6	–	–	120U2011	–	–	–
	T	P	6	120U1558	–	–	120U1618	–	–
HLP072	T	C	6	–	–	120U1753	–	–	–
	T	C	8	–	–	120U2074	–	–	–
	T	P	6	120U1568	–	–	120U1628	–	–
HLP075	T	C	6	–	–	120U1763	–	120U1838	–
	T	P	6	120U1578	–	–	120U1638	–	–
HLP078	T	C	6	–	120U2455	120U2451	–	–	–
HLP081	T	C	6	–	120U1913	120U1778	–	120U1848	–
	T	C	8	–	–	120U1783	–	–	–
	T	P	6	120U1588	–	–	120U1648	–	–
HCP094	T	C	6	–	–	120U0598	–	–	–
	T	C	7	–	–	120U0603	–	–	–
	T	C	8	–	–	120U0608	–	–	–
HCP109	T	C	6	–	–	120U0373	–	–	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	120U0383	–	–	–
HCP120	T	C	6	–	–	120U0398	–	–	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	120U0408	–	–	–

Technical data and ordering

R22 - Single pack

Ordering

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
HRM032	U	P	6	120U0921	120U2029	120U0996	–	–	–
	T	P	6	–	–	–	120U0956	–	–
HRM034	U	P	6	120U0926	120U1081	120U1001	–	120U2232	–
	T	P	6	–	–	120U2367	120U2122	–	120U2087
HRM038	U	P	6	120U0931	120U1091	120U1011	120U0966	120U1056	–
	T	P	6	–	–	120U2372	120U2137	–	120U2092
HRM040	U	P	6	120U0936	120U1101	120U1021	120U2147	120U1061	–
	T	P	6	–	–	120U2377	120U2142	–	120U2462
HRM042	U	P	6	120U0941	120U1111	120U1031	120U0971	120U1066	–
	T	P	6	–	–	120U2127	120U2152	–	120U2107
HRM045	U	P	6	120U0946	120U1121	120U1041	120U0981	120U1071	–
HRM047	U	P	6	120U0951	120U1131	120U1051	120U0991	120U1076	–
	T	P	6	–	–	120U2132	120U2162	–	120U2097
HRM048	U	C	8	–	–	120U1671	–	–	–
	U	P	6	120U1496	–	120U1666	–	120U1791	–
HRM051	T	P	6	–	–	120U1676	120U2187	–	120U2382
	U	P	6	120U1506	120U1866	120U1686	120U2252	120U1801	–
HRM054	U	C	6	120U1516	–	–	–	–	–
	U	P	6	120U1511	120U1871	120U1696	120U2257	120U1811	–
	T	P	6	–	–	–	–	–	120U2292
HRM058	T	P	6	120U1521	–	–	–	–	120U2112
	U	C	6	120U1536	–	–	–	–	–
	U	P	6	120U1531	120U1876	120U1711	–	120U1821	–
HRM060	T	P	6	120U1541	–	120U1721	–	–	120U2082
	T	C	6	120U2242	–	–	–	–	–
	U	C	6	120U1551	120U2077	–	–	–	–
	U	C	8	–	–	120U1741	–	–	–
	U	P	6	120U1546	120U1881	120U1736	120U1611	120U1831	–
HLM068	T	C	6	–	120U1891	120U1746	–	120U2598	120U2392
	T	P	6	120U1556	–	–	120U1616	–	–
HLM072	T	C	6	–	120U1896	120U1751	–	120U2602	120U1856
	T	C	8	–	120U2202	120U2067	–	–	–
	T	P	6	120U1566	–	–	120U1626	–	–
HLM075	T	C	6	–	120U1901	120U1761	–	120U1836	–
	T	P	6	120U1576	–	–	120U1636	–	–
HLM078	T	C	6	–	120U1906	120U1771	–	–	–
HLM081	T	C	6	–	120U1911	120U1776	–	120U1846	120U2102
	T	P	6	120U1586	–	–	120U1646	–	–
HCM094	T	C	6	–	120U0891	120U0581	–	120U0711	120U0746
	T	C	7	–	–	120U0586	–	–	–
	T	C	8	–	–	120U0596	–	–	–
HCM109	T	C	6	–	120U2506	120U0366	–	–	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	120U1924	–	–	–
HCM120	T	C	6	–	120U0761	120U0391	–	–	–
	T	C	7	–	–	120U0396	–	–	–
	T	C	8	–	–	120U2207	–	–	–

Technical data and ordering

R22 - Industrial pack

Ordering

Type	Model Variation	Connect.	Features	Code no.					
				1	2	4	5	7	9
HRM032	U	P	6	120U0918	120U2026	120U0993	–	–	–
	T	P	6	–	–	–	120U0953	–	–
HRM034	T	P	6	–	–	120U2364	120U2119	–	120U2084
	U	P	6	120U0923	120U1078	120U0998	–	120U2229	–
HRM038	T	P	6	–	–	120U2369	120U2134	–	120U2089
	U	P	6	120U0928	120U1088	120U1008	120U0963	120U1053	–
HRM040	T	P	6	–	–	120U2374	120U2139	–	120U2459
	U	P	6	120U0933	120U1098	120U1018	120U2144	120U1058	
HRM042	T	P	6	–	–	120U2124	120U2149	–	120U2104
	U	P	6	120U0938	120U1108	120U1028	120U0968	120U1063	–
HRM045	U	P	6	120U0943	120U1118	120U1038	120U0978	120U1068	–
HRM047	T	P	6	–	–	120U2129	120U2159	–	120U2094
	U	P	6	120U0948	120U1128	120U1048	120U0988	120U1073	
HRM048	U	C	8	–	–	120U1668	–	–	–
	U	P	6	120U1493	–	120U1663	–	120U1788	–
HRM051	T	P	6	–	–	120U1673	120U2184	–	120U2379
	U	P	6	120U1503	120U1863	120U1683	120U2249	120U1798	–
HRM054	T	P	6	–	–	–	–	–	120U2289
	U	C	6	120U1513	–	–	–	–	–
	U	P	6	120U1508	120U1868	120U1693	120U2254	120U1808	–
HRM058	T	C	6	120U1523	–	–	–	–	–
	T	P	6	120U1518	–	–	–	–	120U2109
	U	C	6	120U1533	–	–	–	–	–
	U	C	8	–	–	120U1716	–	–	–
	U	P	6	120U1528	120U1873	120U1708	120U1598	120U1818	–
HRM060	T	C	6	120U2239	–	–	–	–	–
	T	P	6	120U1538	–	120U1718	–	–	120U2079
	U	C	6	120U1548	120U2074	–	–	–	–
	U	C	8	–	–	120U1738	–	–	–
	U	P	6	120U1543	120U1878	120U1733	120U1608	120U1828	–
HLM068	T	C	6	–	120U1888	120U1743	–	120U2595	120U2389
	T	P	6	120U1553	–	–	120U1613	–	–
HLM072	T	C	6	–	120U1893	120U1748	–	120U2599	120U1853
	T	C	8	–	120U2199	120U2064	–	–	–
	T	P	6	120U1563	–	–	120U1623	–	–
HLM075	T	C	6	–	120U1898	120U1758	–	120U1833	–
	T	P	6	120U1573	–	–	120U1633	–	–
HLM078	T	C	6	–	120U1903	120U1768	–	–	–
HLM081	T	C	6	–	120U1908	120U1773	–	120U1843	120U2099
	T	C	8	–	–	120U2006	–	–	–
	T	P	6	120U1583	–	–	120U1643	–	–
HCM094	T	C	6	–	120U0888	120U0578	–	–	120U0743
	T	C	7	–	–	120U0583	–	–	–
	T	C	8	–	–	–	–	–	–
HCM109	T	C	6	–	–	120U0363	–	–	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	–	–	–	–
HCM120	T	C	6	–	120U0758	120U0388	–	–	–
	T	C	7	–	–	–	–	–	–
	T	C	8	–	–	–	–	–	–

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*

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*

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*

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
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*

Technical data and ordering

H-Series, Scroll compressors - R22 - 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
HRM025T4	35	–	–	2550	1.33	3100	1.32	3810	1.31	4670	1.30	5660	1.28	6780	1.26	8010	1.22
	55	–	–	–	–	–	–	–	–	3600	1.95	4490	1.91	5450	1.89	6480	1.88
HRM032T4	35	–	–	3280	1.45	4000	1.44	4930	1.45	6040	1.48	7330	1.53	8780	1.57	10350	1.59
	55	–	–	–	–	–	–	–	–	4750	2.27	5940	2.33	7210	2.37	8550	2.38
HRM032U4	35	–	–	3330	1.69	4050	1.67	4980	1.66	6110	1.65	7400	1.63	8870	1.60	10470	1.54
	55	–	–	–	–	–	–	–	–	4760	2.68	5930	2.63	7200	2.60	8560	2.58
HRM034T4	35	2950	1.83	3470	1.80	4220	1.79	5190	1.77	6350	1.76	7700	1.74	9220	1.70	10890	1.65
	55	–	–	–	–	–	–	3870	2.70	4970	2.62	6190	2.57	7530	2.53	8950	2.52
HRM034U4	35	–	–	3530	1.75	4300	1.73	5280	1.72	6470	1.71	7840	1.69	9390	1.65	11090	1.60
	55	–	–	–	–	–	–	–	–	5060	2.80	6300	2.74	7660	2.71	9110	2.69
HRM038T4	35	3340	1.98	3930	1.94	4780	1.92	5880	1.91	7200	1.89	8740	1.87	10460	1.83	12350	1.78
	55	–	–	–	–	–	–	4350	3.02	5590	2.93	6970	2.87	8460	2.83	10070	2.81
HRM038U4	35	–	–	3970	1.93	4830	1.90	5940	1.89	7270	1.88	8820	1.85	10560	1.82	12480	1.76
	55	–	–	–	–	–	–	–	–	5590	3.10	6970	3.04	8470	3.00	10070	2.98
HRM040T4	35	3480	2.12	4100	2.09	4990	2.06	6130	2.05	7510	2.03	9110	2.01	10900	1.97	12880	1.91
	55	–	–	–	–	–	–	4540	3.12	5840	3.02	7280	2.96	8840	2.93	10510	2.91
HRM040U4	35	–	–	4140	1.99	5030	1.97	6190	1.96	7580	1.94	9190	1.92	11000	1.88	13000	1.82
	55	–	–	–	–	–	–	–	–	5880	3.14	7330	3.07	8900	3.04	10590	3.02
HRM042T4	35	3660	2.23	4310	2.19	5240	2.17	6450	2.15	7900	2.13	9580	2.11	11460	2.07	13540	2.01
	55	–	–	–	–	–	–	4760	3.33	6120	3.23	7630	3.16	9270	3.13	11020	3.10
HRM042U4	35	–	–	4340	2.09	5280	2.07	6490	2.05	7950	2.04	9640	2.01	11550	1.97	13640	1.91
	55	–	–	–	–	–	–	–	–	6170	3.29	7690	3.23	9350	3.19	11120	3.17
HRM045U4	35	–	–	4690	2.22	5710	2.19	7020	2.17	8600	2.16	10420	2.13	12480	2.09	14740	2.02
	55	–	–	–	–	–	–	–	–	6620	3.64	8260	3.56	10030	3.52	11920	3.50
HRM047T4	35	4170	2.43	4910	2.38	5970	2.36	7340	2.34	8990	2.32	10900	2.30	13050	2.25	15420	2.18
	55	–	–	–	–	–	–	5430	3.75	6970	3.63	8690	3.56	10560	3.52	12560	3.49
HRM047U4	35	–	–	4910	2.32	5970	2.30	7340	2.28	8990	2.26	10900	2.24	13050	2.19	15420	2.12
	55	–	–	–	–	–	–	–	–	6970	3.75	8690	3.68	10550	3.63	12550	3.61
HRM048U4	35	–	–	4940	2.36	6010	2.36	7390	2.36	9060	2.35	10980	2.33	13150	2.29	15530	2.23
	55	–	–	–	–	–	–	–	–	6970	3.67	8690	3.64	10560	3.62	12550	3.61
HRM051T4	35	4430	2.43	5210	2.35	6340	2.32	7810	2.33	9580	2.38	11620	2.44	13910	2.51	16410	2.56
	55	–	–	–	–	–	–	5820	3.48	7500	3.56	9370	3.64	11380	3.70	13500	3.74
HRM051U4	35	–	–	5310	2.48	6460	2.47	7940	2.47	9730	2.46	11800	2.44	14120	2.40	16680	2.34
	55	–	–	–	–	–	–	–	–	7760	3.95	9670	3.91	11750	3.89	13980	3.88
HRM054T4	35	–	–	5610	2.39	6830	2.37	8410	2.39	10310	2.44	12510	2.51	14970	2.57	17670	2.62
	55	–	–	–	–	–	–	–	–	8060	3.72	10050	3.81	12210	3.87	14500	3.90
HRM054U4	35	–	–	5620	2.60	6840	2.60	8410	2.60	10300	2.59	12490	2.56	14950	2.52	17660	2.46
	55	–	–	–	–	–	–	–	–	8110	4.09	10110	4.05	12290	4.03	14610	4.02
HRM058U4	35	–	–	6030	2.79	7340	2.79	9020	2.79	11050	2.77	13400	2.75	16040	2.71	18940	2.64
	55	–	–	–	–	–	–	–	–	8690	4.38	10830	4.34	13160	4.32	15650	4.31
HRM060T4	35	5210	2.85	6120	2.75	7460	2.72	9190	2.73	11270	2.78	13670	2.85	16360	2.93	19310	3.00
	55	–	–	–	–	–	–	6840	4.07	8830	4.15	11020	4.24	13380	4.31	15880	4.36
HRM060U4	35	–	–	6230	2.88	7580	2.88	9320	2.88	11420	2.87	13850	2.84	16580	2.80	19580	2.73
	55	–	–	–	–	–	–	–	–	8980	4.53	11190	4.49	13600	4.47	16180	4.45
HLM068T4	35	6120	3.36	7200	3.25	8760	3.21	10770	3.22	13200	3.28	16000	3.36	19160	3.45	22630	3.54
	55	–	–	–	–	–	–	7950	4.76	10220	4.85	12740	4.94	15480	5.03	18410	5.09
HLM072T4	35	6420	3.53	7550	3.41	9190	3.36	11310	3.38	13860	3.44	16810	3.53	20130	3.63	23760	3.71
	55	–	–	–	–	–	–	8390	5.02	10810	5.13	13480	5.23	16370	5.32	19450	5.38
HLM075T4	35	6520	3.70	7650	3.70	9310	3.70	11440	3.70	14020	3.68	17000	3.65	20350	3.59	24030	3.51
	55	–	–	–	–	–	–	8700	5.59	11170	5.52	13920	5.48	16920	5.45	20120	5.43
HLM078T4	35	6760	3.61	7940	3.46	9700	3.43	11980	3.48	14720	3.57	17870	3.69	21380	3.78	25180	3.82
	55	–	–	–	–	–	–	9060	5.42	11780	5.62	14740	5.79	17890	5.88	21160	5.87
HLM081T4	35	7370	3.86	8670	3.72	10540	3.67	12940	3.70	15840	3.78	19200	3.89	22990	3.99	27190	4.07
	55	–	–	–	–	–	–	9480	5.60	12140	5.75	15110	5.89	18370	5.99	21880	6.03
HCM094T4	35	8240	4.77	9680	4.78	11780	4.79	14480	4.78	17740	4.76	21510	4.72	25760	4.64	30420	4.54
	55	–	–	–	–	–	–	10880	7.08	13970	6.99	17410	6.93	21160	6.89	25160	6.87
HCM109T4	35	9480	5.94	11140	5.86	13550	5.80	16660	5.76	20410	5.71	24750	5.64	29630	5.54	34990	5.38
	55	–	–	–	–	–	–	12600	8.39	16170	8.15	20160	7.98	24500	7.88	29140	7.83
HCM120T4	35	8980	5.61	11550	5.71	14710	5.78	18410	5.84	22610	5.88	27260	5.93	32320	6.01	37740	6.11
	55	–	–	–	–	–	–	14550	9.27	18150	9.00	22220	8.87	26730	8.90	31630	9.09

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*

Technical data and ordering

H-Series, Scroll compressors - R22 - 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
HRM025T4	35	–	–	3030	1.59	3690	1.58	4530	1.56	5550	1.55	6730	1.53	8060	1.50	9530	1.46
	55	–	–	–	–	–	–	–	–	4290	2.33	5350	2.28	6500	2.25	7730	2.24
HRM032T4	35	–	–	3900	1.78	4750	1.76	5850	1.77	7180	1.80	8710	1.85	10420	1.90	12300	1.94
	55	–	–	–	–	–	–	–	–	5620	2.69	7020	2.75	8530	2.80	10120	2.83
HRM032U4	35	–	–	3930	1.96	4780	1.94	5870	1.93	7200	1.91	8730	1.89	10450	1.85	12340	1.79
	55	–	–	–	–	–	–	–	–	5640	3.09	7040	3.03	8550	2.99	10170	2.97
HRM034T4	35	3570	2.17	4200	2.14	5110	2.12	6280	2.10	7690	2.08	9330	2.06	11170	2.02	13190	1.96
	55	–	–	–	–	–	–	4700	3.22	6030	3.13	7520	3.06	9140	3.02	10870	3.00
HRM034U4	35	–	–	4190	2.05	5100	2.03	6280	2.01	7690	2.00	9320	1.98	11160	1.94	13180	1.87
	55	–	–	–	–	–	–	–	–	5940	3.23	7410	3.16	9000	3.13	10700	3.10
HRM038T4	35	3980	2.36	4680	2.32	5700	2.30	7000	2.28	8580	2.26	10400	2.23	12460	2.19	14710	2.13
	55	–	–	–	–	–	–	5220	3.52	6710	3.42	8360	3.35	10160	3.31	12080	3.28
HRM038U4	35	–	–	4760	2.30	5800	2.27	7120	2.25	8730	2.24	10580	2.21	12670	2.17	14970	2.10
	55	–	–	–	–	–	–	–	–	6740	3.56	8400	3.49	10210	3.45	12140	3.43
HRM040T4	35	4150	2.51	4880	2.47	5940	2.45	7300	2.43	8950	2.41	10850	2.38	12990	2.34	15340	2.27
	55	–	–	–	–	–	–	5430	3.69	6970	3.58	8690	3.51	10560	3.46	12560	3.44
HRM040U4	35	–	–	5010	2.42	6100	2.39	7500	2.37	9190	2.36	11140	2.33	13340	2.28	15760	2.21
	55	–	–	–	–	–	–	–	–	7100	3.75	8850	3.68	10750	3.63	12780	3.61
HRM042T4	35	4370	2.65	5140	2.60	6260	2.58	7690	2.56	9420	2.54	11430	2.51	13680	2.46	16160	2.39
	55	–	–	–	–	–	–	5730	3.93	7360	3.82	9180	3.74	11150	3.69	13270	3.67
HRM042U4	35	–	–	5210	2.54	6340	2.51	7790	2.49	9540	2.47	11570	2.45	13850	2.40	16360	2.32
	55	–	–	–	–	–	–	–	–	7450	3.94	9290	3.86	11290	3.81	13430	3.79
HRM045U4	35	–	–	5610	2.66	6820	2.63	8390	2.61	10280	2.59	12460	2.56	14920	2.51	17620	2.43
	55	–	–	–	–	–	–	–	–	7980	4.22	9950	4.14	12090	4.09	14380	4.06
HRM047T4	35	4970	2.86	5840	2.81	7110	2.78	8730	2.76	10700	2.74	12980	2.71	15540	2.65	18350	2.57
	55	–	–	–	–	–	–	6570	4.47	8430	4.34	10510	4.25	12770	4.20	15190	4.17
HRM047U4	35	–	–	5840	2.77	7110	2.74	8740	2.72	10700	2.70	12980	2.67	15540	2.62	18350	2.53
	55	–	–	–	–	–	–	–	–	8430	4.44	10510	4.35	12770	4.30	15190	4.27
HRM048U4	35	–	–	5870	2.78	7140	2.78	8780	2.78	10760	2.77	13040	2.74	15620	2.70	18450	2.63
	55	–	–	–	–	–	–	–	–	8380	4.38	10440	4.34	12690	4.32	15080	4.30
HRM051T4	35	5340	2.94	6280	2.83	7660	2.80	9430	2.82	11570	2.87	14040	2.95	16800	3.03	19820	3.10
	55	–	–	–	–	–	–	7040	4.22	9100	4.32	11370	4.41	13800	4.49	16370	4.53
HRM051U4	35	–	–	6310	2.93	7680	2.93	9440	2.92	11570	2.91	14030	2.89	16790	2.84	19830	2.77
	55	–	–	–	–	–	–	–	–	9110	4.59	11350	4.55	13790	4.53	16400	4.51
HRM054T4	35	–	–	6660	2.85	8110	2.82	9990	2.84	12250	2.90	14860	2.98	17780	3.06	20990	3.12
	55	–	–	–	–	–	–	–	–	9580	4.39	11960	4.49	14520	4.57	17240	4.60
HRM054U4	35	–	–	6650	3.09	8090	3.09	9950	3.09	12190	3.07	14780	3.04	17690	3.00	20900	2.92
	55	–	–	–	–	–	–	–	–	9530	4.76	11880	4.72	14430	4.70	17160	4.68
HRM058U4	35	–	–	7140	3.32	8690	3.31	10690	3.31	13090	3.30	15880	3.27	19000	3.21	22450	3.13
	55	–	–	–	–	–	–	–	–	10260	5.17	12790	5.13	15540	5.10	18480	5.09
HRM060T4	35	6250	3.42	7350	3.31	8960	3.26	11030	3.28	13530	3.34	16410	3.43	19640	3.52	23180	3.61
	55	–	–	–	–	–	–	8210	4.88	10590	4.98	13220	5.08	16060	5.17	19060	5.23
HRM060U4	35	–	–	7380	3.42	8980	3.42	11040	3.42	13520	3.41	16400	3.37	19630	3.32	23190	3.24
	55	–	–	–	–	–	–	–	–	10600	5.34	13210	5.29	16050	5.27	19080	5.25
HLM068T4	35	7330	3.98	8630	3.85	10500	3.80	12910	3.82	15810	3.88	19170	3.98	22950	4.09	27120	4.20
	55	–	–	–	–	–	–	9520	5.64	12230	5.75	15240	5.86	18520	5.97	22020	6.04
HLM072T4	35	7670	4.17	9020	4.03	10990	3.98	13520	4.00	16570	4.07	20100	4.17	24060	4.29	28400	4.39
	55	–	–	–	–	–	–	10030	5.95	12920	6.07	16110	6.20	19570	6.31	23250	6.38
HLM075T4	35	7820	4.43	9180	4.44	11160	4.44	13730	4.44	16820	4.42	20390	4.38	24410	4.31	28830	4.21
	55	–	–	–	–	–	–	10440	6.72	13410	6.63	16710	6.57	20310	6.54	24160	6.52
HLM078T4	35	8210	4.66	9650	4.66	11740	4.67	14430	4.66	17680	4.64	21440	4.60	25670	4.53	30310	4.42
	55	–	–	–	–	–	–	10850	6.98	13930	6.89	17370	6.83	21110	6.79	25100	6.77
HLM081T4	35	8520	4.83	10020	4.84	12190	4.85	14980	4.84	18350	4.82	22260	4.77	26640	4.70	31460	4.59
	55	–	–	–	–	–	–	11260	7.25	14470	7.15	18030	7.09	21910	7.05	26060	7.03
HCM094T4	35	9880	5.79	11620	5.81	14130	5.82	17380	5.82	21290	5.79	25820	5.73	30900	5.65	36500	5.52
	55	–	–	–	–	–	–	13060	8.39	16770	8.29	20910	8.21	25410	8.17	30220	8.14
HCM109T4	35	11380	6.82	13370	6.85	16260	6.86	19990	6.86	24500	6.82	29710	6.76	35560	6.66	41990	6.51
	55	–	–	–	–	–	–	15110	9.69	19400	9.58	24190	9.50	29390	9.44	34960	9.41
HCM120T4	35	12420	7.47	14600	7.50	17760	7.51	21830	7.51	26740	7.47	32430	7.40	38820	7.29	45850	7.13
	55	–	–	–	–	–	–	16490	10.61	21180	10.49	26400	10.40	32080	10.34	38160	10.30

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*

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

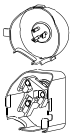
Nominal capacity:
in thousand Btu/h at 60 Hz, ARI conditions

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

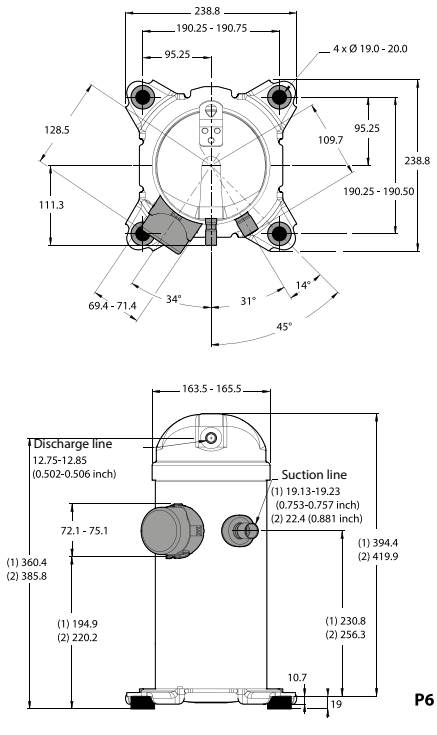
Tubing and electrical connections:
P: brazed connections, spade terminals
C: brazed connections, screw terminals



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

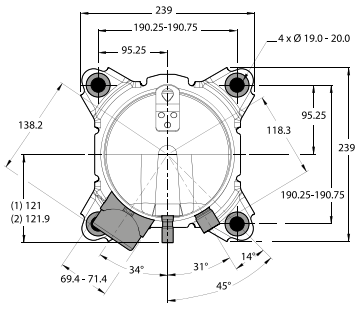


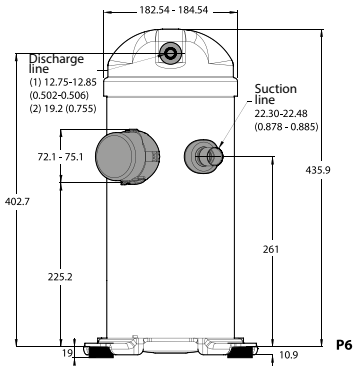
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(2) HRM-045-047 / HRP-045-047 / HRH039-040

All dimensiond in mm

Dimensions

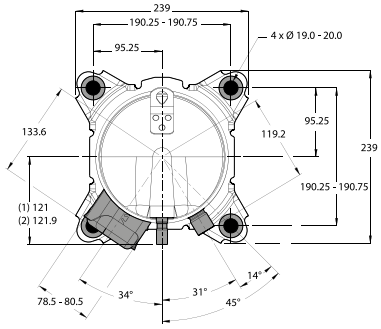
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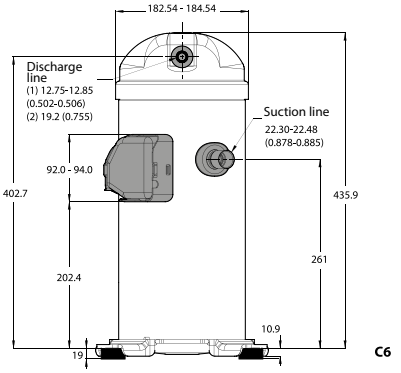




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(2) HLM078-081 / HLP078-081

All dimensiond in mm

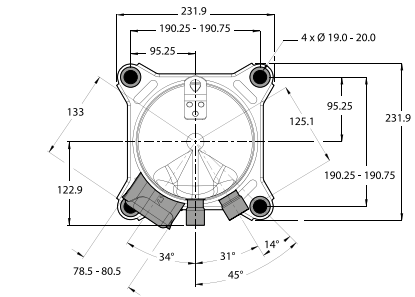


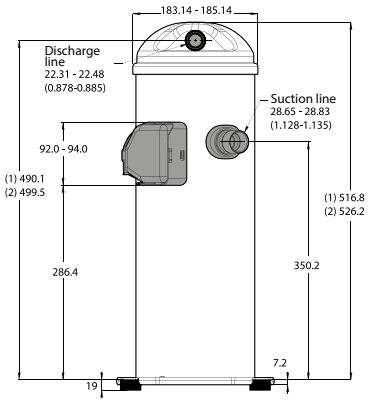


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(2) HLM078-081 / HLP078-081

All dimensiond in mm

HCM / HCP 094-109-120

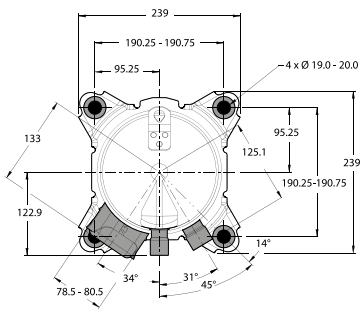


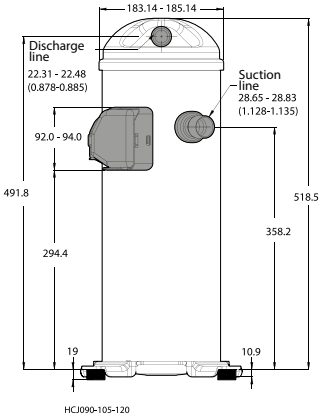


(1) HCM/HCP 094
(2) HCM/HCP 109-120

All dimensiond in mm

HCJ090-105-120

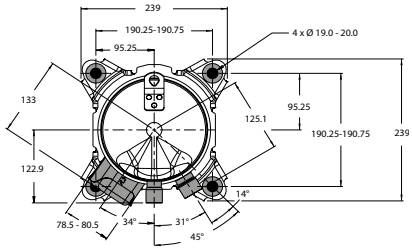


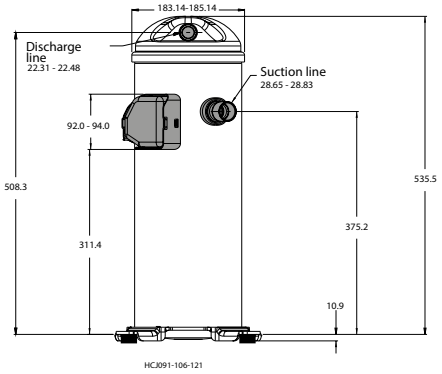


HCJ090-105-120

All dimensiond in mm

HCJ091-106-121





HCJ091-106-121

All dimensiond in mm

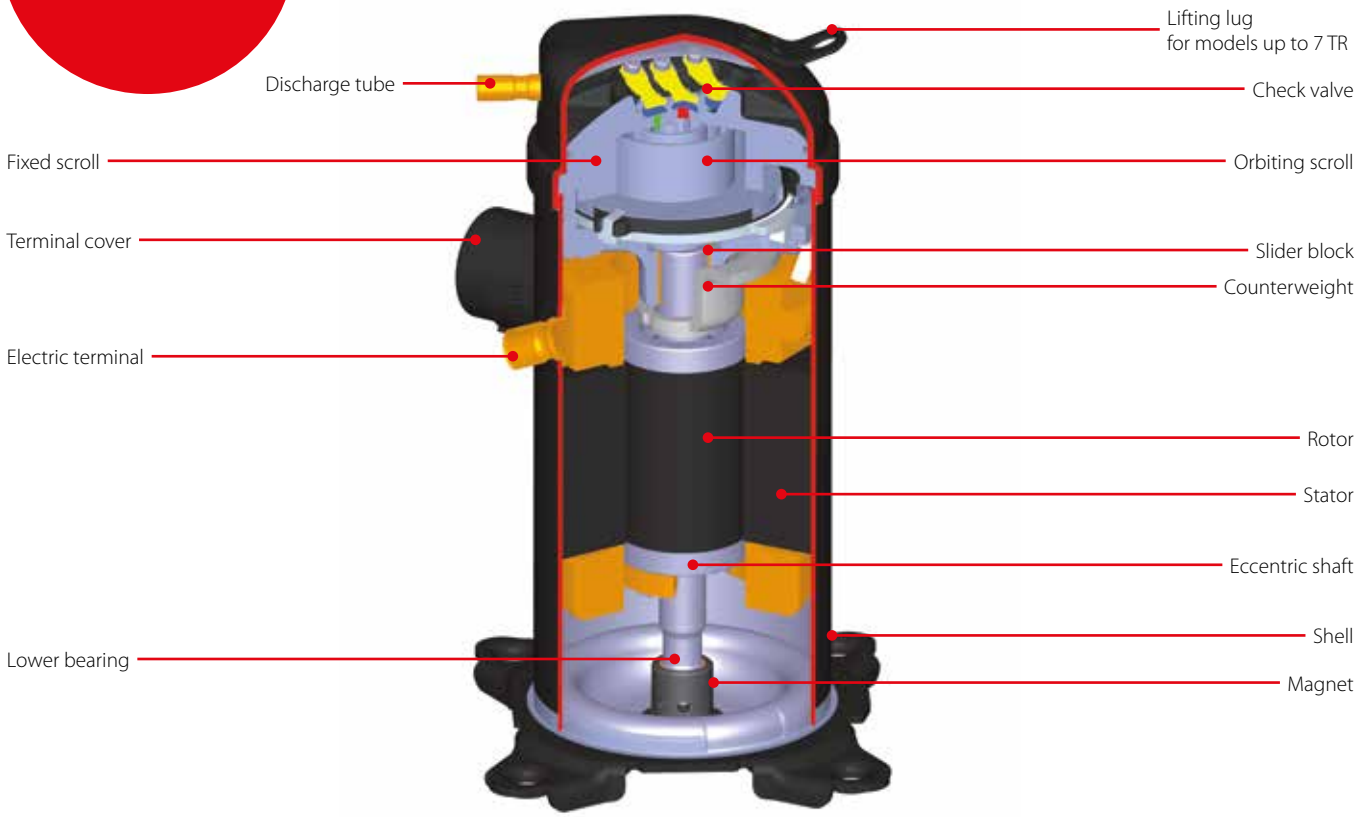
Quick Selection Notes:

HHP - Scrolls heating compressors 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 fl ood 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 compressors 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]	[cm³/rev]	[m³/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 compressors 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 compressors for heating - R407C - 50 Hz

Performance table

Type	To	-25		-20		-15		-10		-5		0		5		10		15	
	Tc	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]*
Tc: *Condensing temperature in [°C]*
H: *Heating capacity in [W]*
Pe. *Power input in [kW]*
Subcooling: *5 K*
Superheat: *5 K*

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

	Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port
6	None	None	None	None	None

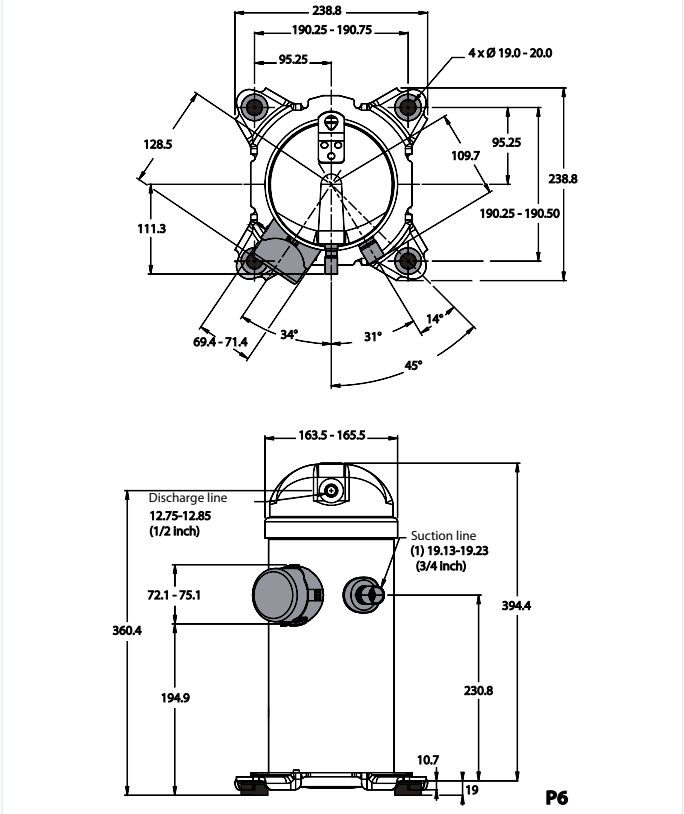
Tubing and electrical connections:
P: brazed connections, spade terminals
C: brazed connections, screw terminals



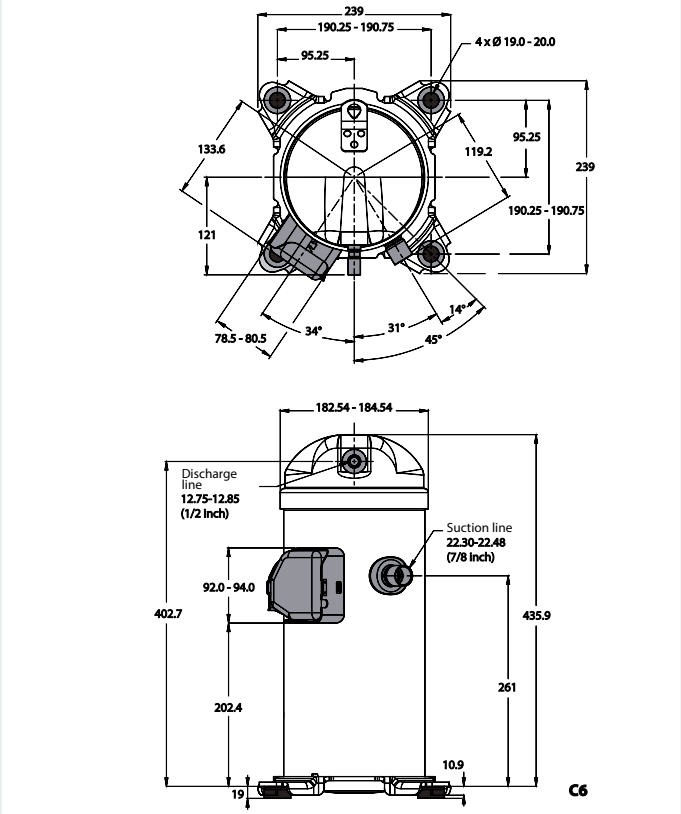
Motor protection:
L: internal motor protection

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 / MLM / LLZ - Scroll compressors for refrigeration

MLZ / MLM and LLZ scroll compressors are dedicated to commercial and light commercial refrigeration applications with refrigerants R134a, R404A / R507A, R22, R407A. Both brazed and rotolock connections are available for most of the compressors.

MLZ: medium-temperature scroll compressors
R404 / R507A, R407A / F, R134a, R22
MLM: medium-temperature scroll compressors (R22).
LLZ: low-temperature scroll available with economizer line (R404A, R507A).



Features
MLZ / MLM / LLZ

High efficiency motor

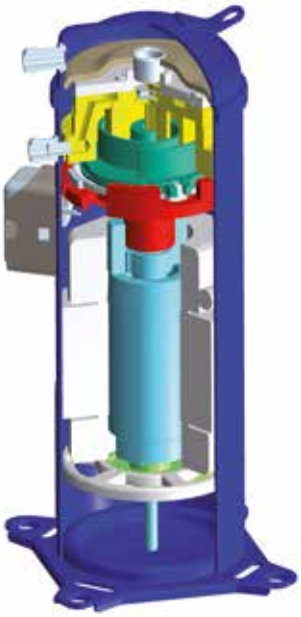
Optimised pressure ration for refrigeration applications

Optimized scroll design

HOOP overload protection
Rotalock or braze connections



MLZ / MLM



LLZ

Optional sound jacket attenuates sound levels

Multi-refrigerant scrolls save on inventory

Suitable for transport of refrigerated goods

Vapor injection available with optional economizer kit increases LLZ efficiency and cooling capacity

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

MLZ / MLM - Scroll compressors - R404A / R407A / R407F / R134a / R22

Ordering - Rotolock version - Single pack

Type	Model	Connections	Features	Voltage code 1	Voltage code 2	Voltage code 4	Voltage code 5	Voltage code 7	Voltage code 9
MLZ015	T	T	9	121U8513	121U8553	121U8529	121U8521	–	121U8545
MLZ019	T	T	9	121U8515	121U8555	121U8531	121U8523	–	121U8547
MLZ021	T	T	9	121U8517	121U8557	121U8533	121U8525	121U8541	121U8549
MLZ026	T	T	9	121U8519	121U8559	121U8535	121U8527	121U8543	121U8551
MLZ030	T	Q	9	121U8561	121U8597	121U8573	121U8567	121U8581	121U8589
MLZ038	T	Q	9	121U8563	121U8599	121U8575	121U8569	121U8583	121U8591
MLZ042	T	Q	9	121U8565	–	–	121U8571	–	–
MLZ045	T	Q	9	–	121U8601	121U8577	–	121U8585	121U8593
MLZ048	T	Q	9	–	121U8603	121U8579	–	121U8587	121U8595
MLZ058	T	Q	9	–	121U8627	121U8609	–	121U8615	121U8621
MLZ066	T	Q	9	–	121U8623	121U8605	–	121U8611	121U8617
MLZ076	T	Q	9	–	121U8625	121U8607	–	121U8613	121U8619

MLZ / MLM - Scroll compressors - R404A / R407A / R407F / R134a / R22

Ordering - Rotolock version - Industrial pack

Type	Model	Connections	Features	Voltage code 1	Voltage code 2	Voltage code 4	Voltage code 5	Voltage code 7	Voltage code 9
MLZ015	T	T	9	121U8512	121U8552	121U8528	121U8520	–	121U8544
MLZ019	T	T	9	121U8514	121U8554	121U8530	121U8522	–	121U8546
MLZ021	T	T	9	121U8516	121U8556	121U8532	121U8524	121U8540	121U8548
MLZ026	T	T	9	121U8518	121U8558	121U8534	121U8526	121U8542	121U8550
MLZ030	T	Q	9	121U8560	121U8596	121U8572	121U8566	121U8580	121U8588
MLZ038	T	Q	9	121U8562	121U8598	121U8574	121U8568	121U8582	121U8590
MLZ042	T	Q	9	121U8564	–	–	121U8570	–	–
MLZ045	T	Q	9	–	121U8600	121U8576	–	121U8584	121U8592
MLZ048	T	Q	9	–	121U8602	121U8578	–	121U8586	121U8594
MLZ058	T	Q	9	–	121U8626	121U8608	–	121U8614	121U8620
MLZ066	T	Q	9	–	121U8622	121U8604	–	121U8610	121U8616
MLZ076	T	Q	9	–	121U8624	121U8606	–	121U8612	121U8618

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

MLZ / MLM - Scroll compressors - R404A / R407A / R407F / R134a / R22

Ordering - Brazed version - Single pack

Type		Model	Connections	Features	Voltage code 1	Voltage code 2	Voltage code 4	Voltage code 5	Voltage code 7	Voltage code 9
Danfoss pallet	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	–	–	–
US pallet	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	–

MLZ / MLM - Scroll compressors - R404A / R407A / R407F / R134a / R22

Ordering - Brazed version - Industrial pack

Type		Model	Connections	Features	Voltage code 1	Voltage code 2	Voltage code 4	Voltage code 5	Voltage code 7	Voltage code 9
Danfoss pallet	MLZ015	T	P	9	–	120U8035	121U8001	121U8023	–	–
	MLZ019	T	P	9	121U8059	121U8037	121U8003	121U8025	–	–
	MLZ021	T	P	9	121U8061	121U8039	121U8005	121U8027	–	–
	MLZ026	T	P	9	121U8063	121U8041	121U8007	121U8029	–	–
	MLZ030	T	C	9	121U8065	121U8043	121U8009	121U8031	–	–
	MLZ038	T	C	9	121U8067	121U8045	121U8011	121U8033	–	–
	MLZ042	T	C	9	–	–	–	121U8418	–	–
	MLZ045	T	C	9	–	121U8047	121U8013	–	–	–
	MLZ048	T	C	9	–	121U8049	121U8015	–	–	–
	MLZ058	T	C	9	–	121U8051	121U8017	–	–	–
	MLZ066	T	C	9	–	121U8053	121U8019	–	–	–
	MLZ076	T	C	9	–	121U8055	121U8021	–	–	–
US pallet	MLZ015	T	P	9	120U8057	120U8035	120U8001	120U8023	–	120U8412
	MLZ019	T	P	9	120U8059	120U8037	120U8003	120U8025	–	120U8265
	MLZ021	T	P	9	120U8061	120U8039	120U8005	120U8027	–	120U8271
	MLZ026	T	P	9	120U8063	120U8041	120U8007	120U8029	–	120U8277
	MLZ030	T	C	9	120U8065	120U8043	120U8009	120U8031	–	120U8283
	MLZ038	T	C	9	120U8067	120U8045	120U8011	120U8033	–	120U8295
	MLZ042	T	C	9	120U8398	–	–	–	–	–
	MLZ045	T	C	9	–	120U8047	120U8013	–	120U8331	120U8301
	MLZ048	T	C	9	–	120U8049	120U8015	–	120U8337	120U8307
	MLZ058	T	C	9	–	120U8051	120U8017	–	120U8343	120U8313
	MLZ066	T	C	9	–	120U8053	120U8019	–	120U8349	–
	MLZ076	T	C	9	–	120U8055	120U8021	–	120U8355	–

Technical data and ordering

MLZ / MLM - Scroll compressors - R404A / R134a / R22 / R407A / R407F - 50 Hz

Technical data

Type		HP	Nominal cooling capacity [1]		Power input [1]	Efficiency [1]		Swept volume	Displacement	Oil charge	Net weight (with oil)
						COP	EER				
			[W]	[Btu/h]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm³/rev]	[m³/h]	[l]	[kg]
R404A [2]	MLZ015	2	3300	11262.79863	1.75	1.89	6.45	33.77	5.88	1.06	30.84
	MLZ019	2.5	4500	15358.36177	2.16	2.06	7.03	43.51	7.57	1.06	30.84
	MLZ021	3	4700	16040.95563	2.27	2.08	7.10	46.21	8.04	1.06	30.84
	MLZ026	3.5	5800	19795.22184	2.90	2	6.83	57.11	9.94	1.06	30.84
	MLZ030	4	7100	24232.08191	3.35	2.11	7.20	68.79	11.97	1.57	37.2
	MLZ038	5	8400	28668.94198	3.86	2.19	7.47	80.95	14.09	1.57	37.2
	MLZ042	5.5	9500	32423.20819	4.72	2.02	6.89	93.09	16.20	1.57	37.2
	MLZ045	6	10200	34812.28669	4.89	2.09	7.13	98.57	17.15	1.57	37.2
	MLZ048	7	11200	38225.25597	5.38	2.09	7.13	107.48	18.70	1.57	37.2
	MLZ058	7.5	13000	44368.60068	6.08	2.13	7.27	125.95	21.92	2.66	44
	MLZ066	9	15100	51535.83618	7.01	2.15	7.34	148.8	25.89	2.66	45.18
	MLZ076	10	17300	59044.3686	7.93	2.18	7.44	162.43	28.26	2.66	45.18
R134a [3]	MLZ015	2	2000	6825.938567	1.02	1.94	6.62	33.77	5.88	1.06	30.84
	MLZ019	2.5	2500	8532.423208	1.28	1.98	6.76	43.51	7.57	1.06	30.84
	MLZ021	3	2700	9215.017065	1.33	2.04	6.96	46.21	8.04	1.06	30.84
	MLZ026	3.5	3300	11262.79863	1.62	2.05	7.00	57.11	9.94	1.06	30.84
	MLZ030	4	4000	13651.87713	1.93	2.09	7.13	68.79	11.97	1.57	37.2
	MLZ038	5	4700	16040.95563	2.34	2.02	6.89	80.95	14.09	1.57	37.2
	MLZ042	5.5	5300	18088.7372	2.74	1.95	6.66	93.09	16.20	1.57	37.2
	MLZ045	6	5800	19795.22184	2.69	2.17	7.41	98.57	17.15	1.57	37.2
	MLZ048	7	6200	21160.40956	2.91	2.13	7.27	107.48	18.70	1.57	37.2
	MLZ058	7.5	7400	25255.9727	3.61	2.05	7.00	125.95	21.92	2.66	44
	MLZ066	9	8600	29351.53584	4.10	2.1	7.17	148.8	25.89	2.66	45.18
	MLZ076	10	9600	32764.50512	4.67	2.05	7.00	162.43	28.26	2.66	45.18
R22	MLZ / MLM015	2	3300	11262.79863	1.53	2.15	7.34	33.77	5.88	1.06	30.84
	MLZ / MLM019	2.5	4300	14675.76792	1.87	2.3	7.85	43.51	7.57	1.06	30.84
	MLZ / MLM021	3	4600	15699.6587	2.02	2.27	7.75	46.21	8.04	1.06	30.84
	MLZ / MLM026	3.5	5700	19453.92491	2.43	2.33	7.95	57.11	9.94	1.06	30.84
	MLZ / MLM030	4	6800	23208.19113	2.93	2.33	7.95	68.79	11.97	1.57	37.2
	MLZ / MLM038	5	8100	27645.05119	3.45	2.34	7.99	80.95	14.09	1.57	37.2
	MLZ / MLM042	5.5	9100	31058.02048	4.23	2.15	7.34	93.09	16.20	1.57	37.2
	MLZ / MLM045	6	9300	31740.61433	4.14	2.24	7.65	98.57	17.15	1.57	37.2
	MLZ / MLM048	7	10600	36177.4744	4.53	2.33	7.95	107.48	18.70	1.57	37.2
	MLZ / MLM058	7.5	12300	41979.52218	5.29	2.33	7.95	125.95	21.92	2.66	44
	MLZ / MLM066	9	14100	48122.86689	5.94	2.38	8.12	148.8	25.89	2.66	45.18
	MLZ / MLM076	10	16600	56655.2901	6.96	2.38	8.12	162.43	28.26	2.66	45.18

[1]) at EN12900 conditions: To: -10 °C; Tc: 45 °C; RGT: 20 °C; SC: 0 K
[2]) R507 performance data are nearly identical to R404A performance data
[3]) R134a at conditions: To: -10 °C; Tc: 45 °C; SH: 10 K; SC: 0 K
Motor voltage code 4: 400 V / 3 ~ / 50 Hz and 460 V / 3 ~ / 60 Hz
MLZ042: motor voltage code 5: 220 – 240 V / 1 ~ / 50 Hz

Technical data and ordering

MLZ / MLM - Scroll compressors - R407A / R407F - 50 Hz

Technical data

Type		HP	Nominal cooling capacity [1]		Power input [1]	Efficiency [1]		Swept volume	Displacement	Oil charge	Net weight (with oil)
						COP	EER				
			[W]	[Btu/h]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm³/rev]	[m³/h]	[l]	[kg]
R407A [2]	MLZ015	2	3100	10580.20478	1.55	2	6.83	33.77	5.88	1.06	30.84
	MLZ019	2.5	4000	13651.87713	2.04	1.96	6.69	43.51	7.57	1.06	30.84
	MLZ021	3	4200	14334.47099	2.21	1.91	6.52	46.21	8.04	1.06	30.84
	MLZ026	3.5	5300	18088.7372	2.71	1.96	6.69	57.11	9.94	1.06	30.84
	MLZ030	4	6500	22184.30034	2.99	2.17	7.41	68.79	11.97	1.57	37.2
	MLZ038	5	7500	25597.26962	3.47	2.16	7.37	80.95	14.09	1.57	37.2
	MLZ042	5.5	8600	29351.53584	4.53	1.9	6.48	93.09	16.20	1.57	37.2
	MLZ045	6	9100	31058.02048	4.55	2.01	6.86	98.57	17.15	1.57	37.2
	MLZ048	7	10000	34129.69283	5.01	2	6.83	107.48	18.70	1.57	37.2
	MLZ058	7.5	11500	39249.14676	5.69	2.02	6.89	125.95	21.92	2.66	44
	MLZ066	9	13400	45733.7884	6.78	1.98	6.76	148.8	25.89	2.66	45.18
	MLZ076	10	14700	50170.64846	7.51	1.96	6.69	162.43	28.26	2.66	45.18
R407F [3]	MLZ015	2	3300	11262.79863	1.66	2	6.83	33.77	5.88	1.06	30.84
	MLZ019	2.5	4300	14675.76792	2.19	1.96	6.69	43.51	7.57	1.06	30.84
	MLZ021	3	4500	15358.36177	2.37	1.91	6.52	46.21	8.04	1.06	30.84
	MLZ026	3.5	5700	19453.92491	2.90	1.96	6.69	57.11	9.94	1.06	30.84
	MLZ030	4	6900	23549.48805	3.20	2.17	7.41	68.79	11.97	1.57	37.2
	MLZ038	5	8000	27303.75427	3.72	2.16	7.37	80.95	14.09	1.57	37.2
	MLZ042	5.5	9200	31399.31741	4.85	1.9	6.48	93.09	16.20	1.57	37.2
	MLZ045	6	9800	33447.09898	4.87	2.01	6.86	98.57	17.15	1.57	37.2
	MLZ048	7	10800	36860.06826	5.37	2.01	6.86	107.48	18.70	1.57	37.2
	MLZ058	7.5	12300	41979.52218	6.09	2.02	6.89	125.95	21.92	2.66	44
	MLZ066	9	14400	49146.75768	7.26	1.99	6.79	148.8	25.89	2.66	45.18
	MLZ076	10	15800	53924.91468	8.04	1.96	6.69	162.43	28.26	2.66	45.18

[1]) at EN12900 conditions: -10 °C, Tc 45 °C, RGT 20 °C, SC 0 K
[2]) R507 performance data are nearly identical to R404A performance data
[3]) R407A, R407F at conditions: -10 °C, Tc 45 °C, SH 10 K, SC 0 K
Motor voltage code 4: 400 V / 3 ~ / 50 Hz and 460 V / 3 ~ / 60 Hz
MLZ / MLM042: motor voltage code 5: 220 – 240 V / 1 ~ / 50 Hz

Technical data and ordering

MLZ / MLM - Scroll compressors - R404A / R134a / R22 - 60 Hz

Technical data

Type		HP	Nominal cooling capacity [1]		Power input [1]	Efficiency [1]		Swept volume	Displacement	Oil charge	Net weight (with oil)
						COP	EER				
			[W]	[Btu/h]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm³/rev]	[m³/h]	[l]	[kg]
R404A [2]	MLZ015	2	4100	13993.17406	2.10	1.94	6.62	33.77	5.88	1.06	30.84
	MLZ019	2.5	5500	18771.33106	2.58	2.11	7.20	43.51	7.57	1.06	30.84
	MLZ021	3	5800	19795.22184	2.74	2.13	7.27	46.21	8.04	1.06	30.84
	MLZ026	3.5	7200	24573.37884	3.44	2.1	7.17	57.11	9.94	1.06	30.84
	MLZ030	4	8500	29010.23891	3.90	2.18	7.44	68.79	11.97	1.57	37.2
	MLZ038	5	10200	34812.28669	4.70	2.18	7.44	80.95	14.09	1.57	37.2
	MLZ042	5.5	11800	40273.03754	5.73	2.07	7.06	93.09	16.20	1.57	37.2
	MLZ045	6	12400	42320.81911	5.64	2.19	7.47	98.57	17.15	1.57	37.2
	MLZ048	7	13500	46075.08532	6.15	2.2	7.51	107.48	18.70	1.57	37.2
	MLZ058	7.5	15700	53583.61775	7.35	2.14	7.30	125.95	21.92	2.66	44
	MLZ066	9	18400	62798.63481	8.40	2.18	7.44	148.8	25.89	2.66	45.18
	MLZ076	10	20900	71331.05802	9.59	2.18	7.44	162.43	28.26	2.66	45.18
R134a [3]	MLZ015	2	2400	8191.12628	1.19	2.04	6.96	33.77	5.88	1.06	30.84
	MLZ019	2.5	3100	10580.20478	1.53	2.03	6.93	43.51	7.57	1.06	30.84
	MLZ021	3	3300	11262.79863	1.58	2.1	7.17	46.21	8.04	1.06	30.84
	MLZ026	3.5	4100	13993.17406	1.91	2.14	7.30	57.11	9.94	1.06	30.84
	MLZ030	4	4900	16723.54949	2.35	2.1	7.17	68.79	11.97	1.57	37.2
	MLZ038	5	5800	19795.22184	2.80	2.08	7.10	80.95	14.09	1.57	37.2
	MLZ042	5.5	6500	22184.30034	3.33	1.94	6.62	93.09	16.20	1.57	37.2
	MLZ045	6	7100	24232.08191	3.32	2.13	7.27	98.57	17.15	1.57	37.2
	MLZ048	7	7600	25938.56655	3.54	2.13	7.27	107.48	18.70	1.57	37.2
	MLZ058	7.5	9100	31058.02048	4.28	2.12	7.24	125.95	21.92	2.66	44
	MLZ066	9	10400	35494.88055	4.85	2.15	7.34	148.8	25.89	2.66	45.18
	MLZ076	10	11700	39931.74061	5.61	2.09	7.13	162.43	28.26	2.66	45.18
R22	MLZ / MLM015	2	3900	13310.5802	1.74	2.26	7.71	33.77	5.88	1.06	30.84
	MLZ / MLM019	2.5	5200	17747.44027	2.22	2.37	8.09	43.51	7.57	1.06	30.84
	MLZ / MLM021	3	5600	19112.62799	2.36	2.36	8.05	46.21	8.04	1.06	30.84
	MLZ / MLM026	3.5	7000	23890.78498	2.93	2.39	8.16	57.11	9.94	1.06	30.84
	MLZ / MLM030	4	8200	27986.34812	3.46	2.36	8.05	68.79	11.97	1.57	37.2
	MLZ / MLM038	5	9600	32764.50512	4.06	2.36	8.05	80.95	14.09	1.57	37.2
	MLZ / MLM042	5.5	10900	37201.36519	5.00	2.18	7.44	93.09	16.20	1.57	37.2
	MLZ / MLM045	6	11700	39931.74061	4.91	2.38	8.12	98.57	17.15	1.57	37.2
	MLZ / MLM048	7	12900	44027.30375	5.36	2.4	8.19	107.48	18.70	1.57	37.2
	MLZ / MLM058	7.5	14900	50853.24232	6.34	2.34	7.99	125.95	21.92	2.66	44
	MLZ / MLM066	9	17000	58020.47782	7.14	2.38	8.12	148.8	25.89	2.66	45.18
	MLZ / MLM076	10	20100	68600.68259	8.40	2.39	8.16	162.43	28.26	2.66	45.18

[1]) at EN12900 conditions: -10 °C, Tc 45 °C, RGT 20 °C, SC 0 K
[2]) R407 performance data are nearly identical to R404A performance data
[3]) R134a at conditions: -10 °C, Tc 45 °C, SH 10 K, SC 0 K
Motor voltage code 4: 400 V / 3 ~ / 50 Hz and 460 V / 3 ~ / 60 Hz
MLZ / MLM042: motor voltage code 1: 208 – 230 V / 1 ~ / 60 Hz

Technical data and ordering

MLZ / MLM - Scroll compressors - R407A / R407F - 60 Hz

Technical data

Type		HP	Nominal cooling capacity [1]		Power input [1]	Efficiency [1]		Swept volume	Displacement	Oil charge	Net weight (with oil)
						COP	EER				
			[W]	[Btu/h]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm³/rev]	[m³/h]	[l]	[kg]
R407A [2]	MLZ015	2	3800	12969.28328	1.85	2.04	6.96	33.77	5.88	1.06	30.84
	MLZ016	2.5	4900	16723.54949	2.40	2.06	7.03	43.51	7.57	1.06	30.84
	MLZ017	3	5300	18088.7372	2.63	2.01	6.86	46.21	8.04	1.06	30.84
	MLZ018	3.5	6400	21843.00341	3.10	2.07	7.06	57.11	9.94	1.06	30.84
	MLZ019	4	7900	26962.45734	3.52	2.25	7.68	68.79	11.97	1.57	37.2
	MLZ020	5	9200	31399.31741	4.10	2.24	7.65	80.95	14.09	1.57	37.2
	MLZ021	6	11200	38225.25597	5.37	2.09	7.13	98.57	17.15	1.57	37.2
	MLZ022	7	12200	41638.22526	6.01	2.03	6.93	107.48	18.70	1.57	37.2
	MLZ023	7.5	14300	48805.46075	6.68	2.14	7.30	125.95	21.92	2.66	44
	MLZ024	9	16700	56996.58703	7.89	2.12	7.24	148.8	25.89	2.66	45.18
	MLZ025	10	18100	61774.74403	8.64	2.09	7.13	162.43	28.26	2.66	45.18
R407F [3]	MLZ015	2	4100	13993.17406	1.98	2.05	7.00	33.77	5.88	1.06	30.84
	MLZ019	2.5	5300	18088.7372	2.57	2.06	7.03	43.51	7.57	1.06	30.84
	MLZ021	3	5700	19453.92491	2.81	2.01	6.86	46.21	8.04	1.06	30.84
	MLZ026	3.5	6900	23549.48805	3.32	2.08	7.10	57.11	9.94	1.06	30.84
	MLZ030	4	8500	29010.23891	3.77	2.26	7.71	68.79	11.97	1.57	37.2
	MLZ038	5	9800	33447.09898	4.38	2.24	7.65	80.95	14.09	1.57	37.2
	MLZ045	6	12000	40955.6314	5.75	2.09	7.13	98.57	17.15	1.57	37.2
	MLZ048	7	13100	44709.89761	6.44	2.04	6.96	107.48	18.70	1.57	37.2
	MLZ058	7.5	15300	52218.43003	7.15	2.14	7.30	125.95	21.92	2.66	44
	MLZ066	9	18000	61433.4471	8.45	2.13	7.27	148.8	25.89	2.66	45.18
	MLZ076	10	19400	66211.6041	9.25	2.09	7.13	162.43	28.26	2.66	45.18

[1]) at EN12900 conditions: -10 °C, Tc 45 °C, RGT 20 °C, SC 0 K
[2]) R507 performance data are nearly identical to R404A performance data
[3]) R407A, R407F at conditions: -10 °C, Tc 45 °C, SH 10 K, SC 0 K
Motor voltage code 4: 400 V / 3 ~ / 50 Hz and 460 V / 3 ~ / 60 Hz
MLZ / MLM042: motor voltage code 5: 220 – 240 V / 1~/ 50 Hz

Technical data and ordering

MLZ / MLM - 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	MLZ / MLM015T4	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
	MLZ / MLM019T4	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
	MLZ / MLM021T4	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
	MLZ / MLM026T4	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
	MLZ / MLM030T4	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
	MLZ / MLM038T4	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
	MLZ / MLM042T5	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
	MLZ / MLM045T4	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
	MLZ / MLM048T4	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
	MLZ / MLM058T4	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
	MLZ / MLM066T4	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
	MLZ / MLM076T4	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	MLZ / MLM015T4	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
	MLZ / MLM019T4	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
	MLZ / MLM021T4	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
	MLZ / MLM026T4	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
	MLZ / MLM030T4	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
	MLZ / MLM038T4	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
	MLZ / MLM042T1	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
	MLZ / MLM045T4	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
	MLZ / MLM048T4	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
	MLZ / MLM058T4	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
	MLZ / MLM066T4	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
	MLZ / MLM076T4	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

Technical data and ordering

MLZ / MLM - Scroll compressors - R404A / R507 - 50 / 60 Hz

Performance table

Type		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
50 Hz	MLZ015T4	30	2300	1.25	2900	1.24	3500	1.22	4300	1.20	5200	1.18	6200	1.16	7400	1.14	8700	1.14
		40	1900	1.63	2400	1.60	3000	1.57	3700	1.54	4400	1.51	5300	1.49	6300	1.47	7400	1.47
		50	–	–	1800	2.10	2400	2.05	2900	2.00	3600	1.95	4300	1.91	5100	1.88	6000	1.86
	MLZ019T4	30	3000	1.51	3800	1.53	4600	1.53	5600	1.53	6700	1.52	8000	1.52	9500	1.53	11200	1.57
		40	2600	1.88	3300	1.92	4000	1.93	4800	1.93	5800	1.91	6900	1.90	8200	1.89	9700	1.89
		50	–	–	2700	2.36	3300	2.40	4000	2.41	4800	2.40	5800	2.38	6800	2.36	8100	2.34
	MLZ021T4	30	3200	1.60	4000	1.60	4900	1.61	5900	1.62	7100	1.63	8500	1.64	10000	1.66	11800	1.68
		40	2800	1.99	3500	2.01	4300	2.02	5100	2.03	6200	2.03	7300	2.03	8700	2.01	10300	2.00
		50	–	–	2900	2.52	3500	2.54	4300	2.55	5100	2.55	6100	2.53	7300	2.49	8600	2.44
	MLZ026T4	30	3900	2.00	4900	2.02	6000	2.03	7300	2.05	8800	2.06	10500	2.06	12500	2.07	14800	2.07
		40	3400	2.55	4200	2.56	5200	2.57	6300	2.58	7600	2.58	9100	2.59	10800	2.58	12800	2.58
		50	–	–	3600	3.26	4400	3.27	5300	3.27	6400	3.26	7600	3.25	9100	3.24	10800	3.23
	MLZ030T4	30	4800	2.33	6000	2.36	7300	2.38	8800	2.39	10600	2.40	12700	2.42	15000	2.43	17700	2.44
		40	4100	2.95	5100	2.97	6300	2.98	7700	2.99	9300	3.00	11100	3.00	13100	3.00	15500	3.00
		50	–	–	4300	3.77	5300	3.77	6400	3.77	7800	3.76	9300	3.75	11100	3.73	13100	3.72
	MLZ038T4	30	5800	2.69	7200	2.69	8700	2.70	10500	2.72	12600	2.76	15000	2.81	17700	2.88	20800	2.97
		40	5000	3.45	6200	3.43	7600	3.42	9200	3.42	11000	3.43	13200	3.46	15600	3.50	18300	3.56
		50	–	–	5100	4.39	6300	4.37	7600	4.35	9200	4.34	11000	4.34	13100	4.35	15400	4.38
	MLZ042T5	30	6300	3.24	7900	3.33	9800	3.42	12000	3.50	14500	3.57	17500	3.60	20900	3.58	24800	3.51
		40	5500	4.12	6900	4.14	8500	4.19	10400	4.24	12500	4.28	15000	4.31	18000	4.32	21500	4.28
		50	–	–	5800	5.32	7100	5.30	8600	5.30	10400	5.31	12600	5.32	15100	5.33	18100	5.31
	MLZ045T4	30	7100	3.46	8700	3.45	10700	3.44	12900	3.44	15500	3.44	18500	3.46	21900	3.49	25700	3.54
		40	6000	4.34	7500	4.35	9200	4.34	11200	4.33	13500	4.33	16100	4.33	19100	4.34	22500	4.36
		50	–	–	6100	5.53	7500	5.54	9200	5.54	11200	5.53	13500	5.53	16000	5.53	19000	5.53
	MLZ048T4	30	7700	3.80	9600	3.78	11700	3.76	14100	3.74	16900	3.72	20100	3.71	23700	3.69	27700	3.67
		40	6500	4.78	8200	4.78	10100	4.79	12300	4.79	14800	4.79	17600	4.79	20800	4.79	24400	4.78
		50	–	–	6600	5.93	8200	5.97	10100	6.01	12300	6.04	14700	6.07	17500	6.10	20600	6.12
	MLZ058T4	30	8700	4.18	10900	4.25	13500	4.33	16400	4.40	19800	4.46	23500	4.53	27800	4.59	32500	4.64
		40	7200	5.29	9300	5.33	11600	5.38	14200	5.43	17200	5.49	20500	5.55	24200	5.60	28400	5.66
		50	–	–	7400	6.81	9400	6.81	11700	6.83	14300	6.85	17100	6.88	20400	6.92	24000	6.96
	MLZ066T4	30	10000	4.92	12600	4.93	15600	4.96	19100	5.02	23100	5.12	27700	5.25	32900	5.43	38900	5.66
		40	8500	6.18	10800	6.18	13400	6.19	16400	6.23	19900	6.30	23900	6.40	28500	6.55	33700	6.73
		50	–	–	8900	7.90	11100	7.90	13600	7.92	16600	7.97	19900	8.05	23800	8.16	28200	8.32
	MLZ076T4	30	12200	5.71	15200	5.71	18500	5.75	22400	5.83	26800	5.94	31900	6.07	37800	6.21	44600	6.34
		40	10600	7.04	13100	7.04	15900	7.08	19100	7.15	22900	7.23	27200	7.33	32300	7.43	38200	7.51
		50	–	–	11000	8.70	13000	8.74	15400	8.80	18300	8.87	21800	8.94	25900	9.00	30800	9.04
60 Hz	MLZ015T4	30	2800	1.50	3500	1.49	4300	1.49	5200	1.48	6200	1.46	7500	1.45	8900	1.42	10500	1.38
		40	2300	1.87	2900	1.87	3600	1.87	4500	1.87	5400	1.86	6400	1.84	7600	1.81	9000	1.78
		50	–	–	2300	2.34	3000	2.35	3700	2.35	4400	2.35	5300	2.33	6300	2.31	7500	2.27
	MLZ019T4	30	3800	1.80	4600	1.82	5700	1.82	6900	1.81	8200	1.81	9700	1.82	11500	1.86	13500	1.94
		40	3200	2.21	4000	2.28	4900	2.31	5900	2.31	7100	2.30	8400	2.29	10000	2.29	11700	2.31
		50	–	–	3300	2.76	4100	2.84	5000	2.87	6000	2.87	7100	2.85	8400	2.83	9900	2.81
	MLZ021T4	30	4000	1.84	4900	1.94	6000	1.97	7300	1.98	8700	1.97	10400	1.96	12200	1.99	14200	2.06
		40	3400	2.29	4300	2.40	5200	2.45	6300	2.46	7600	2.44	9000	2.43	10600	2.44	12400	2.50
		50	–	–	3600	3.01	4400	3.06	5300	3.07	6400	3.05	7600	3.02	9000	3.02	10500	3.04
	MLZ026T4	30	5000	2.30	6100	2.40	7500	2.45	9100	2.47	10900	2.47	12900	2.47	15200	2.47	17800	2.50
		40	4300	2.85	5300	2.98	6500	3.05	7900	3.08	9400	3.09	11200	3.08	13200	3.07	15400	3.08
		50	–	–	4400	3.71	5400	3.80	6600	3.84	7900	3.84	9400	3.82	11100	3.80	13000	3.78
	MLZ030T4	30	5800	2.75	7200	2.77	8800	2.81	10700	2.84	12800	2.86	15200	2.86	17800	2.84	20800	2.78
		40	5100	3.45	6300	3.46	7600	3.47	9300	3.50	11100	3.53	13200	3.54	15500	3.53	18200	3.50
		50	–	–	5200	4.35	6400	4.34	7700	4.35	9300	4.36	11100	4.37	13100	4.37	15400	4.36
	MLZ038T4	30	7000	3.37	8600	3.35	10500	3.36	12700	3.39	15300	3.42	18100	3.42	21400	3.39	25100	3.31
		40	6000	4.20	7500	4.18	9200	4.19	11100	4.22	13300	4.24	15800	4.25	18600	4.23	21800	4.15
		50	–	–	6200	5.19	7700	5.20	9300	5.23	11200	5.26	13300	5.27	15600	5.25	18300	5.18
	MLZ045T4	30	8500	3.95	10500	4.01	12800	4.04	15500	4.05	18600	4.06	22000	4.06	26000	4.08	30400	4.11
		40	7400	4.93	9100	5.00	11100	5.03	13400	5.05	16100	5.05	19100	5.05	22600	5.06	26400	5.08
		50	–	–	7600	6.27	9300	6.30	11300	6.32	13500	6.31	16100	6.31	19000	6.31	22300	6.32
	MLZ048T4	30	9300	4.31	11400	4.35	14000	4.40	16900	4.44	20300	4.48	24100	4.48	28400	4.43	33100	4.32
		40	8100	5.41	9900	5.43	12100	5.48	14700	5.53	17600	5.56	21000	5.58	24700	5.55	28800	5.46
		50	–	–	8300	6.77	10100	6.80	12300	6.84	14800	6.88	17600	6.89	20800	6.87	24300	6.80
	MLZ058T4	30	10800	5.22	13600	5.29	16800	5.39	20500	5.51	24800	5.63	29600	5.72	35000	5.78	40900	5.78
		40	9000	6.57	11400	6.54	14200	6.57	17400	6.64	21100	6.75	25300	6.86	29900	6.95	35100	7.01
		50	–	–	8900	8.27	11200	8.19	13900	8.17	17000	8.21	20400	8.29	24300	8.38	28500	8.46
	MLZ066T4	30	12600	5.95	15500	6.05	18900	6.19	22900	6.35	27600	6.52	32800	6.68	38800	6.82	45500	6.93
		40	10900	7.32	13500	7.39	16500	7.50	19900	7.64	23900	7.79	28500	7.94	33600	8.07	39300	8.17
		50	–	–	11200	9.07	13800	9.15	16700	9.25	20100	9.37	23800	9.50	28100	9.61	32900	9.69
	MLZ076T4	30	14600	6.72	17900	6.93	21800	7.09	26400	7.22	31700	7.37	37800	7.57	44800	7.86	52900	8.27
		40	12600	8.21	15500	8.43	18900	8.59	22800	8.70	27300	8.83	32500	8.99	38500	9.23	45300	9.59
		50	–	–	12900	10.35	15700	10.50	18900	10.60	22600	10.69	26800	10.82	31700	11.01	37300	11.30

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

Technical data and ordering

MLZ / MLM - Scroll compressors - R407A - 50 / 60 Hz

Performance table

Type		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
50 Hz	MLZ015T4	30	2400	1.09	3100	1.11	3800	1.13	4700	1.14	5800	1.14	7000	1.12	8400	1.10	8400	1.1
		40	–	–	2700	1.37	3400	1.39	4200	1.41	5100	1.42	6300	1.43	7600	1.42	7600	1.42
		50	–	–	–	–	2800	1.73	3500	1.76	4400	1.78	5400	1.80	6600	1.81	6600	1.81
	MLZ019T4	30	3200	1.44	4000	1.47	5000	1.49	6100	1.50	7500	1.50	9100	1.48	10900	1.44	10900	1.44
		40	–	–	3400	1.80	4300	1.83	5400	1.86	6600	1.88	8100	1.88	9800	1.87	9800	1.87
		50	–	–	–	–	3700	2.28	4600	2.32	5700	2.35	7000	2.37	8500	2.38	8500	2.38
	MLZ021T4	30	3200	1.52	4100	1.56	5100	1.59	6300	1.61	7700	1.63	9400	1.64	11200	1.65	11200	1.65
		40	–	–	3600	1.93	4500	1.96	5600	1.99	6900	2.02	8400	2.04	10100	2.05	10100	2.05
		50	–	–	–	–	3900	2.50	4900	2.53	6000	2.56	7300	2.58	8800	2.61	8800	2.61
	MLZ026T4	30	4100	1.87	5200	1.91	6500	1.94	8000	1.97	9700	2.00	11800	2.01	14100	2.02	14100	2.02
		40	–	–	4500	2.37	5700	2.41	7100	2.44	8700	2.47	10500	2.50	12700	2.51	12700	2.51
		50	–	–	–	–	4900	3.06	6100	3.10	7500	3.14	9200	3.17	11100	3.19	11100	3.19
	MLZ030T4	30	5000	2.07	6300	2.12	7800	2.15	9700	2.16	11800	2.18	14400	2.20	17300	2.24	17300	2.24
		40	–	–	5600	2.63	6900	2.68	8500	2.71	10400	2.72	12700	2.72	15300	2.73	15300	2.73
		50	–	–	–	–	6000	3.32	7400	3.37	9000	3.40	11000	3.40	13300	3.39	13300	3.39
	MLZ038T4	30	5800	2.41	7300	2.47	9100	2.50	11200	2.52	13700	2.54	16600	2.56	20000	2.61	20000	2.61
		40	–	–	6500	3.06	8000	3.12	9900	3.15	12100	3.16	14700	3.17	17700	3.17	17700	3.17
		50	–	–	–	–	7000	3.86	8600	3.92	10500	3.95	12700	3.96	15400	3.95	15400	3.95
	MLZ042T5	30	6700	3.19	8400	3.22	10500	3.24	13000	3.26	15900	3.29	19300	3.37	23200	3.49	23200	3.49
		40	–	–	7400	4.00	9200	4.03	11500	4.04	14100	4.05	17100	4.08	20700	4.13	20700	4.13
		50	–	–	–	–	7900	5.09	9900	5.12	12200	5.13	14900	5.13	18000	5.13	18000	5.13
	MLZ045T4	30	7200	3.19	9200	3.24	11500	3.28	14200	3.31	17400	3.31	21100	3.28	25300	3.21	25300	3.21
		40	–	–	7800	4.04	10000	4.06	12400	4.09	15300	4.12	18600	4.12	22500	4.11	22500	4.11
		50	–	–	–	–	8300	5.11	10500	5.11	13100	5.12	16000	5.13	19500	5.13	19500	5.13
	MLZ048T4	30	7900	3.52	10100	3.57	12600	3.61	15600	3.64	19100	3.65	23200	3.62	27800	3.54	27800	3.54
		40	–	–	8600	4.45	10900	4.48	13600	4.51	16800	4.54	20500	4.55	24700	4.53	24700	4.53
		50	–	–	–	–	9100	5.63	11500	5.63	14400	5.64	17600	5.65	21400	5.66	21400	5.66
	MLZ058T4	30	9000	3.90	11400	3.98	14200	4.07	17400	4.15	21300	4.19	25700	4.16	30800	4.04	30800	4.04
		40	–	–	9900	5.00	12400	5.05	15300	5.13	18800	5.21	22700	5.25	27300	5.24	27300	5.24
		50	–	–	–	–	10600	6.44	13100	6.46	16100	6.51	19600	6.57	23600	6.61	23600	6.61
	MLZ066T4	30	10500	4.65	13300	4.75	16600	4.85	20400	4.95	24900	4.99	30000	4.96	36000	4.81	36000	4.81
		40	–	–	11600	5.96	14500	6.03	17900	6.12	21900	6.21	26600	6.26	31900	6.25	31900	6.25
		50	–	–	–	–	12300	7.68	15400	7.70	18900	7.77	22900	7.84	27600	7.88	27600	7.88
	MLZ076T4	30	11500	5.30	14800	5.32	18600	5.37	23000	5.44	28200	5.54	34200	5.66	41100	5.82	41100	5.82
		40	–	–	12600	6.67	16000	6.68	20100	6.72	24800	6.78	30200	6.87	36400	6.99	36400	6.99
		50	–	–	–	–	13400	8.48	16900	8.47	21100	8.49	25900	8.54	31500	8.62	31500	8.62
60 Hz	MLZ015T4	30	2900	1.31	3700	1.32	4700	1.33	5800	1.33	7100	1.34	8600	1.35	10300	1.38	8400	1.38
		40	–	–	3200	1.64	4100	1.66	5100	1.67	6300	1.67	7600	1.68	9200	1.69	7600	1.69
		50	–	–	–	–	3500	2.07	4400	2.09	5400	2.11	6600	2.12	8000	2.12	6600	2.12
	MLZ019T4	30	3700	1.70	4800	1.71	6100	1.72	7500	1.72	9200	1.73	11200	1.75	13400	1.78	10900	1.78
		40	–	–	4200	2.12	5300	2.15	6600	2.16	8200	2.16	9900	2.17	12000	2.18	9800	2.18
		50	–	–	–	–	4500	2.67	5700	2.71	7100	2.73	8600	2.74	10400	2.75	8500	2.75
	MLZ021T4	30	4100	1.83	5200	1.85	6400	1.89	7900	1.92	9700	1.95	11700	1.97	14000	1.99	11200	1.99
		40	–	–	4500	2.31	5700	2.33	7000	2.37	8600	2.40	10400	2.44	12500	2.47	10100	2.47
		50	–	–	–	–	4900	2.98	6100	3.01	7500	3.04	9100	3.08	10900	3.12	8800	3.12
	MLZ026T4	30	5000	2.15	6300	2.19	7800	2.22	9600	2.26	11800	2.30	14200	2.33	17000	2.35	14100	2.35
		40	–	–	5500	2.72	6900	2.75	8500	2.79	10500	2.83	12700	2.87	15200	2.91	12700	2.91
		50	–	–	–	–	5900	3.52	7400	3.55	9100	3.59	11000	3.64	13300	3.68	11100	3.68
	MLZ030T4	30	6200	2.46	7700	2.51	9600	2.53	11800	2.56	14500	2.60	17700	2.68	21300	2.81	17300	2.81
		40	–	–	6900	3.10	8500	3.16	10500	3.19	12800	3.22	15600	3.26	18900	3.32	15300	3.32
		50	–	–	–	–	7400	3.90	9100	3.98	11100	4.02	13600	4.05	16500	4.08	13300	4.08
	MLZ038T4	30	7200	2.86	8900	2.92	11100	2.95	13700	2.98	16800	3.02	20400	3.12	24700	3.28	20000	3.28
		40	–	–	7900	3.61	9800	3.68	12100	3.72	14800	3.75	18100	3.79	21900	3.87	17700	3.87
		50	–	–	–	–	8600	4.54	10500	4.63	12900	4.68	15700	4.71	19100	4.75	15400	4.75
	MLZ045T1	30	8800	3.77	11200	3.84	14000	3.88	17300	3.90	21200	3.88	25700	3.80	30900	3.66	25300	3.66
		40	–	–	9600	4.76	12100	4.80	15100	4.83	18600	4.82	22600	4.78	27200	4.69	22500	4.69
		50	–	–	–	–	10200	6.01	12900	6.01	15900	6.00	19500	5.96	23500	5.89	19500	5.89
	MLZ048T4	30	9600	4.22	12200	4.30	15300	4.35	18900	4.37	23100	4.34	28000	4.26	33700	4.10	27800	4.1
		40	–	–	10500	5.34	13200	5.38	16500	5.41	20300	5.40	24700	5.36	29700	5.25	24700	5.25
		50	–	–	–	–	11200	6.73	14000	6.73	17400	6.72	21200	6.68	25700	6.60	21400	6.6
	MLZ058T4	30	11200	4.64	14100	4.68	17600	4.76	21600	4.85	26300	4.97	–	5.09	38100	5.22	30800	5.22
		40	–	–	12300	5.90	15400	5.94	19000	6.01	23300	6.11	28100	6.23	33800	6.36	27300	6.36
		50	–	–	–	–	13100	7.54	16300	7.57	20000	7.64	24300	7.74	29300	7.86	23600	7.86
	MLZ066T4	30	13100	5.48	16500	5.53	20600	5.62	25300	5.73	30900	5.87	37300	6.01	44600	6.16	36000	6.16
		40	–	–	14400	6.97	18100	7.02	22300	7.10	27300	7.22	33000	7.36	39600	7.52	31900	7.52
		50	–	–	–	–	15400	8.91	19100	8.95	23500	9.03	28500	9.14	34300	9.29	27600	9.29
	MLZ076T4	30	14100	6.09	17900	6.16	22400	6.25	27700	6.33	33800	6.36	40900	6.32	49100	6.15	41100	6.15
		40	–	–	15500	7.68	19500	7.72	24200	7.81	29700	7.89	36000	7.95	43300	7.94	36400	7.94
		50	–	–	–	–	16600	9.71	20700	9.72	25500	9.78	31000	9.86	37400	9.93	31500	9.93

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

Technical data and ordering

MLZ / MLM - Scroll compressors - R407F - 50 / 60 Hz

Performance table

Type		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
50 Hz	MLZ015T4	30	2600	1.17	3300	1.19	4100	1.19	5000	1.20	6200	1.21	7500	1.21	9000	1.21	9000	1,21
		40	–	–	–	–	3600	1.48	4500	1.50	5500	1.51	6700	1.51	8100	1.52	8100	1,52
		50	–	–	–	–	–	–	3800	1.88	4700	1.90	5800	1.91	7100	1.92	7100	1,92
	MLZ019T4	30	3400	1.54	4200	1.56	5300	1.58	6500	1.58	8000	1.59	9600	1.60	11600	1.60	11600	1,6
		40	–	–	–	–	4600	1.96	5800	1.98	7100	1.99	8700	2.00	10500	2.00	10500	2
		50	–	–	–	–	–	–	4900	2.48	6100	2.50	7500	2.52	9200	2.53	9200	2,53
	MLZ021T4	30	3500	1.63	4400	1.66	5500	1.67	6700	1.69	8200	1.72	9900	1.77	11900	1.83	11900	1,83
		40	–	–	–	–	4900	2.09	6000	2.11	7400	2.13	8900	2.16	10700	2.20	10700	2,2
		50	–	–	–	–	–	–	5200	2.71	6400	2.72	7800	2.74	9500	2.77	9500	2,77
	MLZ026T4	30	4300	2.00	5500	2.03	6900	2.05	8500	2.07	10300	2.11	12500	2.16	15000	2.25	15000	2,25
		40	–	–	–	–	6100	2.57	7600	2.59	9300	2.61	11200	2.65	13500	2.70	13500	2,7
		50	–	–	–	–	–	–	6600	3.31	8100	3.34	9900	3.36	11900	3.39	11900	3,39
	MLZ030T4	30	5300	2.21	6700	2.26	8300	2.28	10200	2.29	12500	2.31	15200	2.34	18300	2.40	18300	2,4
		40	–	–	–	–	7400	2.86	9100	2.88	11100	2.89	13500	2.90	16300	2.91	16300	2,91
		50	–	–	–	–	–	–	8000	3.61	9700	3.63	11800	3.63	14300	3.63	14300	3,63
	MLZ038T4	30	6200	2.57	7700	2.62	9600	2.65	11900	2.67	14500	2.68	17600	2.72	21100	2.79	21100	2,79
		40	–	–	–	–	8600	3.33	10500	3.35	12900	3.36	15600	3.37	18900	3.39	18900	3,39
		50	–	–	–	–	–	–	9200	4.20	11300	4.23	13700	4.23	16500	4.22	16500	4,22
	MLZ042T5	30	7100	3.40	8900	3.43	11200	3.45	13800	3.46	16800	3.49	20400	3.55	24500	3.64	24500	3,64
		40	–	–	–	–	9900	4.31	12200	4.32	15000	4.33	18200	4.34	22000	4.38	22000	4,38
		50	–	–	–	–	–	–	10600	5.49	13100	5.50	16000	5.49	19300	5.49	19300	5,49
	MLZ045T4	30	7700	3.39	9700	3.44	12200	3.49	15100	3.52	18400	3.51	22300	3.45	26700	3.30	26700	3,3
		40	–	–	–	–	10600	4.34	13200	4.38	16300	4.40	19800	4.39	23900	4.34	23900	4,34
		50	–	–	–	–	–	–	11300	5.48	14000	5.49	17200	5.50	20900	5.49	20900	5,49
	MLZ048T4	30	8400	3.74	10700	3.80	13400	3.85	16600	3.88	20200	3.87	24500	3.80	29400	3.64	29400	3,64
		40	–	–	–	–	11700	4.79	14600	4.83	17900	4.85	21800	4.85	26300	4.79	26300	4,79
		50	–	–	–	–	–	–	12400	6.04	15400	6.05	18900	6.07	23000	6.05	23000	6,05
	MLZ058T4	30	9500	4.15	12100	4.23	15000	4.32	18400	4.39	22500	4.43	27100	4.40	32400	4.27	32400	4,27
		40	–	–	–	–	13200	5.40	16400	5.47	20000	5.54	24200	5.59	29000	5.57	29000	5,57
		50	–	–	–	–	–	–	14100	6.93	17300	6.98	21000	7.03	25300	7.06	25300	7,06
	MLZ066T4	30	11200	4.94	14100	5.04	17500	5.15	21600	5.24	26300	5.28	31700	5.24	38000	5.09	38000	5,09
		40	–	–	–	–	15500	6.43	19100	6.52	23400	6.61	28300	6.66	33900	6.64	33900	6,64
		50	–	–	–	–	–	–	16500	8.26	20300	8.31	24600	8.38	29600	8.42	29600	8,42
	MLZ076T4	30	12300	5.70	15700	5.74	19700	5.77	24400	5.83	29800	5.92	36100	6.06	43300	6.27	43300	6,27
		40	–	–	–	–	17100	7.15	21400	7.17	26400	7.22	32100	7.32	38700	7.49	38700	7,49
		50	–	–	–	–	–	–	18200	9.07	22700	9.07	27800	9.11	33800	9.21	33800	9,21
60 Hz	MLZ015T4	30	3100	1.40	3900	1.41	4900	1.41	6100	1.41	7500	1.42	9100	1.44	10900	1.50	9000	1,5
		40	–	–	–	–	4400	1.77	5400	1.78	6700	1.77	8100	1.78	9800	1.80	8100	1,8
		50	–	–	–	–	–	–	4700	2.24	5800	2.25	7100	2.25	8600	2.26	7100	2,26
	MLZ019T4	30	4000	1.82	5100	1.83	6400	1.82	8000	1.82	9800	1.83	11900	1.87	14300	1.94	11600	1,94
		40	–	–	–	–	5700	2.29	7100	2.30	8700	2.30	10600	2.30	12800	2.33	10500	2,33
		50	–	–	–	–	–	–	6100	2.90	7600	2.91	9300	2.91	11200	2.92	9200	2,92
	MLZ021T4	30	4300	1.96	5500	1.97	6800	2.00	8400	2.02	10200	2.06	12400	2.11	14800	2.16	11900	2,16
		40	–	–	–	–	6100	2.49	7500	2.51	9200	2.54	11100	2.58	13300	2.63	10700	2,63
		50	–	–	–	–	–	–	6500	3.22	8000	3.25	9800	3.28	11800	3.32	9500	3,32
	MLZ026T4	30	5300	2.31	6700	2.33	8300	2.35	10200	2.39	12500	2.43	15100	2.48	18000	2.55	15000	2,55
		40	–	–	–	–	7400	2.94	9100	2.96	11200	3.00	13500	3.05	16200	3.10	13500	3,1
		50	–	–	–	–	–	–	7900	3.80	9800	3.83	11900	3.87	14300	3.91	11900	3,91
	MLZ030T4	30	6600	2.62	8200	2.67	10200	2.69	12500	2.71	15300	2.76	18600	2.84	22400	2.98	18300	2,98
		40	–	–	–	–	9000	3.38	11200	3.41	13700	3.43	16600	3.47	20100	3.54	16300	3,54
		50	–	–	–	–	–	–	9800	4.27	12000	4.31	14600	4.34	17700	4.37	14300	4,37
	MLZ038T4	30	7600	3.05	9500	3.11	11800	3.13	14500	3.16	17800	3.21	21600	3.30	26000	3.47	21100	3,47
		40	–	–	–	–	10500	3.93	12900	3.97	15800	3.99	19200	4.04	23300	4.12	18900	4,12
		50	–	–	–	–	–	–	11300	4.96	13800	5.01	16900	5.04	20400	5.09	16500	5,09
	MLZ045T1	30	9300	4.01	11900	4.08	14900	4.12	18400	4.13	22400	4.11	27100	4.04	32600	3.93	26700	3,93
		40	–	–	–	–	13000	5.13	16100	5.14	19800	5.13	24000	5.09	28900	5.00	23900	5
		50	–	–	–	–	–	–	13900	6.44	17100	6.42	20900	6.37	25200	6.29	20900	6,29
	MLZ048T4	30	10200	4.50	12900	4.57	16200	4.61	20000	4.63	24500	4.60	29600	4.53	35500	4.41	29400	4,41
		40	–	–	–	–	14100	5.74	17600	5.76	21600	5.75	26200	5.70	31600	5.60	26300	5,6
		50	–	–	–	–	–	–	15100	7.22	18700	7.19	22800	7.13	27500	7.05	23000	7,05
	MLZ058T4	30	11900	4.94	15000	4.98	18600	5.05	22900	5.14	27800	5.26	33500	5.41	40100	5.58	32400	5,58
		40	–	–	–	–	16400	6.34	20300	6.41	24800	6.50	29900	6.63	35900	6.78	29000	6,78
		50	–	–	–	–	–	–	17600	8.12	21500	8.18	26100	8.27	31400	8.40	25300	8,4
	MLZ066T4	30	13900	5.84	17500	5.88	21800	5.96	26800	6.07	32600	6.22	39300	6.39	47100	6.60	38000	6,6
		40	–	–	–	–	19300	7.49	23800	7.57	29000	7.68	35100	7.83	42100	8.01	33900	8,01
		50	–	–	–	–	–	–	20600	9.59	25200	9.66	30600	9.77	36800	9.92	29600	9,92
	MLZ076T4	30	15000	6.49	19000	6.54	23700	6.62	29300	6.69	35700	6.72	43100	6.71	51700	6.62	43300	6,62
		40	–	–	–	–	20800	8.24	25800	8.31	31600	8.38	38200	8.44	45900	8.46	38700	8,46
		50	–	–	–	–	–	–	22300	10.41	27400	10.45	33300	10.52	40100	10.59	33800	10,59

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

Technical data and ordering

MLZ / MLM - Scroll compressors - R22 - 50 / 60 Hz

Performance table

Type		To	-20		-15		-10		-5		0		5		10	
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
50 Hz	MLZ/MLM015T4	30	2600	1.08	3200	1.10	3800	1.11	4600	1.13	5500	1.15	6600	1.17	7800	1.19
		40	–	–	2800	1.36	3500	1.38	4200	1.40	5100	1.41	6000	1.42	7100	1.44
		50	–	–	–	–	–	–	3800	1.71	4500	1.73	5400	1.75	6400	1.76
	MLZ/MLM019T4	30	3400	1.32	4200	1.34	5000	1.36	6000	1.38	7100	1.40	8500	1.43	10000	1.46
		40	–	–	3800	1.67	4600	1.69	5500	1.71	6500	1.72	7800	1.74	9200	1.76
		50	–	–	–	–	–	–	4900	2.09	5800	2.11	6900	2.13	8300	2.14
	MLZ/MLM021T4	30	3600	1.43	4400	1.47	5300	1.50	6400	1.52	7600	1.55	9000	1.57	10600	1.60
		40	–	–	4000	1.79	4800	1.83	5800	1.85	6900	1.88	8200	1.89	9800	1.90
		50	–	–	–	–	–	–	5200	2.27	6200	2.30	7400	2.31	8800	2.32
	MLZ/MLM026T4	30	4400	1.76	5400	1.77	6600	1.77	7900	1.76	9600	1.75	11500	1.74	13800	1.75
		40	–	–	4900	2.17	6000	2.19	7200	2.19	8800	2.18	10600	2.16	12700	2.15
		50	–	–	–	–	–	–	6500	2.71	7900	2.71	9500	2.69	11400	2.66
	MLZ/MLM030T4	30	5100	2.08	6400	2.14	7900	2.19	9700	2.25	11600	2.32	13800	2.38	16200	2.46
		40	–	–	5800	2.60	7200	2.67	8800	2.72	10700	2.78	12700	2.83	14900	2.89
		50	–	–	–	–	–	–	7900	3.30	9600	3.36	11500	3.40	13600	3.44
	MLZ/MLM038T4	30	5800	2.40	7400	2.48	9200	2.57	11300	2.66	13700	2.76	16300	2.84	19100	2.91
		40	–	–	6800	3.04	8500	3.13	10400	3.22	12600	3.29	14900	3.36	17500	3.40
		50	–	–	–	–	–	–	9400	3.90	11400	3.98	13600	4.03	15900	4.06
	MLZ/MLM042T5	30	9000	3.18	9500	3.05	10800	3.01	12700	3.03	15400	3.11	18500	3.23	22000	3.36
		40	–	–	8400	3.81	9700	3.75	11600	3.75	14000	3.79	16600	3.86	19600	3.93
		50	–	–	–	–	–	–	10300	4.78	12600	4.79	15000	4.81	17600	4.82
	MLZ/MLM045T4	30	7000	3.05	8800	3.08	11000	3.08	13600	3.08	16500	3.08	19700	3.11	23200	3.17
		40	–	–	7900	3.72	9900	3.76	12300	3.77	15000	3.77	18000	3.79	21200	3.84
		50	–	–	–	–	–	–	10800	4.62	13300	4.64	16100	4.65	19100	4.68
	MLZ/MLM048T4	30	8100	3.32	10000	3.36	12200	3.37	14800	3.36	17800	3.37	21300	3.40	25300	3.47
		40	–	–	9000	4.07	11100	4.11	13500	4.12	16300	4.12	19500	4.13	23200	4.17
		50	–	–	–	–	–	–	12200	5.05	14700	5.06	17600	5.07	20900	5.10
	MLZ/MLM058T4	30	9200	3.93	11500	3.97	14300	3.96	17400	3.95	21100	3.94	25300	3.98	30200	4.09
		40	–	–	10500	4.76	13000	4.80	15900	4.80	19300	4.81	23200	4.84	27800	4.92
		50	–	–	–	–	–	–	14100	5.89	17300	5.90	20900	5.92	25100	5.97
	MLZ/MLM066T4	30	10200	4.34	12900	4.40	16200	4.43	20000	4.45	24300	4.49	29100	4.57	34400	4.71
		40	–	–	11900	5.34	14900	5.39	18300	5.43	22300	5.48	26800	5.54	31600	5.66
		50	–	–	–	–	–	–	16500	6.62	20200	6.66	24200	6.72	28700	6.80
	MLZ/MLM076T4	30	12400	5.26	15400	5.27	19000	5.20	23200	5.11	27900	5.06	33300	5.12	39300	5.34
		40	–	–	14100	6.36	17400	6.33	21300	6.27	25600	6.22	30500	6.25	36100	6.42
		50	–	–	–	–	–	–	19100	7.68	23100	7.64	27600	7.65	32600	7.78
60 Hz	MLZ/MLM015T4	30	3000	1.22	3800	1.25	4600	1.29	5600	1.32	6700	1.36	7900	1.40	9300	1.45
		40	–	–	3400	1.54	4200	1.58	5100	1.62	6100	1.65	7200	1.68	8500	1.70
		50	–	–	–	–	–	–	4500	1.96	5500	2.00	6500	2.03	7700	2.04
	MLZ/MLM019T4	30	3900	1.56	4900	1.60	6000	1.65	7300	1.70	8800	1.74	10400	1.76	12200	1.76
		40	–	–	4500	1.97	5500	2.02	6700	2.07	8100	2.11	9600	2.13	11300	2.12
		50	–	–	–	–	–	–	6000	2.49	7300	2.53	8700	2.54	10200	2.53
	MLZ/MLM021T4	30	4100	1.69	5200	1.73	6400	1.77	7800	1.80	9400	1.84	11200	1.90	13200	1.97
		40	–	–	4800	2.12	5900	2.15	7200	2.18	8700	2.20	10300	2.24	12100	2.29
		50	–	–	–	–	–	–	6400	2.63	7800	2.66	9300	2.69	11000	2.73
	MLZ/MLM026T4	30	5100	2.02	6300	2.07	7800	2.11	9500	2.16	11500	2.20	13700	2.23	16300	2.24
		40	–	–	5900	2.57	7300	2.64	8900	2.69	10600	2.73	12600	2.75	14900	2.74
		50	–	–	–	–	–	–	8100	3.32	9700	3.37	11500	3.39	13500	3.37
	MLZ/MLM030T4	30	6000	2.44	7500	2.51	9400	2.57	11500	2.65	13800	2.72	16400	2.81	19300	2.89
		40	–	–	6900	3.07	8600	3.14	10500	3.21	12700	3.27	15100	3.34	17800	3.40
		50	–	–	–	–	–	–	9500	3.89	11500	3.96	13800	4.01	16200	4.06
	MLZ/MLM038T4	30	6900	2.83	8800	2.92	11000	3.03	13500	3.14	16300	3.25	19400	3.35	22800	3.42
		40	–	–	8100	3.58	10100	3.68	12400	3.79	15000	3.88	17900	3.96	20900	4.00
		50	–	–	–	–	–	–	11200	4.59	13600	4.68	16200	4.75	19000	4.79
	MLZ/MLM042T1	30	8600	3.50	10800	3.57	13500	3.64	16500	3.71	20000	3.79	23800	3.89	28000	4.01
		40	–	–	9800	4.38	12300	4.45	15100	4.51	18400	4.57	21900	4.63	25800	4.70
		50	–	–	–	–	–	–	13600	5.50	16500	5.56	19800	5.61	23400	5.66
	MLZ/MLM045T4	30	9700	3.76	12200	3.82	15000	3.89	18300	3.98	21900	4.08	26000	4.21	30500	4.36
		40	–	–	10900	4.74	13600	4.82	16700	4.90	20100	4.97	23900	5.05	28200	5.14
		50	–	–	–	–	–	–	14900	6.04	18100	6.11	21600	6.17	25600	6.22
	MLZ/MLM048T4	30	10900	4.50	13800	4.62	17200	4.74	21100	4.87	25600	5.00	30600	5.13	36200	5.27
		40	–	–	12600	5.61	15700	5.75	19300	5.88	23500	5.99	28200	6.08	33400	6.16
		50	–	–	–	–	–	–	17300	7.16	21100	7.26	25500	7.33	30400	7.37
	MLZ/MLM058T4	30	12200	5.03	15500	5.18	19400	5.35	24000	5.51	29200	5.68	35000	5.83	41300	5.97
		40	–	–	14200	6.30	17800	6.48	22100	6.65	26900	6.82	32300	6.96	38200	7.08
		50	–	–	–	–	–	–	20000	8.06	24500	8.22	29400	8.36	34700	8.46
	MLZ/MLM066T4		14500	6.07	18300	6.20	22800	6.31	28000	6.42	33900	6.54	40400	6.69	47400	6.87
		40	–	–	16900	7.48	21000	7.62	25800	7.74	31200	7.86	37100	7.98	43500	8.13
		50	–	–	–	–	–	–	23400	9.43	28300	9.55	33700	9.66	39600	9.78
	MLZ/MLM076T4	30	14 500	6.1	18 300	6.2	22 800	6.3	28 000	6.4	33 900	6.5	40 400	6.7	47 400	6.9
		40	–	–	16 900	7.5	21 000	7.6	25 800	7.7	31 200	7.9	37 100	8.0	43 500	8.1
		50	–	–	–	–	–	–	23 400	9.4	28 300	9.6	33 700	9.7	39 600	9.8

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

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*

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*

Nomenclature and Dimensions

Type	Size	Motor	Features
M LZ	021	T 4 L	P 9

Application:
M: medium temperature refrigeration

Family, refrigerant and lubricant:
LZ: R404A - R507 - R134a - R22, PVE lubricant
LM: R22, alkylbenzene lubricant

Nominal capacity:
in thousand Btu/h at 60 Hz, ARI / MBP conditions

Model variation:
T: design optimized for refrigeration

Other features

	Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port
9	Threaded	None	Schrader	None	None

Tubing and electrical connections:
P: brazed connections, spade terminals
C: brazed connections, screw terminals
T: rotolock connections, spade terminals
Q: rotolock connections, screw terminals

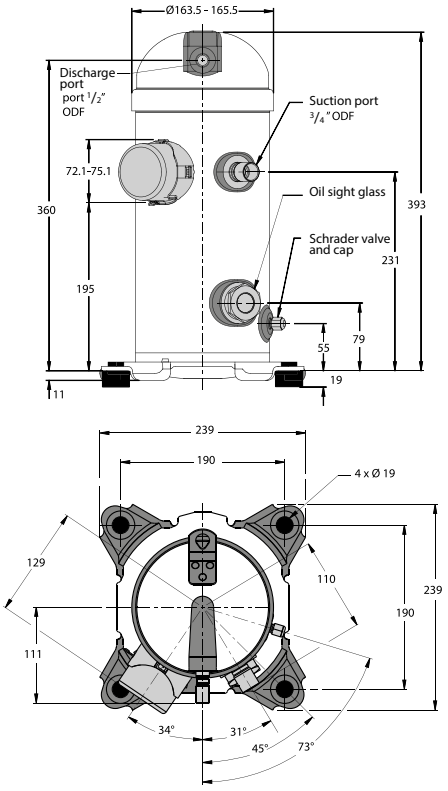


Motor protection:
L: internal motor protection

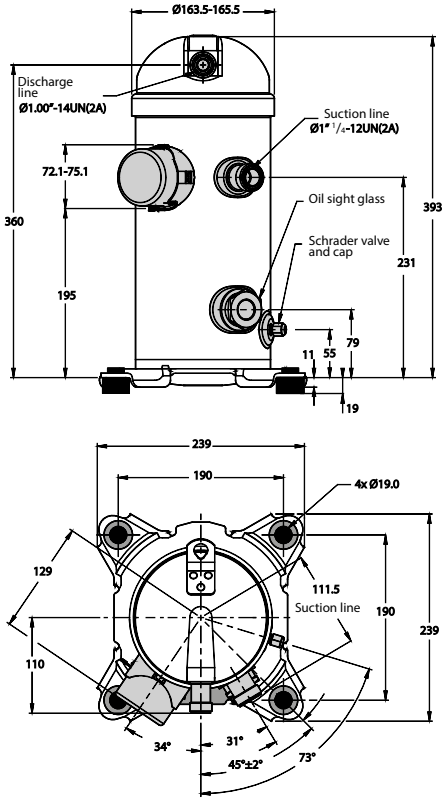
Motor voltage code
1: 208 – 230 V / 1 ~ / 60 Hz
2: 200 – 220 V / 3 ~ / 50 Hz & 208 – 230 V / 3 ~ / 60 Hz
4: 380 – 400 V / 3 ~ / 50 Hz & 460 V / 3 / 60 Hz
5: 220 – 240 V / 1 ~ / 50 Hz
7: 500 V / 3 ~ / 50 Hz & 575 V / 3 ~ / 60 Hz
9: 380 V / 3 ~ / 60 Hz

MLZ015-019-021-026

Brazed



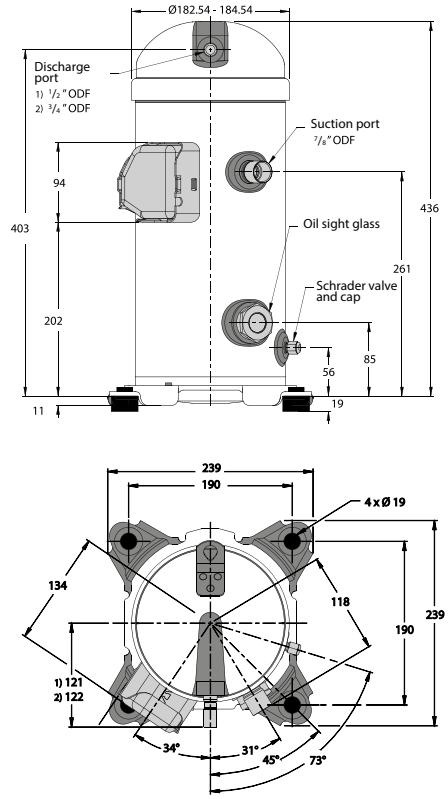
Rotolock



Dimensions

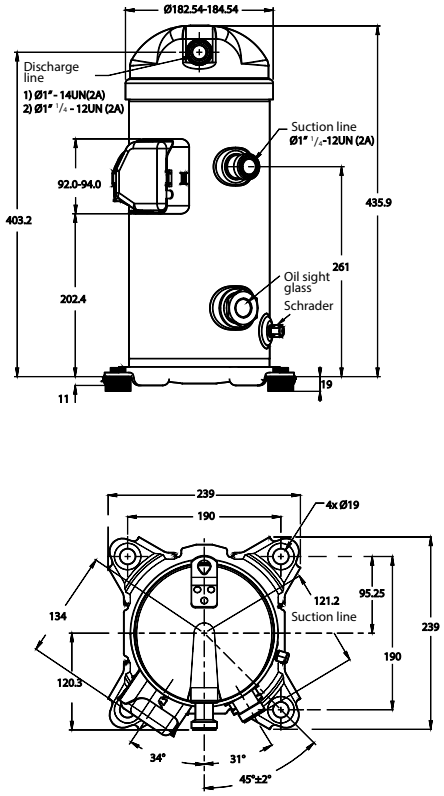
MLZ030-038-042-045-048

Brazed



1) MLZ030-038-042-045
2) MLZ048

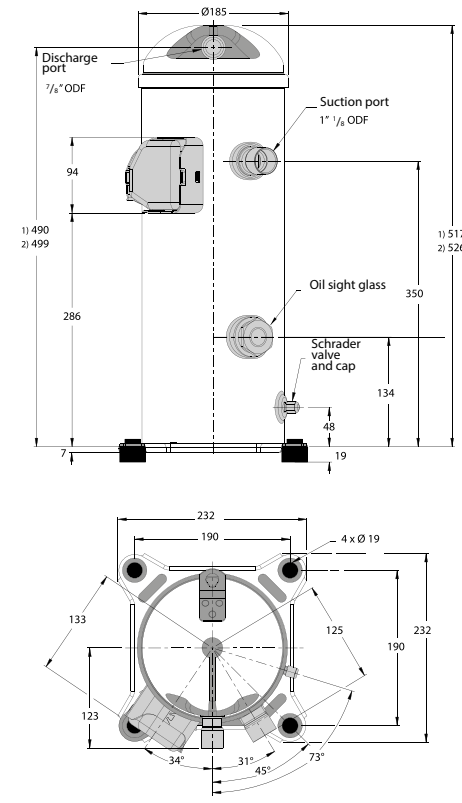
Rotolock



1) MLZ030-038-042-045
2) MLZ048

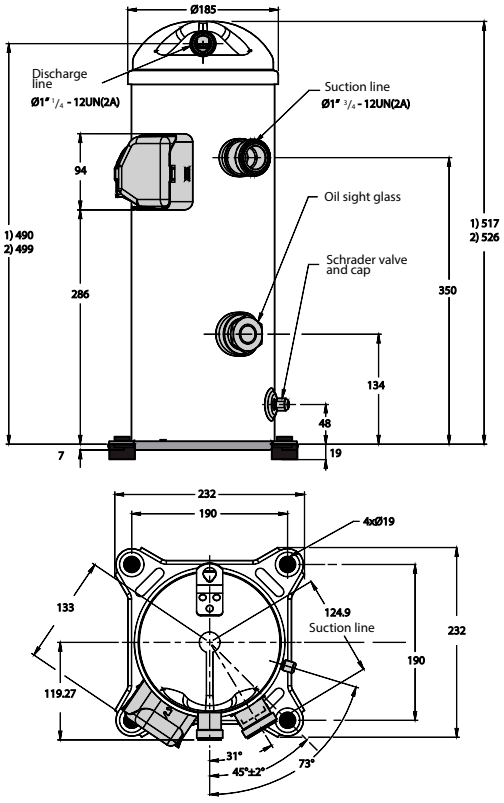
MLZ058-066-076

Brazed



1) MLZ030-038-042-045
2) MLZ048

Rotolock



1) MLZ085
2) MLZ066-076

Nomenclature and Dimensions

Type	Size	Motor	Features
L LZ	013	T 4 L	Q 9

Application:
L: low temperature refrigeration

Family, refrigerant and lubrificant:
LZ: R404A - R507, PVE lubrificant

Nominal capacity:
in thousand Btu/h at 60 Hz, ARI / LBP conditions

Model variation:
T: design optimized for refrigeration

Other features

	Oil sight glass	Oil equalisation	Oil drain	LP gauge port	Gas equalis. port
9	Threaded	None	Schrader	None	None

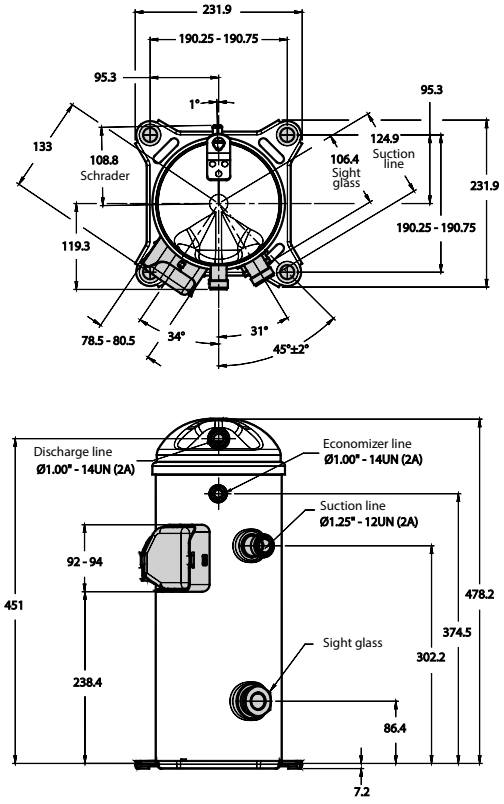
Tubing and electrical connections:
Q: rotolock connections, screw terminals



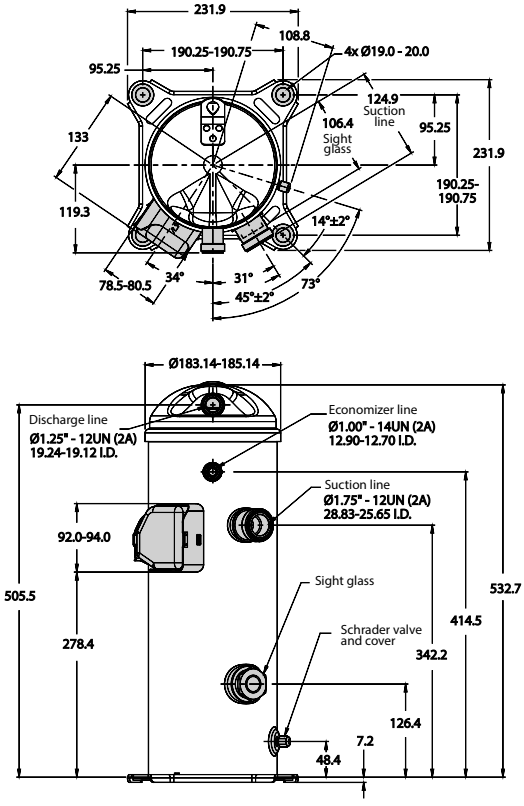
Motor protection:
L: internal motor protection

Motor voltage code:
2: 200 – 220 V / 3 ~ / 50 Hz & 208 – 230 V / 3 ~ / 60 Hz
4: 380 – 415 V / 3 ~ / 50 Hz & 460 V / 3 / 60 Hz
7: 500 V / 3 ~ / 50 Hz & 575 V / 3 ~ / 60 Hz
9: 380 V / 3 ~ / 60 Hz

LLZ013-015-018



LLZ024



Quick Selection Notes:

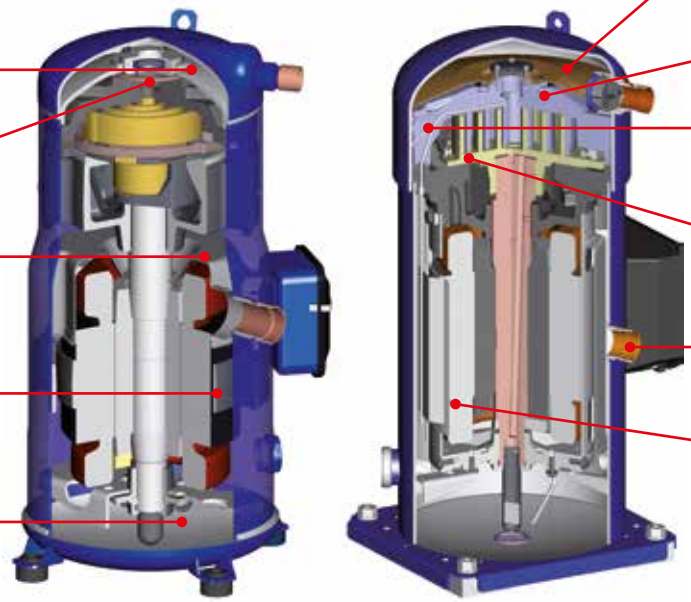
SH / SM / SY / SZ - S-Series, Scroll compressors

By combining an in-depth understanding of customer needs with continuous investment in product technology Danfoss is able to offer you the S series, which comprise a 7.5 – 40 TR industry-leading range of high efficiency scroll compressors optimized for rooftop and chiller applications.

Available in a large variety of single and manifold models for R410A, R407C, R134a and R22. The compressors combine high energy efficency with low sound and minimal vibration.



Features
SH / SM / SY / SZ



Facts

S-Series compressor design
- Improved energy efficiency and reduced sound levels with the intermediate cap design feature
- Greater reliability with the internal non-return valve, which avoids refrigerant migration from the high pressure side
- Quieter and more efficient operation with "*no contact – no wear*" scroll design for reduced friction
- Environmentally-friendly lead-free bearings
- Highly efficient and reliable protection against overheating, overloading, phase loss and phase order with specific electronic module protection
- Prepared for manifolding with oil sight glass and oil equalizer
- Easy maintenance with oil drain tube
- The Surface Sump Heater provides thermal insulation, higher efficiency and greater noise reduction 2 – 4 dB [A]

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]	[kW]	[W]/[W]	[Btu/h]/[W]	[cm³/rev]	[m³/h]	[dm³]	[kg]
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

Type	Connections	Mounting feet	Motor protection	Code no.				
				3	4	6	7	9
				200 – 230 / 3 / 60	460 / 3 / 60 380 – 400 / 3 / 50	230 / 3 / 50	575 / 3 / 60 500 / 3 / 50	380 / 3 / 60
SH090	Brazed	Flexible	Internal	120H0001	120H0003	120H0005	120H0007	120H0009
SH105	Brazed	Flexible	Internal	120H0209	120H0211	120H0213	120H0215	120H0217
SH120	Brazed	Flexible	Internal	120H0011	120H0013	120H0015	120H0017	120H0019
SH140	Brazed	Flexible	Internal	120H0199	120H0201	120H0203	120H0205	120H0207
SH161	Brazed	Flexible	Internal	120H0021	120H0023	120H0025	120H0027	120H0029
SH184	Brazed	Flexible	Internal	120H0359	120H0361	120H0363	120H0365	120H0367
SH180	Brazed	Rigid	Module 24 V AC [1])	120H0265	120H0267	–	120H0269	120H0271
	Brazed	Rigid	Module 230 V [1])	120H0273	120H0275	–	120H0277	120H0279
SH240	Brazed	Rigid	Module 24 V AC [1])	120H0289	120H0291	–	120H0293	120H0295
	Brazed	Rigid	Module 115 – 230 V [1])	120H0297	120H0299	–	120H0301	120H0303
SH295	Brazed	Rigid	Module 24 V AC [1])	120H0851	120H0825	–	120H0833	120H0841
	Brazed	Rigid	Module 115 – 230 V [1])	120H0853	120H0827	–	120H0835	120H0843
SH380	Brazed	Rigid	Module 24 V AC [1])	120H0151	120H0253	–	120H0257	120H0261
	Brazed	Rigid	Module 115 – 230 V [1])	120H0152	120H0255	–	120H0259	120H0263
SH485	Brazed	Rigid	Module 24 V AC [1])	120H1105	120H1062	–	120H1099	120H1072
	Brazed	Rigid	Module 115 – 230 V [1])	120H1107	120H1064	–	120H1098	120H1074

[1]) Electronic motor protection, module located in terminal box

Technical data and ordering

SH - Scroll compressors - R410A - 50 / 60 Hz

Ordering industrial pack

Type	Connections	Mounting feet	Motor protection	Code no.		
				3	4	9
				200 – 230 / 3 / 60	400 / 3 / 50 460 / 3 / 60	380 / 3 / 60
SH090	Brazed	Flexible	Internal	120H0002	120H0004	120H0010
SH105	Brazed	Flexible	Internal	120H0210	120H0212	120H0218
SH120	Brazed	Flexible	Internal	120H0012	120H0014	120H0020
SH140	Brazed	Flexible	Internal	120H0200	120H0202	120H0208
SH161	Brazed	Flexible	Internal	120H0022	120H0024	120H0030
SH184	Brazed	Flexible	Internal	120H0360	120H0362	120H0368
SH180	Brazed	Rigid	Module 24 V AC [1]	–	120H0268	120H0272
	Brazed	Rigid	Module 230 V [1]	120H0274	120H0276	120H0280
SH240	Brazed	Rigid	Module 24 V AC [1]	120H0290	120H0292	120H0296
	Brazed	Rigid	Module 115 – 230 V [1]	120H0298	120H0300	120H0304
SH295	Brazed	Rigid	Module 24 V AC [1]	120H0852	120H0826	120H0842
	Brazed	Rigid	Module 115 – 230 V [1]	120H0854	120H0828	120H0844
SH380	Brazed	Rigid	Module 24 V AC [1]	120H0250	120H0254	120H0262
	Brazed	Rigid	Module 115 – 230 V [1]	120H0252	120H0256	120H0264
SH485	Brazed	Rigid	Module 24 V AC [1]	–	120H1063	120H1073
	Brazed	Rigid	Module 115 – 230 V [1]	–	120H1065	120H1075

[1]) *Electronic motor protection, module located in terminal box*

SH - Scroll compressors - R410A - 50 Hz

Performance table

Type	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]*
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 / 50 Hz*

Technical data and ordering

SH - Scroll compressors - R410A - 60 Hz

Performance table

Type	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*

Technical data and ordering

SM / SY / SZ - Scroll compressors - R22 / R407C - 50 Hz

Technical data

Type		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]	[cm³/rev]	[m³/h]	[dm³]	[kg]
R22 SINGLE	SM084	7	20400	69600	6.12	3.33	11.4	114.5	19.9	3.25	64
	SM090	7.5	21800	74400	6.54	3.33	11.4	120.5	21.0	3.25	65
	SM100	8	23100	78800	6.96	3.33	11.4	127.2	22.1	3.25	65
	SM110	9	25900	88400	7.82	3.32	11.3	144.2	25.1	3.25	73
	SM112	9.5	27600	94200	7.92	3.49	11.9	151.5	26.4	3.3	64
	SM120	10	30100	102700	8.96	3.36	11.5	166.6	29.0	3.25	73
	SM124	10	31200	106500	8.75	3.56	12.2	169.5	29.5	3.3	64.2
	SM147	12	36000	122900	10.08	3.57	12.2	193.5	33.7	3.3	67
	SM148	12	36100	123200	10.8	3.34	11.4	199	34.6	3.6	88
	SM161	13	39000	133100	11.59	3.37	11.5	216.6	37.7	3.6	88
	SM175	14	42000	143300	12.47	3.37	11.5	233	40.5	6.2	100
	SM/SY185	15	45500	155300	13.62	3.34	11.4	249.9	43.5	6.2	100
	SY240	20	61200	208900	18.2	3.36	11.5	347.8	60.5	8	150
	SY300	25	78200	266900	22.83	3.43	11.7	437.5	76.1	8	157
	SY380	30	94500	322500	27.33	3.46	11.8	531.2	92.4	8.4	158
R407C SINGLE	SZ084	7	19300	65900	6.13	3.15	10.8	114.5	19.9	3.25	64
	SZ090	7.5	20400	69600	6.45	3.16	10.8	120.5	21.0	3.25	65
	SZ100	8	21600	73700	6.84	3.15	10.8	127.2	22.1	3.25	65
	SZ110	9	24600	84000	7.76	3.17	10.8	144.2	25.1	3.25	73
	SZ120	10	28600	97600	8.99	3.17	10.8	166.6	29.0	3.25	73
	SZ147	12	34900	119079	9.92	3.52	12.0	193.5	33.7	3.30	67
	SZ148	12	35100	119800	10.99	3.19	10.9	199	34.6	3.6	88
	SZ161	13	38000	129700	11.84	3.21	11.0	216.6	37.7	3.6	88
	SZ175	14	40100	136900	12.67	3.17	10.8	233	40.5	6.2	100
	SZ185	15	43100	147100	13.62	3.16	10.8	249.9	43.5	6.2	100
	SZ240	20	59100	201700	18.55	3.19	10.9	347.8	60.5	8	150
	SZ300	25	72700	248100	22.73	3.2	10.9	437.5	76.1	8	157
	SZ380	30	89600	305800	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*
Subcooling: *8.3 K*
Superheat: *11.1 K*
[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

SM / SY / SZ - Scroll compressors - R22 / R407C - 60 Hz

Technical data

Type		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]	[cm³/rev]	[m³/h]	[dm³]	[kg]
R22 SINGLE	SM084	7	24600	84000	7.40	3.34	11.4	114.5	24.1	3.25	64
	SM090	7.5	26400	90100	7.80	3.37	11.5	120.5	25.3	3.25	65
	SM100	8	27500	93900	8.10	3.38	11.5	127.2	26.7	3.25	65
	SM110	9	31600	107800	9.30	3.38	11.5	144.2	30.3	3.25	73
	SM112	9.5	34000	116000	9.60	3.53	12.1	151.5	31.8	3.30	64
	SM120	10	36700	125300	10.80	3.40	11.6	166.6	35.0	3.25	73
	SM124	10.5	37700	128700	10.60	3.56	12.2	169.5	35.6	3.30	64
	SM147	12	43600	148800	12.20	3.58	12.2	193.5	40.6	3.30	67
	SM148	12	43800	149500	13.00	3.37	11.5	199.0	41.8	3.60	88
	SM161	13	47600	162500	14.10	3.39	11.6	216.6	45.5	3.60	88
	SM175	14	51100	174400	15.30	3.34	11.4	233.0	48.9	6.20	100
	SM/SY185	15	55300	188700	16.30	3.39	11.6	249.9	52.5	6.20	100
	SY240	20	74100	252900	22.10	3.35	11.4	347.8	73.0	8.00	150
	SY300	25	94500	322500	27.50	3.43	11.7	437.5	91.9	8.00	157
	SY380	30	115300	393500	33.40	3.46	11.8	531.2	111.6	8.40	158
R407C SINGLE	SZ084	7	22500	76800	7.10	3.19	10.9	114.5	24.1	3.25	64
	SZ090	7.5	24400	83300	7.60	3.20	10.9	120.5	25.3	3.25	65
	SZ100	8	26500	90400	8.20	3.24	11.1	127.2	26.7	3.25	65
	SZ110	9	30100	102700	9.30	3.24	11.1	144.2	30.3	3.25	73
	SZ120	10	34800	118800	10.70	3.24	11.1	166.6	35.0	3.25	73
	SZ147	12	42300	144328	12.03	3.52	12.0	193.5	40.6	3.30	67
	SZ148	12	42600	145400	13.30	3.19	10.9	199.0	41.8	3.60	88
	SZ161	13	46000	157000	14.30	3.21	11.0	216.6	45.5	3.60	88
	SZ175	14	48700	166200	15.30	3.19	10.9	233.0	48.9	6.20	100
	SZ185	15	51800	176800	16.40	3.15	10.8	249.9	52.5	6.20	100
	SZ240	20	71100	242700	22.70	3.14	10.7	347.8	73.0	8.00	150
	SZ300	25	87900	300000	27.50	3.20	10.9	437.5	91.9	8.00	157
	SZ380	30	107300	366200	33.50	3.20	10.9	531.2	111.6	8.40	158

TR: *Ton of Refrigeration*
COP: *Coefficient Of Performance*
EER: *Energy Efficiency Ratio*
Subcooling: *8.3 K*
Superheat: *11.1 K*
[1]) Displacement at nominal speed: 2900 rpm at 50 Hz, 3500 rpm at 60 Hz
[2]) Net weight with oil charge

SM112-124-147 - Scroll compressors - R22

Ordering single pack

Type	Connections	Motor protection	Code no.				
			3	4	6	7	9
			200 – 230 / 3 / 60	460 / 3 / 60 380 – 400 / 3 / 50	230 / 3 / 50	575 / 3 / 60 500 / 3 / 50	380 / 3 / 60
SM112	Brazed	Internal	–	120H0611	–	–	120H0613
SM124	Brazed	Internal	120H0183	120H0185	–	–	120H0187
SM147	Brazed	Internal	120H0189	120H0191	–	–	120H0197
SZ147	Brazed	Internal	–	120H1096	–	–	–

SM112-124-147 - Scroll compressors - R22

Ordering industrial pack

Type	Connections	Motor protection	Code no.				
			3	4	6	7	9
			200 – 230 / 3 / 60	460 / 3 / 60 380 – 400 / 3 / 50	230 / 3 / 50	575 / 3 / 60 500 / 3 / 50	380 / 3 / 60
SM112	Brazed	Internal	120H0610	120H0612	–	–	120H0614
SM124	Brazed	Internal	120H0184	120H0186	–	–	120H0188
SM147	Brazed	Internal	120H0190	120H0311	–	–	120H0198
SZ147	Brazed	Internal	–	120H1097	–	–	–

Technical data and ordering

SM / SY - Scroll compressors - R22

Ordering single pack

Type	Connections	Motor protection	Code no.				
			3	4	6	7	9
			200 – 230 / 3 / 60	460 / 3 / 60 380 – 400 / 3 / 50	230 / 3 / 50	575 / 3 / 60 500 / 3 / 50	380 / 3 / 60
SM084	Brazed	Internal	–	SM084-4VI	–	SM084-7VI	SM084-9VI
SM090	Brazed	Internal	SM090-3VI	SM090-4VI	SM090-6VI	SM090-7VI	SM090-9VI
SM100	Brazed	Internal	SM100-3VI	SM100-4VI	–	SM100-7VI	SM100-9VI
SM110	Brazed	Internal	SM110-3VI	SM110-4VI	SM110-6VI	SM110-7VI	SM110-9VI
SM120	Brazed	Internal	SM120-3VI	SM120-4VI	SM120-6VI	SM120-7VI	SM120-9VI
SM148	Brazed	Internal	SM148-3VAI	SM148-4VAI	SM148-6VAI	–	SM148-9VAI
SM161	Brazed	Internal	SM161-3VAI	SM161-4VAI	–	SM161-7VAI	SM161-9VAI
SM175	Brazed	Thermostat	SM175-3CAI	SM175-4CAI	SM175-6CAI	SM175-7CAI	–
	Brazed	Module 24 V AC	–	SM175-4PCI	–	–	–
	Rotolock	Thermostat	–	SM175-4RI	–	–	–
	Rotolock	Module 24 V AC	SM175-3SCI	SM175-4SCI	–	SM175-7SCI	–
SM185	Brazed	Thermostat	SM185-3CAI	SM185-4CAI	–	SM185-7CAI	SM185-9CAI
	Brazed	Module 24 V AC	–	SM185-4PCI	–	–	–
	Brazed	Module 230 V AC	–	–	–	–	SM185-9XCI
	Rotolock	Thermostat	SM185-3RI	SM185-4RI	SM185-6RI	–	SM185-9RI
	Rotolock	Module 24 V AC	SM185-3SCI	–	–	SM185-7SCI	–
	Rotolock	Module 230 V AC	–	SM185-4YCI	–	–	SM185-9YCI
SY185 [1)]	Brazed	Thermostat	–	SY185-4CAI	–	–	–
	Rotolock	Thermostat	–	SY185-4RI	–	–	–
SY240	Brazed	Module 24 V AC	–	SY240A4CAI	–	–	–
	Brazed	Module 115 / 230 V AC	SY240A3CBI	SY240A4CBI	SY240A6CBI	SY240A7CBI	SY240A9CBI
	Rotolock	Module 24 V AC	–	SY240A4PAI	–	–	–
	Rotolock	Module 115 /230 V AC	SY240A3PBI	SY240A4PBI	SY240A6PBI	SY240A7PBI	SY240A9PBI
SY300	Brazed	Module 24 V AC	–	SY300A4CAI	–	–	–
	Brazed	Module 115 / 230 V AC	SY300A3CBI	SY300A4CBI	SY300A6CBI	SY300A7CBI	SY300A9CBI
	Rotolock	Module 24 V AC	–	SY300A4PAI	–	–	–
	Rotolock	Module 115 / 230 V AC	SY300A3PBI	SY300A4PBI	SY300A6PBI	SY300A7PBI	SY300A9PBI
SY380	Brazed	Module 24 V AC	–	SY380A4CAI	–	–	–
	Brazed	Module 115 /230 V AC	–	SY380A4CBI	–	–	–

[1)] No module version available

SM / SY compressors in industrial pack: use numbers from above table and replace the last digit by "M". Example: SY240A3CAM, except for voltage codes 6 and 7 available in single pack only

Technical data and ordering

SZ - Scroll compressors - R407C / R134a

Ordering single pack

Type	Connections	Motor protection	Code no.				
			3	4	6	7	9
			200 – 230 / 3 / 60	460 / 3 / 60 380 – 400 / 3 / 50	230 / 3 / 50	575 / 3 / 60 500 / 3 / 50	380 / 3 / 60
SZ084	Brazed	Internal	SZ084-3VI	SZ084-4VI	SZ084-6VI	–	SZ084-9VI
SZ090	Brazed	Internal	SZ090-3VI	SZ090-4VI	SZ090-6VI	–	SZ090-9VI
SZ100	Brazed	Internal	SZ100-3VI	SZ100-4VI	SZ100-6VI	SZ100-7VI	SZ100-9VI
SZ110	Brazed	Internal	SZ110-3VI	SZ110-4VI	SZ110-6VI	SZ110-7VI	SZ110-9VI
SZ120	Brazed	Internal	SZ120-3VI	SZ120-4VI	SZ120-6VI	SZ120-7VI	SZ120-9VI
SZ147	Brazed	Internal	–	–	–	–	–
SZ148	Brazed	Internal	SZ148-3VAI	SZ148-4VAI	SZ148-6VAI	–	SZ148-9VAI
SZ161	Brazed	Internal	SZ161-3VAI	SZ161-4VAI	SZ161-6VAI	–	SZ161-9VAI
SZ175	Brazed	Thermostat	SZ175-3CAI	SZ175-4CAI	SZ175-6CAI	SZ175-7CAI	SZ175-9CAI
	Brazed	Module 24 V AC	–	SZ175-4PCI	–	–	–
	Rotolock	Thermostat	–	SZ175-4RI	–	–	SZ175-9RI
	Rotolock	Module 24 V AC	SZ175-3SCI	SZ175-4SCI	–	SZ175-7SCI	–
SZ185	Brazed	Thermostat	SZ185-3CAI	SZ185-4CAI	SZ185-6CAI	SZ185-7CAI	SZ185-9CAI
	Brazed	Module 24 V AC	–	SZ185-4PCI	–	–	–
	Brazed	Module 230 V	–	SZ185-4XCI	–	–	SZ185-9XCI
	Rotolock	Thermostat	SZ185-3RI	SZ185-4RI	SZ185-6RI	SZ185-7RI	SZ185-9RI
	Rotolock	Module 24 V AC	–	SZ185-4SCI	–	SZ185-7SCI	–
	Rotolock	Module 230 V	–	–	–	–	SZ185-9YCI
SZ240	Brazed	Module 24 V AC	–	SZ240A4CAI	–	–	–
	Brazed	Module 115 / 230 V	–	SZ240A4CBI	SZ240A6CBI	–	SZ240A9CBI
	Rotolock	Module 24 V AC	–	SZ240A4PAI	–	–	–
	Rotolock	Module 115 / 230 V	SZ240A3PBI	SZ240A4PBI	SZ240A6PBI	SZ240A7PBI	SZ240A9PBI
SZ300	Brazed	Module 24 V AC	–	SZ300A4CAI	–	–	–
	Brazed	Module 115 / 230 V	SZ300A3CBI	SZ300A4CBI	SZ300A6CBI	SZ300A7CBI	SZ300A9CBI
	Rotolock	Module 24 V AC	–	SZ300A4PAI	–	–	–
	Rotolock	Module 115 / 230 V	SZ300A3PBI	SZ300A4PBI	–	SZ300A7PBI	SZ300A9PBI
SZ380	Brazed	Module 24 V AC	–	SZ380A4CAI	–	–	–
	Brazed	Module 115 / 230 V	–	SZ380A4CBI	–	–	–

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

Technical data and ordering

SZ - Scroll compressors - R134a - 50 Hz

Performance table

Type	To	-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
SZ084	35	6200	2.8	8000	2.8	10100	2.8	12600	2.8	15400	2.7	18700	2.7	22400	2.6
	55	–	–	6100	4.3	7900	4.3	9900	4.3	12400	4.3	15100	4.3	18300	4.2
SZ090	35	6700	2.9	8600	2.9	10900	3.0	13400	2.9	16400	2.9	19800	2.9	23600	2.8
	55	–	–	6600	4.5	8500	4.6	10700	4.6	13200	4.6	16000	4.5	19300	4.5
SZ100	35	7300	3.1	9400	3.1	11700	3.1	14400	3.1	17500	3.1	21000	3.1	25000	3.1
	55	–	–	7300	4.8	9300	4.8	11500	4.9	14100	4.9	17100	4.9	20400	4.8
SZ110	35	8200	3.5	10500	3.5	13200	3.5	16200	3.5	19800	3.5	23800	3.5	28400	3.5
	55	–	–	8100	5.4	10400	5.4	13000	5.5	16000	5.5	19400	5.5	23300	5.4
SZ120	35	9400	4.0	12000	4.0	15100	4.1	18700	4.1	22800	4.1	27500	4.1	32900	4.0
	55	–	–	9300	6.2	11900	6.3	14900	6.3	18400	6.3	22400	6.3	27000	6.2
SZ148	35	11200	5.0	14400	5.0	18100	5.0	22600	5.0	27900	5.0	34000	5.0	41100	5.0
	55	–	–	11200	7.7	14200	7.7	17800	7.7	22100	7.7	27100	7.8	32800	7.8
SZ161	35	12000	5.2	15300	5.2	19200	5.3	23800	5.3	29200	5.4	35500	5.4	42700	5.4
	55	–	–	12100	8.0	15300	8.0	19200	8.1	23700	8.1	28900	8.1	35000	8.1
SZ175	35	13200	5.7	16900	5.8	21200	5.8	26200	5.9	32100	5.9	38700	5.9	46200	5.8
	55	–	–	13100	8.6	16700	8.6	21000	8.7	26000	8.7	31700	8.8	38100	8.8
SZ185	35	14000	6.1	18000	6.1	22600	6.2	27900	6.2	34100	6.3	41200	6.3	49200	6.2
	55	–	–	13900	9.1	17800	9.2	22400	9.3	27700	9.3	33700	9.3	40600	9.3
SZ240	35	18900	8.4	23900	8.5	29900	8.6	37100	8.7	45700	8.7	56000	8.8	68200	8.9
	55	–	–	18800	12.3	23800	12.5	29700	12.6	36700	12.7	45000	12.9	54700	13.0
SZ300	35	23700	10.2	30000	10.4	37500	10.5	46300	10.6	56700	10.7	68900	10.8	82800	11.0
	55	–	–	23600	15.2	29700	15.4	37100	15.6	45800	15.9	55900	16.1	67800	16.4
SZ380	35	30200	12.3	38000	12.5	47300	12.7	58200	12.9	71000	13.1	85800	13.4	102900	13.6
	55	–	–	30100	18.1	37800	18.4	46900	18.7	57600	19.0	70000	19.2	84400	19.4
SZ170	35	12200	5.5	15700	5.6	19900	5.6	24800	5.5	30400	5.5	36800	5.4	44000	5.3
	55	–	–	11900	8.6	15500	8.6	19600	8.6	24300	8.6	29800	8.5	36000	8.4
SZ180	35	13300	5.9	17000	5.9	21400	5.9	26500	5.9	32300	5.8	39000	5.8	46500	5.7
	55	–	–	13100	9.1	16800	9.1	21100	9.1	26000	9.1	31600	9.1	38000	9.0
SZ200	35	14500	6.2	18400	6.2	23000	6.3	28400	6.3	34500	6.2	41400	6.2	49200	6.1
	55	–	–	14400	9.6	18200	9.7	22700	9.7	27800	9.7	33600	9.7	40200	9.7
SZ220	35	16300	7.0	20700	7.0	25900	7.1	32000	7.1	39000	7.1	46900	7.0	56000	6.9
	55	–	–	16100	10.8	20500	10.9	25600	10.9	31400	10.9	38200	10.9	45900	10.9
SZ230	35	17800	7.6	22800	7.6	28600	7.6	35300	7.6	43000	7.6	51700	7.5	61600	7.4
	55	–	–	17500	11.7	22500	11.8	28200	11.8	34800	11.8	42200	11.8	50700	11.7
SZ242	35	18600	8.0	23700	8.1	29700	8.1	36800	8.1	44900	8.1	54200	8.1	64900	8.0
	55	–	–	18300	12.5	23400	12.5	29300	12.5	36200	12.5	44200	12.5	53300	12.4
SZ250	35	19000	8.1	24300	8.1	30500	8.1	37600	8.1	45800	8.1	55100	8.0	65600	7.9
	55	–	–	18600	12.5	23900	12.5	30000	12.6	37000	12.6	45000	12.5	54000	12.5
SZ268	35	20600	9.0	26400	9.1	33200	9.1	41200	9.1	50600	9.1	61400	9.1	73900	9.0
	55	–	–	20100	13.9	25700	14.0	32300	14.0	39900	14.0	48800	14.0	59100	14.0
SZ271	35	20200	8.7	25800	8.7	32300	8.8	40000	8.9	48900	8.9	59200	8.9	71000	8.9
	55	–	–	19900	13.4	25300	13.5	31600	13.5	39000	13.6	47600	13.6	57400	13.6
SZ281	35	21400	9.2	27300	9.3	34300	9.3	42400	9.4	51900	9.4	62900	9.4	75500	9.4
	55	–	–	21000	14.2	26800	14.3	33500	14.3	41500	14.4	50600	14.4	61200	14.3
SZ285	35	21700	9.3	27800	9.4	34900	9.4	43100	9.5	52600	9.5	63400	9.4	75600	9.3
	55	–	–	21400	14.2	27500	14.2	34500	14.3	42600	14.4	51900	14.4	62400	14.3
SZ290	35	21900	9.5	28000	9.6	35200	9.6	43500	9.7	53100	9.7	64000	9.6	76300	9.5
	55	–	–	21600	14.4	27700	14.5	34800	14.6	43000	14.6	52300	14.7	62900	14.6
SZ296	35	22100	10.0	28300	10.0	35700	10.0	44500	10.0	54900	10.0	67000	10.0	80900	10.0
	55	–	–	22000	15.4	28000	15.4	35200	15.4	43500	15.5	53300	15.5	64700	15.6
SZ310	35	23300	10.1	29800	10.2	37500	10.3	46300	10.3	56500	10.3	68100	10.2	81200	10.1
	55	–	–	23000	15.4	29500	15.5	37100	15.5	45800	15.6	55700	15.6	67000	15.6
SZ320	35	24400	10.5	31300	10.6	39300	10.7	48700	10.8	59400	10.8	71700	10.8	85700	10.8
	55	–	–	24200	15.8	31000	15.9	39000	16.0	48200	16.1	58700	16.2	70700	16.2
SZ322	35	23600	10.4	30100	10.5	37800	10.5	46900	10.6	57600	10.7	69900	10.8	84100	10.8
	55	–	–	23800	15.9	30200	16.0	37800	16.1	46600	16.2	56900	16.2	68900	16.2
SZ350	35	26000	11.4	33200	11.5	41800	11.6	51700	11.7	63100	11.8	76200	11.7	91100	11.7
	55	–	–	25700	17.1	33000	17.3	41400	17.4	51200	17.5	62400	17.5	75100	17.5
SZ370	35	27600	12.1	35400	12.3	44500	12.4	55000	12.5	67200	12.5	81100	12.5	96900	12.4
	55	–	–	27400	18.2	35100	18.4	44100	18.5	54500	18.6	66400	18.7	79900	18.6

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 / 50 Hz*

Technical data and ordering

SZ - Scroll compressors - R134a - 60 Hz

Performance table

Type	To	-15		-10		-5		0		5		10		15	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
SZ084	35	7800	3.28	9800	3.30	12300	3.31	15300	3.32	18700	3.31	22700	3.28	27200	3.25
	55	–	–	7800	5.02	9900	5.05	12300	5.09	15200	5.11	18500	5.13	22400	5.13
SZ090	35	8200	3.45	10400	3.48	13100	3.50	16100	3.51	19700	3.50	23900	3.48	28600	3.45
	55	–	–	8300	5.28	10500	5.33	13000	5.36	16000	5.39	19500	5.41	23600	5.41
SZ100	35	8800	3.65	11100	3.68	13900	3.70	17100	3.72	20900	3.72	25300	3.71	30200	3.68
	55	–	–	8800	5.58	11100	5.63	13800	5.67	17000	5.70	20700	5.72	24900	5.72
SZ110	35	10100	4.14	12800	4.18	15900	4.23	19600	4.26	23800	4.27	28700	4.28	34300	4.26
	55	–	–	10000	6.35	12700	6.40	15800	6.45	19400	6.48	23600	6.50	28300	6.51
SZ120	35	11900	4.78	15000	4.85	18600	4.91	22800	4.97	27700	5.00	33300	5.02	39600	5.02
	55	–	–	11700	7.35	14800	7.41	18400	7.47	22600	7.51	27400	7.54	32800	7.54
SZ148	35	13400	6.00	17100	6.14	21400	6.23	26500	6.27	32500	6.26	39500	6.17	47500	6.01
	55	–	–	13400	9.24	17000	9.39	21300	9.48	26300	9.50	32200	9.45	39000	9.31
SZ161	35	14600	6.23	18600	6.34	23300	6.42	28800	6.48	35300	6.52	42800	6.54	51400	6.53
	55	–	–	14700	9.44	18700	9.59	23300	9.70	28600	9.78	34900	9.82	42000	9.84
SZ175	35	16300	6.76	20500	6.85	25600	6.94	31500	7.02	38400	7.08	46300	7.11	55300	7.13
	55	–	–	16100	10.13	20300	10.25	25400	10.37	31200	10.47	38000	10.56	45800	10.63
SZ185	35	17300	7.22	21900	7.32	27200	7.42	33500	7.50	40900	7.56	49300	7.60	58900	7.61
	55	–	–	17100	10.82	21700	10.95	27000	11.08	33300	11.19	40500	11.29	48800	11.36
	35	17300	7.22	21900	7.32	27200	7.42	33500	7.50	40900	7.56	49300	7.60	58900	7.61
	55	–	–	17100	10.82	21700	10.95	27000	11.08	33300	11.19	40500	11.29	48800	11.36
SZ240	35	23200	10.14	29400	10.24	36700	10.37	45400	10.51	55500	10.68	67300	10.86	80800	11.06
	55	–	–	23000	14.86	29100	15.04	36400	15.23	44900	15.44	54800	15.67	66200	15.91
SZ300	35	29100	12.32	36500	12.69	45400	12.98	55900	13.21	68300	13.40	82700	13.58	99500	13.75
	55	–	–	28800	18.40	36100	18.91	44700	19.34	55100	19.69	67200	20.00	81400	20.28
SZ380	35	36200	15.20	45500	15.65	56500	16.00	69500	16.29	84800	16.54	102600	16.78	123200	17.05
	55	–	–	36000	22.19	45200	22.72	56100	23.11	68900	23.38	84000	23.56	101500	23.68
SZ170	35	15300	6.56	19400	6.60	24300	6.62	30100	6.63	36800	6.61	44700	6.56	53600	6.49
	55	–	–	15400	10.02	19500	10.10	24300	10.17	29900	10.22	36500	10.25	44100	10.26
SZ180	35	16200	6.90	20500	6.95	25700	6.99	31800	7.01	38900	7.00	47100	6.96	56400	6.89
	55	–	–	16300	10.56	20600	10.65	25700	10.72	31600	10.77	38500	10.81	46500	10.82
SZ200	35	17200	7.29	21800	7.35	27300	7.40	33700	7.43	41200	7.44	49800	7.41	59600	7.35
	55	–	–	17300	11.16	21800	11.25	27200	11.33	33500	11.39	40800	11.43	49100	11.43
SZ220	35	19900	8.27	25100	8.36	31300	8.45	38600	8.51	47000	8.54	56600	8.54	67500	8.51
	55	–	–	19800	12.68	25000	12.79	31200	12.88	38300	12.95	46400	12.99	55800	13.00
SZ242	35	23300	9.56	29500	9.70	36700	9.82	45000	9.93	54600	10.00	65500	10.04	77900	10.04
	55	–	–	23100	14.69	29200	14.82	36300	14.93	44500	15.01	53900	15.06	64600	15.07
SZ268	35	24900	10.78	31600	10.99	39400	11.15	48600	11.24	59300	11.26	71600	11.19	85700	11.03
	55	–	–	24700	16.58	31400	16.80	39200	16.95	48200	17.01	58700	16.98	70700	16.85
SZ271	35	24300	10.36	30900	10.52	38600	10.65	47700	10.74	58200	10.79	70400	10.81	84400	10.79
	55	–	–	24400	15.78	30900	15.99	38500	16.14	47300	16.26	57600	16.32	69300	16.34
SZ281	35	26100	11.01	33000	11.19	41300	11.34	50900	11.45	62100	11.52	74900	11.56	89600	11.55
	55	–	–	26000	16.79	33000	17.00	41100	17.17	50500	17.29	61300	17.36	73700	17.38
SZ296	35	26500	11.99	33700	12.27	42200	12.46	52300	12.54	64000	12.50	77700	12.33	93500	12.01
	55	–	–	26400	18.46	33500	18.77	42000	18.95	51900	19.00	63500	18.88	76900	18.61
SZ322	35	28800	12.44	36600	12.67	45900	12.84	56800	12.96	69500	13.03	84300	13.06	101300	13.05
	55	–	–	29000	18.87	36700	19.16	45800	19.38	56400	19.54	68700	19.63	82800	19.66
SZ350	35	32100	13.50	40500	13.70	50400	13.88	62100	14.03	75600	14.14	91200	14.22	109000	14.24
	55	–	–	31600	20.25	40100	20.49	50000	20.73	61500	20.94	74900	21.11	90200	21.25
SZ370	35	34100	14.42	43100	14.63	53700	14.82	66100	14.98	80500	15.11	97100	15.19	116000	15.21
	55	–	–	33700	21.63	42700	21.89	53200	22.14	65500	22.37	79700	22.56	96100	22.70

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*

Technical data and ordering

SZ - Scroll compressors - R407C - 50 Hz

Performance table

Type	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
SZ084	35	7200	3.9	9300	3.9	11800	4.0	14800	4.0	18300	4.0	22300	4.0	27000	4.0	32300	3.9
	55	–	–	–	–	–	–	11300	6.2	14200	6.2	17500	6.2	21400	6.2	25800	6.2
SZ090	35	7600	4.1	9800	4.1	12500	4.2	15600	4.2	19300	4.2	23600	4.2	28500	4.2	34100	4.1
	55	–	–	–	–	–	–	12000	6.5	15000	6.5	18500	6.5	22500	6.5	27200	6.5
SZ100	35	8100	4.3	10500	4.4	13300	4.4	16600	4.4	20500	4.5	25000	4.4	30100	4.4	36000	4.4
	55	–	–	–	–	–	–	12700	6.9	15900	6.9	19600	6.9	23800	6.9	28700	6.9
SZ110	35	9300	4.9	12000	5.0	15200	5.0	19000	5.0	23400	5.0	28500	5.0	34300	5.0	40900	4.9
	55	–	–	–	–	–	–	14500	7.9	18100	7.9	22300	7.9	27200	7.8	32700	7.8
SZ120	35	11000	5.7	14200	5.7	17900	5.8	22200	5.8	27300	5.8	33200	5.8	39900	5.7	47600	5.6
	55	–	–	–	–	–	–	17000	9.2	21200	9.2	26100	9.2	31600	9.1	38000	9.0
SZ148	35	13500	6.9	17300	7.0	21700	7.0	27000	7.0	33100	7.1	40300	7.1	48500	7.1	57800	7.2
	55	–	–	–	–	–	–	21200	11.1	26200	11.1	32100	11.1	38900	11.1	46700	11.1
SZ161	35	14600	7.4	18700	7.5	23500	7.5	29200	7.6	35800	7.6	43500	7.6	52400	7.7	62600	7.8
	55	–	–	–	–	–	–	22900	12.0	28400	12.0	34700	12.0	42100	12.0	50600	12.0
SZ175	35	15500	8.0	19800	8.0	25000	8.1	31100	8.2	38100	8.2	46300	8.2	55600	8.2	66200	8.2
	55	–	–	–	–	–	–	24000	12.7	29800	12.8	36500	12.8	44200	12.8	53000	12.8
SZ185	35	16600	8.6	21300	8.6	26900	8.7	33400	8.8	41000	8.8	49700	8.8	59700	8.8	71100	8.8
	55	–	–	–	–	–	–	25700	13.7	32000	13.7	39200	13.8	47500	13.8	56900	13.8
SZ240	35	22400	11.7	28900	11.8	36500	11.9	45400	12.1	55900	12.2	68000	12.4	82000	12.5	98000	12.6
	55	–	–	21900	17.9	28100	18.0	35500	18.2	44000	18.4	54000	18.7	65500	18.9	78800	19.2
SZ300	35	28700	13.7	36200	13.9	45100	14.1	55500	14.3	67600	14.5	81700	14.7	98000	14.9	116600	15.2
	55	–	–	28500	21.2	35900	21.6	44600	22.1	54800	22.5	66600	22.9	80400	23.2	96300	23.6
SZ380	35	36000	16.9	45300	17.3	56400	17.6	69400	18.0	84600	18.3	102200	18.6	122400	18.9	145400	19.4
	55	–	–	35000	26.1	44200	26.6	55000	27.0	67500	27.4	82100	27.8	98900	28.1	118200	28.5
SZ170	35	14200	7.8	18300	7.9	23200	8.0	29100	8.0	36000	8.0	44000	8.0	53200	8.0	63700	7.9
	55	–	–	–	–	–	–	22300	12.3	27900	12.4	34500	12.4	42100	12.4	50900	12.4
SZ180	35	15000	8.2	19400	8.3	24600	8.3	30800	8.4	38000	8.4	46400	8.4	56100	8.3	67100	8.2
	55	–	–	–	–	–	–	23600	13.0	29500	13.0	36400	13.1	44400	13.0	53600	13.0
SZ200	35	16000	8.7	20600	8.8	26100	8.8	32700	8.9	40300	8.9	49200	8.9	59300	8.8	70900	8.7
	55	–	–	–	–	–	–	25000	13.8	31300	13.9	38600	13.9	47000	13.8	56600	13.8
SZ220	35	18400	9.9	23700	9.9	30000	10.0	37400	10.1	46100	10.1	56100	10.0	67500	10.0	80600	9.8
	55	–	–	–	–	–	–	28600	15.8	35800	15.8	44000	15.8	53500	15.7	64400	15.5
SZ230	35	20000	10.8	25800	10.8	32800	10.9	40900	10.9	50400	10.9	61200	10.9	73700	10.8	87700	10.7
	55	–	–	–	–	–	–	31100	17.4	38900	17.3	48000	17.3	58400	17.2	70200	17.0
SZ242	35	21600	11.4	27900	11.5	35200	11.6	43800	11.6	53800	11.6	65400	11.5	78600	11.4	93700	11.2
	55	–	–	–	–	–	–	33600	18.3	41800	18.4	51300	18.3	62300	18.1	74800	17.9
SZ250	35	21200	11.4	27500	11.4	34900	11.5	43500	11.5	53600	11.5	65200	11.4	78300	11.4	93300	11.3
	55	–	–	–	–	–	–	33100	18.3	41400	18.3	51100	18.2	62100	18.1	74700	17.9
SZ268	35	24100	12.6	31000	12.7	39000	12.8	48500	12.9	59500	12.9	72300	12.9	87000	12.9	103800	12.8
	55	–	–	–	–	–	–	37600	20.3	46700	20.3	57300	20.3	69400	20.2	83400	20.1
SZ271	35	23900	12.4	30600	12.5	38700	12.6	48100	12.6	59100	12.6	71900	12.7	86600	12.7	103400	12.7
	55	–	–	–	–	–	–	36700	19.9	45700	19.9	56000	19.9	68000	19.9	81800	19.8
SZ281	35	25200	13.1	32300	13.2	40800	13.3	50700	13.4	62200	13.4	75600	13.4	90900	13.4	108500	13.4
	55	–	–	–	–	–	–	39300	21.2	48800	21.2	59900	21.2	72600	21.1	87200	21.0
SZ285	35	25500	13.0	32900	13.2	41500	13.3	51700	13.3	63500	13.3	77200	13.3	92900	13.3	110800	13.2
	55	–	–	–	–	–	–	39300	21.0	48900	21.0	60100	21.0	73100	21.0	87900	20.9
SZ290	35	25200	13.4	32500	13.5	41000	13.5	51100	13.6	62800	13.7	76200	13.7	91600	13.6	109000	13.5
	55	–	–	–	–	–	–	39100	21.4	48800	21.5	59900	21.5	72700	21.4	87300	21.3
SZ296	35	26600	13.8	34000	13.9	42800	14.0	53200	14.1	65300	14.2	79300	14.2	95500	14.3	114000	14.4
	55	–	–	–	–	–	–	41700	22.2	51700	22.3	63200	22.3	76600	22.3	92000	22.3
SZ310	35	27000	14.2	34700	14.4	43900	14.5	54700	14.5	67200	14.6	81600	14.6	98000	14.5	116700	14.4
	55	–	–	–	–	–	–	41900	22.9	52200	22.9	64100	22.9	77800	22.9	93400	22.8
SZ320	35	29200	14.7	37300	14.9	47000	15.0	58400	15.1	71800	15.2	87200	15.2	105000	15.2	125400	15.2
	55	–	–	–	–	–	–	45700	23.6	56700	23.7	69400	23.8	84200	23.8	101300	23.9
SZ322	35	28700	14.9	36800	15.0	46300	15.1	57500	15.1	70600	15.2	85800	15.3	103300	15.4	123300	15.5
	55	–	–	–	–	–	–	45100	23.9	55900	24.0	68400	24.0	82900	24.0	99600	24.0
SZ350	35	30500	15.9	39100	16.1	49300	16.2	61200	16.3	75200	16.4	91200	16.4	109500	16.4	130300	16.4
	55	–	–	–	–	–	–	47200	25.4	58600	25.6	71900	25.6	87100	25.7	104400	25.7
SZ370	35	32700	17.1	42000	17.3	52900	17.4	65800	17.5	80700	17.6	98000	17.7	117700	17.7	140000	17.6
	55	–	–	–	–	–	–	50700	27.4	63000	27.5	77200	27.6	93500	27.6	112100	27.6

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 / 50 Hz*

Technical data and ordering

SZ - Scroll compressors - R407C - 60 Hz

Performance table

Type	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
SZ084	35	8400	4.45	11100	4.49	14300	4.52	17900	4.53	22000	4.52	26700	4.49	32000	4.42	37900	4.33
	55	–	–	–	–	–	–	12600	7.16	16200	7.17	20300	7.17	25000	7.14	30100	7.08
SZ090	35	9200	4.82	12000	4.87	15300	4.92	19100	4.95	23500	4.96	28500	4.95	34200	4.91	40700	4.84
	55	–	–	–	–	–	–	14100	7.69	17800	7.72	22100	7.74	27000	7.73	32500	7.69
SZ100	35	10000	5.16	12900	5.23	16400	5.30	20400	5.35	25100	5.39	30600	5.41	36800	5.40	43800	5.36
	55	–	–	–	–	–	–	15800	8.19	19700	8.24	24100	8.28	29200	8.29	35000	8.28
SZ110	35	11500	5.85	14800	5.93	18700	6.01	23300	6.06	28600	6.10	34700	6.10	41700	6.08	49600	6.02
	55	–	–	–	–	–	–	18000	9.35	22400	9.40	27400	9.41	33200	9.40	39700	9.35
SZ112	35	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	55	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SZ120	35	13500	6.76	17300	6.85	21800	6.94	27000	7.00	33100	7.03	40100	7.02	48100	6.98	57100	6.88
	55	–	–	–	–	–	–	20900	10.88	25900	10.91	31700	10.91	38300	10.86	45900	10.76
SZ124	35	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	55	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SZ147	35	17200	7.51	21500	7.59	26600	7.71	32500	7.85	39500	8.03	47600	8.25	56900	8.52	67600	8.82
	55	–	–	–	–	–	–	26100	11.94	31900	12.01	38700	12.12	46500	12.27	55600	12.47
SZ148	35	16500	8.31	21100	8.40	26400	8.52	32700	8.66	40000	8.78	48500	8.88	58300	8.92	69500	8.89
	55	–	–	–	–	–	–	25800	13.28	31800	13.36	38800	13.47	46900	13.59	56200	13.70
SZ161	35	17800	8.90	22700	9.03	28500	9.14	35300	9.24	43200	9.34	52300	9.44	62900	9.56	75000	9.69
	55	–	–	–	–	–	–	27900	14.27	34400	14.38	41900	14.47	50600	14.55	60700	14.63
SZ175	35	19300	9.48	24600	9.63	30800	9.77	38000	9.89	46500	9.99	56300	10.07	67500	10.12	80200	10.14
	55	–	–	–	–	–	–	29400	15.14	36300	15.29	44300	15.43	53600	15.54	64100	15.62
SZ185	35	20600	10.19	26100	10.35	32700	10.50	40500	10.63	49500	10.75	59900	10.83	71800	10.89	85400	10.90
	55	–	–	–	–	–	–	31300	16.28	38600	16.44	47200	16.59	57000	16.71	68200	16.79
SZ185	35	20600	10.19	26100	10.35	32700	10.50	40500	10.63	49500	10.75	59900	10.83	71800	10.89	85400	10.90
	55	–	–	–	–	–	–	31300	16.28	38600	16.44	47200	16.59	57000	16.71	68200	16.79
SZ240	35	26900	13.97	34700	14.33	43900	14.68	54700	15.00	67300	15.31	81900	15.62	98700	15.92	117900	16.22
	55	–	–	26600	21.18	34200	21.63	42900	22.05	53100	22.43	64800	22.78	78400	23.11	94000	23.40
SZ300	35	35800	16.75	44900	17.09	55700	17.43	68400	17.76	83500	18.09	101300	18.42	122000	18.75	146100	19.08
	55	–	–	34300	25.62	43000	26.11	53300	26.61	65500	27.10	80000	27.61	97100	28.11	117100	28.62
SZ380	35	42900	20.29	54100	20.75	67300	21.23	82900	21.73	101000	22.24	122100	22.76	146400	23.28	174100	23.81
	55	–	–	41900	31.38	52800	31.88	65500	32.42	80500	33.00	97900	33.62	118100	34.26	141300	34.93
SZ170	35	16600	8.90	21900	8.98	28100	9.04	35300	9.06	43400	9.04	52600	8.97	63000	8.84	74600	8.65
	55	–	–	–	–	–	–	24800	14.31	31900	14.34	40000	14.33	49200	14.26	59400	14.14
SZ180	35	18100	9.63	23600	9.74	30100	9.83	37600	9.89	46300	9.92	56200	9.89	67500	9.82	80100	9.68
	55	–	–	–	–	–	–	27800	15.37	35100	15.44	43600	15.47	53100	15.45	63900	15.37
SZ200	35	19800	10.31	25500	10.46	32300	10.59	40200	10.70	49500	10.77	60200	10.80	72400	10.78	86300	10.71
	55	–	–	–	–	–	–	31200	16.37	38700	16.48	47500	16.55	57600	16.57	69000	16.54
SZ220	35	22700	11.69	29200	11.86	36800	12.00	45800	12.12	56300	12.19	68300	12.20	82100	12.15	97600	12.02
	55	–	–	–	–	–	–	35500	18.69	44100	18.78	54000	18.81	65300	18.79	78200	18.69
SZ242	35	26600	13.50	34000	13.70	42900	13.86	53200	13.98	65200	14.05	79000	14.04	94800	13.95	112600	13.76
	55	–	–	–	–	–	–	41200	21.75	51100	21.81	62500	21.80	75500	21.71	90400	21.51
SZ268	35	29600	15.07	37800	15.25	47400	15.46	58800	15.65	72000	15.81	87300	15.90	104800	15.90	124700	15.77
	55	–	–	–	–	–	–	46100	24.16	56900	24.27	69500	24.37	84000	24.45	100600	24.46
SZ271	35	28900	14.75	37000	14.96	46500	15.14	57700	15.30	70700	15.43	85700	15.54	103000	15.63	122700	15.71
	55	–	–	–	–	–	–	45200	23.63	55900	23.78	68300	23.89	82500	23.95	98900	23.98
SZ281	35	30900	15.65	39400	15.88	49500	16.07	61300	16.24	75100	16.37	91100	16.46	109300	16.53	130100	16.57
	55	–	–	–	–	–	–	48100	25.16	59400	25.30	72500	25.38	87600	25.41	105000	25.39
SZ294	35	34100	15.02	42600	15.18	52700	15.41	64500	15.70	78300	16.07	94400	16.51	112800	17.03	133900	17.64
	55	–	–	–	–	–	–	51800	23.88	63300	24.02	76700	24.24	92300	24.54	110200	24.94
SZ296	35	32600	16.62	41500	16.79	52000	17.03	64400	17.30	78800	17.55	95500	17.74	114800	17.83	136900	17.76
	55	–	–	–	–	–	–	50900	26.55	62700	26.70	76500	26.92	92500	27.16	110800	27.38
SZ322	35	35100	17.78	44800	18.04	56100	18.27	69500	18.47	85000	18.66	103100	18.87	123900	19.10	147700	19.37
	55	–	–	–	–	–	–	54900	28.53	67700	28.75	82600	28.93	99800	29.09	119600	29.24
SZ350	35	38100	18.95	48400	19.24	60600	19.52	74900	19.77	91700	19.98	110900	20.14	133000	20.23	158100	20.26
	55	–	–	–	–	–	–	57900	30.26	71600	30.56	87300	30.83	105500	31.05	126200	31.22
SZ370	35	40500	20.38	51500	20.69	64400	20.99	79700	21.26	97500	21.48	118000	21.65	141500	21.76	168200	21.79
	55	–	–	–	–	–	–	61600	32.53	76100	32.86	92900	33.15	112300	33.39	134300	33.57

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*

Technical data and ordering

SM / SY - Scroll compressors - R22 - 50 Hz

Performance table

Type	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
SM084	35	7700	4.0	9900	4.0	12500	4.0	15500	4.0	18900	4.0	22800	4.0	27200	3.9	32100	3.9
	55	–	–	–	–	–	–	12000	6.4	15000	6.3	18500	6.2	22500	6.2	26900	6.1
SM090	35	8600	4.3	10900	4.4	13600	4.4	16700	4.4	20200	4.4	24300	4.4	28900	4.4	34100	4.4
	55	–	–	–	–	–	–	13300	6.7	16400	6.7	19900	6.6	23900	6.6	28400	6.5
SM100	35	9000	4.6	11500	4.6	14400	4.7	17700	4.7	21500	4.7	25800	4.7	30700	4.7	36200	4.7
	55	–	–	–	–	–	–	14200	7.1	17400	7.1	21200	7.1	25400	7.0	30200	7.0
SM110	35	10200	5.2	13000	5.2	16200	5.2	20000	5.2	24200	5.2	29000	5.2	34400	5.2	40400	5.2
	55	–	–	–	–	–	–	15900	8.0	19600	8.0	23800	7.9	28400	7.9	33700	7.8
SM112	35	11300	5.1	14100	5.1	17400	5.2	21200	5.3	25500	5.4	30500	5.5	36100	5.6	42500	5.7
	55	–	–	–	–	–	–	17500	7.8	21200	7.9	25400	8.0	30200	8.1	35700	8.2
SM120	35	11800	6.0	15200	6.0	19000	6.0	23300	5.9	28200	5.9	33700	5.9	39900	5.9	46700	5.9
	55	–	–	–	–	–	–	18600	9.2	22800	9.2	27600	9.1	33000	9.0	38900	9.0
SM124	35	13100	5.4	16200	5.5	19800	5.7	23900	5.8	28700	6.0	34100	6.1	40300	6.2	47200	6.4
	55	–	–	–	–	–	–	19800	8.4	24000	8.6	28700	8.8	34100	9.0	40200	9.2
SM147	35	14900	6.3	18600	6.4	22900	6.5	27800	6.7	33500	6.9	40000	7.1	47300	7.2	55600	7.4
	55	–	–	–	–	–	–	22700	9.8	27500	9.9	33100	10.1	39400	10.3	46600	10.5
SM148	35	14800	7.0	18500	7.0	22900	7.1	27800	7.1	33600	7.2	40100	7.2	47500	7.3	55900	7.3
	55	–	–	–	–	–	–	22600	10.9	27500	10.9	33100	10.9	39500	11.0	46800	11.0
SM161	35	16000	7.5	20100	7.6	24700	7.6	30100	7.6	36300	7.7	43400	7.7	51400	7.8	60500	7.8
	55	–	–	–	–	–	–	24400	11.7	29700	11.7	35800	11.7	42800	11.8	50600	11.8
SM175	35	17000	8.1	21300	8.1	26400	8.2	32300	8.3	39000	8.4	46600	8.4	55200	8.5	64800	8.5
	55	–	–	–	–	–	–	26200	12.4	32000	12.5	38500	12.6	46000	12.6	54400	12.7
SM185	35	18400	8.8	23100	8.9	28600	9.0	35000	9.1	42200	9.1	50500	9.2	59800	9.3	70200	9.3
	55	–	–	–	–	–	13.5	28400	13.6	34600	13.7	41800	13.8	49800	13.8	58900	13.9
SY185	35	17600	8.7	22500	8.7	28100	8.7	34500	8.8	42000	8.9	50400	9.0	60000	9.1	70900	9.2
	55	–	–	–	–	–	13.3	28600	13.3	34800	13.3	41900	13.4	49800	13.5	58600	13.7
SY240	35	25100	11.7	31400	11.8	38800	12.0	47300	12.1	57100	12.4	68300	12.6	81000	13.0	95300	13.3
	55	–	–	–	–	–	–	38400	17.8	46600	18.0	56100	18.3	67000	18.6	79300	18.9
SY300	35	31900	14.2	39900	14.5	49300	14.8	60300	15.1	73100	15.6	87900	16.1	104800	16.7	124100	17.4
	55	–	–	–	–	–	–	48600	22.0	59200	22.4	71600	22.8	85900	23.4	102300	24.1
SY380	35	40100	17.3	49500	17.6	60500	18.0	73300	18.4	88100	18.8	104900	19.2	124100	19.8	145800	20.4
	55	–	–	–	–	–	–	59700	26.8	72300	27.1	86800	27.5	103400	27.9	122300	28.4
SM170	35	15200	8.0	19500	8.0	24600	8.0	30500	8.0	37200	8.0	44900	7.9	53500	7.9	63200	7.8
	55	–	–	–	–	–	–	23600	12.7	29600	12.6	36500	12.5	44300	12.3	53100	12.1
SM180	35	16900	8.6	21400	8.7	26700	8.8	32800	8.8	39900	8.8	47900	8.8	56900	8.8	67100	8.7
	55	–	–	–	–	–	–	26200	13.4	32300	13.3	39300	13.3	47100	13.2	56000	13.1
SM200	35	17700	9.2	22600	9.3	28300	9.3	34800	9.3	42300	9.4	50900	9.4	60500	9.4	71300	9.4
	55	–	–	–	–	–	–	27900	14.3	34400	14.2	41700	14.1	50000	14.0	59400	13.9
SM220	35	20000	10.4	25500	10.4	32000	10.4	39300	10.4	47700	10.5	57100	10.5	67700	10.4	79500	10.4
	55	–	–	–	–	–	–	31400	16.0	38600	16.0	46800	15.9	56000	15.8	66300	15.6
SM230	35	22000	10.8	27400	10.9	33700	10.9	41000	10.9	49500	10.9	59100	10.9	70100	10.9	82400	10.8
	55	–	–	–	–	–	–	32500	17.2	40800	17.1	50200	16.9	61000	16.7	73100	16.5
SM242	35	23300	12.0	29900	11.9	37400	11.9	45900	11.9	55600	11.9	66400	11.9	78500	11.8	92000	11.8
	55	–	–	–	–	–	–	36600	18.4	45000	18.3	54400	18.2	64900	18.1	76600	17.9
SM248	35	26300	10.9	32500	11.1	39600	11.3	47900	11.6	57400	11.9	68200	12.2	80500	12.5	94400	12.7
	55	–	–	–	–	–	–	39700	16.9	47900	17.2	57400	17.5	68100	17.9	80300	18.4
SM250	35	23700	11.6	29500	11.7	36200	11.7	44100	11.7	53200	11.7	63500	11.7	75300	11.7	88600	11.6
	55	–	–	–	–	–	–	35000	18.5	43800	18.4	54000	18.2	65600	18.0	78600	17.7
SM268	35	26600	13.0	33700	13.0	41800	13.0	51100	13.1	61700	13.1	73700	13.2	87300	13.2	102400	13.2
	55	–	–	–	–	–	–	40700	20.1	49800	20.1	60100	20.0	71700	20.0	84800	20.0
SM271	35	25800	12.7	32500	12.8	40300	12.8	49300	12.9	59600	12.9	71300	13.0	84500	13.0	99300	13.0
	55	–	–	–	–	–	–	39700	19.7	48600	19.7	58700	19.7	70100	19.6	83000	19.6
SM272	35	28000	11.7	34800	11.9	42600	12.2	51700	12.5	62100	12.8	73900	13.2	87400	13.5	102600	13.8
	55	–	–	–	–	–	–	41700	18.3	50500	18.5	60600	18.9	72100	19.3	85200	19.7
SM281	35	27500	13.5	34700	13.5	43000	13.6	52600	13.6	63600	13.6	75900	13.7	89900	13.7	105500	13.7
	55	–	–	–	–	–	–	42300	20.9	51800	20.9	62500	20.8	74600	20.8	88200	20.8
SM285	35	27100	13.4	34000	13.5	42100	13.6	51400	13.7	62000	13.8	74100	13.9	87800	14.0	103200	14.1
	55	–	–	–	–	–	–	41200	20.8	51100	20.8	62300	20.8	75000	20.8	89300	20.7
SM290	35	27700	13.5	34700	13.6	42900	13.7	52300	13.8	63100	13.8	75400	13.9	89400	13.9	105100	13.9
	55	–	–	–	–	–	–	42000	21.0	51900	21.1	63100	21.1	75800	21.0	90100	20.9
SM294	35	29900	12.5	37200	12.7	45800	13.0	55600	13.4	67000	13.7	79900	14.1	94600	14.5	111200	14.8
	55	–	–	–	–	–	–	45400	19.7	55100	19.9	66200	20.2	78900	20.6	93300	21.1
SM296	35	29200	14.0	36500	14.1	45000	14.2	54800	14.2	66100	14.3	79000	14.4	93600	14.5	110100	14.6
	55	–	–	–	–	–	–	44500	21.8	54100	21.8	65200	21.8	77900	21.9	92200	21.9
SM310	35	30000	14.6	37500	14.7	46300	14.8	56500	14.9	68200	15.0	81500	15.1	96500	15.1	113500	15.1
	55	–	–	–	–	–	–	45400	22.8	56000	22.9	68100	22.9	81900	22.8	97300	22.7
SM320	35	30600	15.2	38600	15.4	47900	15.6	58600	15.7	70800	15.9	84700	16.1	100300	16.3	117900	16.5
	55	–	–	–	–	–	–	47400	23.1	58300	23.3	70600	23.4	84500	23.5	100100	23.7
SM322	35	31600	15.0	39500	15.1	48700	15.2	59300	15.3	71500	15.4	85500	15.5	101300	15.6	119100	15.6
	55	–	–	–	–	–	–	48100	23.4	58600	23.4	70600	23.4	84200	23.5	99700	23.5
SM350	35	33500	16.1	42000	16.3	52000	16.4	63600	16.6	76800	16.7	91800	16.8	108700	16.9	127700	17.0
	55	–	–	–	–	–	–	51600	24.9	63000	25.0	75900	25.2	90600	25.3	107100	25.4
SM370	35	36200	17.6	45500	17.8	56400	18.0	68900	18.1	83200	18.3	99400	18.4	117700	18.5	138300	18.6
	55	–	–	–	–	–	–	55900	27.2	68200	27.3	82300	27.5	98200	27.6	116000	27.7

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 / 50 Hz*

Technical data and ordering

SM / SY - Scroll compressors - R22 - 60 Hz

Performance table

Type	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
SM084	35	9600	4.78	12200	4.81	15200	4.83	18700	4.86	22600	4.89	27100	4.91	32100	4.92	37800	4.93
	55	–	–	–	–	–	–	15000	7.53	18500	7.51	22500	7.49	27000	7.45	32100	7.40
SM090	35	10600	5.20	13300	5.25	16500	5.29	20200	5.33	24500	5.36	29400	5.38	34900	5.39	41100	5.39
	55	–	–	–	–	–	–	16400	7.93	20000	7.93	24200	7.92	28900	7.90	34300	7.86
SM100	35	11200	5.41	14100	5.46	17400	5.50	21300	5.54	25700	5.58	30700	5.61	36400	5.62	42700	5.63
	55	–	–	–	–	–	–	17200	8.26	21000	8.26	25300	8.25	30100	8.23	35600	8.19
SM110	35	12800	6.17	16100	6.22	20000	6.26	24400	6.30	29500	6.34	35200	6.37	41600	6.40	48800	6.43
	55	–	–	–	–	–	–	19800	9.46	24100	9.47	29000	9.47	34500	9.46	40700	9.44
SM112	35	14100	6.07	17600	6.19	21600	6.33	26200	6.48	31500	6.64	37600	6.83	44400	7.02	52200	7.23
	55	–	–	–	–	–	–	21700	9.40	26200	9.51	31300	9.66	37100	9.82	43700	10.02
SM120	35	15000	7.10	18800	7.13	23300	7.17	28400	7.20	34200	7.25	40800	7.29	48300	7.34	56600	7.39
	55	–	–	–	–	–	–	23000	10.92	28000	10.93	33700	10.94	40100	10.94	47300	10.95
SM124	35	16000	6.50	19800	6.64	24300	6.82	29500	7.05	35400	7.32	42200	7.63	49900	7.97	58600	8.36
	55	–	–	–	–	–	–	24100	10.20	29100	10.37	34700	10.60	41200	10.87	48600	11.18
SM147	35	18600	7.58	22800	7.75	27800	7.93	33500	8.10	40000	8.29	47500	8.47	55900	8.66	65500	8.84
	55	–	–	–	–	–	–	28000	11.75	33600	11.97	40100	12.20	47600	12.46	56000	12.73
SM148	35	18100	8.32	22600	8.44	27800	8.54	33800	8.62	40600	8.71	48500	8.79	57400	8.89	67500	9.00
	55	–	–	–	–	–	–	27600	12.91	33500	13.03	40300	13.13	48000	13.22	56700	13.31
SM161	35	19700	8.99	24600	9.12	30200	9.23	36700	9.32	44200	9.41	52700	9.51	62400	9.61	73300	9.72
	55	–	–	–	–	–	–	30000	13.96	36400	14.08	43800	14.19	52100	14.29	61600	14.39
SM175	35	21100	9.81	26400	9.98	32500	10.15	39500	10.31	47500	10.46	56500	10.59	66600	10.70	77800	10.80
	55	–	–	–	–	–	–	32200	15.06	39200	15.23	47000	15.39	55800	15.53	65600	15.65
SM185	35	22500	10.42	28100	10.60	34600	10.78	42000	10.95	50500	11.10	60100	11.25	70800	11.37	82800	11.47
	55	–	–	–	–	–	–	34300	15.99	41700	16.17	50000	16.34	59300	16.49	69800	16.62
SY185	35	22500	10.37	28000	10.49	34500	10.60	42000	10.71	50800	10.83	60800	10.94	72200	11.05	85100	11.16
	55	–	–	–	–	–	–	34600	15.85	42100	16.13	50800	16.39	60700	16.63	71900	16.86
SY240	35	30600	13.98	38200	14.17	47100	14.43	57300	14.75	69100	15.15	82500	15.63	97600	16.19	114800	16.84
	55	–	–	–	–	–	–	46700	21.37	56700	21.74	68100	22.16	81000	22.64	95700	23.19
SY300	35	39800	16.39	49400	16.85	60600	17.38	73600	17.97	88500	18.59	105600	19.25	125000	19.91	146900	20.58
	55	–	–	–	–	–	–	59600	25.95	72300	26.65	86800	27.43	103400	28.30	122300	29.22
SY380	35	49000	20.86	60600	21.18	74200	21.63	89900	22.16	108000	22.77	128600	23.41	152100	24.06	178600	24.68
	55	–	–	–	–	–	–	72800	32.58	88300	32.94	106000	33.45	126200	34.09	149000	34.81
SM170	35	18900	9.54	24000	9.60	29900	9.66	36800	9.72	44500	9.77	53300	9.80	63300	9.83	74400	9.85
	55	–	–	–	–	–	–	29500	15.04	36400	15.01	44300	14.96	53300	14.89	63300	14.80
SM180	35	20900	10.40	26200	10.49	32600	10.57	39900	10.65	48300	10.71	57900	10.76	68700	10.78	80900	10.78
	55	–	–	–	–	–	–	32300	15.85	39400	15.85	47600	15.83	57000	15.79	67500	15.71
SM200	35	22000	10.81	27700	10.91	34300	11.00	41900	11.08	50600	11.15	60500	11.21	71700	11.24	84200	11.25
	55	–	–	–	–	–	–	34000	16.50	41400	16.51	49800	16.49	59400	16.45	70100	16.37
SM220	35	25300	12.34	31800	12.42	39400	12.51	48100	12.59	58000	12.66	69300	12.74	82000	12.80	96200	12.85
	55	–	–	–	–	–	–	39000	18.91	47500	18.92	57100	18.92	68000	18.90	80300	18.86
SM242	35	29500	14.19	37100	14.25	45800	14.32	55900	14.40	67400	14.48	80400	14.58	95100	14.67	111400	14.78
	55	–	–	–	–	–	–	45300	21.83	55200	21.84	66400	21.86	79100	21.87	93200	21.88
SM248	35	32000	13.01	39600	13.27	48600	13.64	58900	14.09	70700	14.63	84300	15.25	99700	15.95	117200	16.71
	55	–	–	–	–	–	–	48100	20.40	58100	20.75	69400	21.19	82400	21.73	97100	22.36
SM268	35	32600	15.41	40800	15.56	50300	15.70	61200	15.83	73700	15.95	88000	16.08	104100	16.23	122200	16.39
	55	–	–	–	–	–	–	49900	23.83	60600	23.95	72900	24.06	86800	24.16	102500	24.25
SM271	35	32100	15.16	40100	15.33	49400	15.48	60200	15.62	72500	15.75	86600	15.88	102500	16.01	120300	16.15
	55	–	–	–	–	–	–	49100	23.42	59600	23.55	71700	23.66	85400	23.75	100800	23.83
SM272	35	34500	14.08	42600	14.39	52000	14.74	62900	15.15	75300	15.60	89600	16.09	105700	16.63	124000	17.20
	55	–	–	–	–	–	–	52000	21.95	62600	22.34	74800	22.80	88700	23.32	104500	23.91
SM281	35	34200	16.09	42700	16.25	52700	16.39	64100	16.53	77200	16.66	92100	16.80	109000	16.95	128000	17.11
	55	–	–	–	–	–	–	52200	24.87	63500	25.01	76300	25.13	90900	25.24	107300	25.34
SM294	35	37100	15.15	45600	15.50	55500	15.85	66900	16.21	79900	16.57	94800	16.94	111700	17.31	130900	17.69
	55	–	–	–	–	–	–	55900	23.50	67200	23.94	80200	24.40	95000	24.91	111800	25.46
SM296	35	35800	16.62	44500	16.86	54700	17.06	66500	17.24	80000	17.40	95500	17.57	113100	17.76	132900	17.98
	55	–	–	–	–	–	–	54400	25.80	66000	26.04	79300	26.24	94500	26.42	111700	26.60
SM322	35	38900	17.97	48400	18.22	59500	18.44	72300	18.63	87000	18.81	103800	19.00	122900	19.20	144500	19.43
	55	–	–	–	–	–	–	59100	27.89	71700	28.15	86200	28.37	102700	28.57	121400	28.76
SM350	35	41600	19.61	52000	19.95	64000	20.28	77800	20.60	93500	20.90	111200	21.16	131100	21.40	153300	21.58
	55	–	–	–	–	–	–	63500	30.10	77100	30.44	92600	30.75	109900	31.04	129200	31.28
SM370	35	44300	20.83	55300	21.19	68100	21.54	82800	21.88	99500	22.19	118300	22.48	139500	22.72	163100	22.92
	55	–	–	–	–	–	–	67600	31.96	82100	32.32	98500	32.66	116900	32.96	137500	33.22

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*

Nomenclature

Family, lubrificant & refrigerant	Normal capacity	Approval	Voltage	Version	Evolution index
SH	**485**	**A**	**4**	**AB**	**A**

Family, refrigerant & lubrificant:
SH: scroll, POE lubrificant for R410A

Nominal capacity:
in thousand [Btu/h] at 60 Hz, R410A, ARI condition

UL index

Motor voltage code:
- **3:** 200 – 230 V / 3 ~ / 60 Hz
- **4:** 380 – 400 V / 3 ~ / 50 Hz & 460 V / 3 / 60 Hz
- **6:** 230 V / 3 ~ / 50 Hz
- **7:** 500 V / 3 ~ / 50 Hz & 575 V / 3 ~ / 60 Hz
- **9:** 380 V / 3 ~ / 60 Hz

Evolution index:
A~Z

Motor protection:
- **L:** internal overload protector
- **A:** electronic, 24 V AC
- **B:** electronic, SH180: 230V
  SH240-295-380-485: 115 / 230 V
- **C:** customized electrical box

Suction and discharge connections:
- **A:** brazed connections

*)for SH485 only
for further information refer to application guidelines FRCC.PC.027

Family,lubrificant & refrigerant	Normal capacity	Approval	Voltage	Version	Evolution index	
SZ	**185**	**-**	**4**	**R**	**C**	Single compressor
SY	**300**	**A**	**7**	**CA**	**A**	Single compressor

Family, refrigerant & lubrificant:
- **SM:** scroll, Mineral oil, R22/R417A *)
- **SY:** scroll, POE lubrificant, R22 / R414A (R407 for SY185-240-300)
- **SZ:** scroll, POE lubrificant, R407C, R134a (R404A, R507A for SZ084 – SZ185)

Nominal capacity:
in thousand Btu / h at 60 Hz, R22, ARI condition

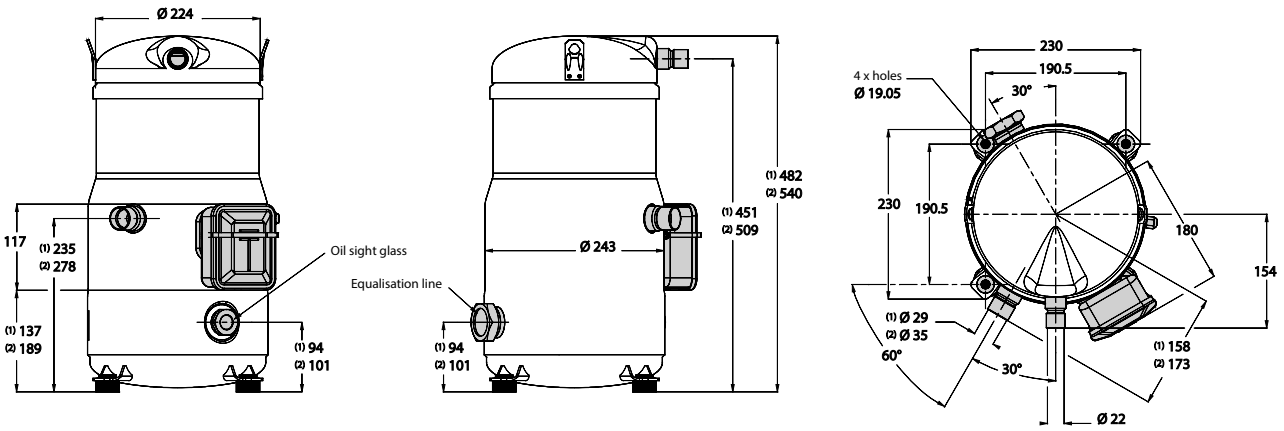
Motor voltage code:
- **3:** 200 – 230 V / 3 ~ / 60 Hz
- **4:** 380 – 400 V / 3 ~ / 50 Hz & 460 V / 3 / 60 Hz
- **6:** 230 V / 3 ~ / 50 Hz
- **7:** 500 V / 3 ~ / 50 Hz & 575 V / 3 ~ / 60 Hz
- **9:** 380 V / 3 ~ / 60 Hz

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 175-185
	R	: rotolock		
Electronic protection module	**P**	: brazed	24 V AC	
	X	: brazed	230 V	
	S	: rotolock	24 V AC	
	Y	: rotolock	230 V	
	CA	C: brazed	**A**: 24 V AC	S 240-300
	CB		**B**: 115 / 230 V	
	PA	P: rotolock	**A**: 24 V AC	
	PB		**B**: 115 / 230 V	
	CA	C: brazed	**A**: 24 V AC	S 380
	CB		**B**: 115 / 230 V	

*) When SM compressors are used with R417A, the factory charged mineral oil 160P must be replaced by polyolester oil 160SZ

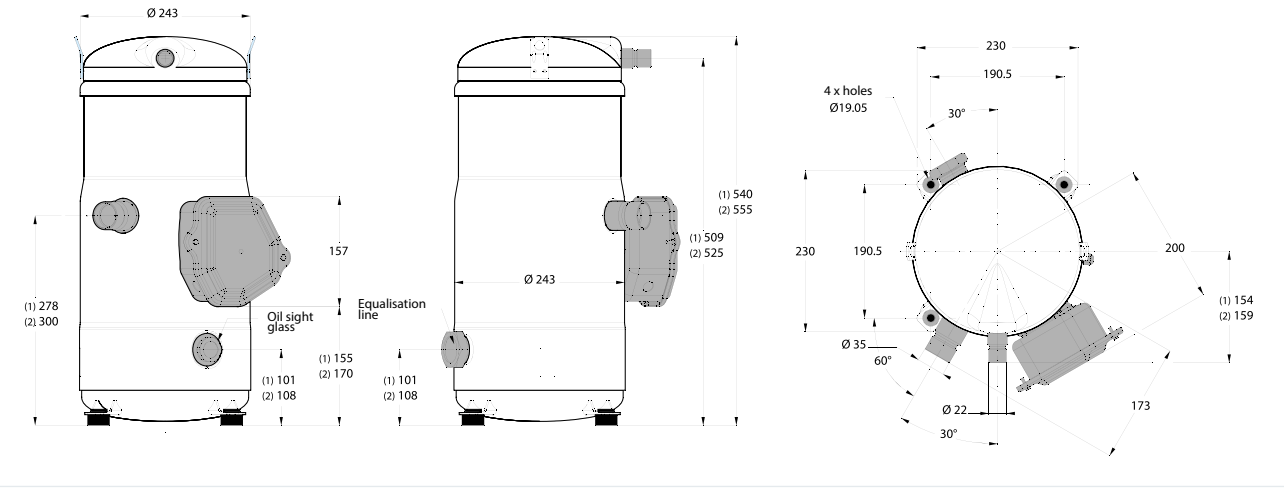
Dimensions

SH090 / 105 / 120 / 140 [3]) / 161 [3])



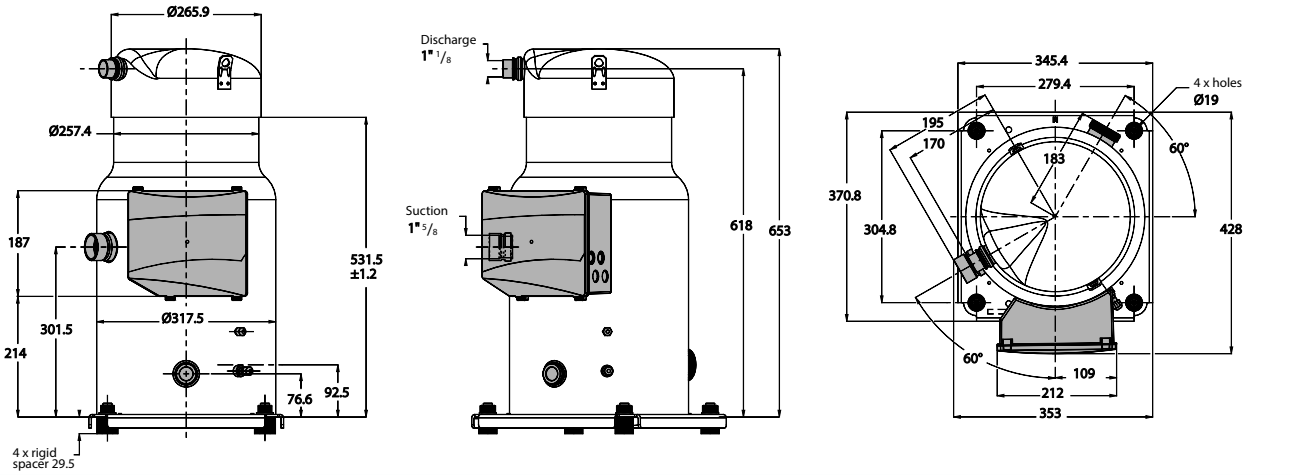
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[2]) SH105 / 120 / 140 / 161
[3]) except code 3

SH 140 / 161 code 3 and SH184



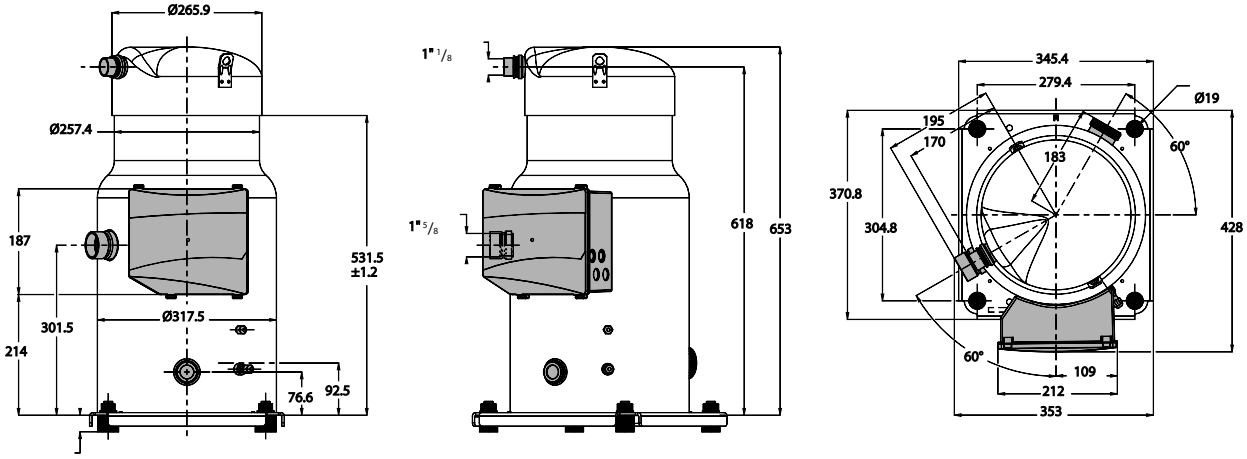
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[2]) SH184

SH180-240-295

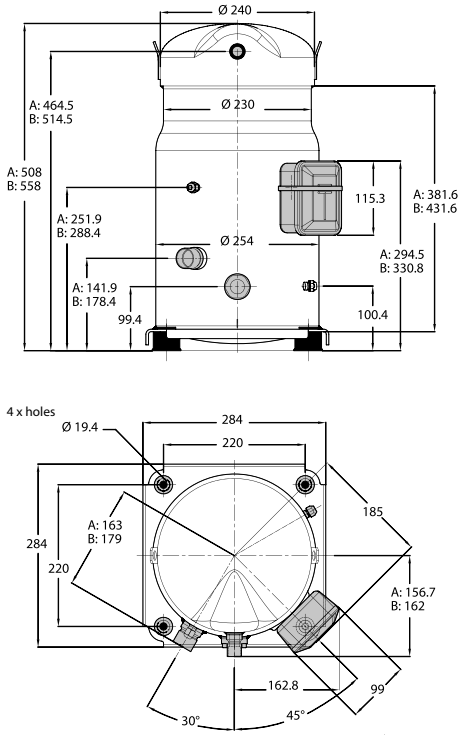


Dimensions

SH380-485



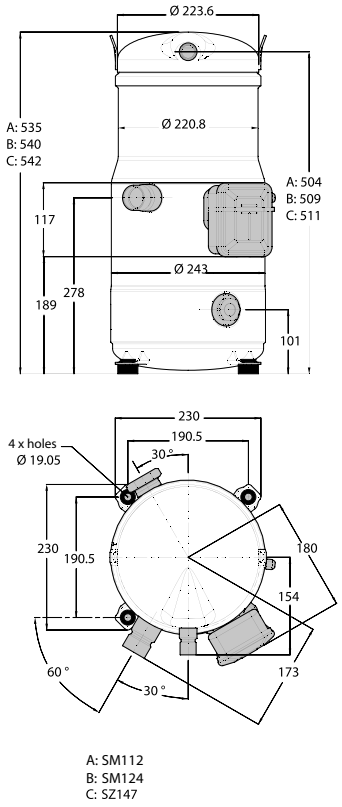
SM / SZ 084-090-100-110-120



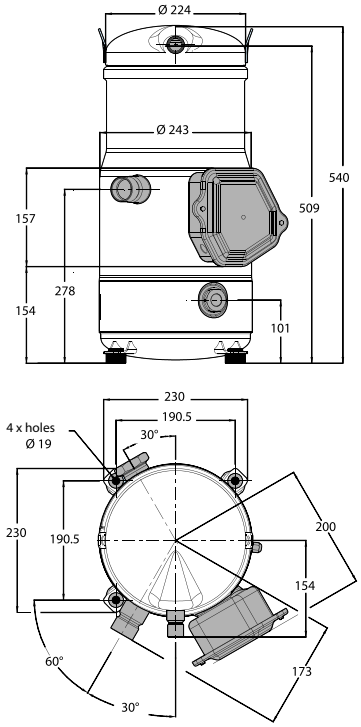
A: SM / SZ 084-090-100
B: SM / SZ 110-120

Dimensions

SM 112-124-SM / SZ147 [3])

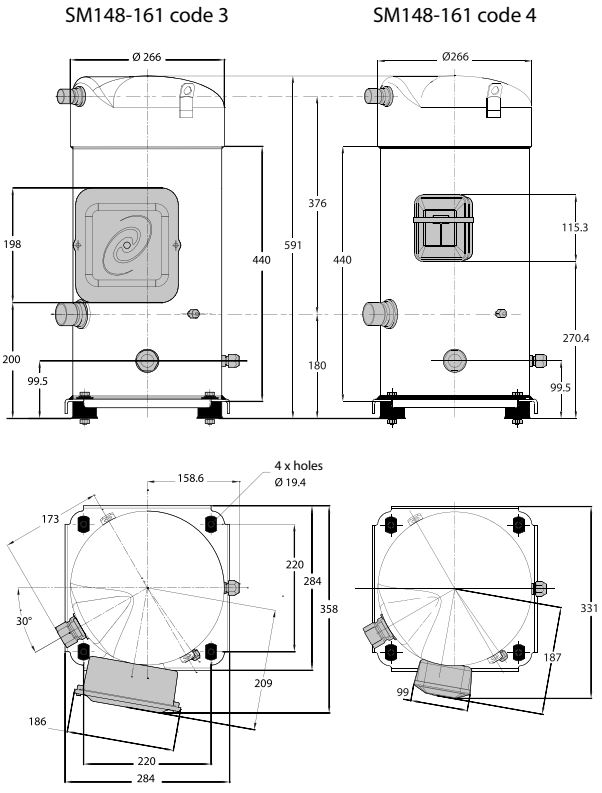


SM / SZ 147 code 3

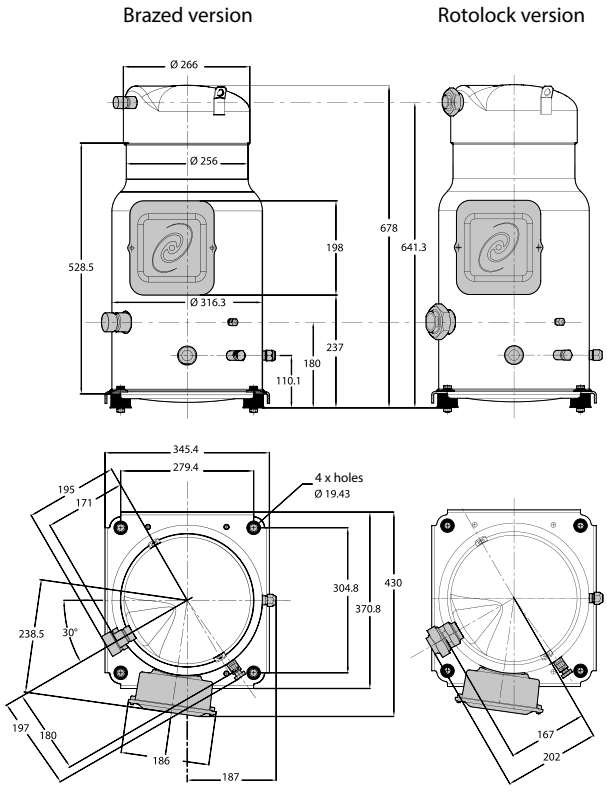


[3]) except code 3

SM / SZ148-161



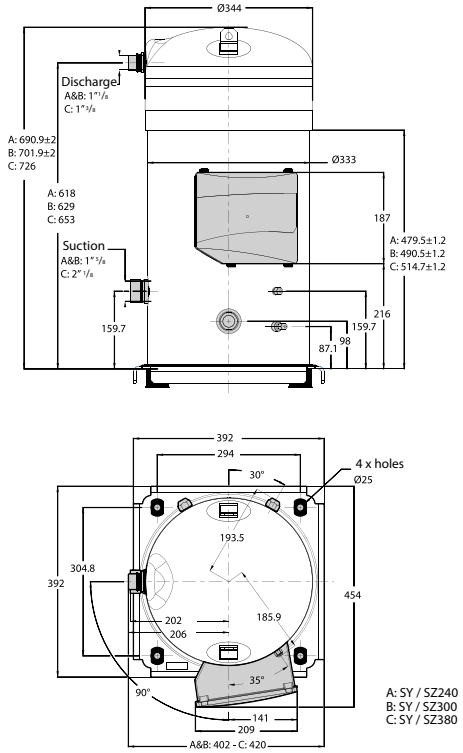
SM / SZ 175-185 and SY185



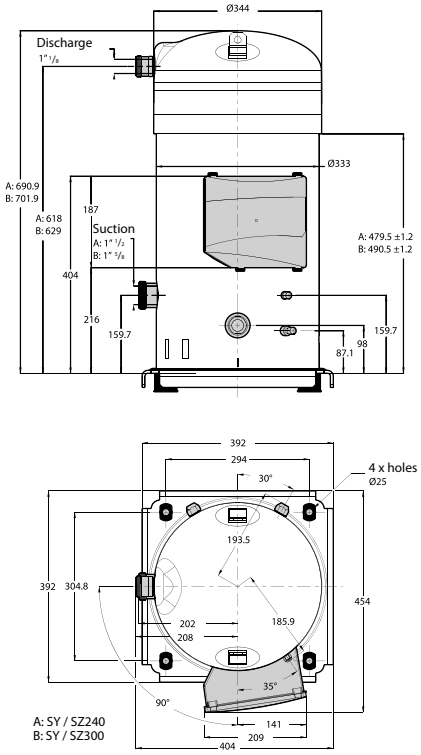
Dimensions

SY / SZ 240-300-380

Brazed version



Rotolockversion



Technical data

Tandem models

Ordering

CP1		CP2		Tandem model	Suction from	Kit code no. to order	Washer reference	Washer Ø [mm]	Washer in suction of
SH090	+	SH090	=	SH182	Left	7777044	Not needed		
					Right				
SH090	+	SH105	=	SH195	Left	7777043	5312497P03	23	CP2
					Right		5312497P03	23	CP2
SH090	+	SH120	=	SH210	Left	7777043	5312497P01	25	CP2
					Right		5312497P02	24	CP1
SH105	+	SH105	=	SH212	Left	7777044	Not needed		
					Right				
SH090	+	SH140	=	SH230	Left	7777043	Not needed		
					Right				
SH120	+	SH120	=	SH242	Left	7777044	Not needed		
					Right				
SH120	+	SH140	=	SH260	Left	7777042	Not needed		
					Right		5312497P01	25	CP1
SH120	+	SH161	=	SH281	Left	7777042	5312497P01	25	CP1
					Right		5312497P03	23	CP1
SH140	+	SH140	=	SH282	Left	7777044	Not needed		
					Right				
SH140	+	SH161	=	SH301	Left	7777042	5312497P05	26	CP1
					Right				
SH120	+	SH184	=	SH304	Left	7777052	5312497P03	23	CP1
					Right				
SH161	+	SH161	=	SH322	Left	7777044	Not needed		
					Right				
SH140	+	SH184	=	SH324	Left	7777052	5312479P06	35	CP1
					Right				
SH161	+	SH184	=	SH345	Left	7777052	5312479P05	26	CP1
					Right				
SH180	+	SH180	=	SH360	Left	7777041	Not needed		
					Right				
SH184	+	SH184	=	SH368	Left	7777053	Not needed		
					Right				
SH180	+	SH240	=	SH420	Left	7777037	5311579P01	31	CP1
					Right		5311579P01	31	CP1
SH180	+	SH295	=	SH475	Left	7777038	5311579P04	26	CP1
					Right		5311579P04	26	CP1
SH240	+	SH240	=	SH482	Left	7777041	Not needed		
					Right				
SH240	+	SH295	=	SH535	Left	7777037	5311579P01	31	CP1
					Right		5311579P01	31	CP1
SH180	+	SH380	=	SH560	Left	7777038	5311579P04	26	CP1
					Right		5311579P04	26	CP1
SH295	+	SH295	=	SH590	Left	7777041	Not needed		
					Right				
SH240	+	SH380	=	SH620	Left	7777048	5311579P05	29	CP1
					Right		5311579P05	29	CP1
SH295	+	SH380	=	SH675	Left	7777037	5311579P01	31	CP1
					Right		5311579P01	31	CP1
SH240	+	SH485	=	SH725	Left	120Z0569	5311579P09	24	CP1
					Right				
SH380	+	SH380	=	SH760	Left	7777041	Not needed		
					Right				
SH295	+	SH485	=	SH780	Left	120Z0551	5311579P07	27	CP1
					Right				
SH380	+	SH485	=	SH865	Left	120Z0550	5311579P08	30	CP1
					Right				
SH485	+	SH485	=	SH970	Left	120Z0578	Not needed		
					Right				

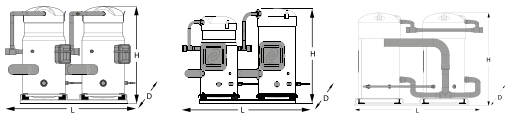
Technical data

Trio models

Ordering

CP1		CP2		CP3		Trio model	Suction from	Kit code no. to order	Washer reference	Washer Ø [mm]	Washer in suction of
SH180	+	SH180	+	SH180	=	SH550	Left	7777040	5311579P02	33	CP3
							Right	7777039	5311579P03	34.5	CP1 and CP3
SH240	+	SH240	+	SH240	=	SH720	Left	7777040	5311579P02	33	CP3
							Right	7777039	5311579P03	34.5	CP1 and CP3
SH295	+	SH295	+	SH295	=	SH885	Left	7777040	5311579P02	33	CP3
							Right	7777039	5311579P03	34.5	CP1 and CP3
SH380	+	SH380	+	SH380	=	SH1140	Left	7777040	5311579P02	33	CP3
							Right	7777049		Not needed	
SH485	+	SH485	+	SH485	=	SH1455	Left	7777040	5311579P02	33	CP2 and CP3
							Right				

Technical data



SM / SY / SZ - Scroll compressors - Tandem / Trio

Features

Type		Composition	R22	R404A / R507A	R407C	R134a	Oil management
Tandem	SM / SZ170	SM / SZ084 + SM / SZ084	•	•	•	•	Dynamic
	SM / SZ180	SM / SZ090 + SM / SZ090	•	•	•	•	Dynamic
	SM / SZ200	SM / SZ100 + SM / SZ100	•	•	•	•	Dynamic
	SM / SZ220	SM / SZ110 + SM / SZ110	•	•	•	•	Dynamic
	SM / SZ242	SM / SZ120 + SM / SZ120	•	•	•	•	Dynamic
	SM248	SM124 + SM124	•	–	–	–	Static
	SM / SZ268	SM / SZ120 + SM / SZ148	•	•	•	•	Dynamic
	SM / SZ271	SM / SZ110 + SM / SZ161	o	o	o	o	Dynamic
	SM272	SM124 + SM147	•	–	–	–	Static
	SM / SZ281	SM / SZ120 + SM / SZ161	•	•	•	•	Dynamic
	SM / SZ294	SM / SZ147 + SM / SZ147	•	–	o	–	Static
	SM / SZ296	SM / SZ148 + SM / SZ148	•	•	•	•	Dynamic
	SM / SZ322	SM / SZ161 + SM / SZ161	•	•	•	•	Dynamic
	SM / SZ350	SM / SZ175 + SM / SZ175	•	•	•	•	Dynamic
	SY / SZ370	SY / SZ185 + SY / SZ185	•	•	•	•	Dynamic
	SY / SZ425	SY / SZ240 + SY / SZ185	o	–	o	o	Dynamic
	SY / SZ482	SY / SZ240 + SY / SZ240	o	–	o	o	Static
	SY / SZ485	SY / SZ300 + SY / SZ185	o	–	o	o	Dynamic
	SY / SZ540	SY / SZ300 + SY / SZ240	o	–	o	o	Static
	SY / SZ600	SY / SZ300 + SY / SZ300	o	–	o	o	Static
	SY / SZ620	SY / SZ240 + SY / SZ380	o	–	o	o	Static
	SY / SZ680	SY / SZ300 + SY / SZ380	o	–	o	o	Static
	SY / SZ760	SY / SZ380 + SY / SZ380	o	–	o	o	Static
Trio	SM / SZ444	3 x SM / SZ148	o	o	o	o	Static
	SM / SZ483	3 x SM / SZ161	o	o	o	o	Static
	SY / SZ550	3 x SY / SZ185	o	o	o	o	Dynamic
	SY / SZ720	3 x SY / SZ240	o	–	o	o	Static
	SY / SZ900	3 x SY / SZ300	o	–	o	o	Static
	SY / SZ1140	3 x SY / SZ380	o	–	o	o	Static
Quadro	SM / SZ740	4 x SY / SZ185	o	o	o	o	Dynamic

• *Factory built or field assembly*
o *Field assembly*
– *Not available*

SM / SY / SZ - Scroll compressors

Field assembly

Tandem Type	Connection	Configuration example	Tandem assembly kit code no		Oil equalisation fittings
			Kit ①	Kit ②	
SM / SZ170	Brazed	SZ084-4VI + SZ084-4VI	7703251	7765012	2 x 023U8014
SM / SZ180	Brazed	SZ090-4VI + SZ090-4VI	7703251	7765012	2 x 023U8014
SM / SZ200	Brazed	SZ100-4VI + SZ100-4VI	7703251	7765012	2 x 023U8014
SM / SZ220	Brazed	SZ110-4VI + SZ110-4VI	7703384	7765025	2 x 023U8014
SM / SZ242	Brazed	SZ120-4VI + SZ120-4VI	7703384	7765025	2 x 023U8014
SM / SZ268	Brazed	SZ148-4VAI + SZ120-4VI	7703390	7765025	2 x 023U8014
SM / SZ271	Brazed	SZ161-4VAI + SZ110-4VI	7703390	7765025	2 x 023U8014
SM / SZ281	Brazed	SZ161-4VAI + SZ120-4VI	7703390	7765025	2 x 023U8014
SM / SZ296	Brazed	SZ148-4VAI + SZ148-4VAI	7703390	7765025	2 x 023U8014
SM / SZ322	Brazed	SZ161-4VAI + SZ161-4VAI	7703390	7765025	2 x 023U8014
SM / SZ350	Rotolock	SZ175-4SCI + SZ175-4SCI	7703371	7765013	2 x 023U8014
SM / SZ350	Brazed	SZ175-4PCI + SZ175-4PCI	–	7765017	2 x 023U8014
SM / SZ370	Rotolock	SZ185-4SCI + SZ185-4SCI	7703371	7765013	2 x 023U8014
SM / SZ370	Brazed	SZ185-4PCI + SZ185-4PCI	–	7765017	2 x 023U8014
SY / SZ425	Brazed	SZ240A4AAI + SZ185-4PCI	–	7765027	023U8016 + 023U8014
SY / SZ485	Rotolock	SZ300A4AAI + SZ185-4PCI	–	7765027	023U8016 + 023U8014

Different tandem assembly kits are available:
Kit ① containing the suction and discharge Tees sleeves and the suction oil separator / gas restrictor
Kit ② containing the suction oil separator / gas restrictor only

PSH - Scroll compressors 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.

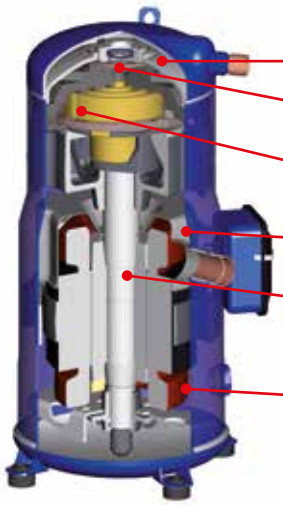
PSH compressors are suitable with a patented Surface Sump Heater (SSH) with integrated insulation, which largely contributes to the reduction in sound level.
PSH 51-64-77 are fitted as standard with a SSH.



Features
PSH



PSH 077



PSH 019 - 039

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 an 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	Full package	120H0965	120H0933	120H0989
PSH026	Full package	120H0967	120H0935	120H0991
PSH030	Full package	120H0969	120H0937	120H0993
PSH034	Full package	120H0971	120H0939	120H0995
PSH039	Full package	120H0973	120H0941	120H0997
PSH019	Bare compressor	–	120H0951	–
PSH023	Bare compressor	–	120H0953	–
PSH026	Bare compressor	–	120H0955	–
PSH030	Bare compressor	–	120H0957	–
PSH034	Bare compressor	–	120H0959	–
PSH039	Bare compressor	–	120H0961	–

PSH - Scroll compressors heating optimized

Ordering - Single pack

Compressor	OCS supply voltage	Code no.	
		Motor code 4	Motor code 9
PSH051	230 V AC	120H0864	120H0904
PSH064	230 V AC	120H0866	120H0906
PSH077	230 V AC	120H0868	120H0908

PSH - Scroll compressors heating optimized

Ordering - Industrial pack

Compressor	Connections	Code no.		
		Motor code 3	Motor code 4	Motor code 9
PSH019	Full package	120H0964	120H0932	120H0988
PSH023	Full package	120H0966	120H0934	120H0990
PSH026	Full package	120H0968	120H0936	120H0992
PSH030	Full package	120H0970	120H0938	120H0994
PSH034	Full package	120H0972	120H0940	120H0996
PSH039	Full package	120H0974	120H0942	120H0998
PSH019	Bare compressor	–	120H0952	–
PSH023	Bare compressor	–	120H0954	–
PSH026	Bare compressor	–	120H0956	–
PSH030	Bare compressor	–	120H0958	–
PSH034	Bare compressor	–	120H0960	–
PSH039	Bare compressor	–	120H0962	–

PSH - Scroll compressors heating optimized

Ordering - Industrial pack

Compressor	OCS supply voltage	Code no.	
		Motor code 4	Motor code 9
PSH051	230 V AC	120H0863	120H0903
PSH064	230 V AC	120H0865	120H0905
PSH077	230 V AC	120H0867	120H0907

Technical data and ordering

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]	[W]	[W]/[W]	[cm³/rev]	[m³/h]	[dm³]	[kg]
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

PSH - Scroll compressors heating optimized

Compressor specifications

Type		Nominal Heating capacity	Nominal Cooling capacity	Power Input	Heating COP	Cooling COP	Swept volume	Displacement [1]	Oil charge	Net weight [2]
		[W]	[W]	[W]	[W]/[W]	[W]/[W]	[cm³/ev]	[m³/h]	[dm³]	[kg]
50 Hz	PSH051	53337	36167	17170	3.11	2.11	227.6	39.6	6.7	108
	PSH064	65481	44683	21575	3.04	2.07	286.2	49.8	6.7	153
	PSH077	80303	55051	25979	3.09	2.12	344.6	60	7.2	161
60 Hz	PSH051	64057	43436	20621	3.11	2.11	227.6	47.8	6.7	108
	PSH064	78643	53665	25911	3.04	2.07	286.2	60.1	6.7	153
	PSH077	96114	66061	31175	3.08	2.12	344.6	72.4	7.2	161

Evaporating temperature: -7 °C Condensing temperature: 50 °C Superheat: 5 K Subcooling: 5 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

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 50 Hz

Heating performance table - Heating optimized

Type	Te	-30		-20		-15		-10		-5		0		5		10		15	
	Tc	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

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: *50 Hz*
Subject to modification without prior notification

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 50 Hz

Cooling performance table - Heating optimized

Type	Tc	-30		-20		-10		-5		0		5		10		15		20	
	Te	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
PSH051-4	20	19440	8.76	30420	9.74	45380	11.13	54580	12.02	65060	13.07	76910	14.28	–	–	–	–	–	–
	30	17380	10.34	27520	11.24	41210	12.48	49620	13.26	59200	14.19	70060	15.27	82270	16.52	95950	17.96	–	–
	40	15160	12.37	24440	13.22	36850	14.34	44470	15.05	53150	15.87	63000	16.83	74100	17.94	86560	19.23	100470	20.70
	50	12680	14.92	21080	15.76	32190	16.80	39000	17.44	46780	18.18	55610	19.03	65600	20.03	76830	21.17	89410	22.50
	60	–	–	17310	18.93	27110	19.92	33110	20.51	39970	21.19	47780	21.96	56640	22.85	66640	23.88	77880	25.10
	68	–	–	–	–	22660	22.95	28010	23.52	34120	24.15	41110	24.87	49060	25.69	58070	26.64	–	–
PSH064-4	20	24450	11.18	38160	12.35	57180	13.98	69030	15.06	82630	16.34	98110	17.88	–	–	–	–	–	–
	30	21960	13.06	34460	14.24	51610	15.70	62280	16.63	74530	17.72	88500	19.02	104340	20.56	122190	22.36	–	–
	40	19170	15.36	30520	16.66	45870	18.07	55390	18.89	66330	19.85	78830	20.97	93020	22.28	109060	23.83	127090	25.60
	50	15900	18.13	26180	19.65	39780	21.11	48190	21.90	57850	22.77	68910	23.77	81500	24.91	95770	26.24	111850	27.80
	60	–	–	21260	23.25	33190	24.87	40520	25.68	48930	26.53	58580	27.45	69600	28.48	82130	29.66	96310	31.00
	68	–	–	–	–	27440	28.43	33920	29.29	41370	30.16	49910	31.06	59690	32.04	70860	33.13	–	–
PSH077-4	20	30220	13.72	46750	15.15	69640	17.37	83940	18.81	100370	20.46	119130	22.34	–	–	–	–	–	–
	30	27030	15.93	42390	17.20	63380	19.21	76450	20.51	91480	22.02	108660	23.74	128180	25.68	150210	27.85	–	–
	40	23650	18.81	37630	19.97	56520	21.81	68280	23.00	81810	24.38	97310	25.97	114970	27.76	134960	29.76	157480	32.00
	50	20030	22.53	32430	23.63	49030	25.34	59370	26.44	71310	27.73	85040	29.19	100740	30.85	118590	32.71	138790	34.80
	60	–	–	26740	28.33	40860	29.96	49680	31.00	59920	32.21	71780	33.59	85420	35.14	101050	36.88	118830	38.80
	68	–	–	–	–	33790	34.56	41330	35.57	50150	36.73	60430	38.05	72370	39.53	86130	41.19	–	–

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Pe: *Power input in [kW]*
Qo: *Cooling capacity in [W]*
Subcooling: *5 K*
Superheat: *5 K*
Frequency: *50 Hz*

PSH - Scroll compressors heating optimized - R410A - 50 Hz

Heating performance - Heating optimized

Type	Te	-30		-20		-10		-5		0		5		10		15		20	
	Tc	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe
PSH051-4	20	28200	8.76	40160	9.74	56500	11.13	66600	12.02	78120	13.07	91190	14.28	–	–	–	–	–	–
	30	27720	10.34	38750	11.24	53680	12.48	62880	13.26	73400	14.19	85330	15.27	98790	16.52	113910	17.96	–	–
	40	27530	12.37	37660	13.22	51190	14.34	59510	15.05	69020	15.87	79830	16.83	92050	17.94	105790	19.23	121160	20.70
	50	27600	14.92	36840	15.76	48990	16.80	56440	17.44	64950	18.18	74640	19.03	85620	20.03	98000	21.17	111900	22.50
	60	–	–	36240	18.93	47030	19.92	53620	20.51	61150	21.19	69730	21.96	79490	22.85	90520	23.88	102930	25.10
	68	–	–	–	–	45620	22.95	51520	23.52	58270	24.15	65980	24.87	74750	25.69	84710	26.64	–	–
PSH064-4	20	35230	11.18	50070	12.35	70660	13.98	83550	15.06	98380	16.34	115340	17.88	–	–	–	–	–	–
	30	34550	13.06	48190	14.24	66750	15.70	78300	16.63	91610	17.72	106840	19.02	124160	20.56	143750	22.36	–	–
	40	33970	15.36	46580	16.66	63280	18.07	73600	18.89	85460	19.85	99040	20.97	114510	22.28	132030	23.83	151790	25.60
	50	33380	18.13	45120	19.65	60130	21.11	69300	21.90	79800	22.77	91820	23.77	105510	24.91	121070	26.24	138640	27.80
	60	–	–	43670	23.25	57170	24.87	65270	25.68	74510	26.53	85040	27.45	97050	28.48	110720	29.66	126200	31.00
	68	–	–	–	–	54850	28.43	62160	29.29	70440	30.16	79850	31.06	90580	32.04	102790	33.13	–	–
PSH077-4	20	43550	13.72	61470	15.15	86530	17.37	102210	18.81	120260	20.46	140850	22.34	–	–	–	–	–	–
	30	42520	15.93	59110	17.20	82050	19.21	96380	20.51	112880	22.02	131740	23.74	153140	25.68	177280	27.85	–	–
	40	41940	18.81	57040	19.97	77720	21.81	90630	23.00	105510	24.38	122550	25.97	141950	27.76	163890	29.76	188570	32.00
	50	41930	22.53	55400	23.63	73660	25.34	85070	26.44	98260	27.73	113410	29.19	130730	30.85	150390	32.71	172600	34.80
	60	–	–	54280	28.33	69980	29.96	79810	31.00	91230	32.21	104420	33.59	119580	35.14	136890	36.88	156550	38.80
	68	–	–	–	–	67380	34.56	75900	35.57	85850	36.73	97420	38.05	110790	39.53	126170	41.19	–	–

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Pe: *Power input in [kW]*
H: *Heating capacity in [W]*
Subcooling: *5 K*
Superheat: *5 K*
Frequency: *50 Hz*

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 60 Hz

Cooling performance table - Heating optimized

Tipo	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	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
	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
	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
	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
	68	–	–	–	–	–	–	9750	11.22	12020	11.38	14680	11.53	17770	11.68	21330	11.83	25430	11.99
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
	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
	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
	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
	68	–	–	–	–	–	–	11880	12.92	14580	13.07	17730	13.23	21390	13.40	25600	13.59	30450	13.81
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
	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
	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
	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
	68	–	–	–	–	–	–	13030	14.84	16090	14.90	19670	14.96	23860	15.03	28700	15.14	34270	15.28
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
	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
	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
	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
	68	–	–	–	–	–	–	15250	16.46	18710	16.61	22740	16.78	27400	16.97	32770	17.22	38930	17.53
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
	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
	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
	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
	68	–	–	–	–	–	–	17220	18.94	21160	19.03	25720	19.15	30980	19.33	37030	19.57	43950	19.90
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
	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
	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
	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
	68	–	–	–	–	–	–	19440	20.47	23850	20.73	28980	21.00	34930	21.29	41780	21.62	49630	21.99

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: *60 Hz*
Subject to modification without prior notification

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 60 Hz

Heating performance table - Heating optimized

Type	Te	-30		-20		-15		-10		-5		0		5		10		15	
	Tc	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

Technical data and ordering

PSH - Scroll compressors heating optimized - R410A - 60 Hz

Cooling performance table - Heating optimized

Type	Te	-30		-20		-10		-5		0		5		10		15		20	
	Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
PSH051-4	20	23350	10.52	36540	11.69	54500	13.36	65550	14.43	78130	15.69	92360	17.15	–	–	–	–	–	–
	30	20870	12.42	33050	13.50	49490	14.98	59590	15.93	71100	17.04	84140	18.34	98810	19.84	115230	21.57	–	–
	40	18210	14.86	29350	15.88	44260	17.22	53400	18.07	63830	19.06	75660	20.21	89000	21.55	103960	23.09	120660	24.90
	50	15230	17.92	25310	18.93	38660	20.18	46840	20.94	56180	21.83	66790	22.86	78780	24.05	92270	25.43	107380	27.00
	60	–	–	20790	22.73	32560	23.93	39760	24.64	48000	25.44	57380	26.37	68020	27.44	80030	28.68	93530	30.10
	68	–	–	–	–	27220	27.57	33630	28.24	40980	29.00	49370	29.87	58920	30.86	69740	31.99	–	–
PSH064-4	20	29360	13.43	45840	14.84	68680	16.80	82910	18.08	99240	19.63	117830	21.47	–	–	–	–	–	–
	30	26370	15.68	41390	17.10	61980	18.86	74800	19.97	89510	21.28	106290	22.84	125320	24.69	146750	26.86	–	–
	40	23020	18.45	36650	20.01	55080	21.70	66520	22.69	79660	23.84	94670	25.18	111720	26.76	130990	28.61	152630	30.80
	50	19100	21.77	31440	23.60	47780	25.35	57870	26.30	69480	27.35	82760	28.55	97880	29.92	115020	31.52	134340	33.40
	60	–	–	25530	27.92	39860	29.87	48660	30.84	58770	31.86	70350	32.97	83590	34.21	98640	35.62	115670	37.20
	68	–	–	–	–	32960	34.15	40740	35.18	49680	36.22	59940	37.31	71690	38.49	85100	39.79	–	–
PSH077-4	20	36260	16.46	56100	18.18	83570	20.85	100720	22.57	120440	24.55	142960	26.81	–	–	–	–	–	–
	30	32440	19.12	50860	20.64	76050	23.05	91740	24.61	109780	26.42	130400	28.48	153810	30.82	180250	33.42	–	–
	40	28390	22.58	45160	23.97	67830	26.17	81930	27.60	98170	29.26	116780	31.16	137960	33.31	161960	35.71	188970	38.40
	50	24040	27.04	38920	28.35	58840	30.40	71240	31.73	85570	33.27	102040	35.03	120880	37.02	142310	39.26	166550	41.70
	60	–	–	32090	33.99	49030	35.95	59610	37.20	71910	38.65	86130	40.30	102510	42.17	121260	44.25	142600	46.60
	68	–	–	–	–	40540	41.47	49590	42.68	60180	44.08	72520	45.66	86840	47.44	103360	49.43	–	–

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Pe: *Power input in [kW]*
Qo: *Cooling capacity in [W]*
Subcooling: *5 K*
Superheat: *5 K*
Frequency: *60 Hz*

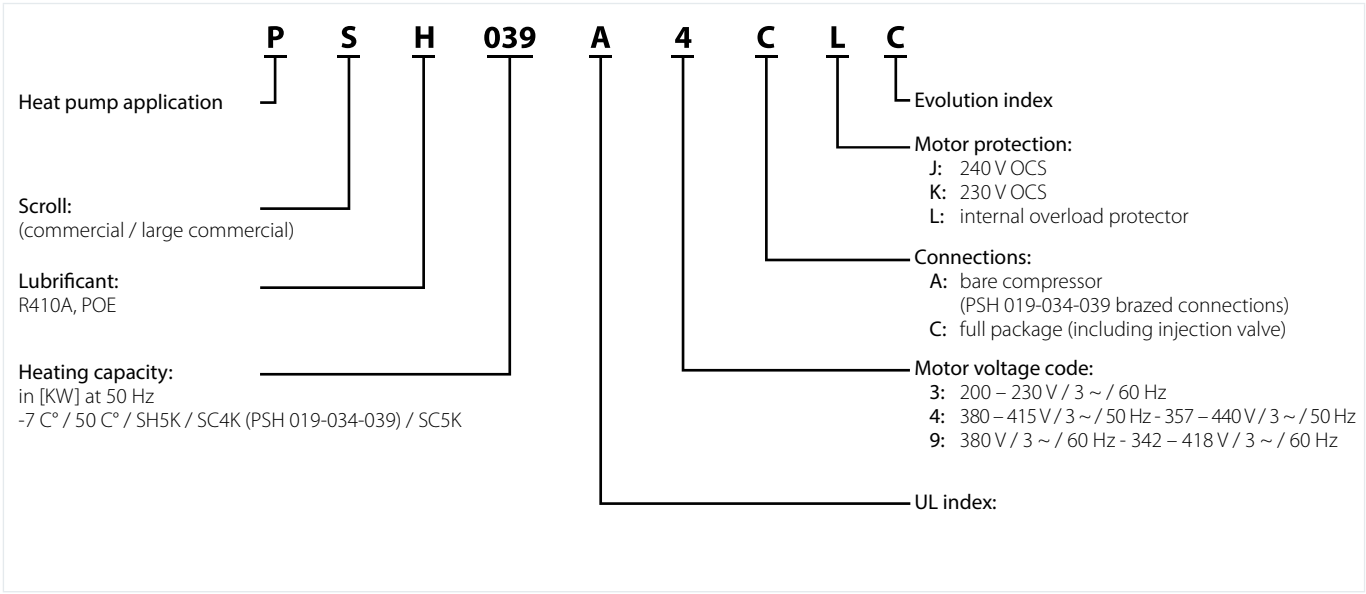
PSH - Scroll compressors heating optimized - R410A - 60 Hz

Heating performance - Heating optimized

Type	Te	-30		-20		-10		-5		0		5		10		15		20	
	Tc	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe	H	Pe
PSH051-4	20	33870	10.52	48230	11.69	67860	13.36	79980	14.43	93820	15.69	109520	17.15	–	–	–	–	–	–
	30	33290	12.42	46540	13.50	64470	14.98	75520	15.93	88150	17.04	102480	18.34	118650	19.84	136800	21.57	–	–
	40	33070	14.86	45230	15.88	61480	17.22	71470	18.07	82890	19.06	95870	20.21	110550	21.55	127050	23.09	145520	24.90
	50	33140	17.92	44240	18.93	58840	20.18	67780	20.94	78010	21.83	89650	22.86	102830	24.05	117700	25.43	134390	27.00
	60	–	–	43520	22.73	56490	23.93	64400	24.64	73440	25.44	83750	26.37	95460	27.44	108710	28.68	123620	30.10
	68	–	–	–	–	54790	27.57	61880	28.24	69980	29.00	79240	29.87	89780	30.86	101730	31.99	–	–
PSH064-4	20	42310	13.43	60140	14.84	84870	16.80	100340	18.08	118160	19.63	138530	21.47	–	–	–	–	–	–
	30	41490	15.68	57870	17.10	80160	18.86	94040	19.97	110020	21.28	128310	22.84	149110	24.69	172640	26.86	–	–
	40	40800	18.45	55940	20.01	76000	21.70	88390	22.69	102640	23.84	118950	25.18	137520	26.76	158570	28.61	182300	30.80
	50	40080	21.77	54180	23.60	72220	25.35	83230	26.30	95840	27.35	110270	28.55	126720	29.92	145400	31.52	166510	33.40
	60	–	–	52450	27.92	68660	29.87	78390	30.84	89480	31.86	102140	32.97	116560	34.21	132970	35.62	151570	37.20
	68	–	–	–	–	65880	34.15	74660	35.18	84600	36.22	95900	37.31	108790	38.49	123460	39.79	–	–
PSH077-4	20	52130	16.46	73620	18.18	103670	20.85	122480	22.57	144110	24.55	168800	26.81	–	–	–	–	–	–
	30	50870	19.12	70760	20.64	98270	23.05	115460	24.61	135250	26.42	157850	28.48	183520	30.82	212470	33.42	–	–
	40	50150	22.58	68260	23.97	93060	26.17	108540	27.60	126380	29.26	146810	31.16	170070	33.31	196380	35.71	225970	38.40
	50	50100	27.04	66250	28.35	88150	30.40	101830	31.73	117640	33.27	135810	35.03	156570	37.02	180150	39.26	206780	41.70
	60	–	–	64860	33.99	83680	35.95	95480	37.20	109170	38.65	124990	40.30	143160	42.17	163920	44.25	187490	46.60
	68	–	–	–	–	80520	41.47	90740	42.68	102670	44.08	116540	45.66	132570	47.44	151010	49.43	–	–

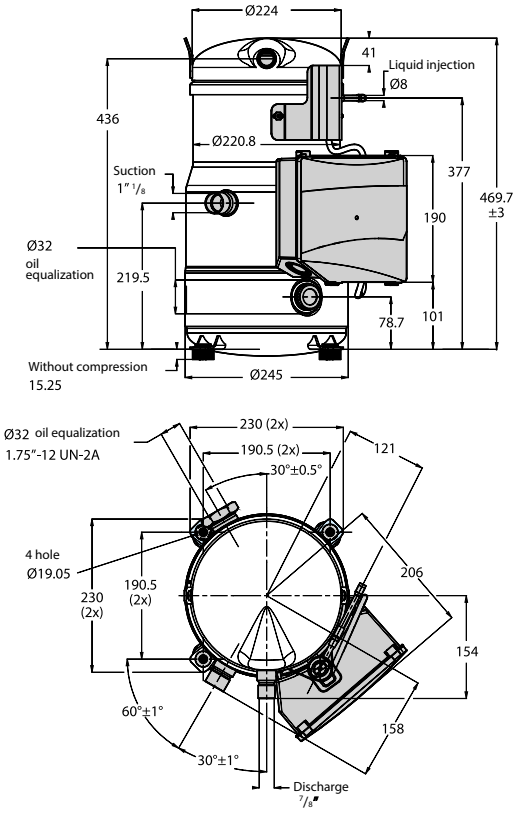
To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Pe: *Power input in [kW]*
H: *Heating capacity in [W]*
Subcooling: *5 K*
Superheat: *5 K*
Frequency: *60 Hz*

Nomenclature

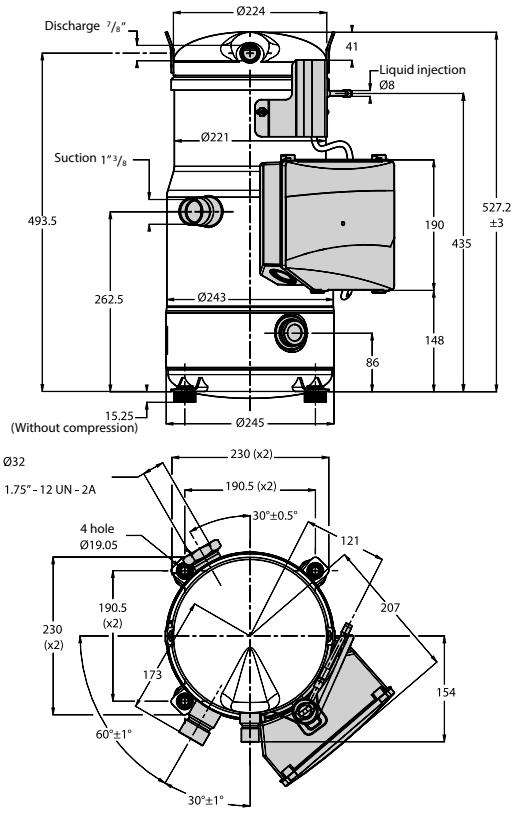


Dimensions

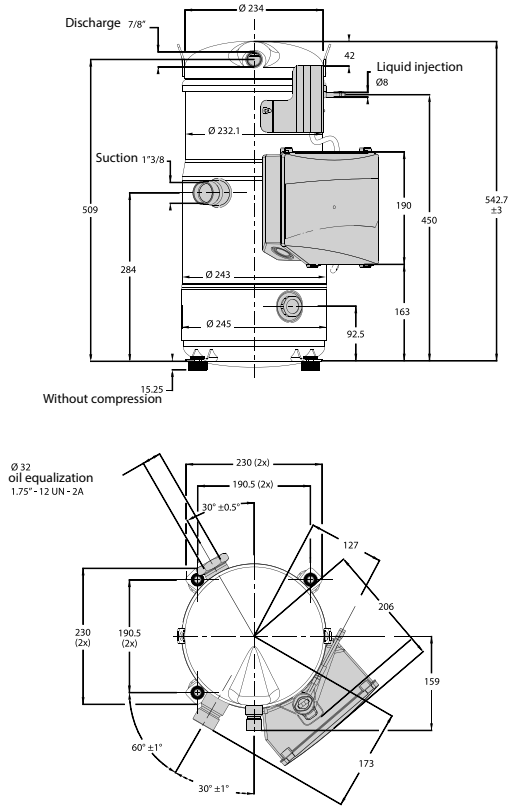
PSH019



PSH023-026-030-034

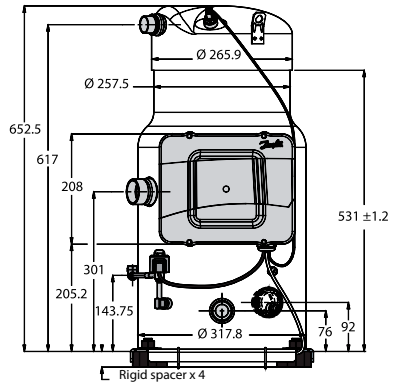


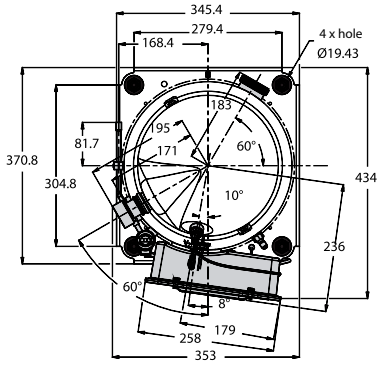
PSH039



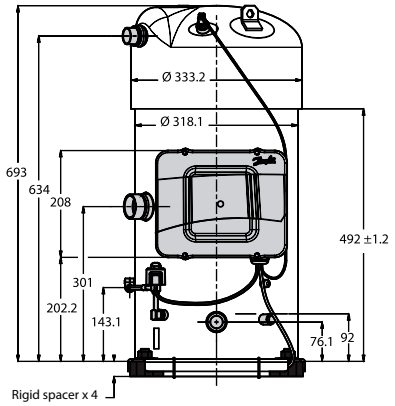
Dimensions

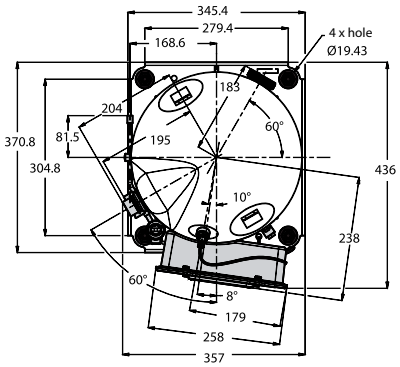
PSH051



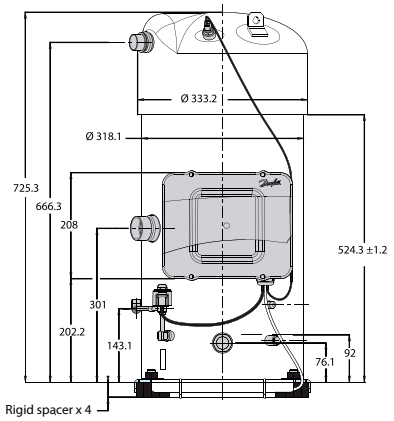


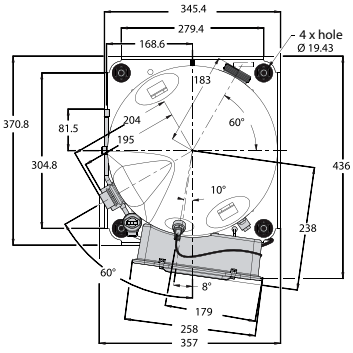
PSH064





PSH077





Technical data and ordering

PSH019 – PSH039 - Scroll compressors heating optimized

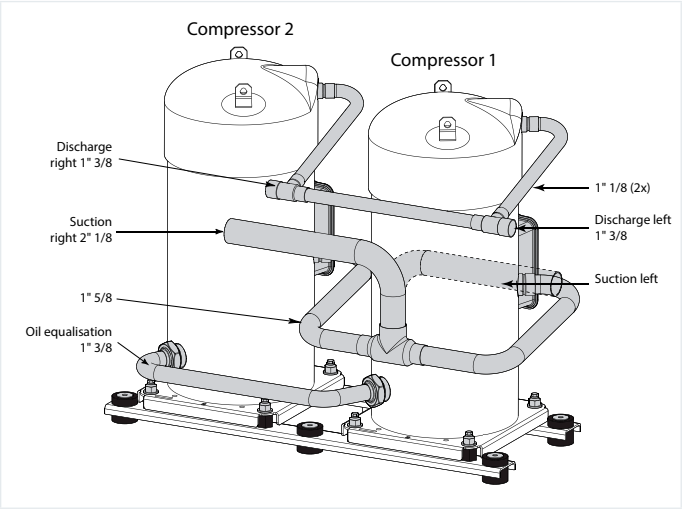
Tandem kit - Code numbers

Compressor 1	Compressor 2	Tandem type	Suction from	Kit code no. to order	Washer reference	Washer Ø [mm]	Washer in suction of
PSH019	PSH019	PSH038	Left Right	7777044		Not needed	
PSH023	PSH023	PSH046	Left Right	7777044		Not needed	
PSH026	PSH026	PSH052	Left Right	7777044		Not needed	
PSH030	PSH030	PSH060	Left Right	7777044		Not needed	
PSH034	PSH034	PSH068	Left Right	7777044		Not needed	
PSH039	PSH039	PSH078	Left Right	7777053		Not needed	

PSH051 – PSH077 - Scroll compressors heating optimized

Tandem kit - Code numbers

Compressor 1	Compressor 2	Suction washer (restrictor) kit		
		Code no for ordering	Reference	Diameter [mm]
PSH051	PSH051	7777041	Not needed	Not needed
PSH051	PSH064	7777037	5311570P01	31
PSH064	PSH064	7777041	Not needed	Not needed
PSH051	PSH077	7777048	5311579P05	29
PSH064	PSH077	7777037	5311579P01	31
PSH077	PSH077	7777041	Not needed	Not needed

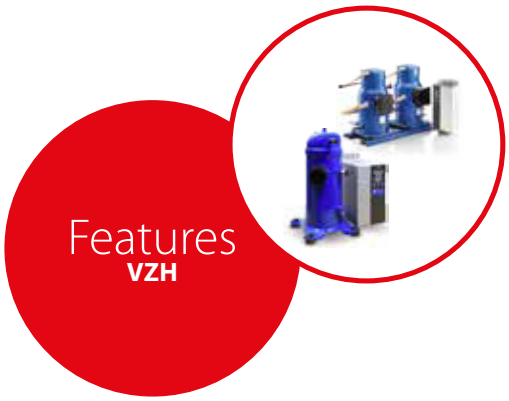


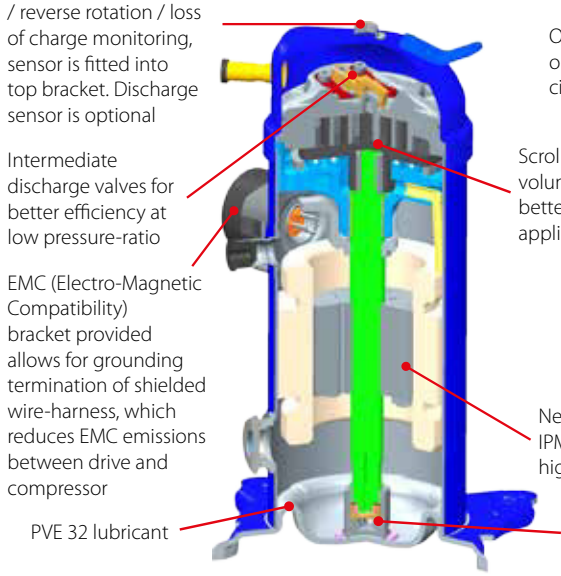
Quick Selection Notes:

VZH - Inverter Scroll Compressors - R410A

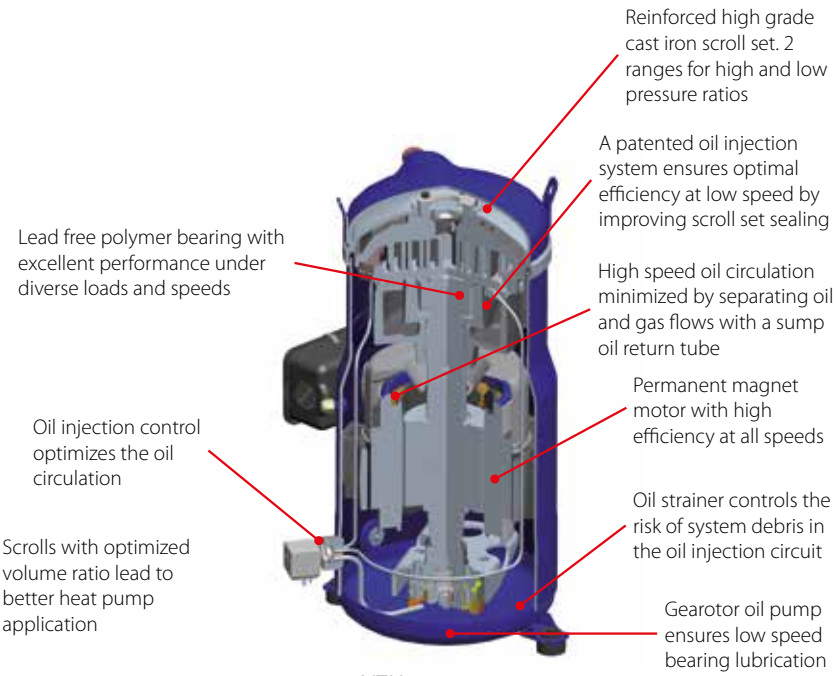
Danfoss inverter scroll compressor VZH is the second generation of scroll compressors offering variable speed technology for commercial applications in air conditioning. It allows OEMs to stand out in the commercial HVAC and process cooling marketplaces from 4 – 52 TR (15 – 184 kW) and to exceed the upgraded energy level requirements.

It provides a stepless modulation from 15 / 25 – 100 rps depending on the model.
The compressors comes with a pre-qualified drive for a shorter time to market and increased reliability.





VZH 028-044



VZH 088-170

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
  VZH 028-044: 15 – 100 rps /
  VZH 088 – 170: 25 – 100 rps
- 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 scrolls compressors

Compressors specifications

Type	Swept volume [cm³/rev]	Displacement				Oil charge [l]	Net weight [kg]
		15 rps [m³/ h]	50 rps [m³/h]	60 rps [m³/h]	100 rps [m³/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

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 / ± 10 V 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 028-044 - Voltage code G - 380 – 480 V / 3 ph / 50 / 60 Hz

Ordering

Type	Equipment version	G 380 – 480 V / 3 ph / 50 / 60 Hz	
		Compressor Name	Code no.
VZH028	Single	VZH028CGANA	120G0061
VZH035	Single	VZH035CGANA	120G0060
	Manifold	VZH035CGBNA	120G0073
VZH044	Single	VZH044CGANA	120G0059
	Manifold	VZH044CGBNA	120G0072

VZH 028-044 - Voltage code J - 200 – 240 V / 3 ph / 50 / 60 Hz

Ordering

Type	Equipment version	J 200 – 240 V / 3 ph / 50 / 60 Hz	
		Compressor Name	Code no.
VZH028	Single	VZH028CJANA	120G0064
VZH035	Single	VZH035CJANA	120G0063
	Manifold	VZH035CJBNA	120G0076
VZH044	Single	VZH044CJANA	120G0062
	Manifold	VZH044CJBNA	120G0075

VZH 028-044 - Frequency converter - Voltage code T4 - 380 – 480 V / 3 ph / 50 / 60 Hz

Ordering

Type	Frequency converter				
	Model & power	IP class	RFI class	Coating	Code no.
VZH028-T4	CDS803 - P6K0	E20	H4	–	134N4262
VZH035-T4	CDS803 - P7K5	E20	H4	–	134N4263
VZH044-T4	CDS803 - P10K	E20	H4	–	134L9473

LCP: *user interface 120Z0581 (accessory)*

VZH 028-044 - Frequency converter - Voltage code T2 - 200 – 240 V / 3ph / 50 / 60 Hz

Ordering

Type	Frequency converter				
	Model & power	IP class	RFI class	Coating	Code no.
VZH028-T2	CDS803 - P6K0	E20	H4	–	134N4260
VZH035-T2	CDS803 - P7K5	E20	H4	–	134N4261
VZH044-T2	CDS803 - P10K	E20	H4	–	134L9470

LCP: *user interface 120Z0581 (accessory)*

Technical data and ordering

VZH 088-170 - Inverter scrolls compressors

Compressor specifications

Type	Swept volume [cm³/rev]	Displacement				Oil charge [dm³]	Net weight [kg]
		25 rps [m³/ h]	50 rps [m³/h]	60 rps [m³/h]	100 rps [m³ /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 scrolls compressors - Voltage code G - 380 – 480 V

Ordering

Type	Frequency converter				
	Model & power [kW}	IP class	RFI class	Coating	Code no.
VZH088-G	CDS303 - 15.0	IP20	H3	No	134G3576
	CDS303 - 15.0	IP20	H3	Yes	134G3577
	CDS303 - 15.0	IP20	H2	No	134F9366
	CDS303 - 15.0	IP20	H2	Yes	134G3578
	CDS303 - 15.0	IP55	H3	No	134G4008
	CDS303 - 15.0	IP55	H3	Yes	134G4010
	CDS303 - 15.0	IP55	H2	No	134G4012
	CDS303 - 15.0	IP55	H2	Yes	134G4013
VZH117-G	CDS303 - 18.5	IP20	H3	No	134G3579
	CDS303 - 18.5	IP20	H3	Yes	134G3580
	CDS303 - 18.5	IP20	H2	No	134F9368
	CDS303 - 18.5	IP20	H2	Yes	134G3581
	CDS303 - 18.5	IP55	H3	No	134G4015
	CDS303 - 18.5	IP55	H3	Yes	134G4016
	CDS303 - 18.5	IP55	H2	No	134G4018
	CDS303 - 18.5	IP55	H2	Yes	134G4019
VZH170-G	CDS303 - 22.0	IP20	H3	No	134G3582
	CDS303 - 22.0	IP20	H3	Yes	134G3583
	CDS303 - 22.0	IP20	H2	No	134F9371
	CDS303 - 22.0	IP20	H2	Yes	134G3584
	CDS303 - 22.0	IP55	H3	No	134G4020
	CDS303 - 22.0	IP55	H3	Yes	134G4021
	CDS303 - 22.0	IP55	H2	No	134G4022
	CDS303 - 22.0	IP55	H2	Yes	134G4023

LCP: *user interface 120Z0326 (accessory)*

VZH 088-170 - Inverter scrolls compressors - Voltage code J - 200 – 240 V

Ordering

Type	Frequency converter			
	Model & power [kW]	IP class	RFI class	Code no.
VZH088-J	CDS303 - 15.0	IP20	H3	134G3474
	CDS303 - 15.0	IP20	H2	134F9361
	CDS303 - 15.0	IP55	H3	134G4001
	CDS303 - 15.0	IP55	H2	134G4002
VZH117-J	CDS303 - 18.5	IP20	H3	134G3585
	CDS303 - 18.5	IP20	H2	134F9363
	CDS303 - 18.5	IP55	H3	134G4003
	CDS303 - 18.5	IP55	H2	134G4004
VZH170-J	CDS303 - 22.0	IP20	H3	134G3586
	CDS303 - 22.0	IP20	H2	134F9365
	CDS303 - 22.0	IP55	H3	134G4005
	CDS303 - 22.0	IP55	H2	134G4006

LCP: *user interface 120Z0326 (accessory)*

Technical data and ordering

VZH - Inverter scrolls compressors - VZH028CJ-VZH035CJ-VZH044CJ

EN12900

Type	[rpm]	[rps]	Te	-30		-25		-20		-15		-10		-5		0		5		10		15		20	
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VZH028CJ	1800	30	5	–	–	1791	0.54	2252	0.519	2798	0.499	3437	0.479	4177	0.46	5027	0.442	–	–	–	–	–	–	–	–
			25	–	–	1460	0.812	1873	0.804	2351	0.79	2905	0.771	3541	0.747	4269	0.717	5096	0.682	6031	0.643	7081	0.599	8257	0.55
			45	–	–	–	–	–	–	1805	1.198	2256	1.218	2772	1.227	3359	1.224	4027	1.21	4783	1.185	5636	1.149	6593	1.103
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	3009	1.04	3787	1.056	4725	1.042	5840	0.984	7151	0.869	8676	0.68	10435	0.403	–	–	–	–	–	–	–	–
			25	2371	1.492	3054	1.527	3863	1.572	4817	1.613	5934	1.634	7232	1.622	8730	1.56	10445	1.436	12396	1.234	14602	0.94	17081	0.539
			45	–	–	2284	2.296	2937	2.292	3702	2.323	4597	2.375	5638	2.431	6845	2.479	8235	2.502	9825	2.487	11634	2.419	13680	2.283
			65	–	–	–	–	–	–	–	–	–	–	3761	3.567	4622	3.615	5626	3.68	6789	3.744	8128	3.795	9660	3.818
	6000	100	5	5025	1.96	6302	2.006	7834	1.996	9651	1.917	11784	1.756	14263	1.499	17119	1.131	–	–	–	–	–	–	–	–
			25	4004	2.64	5147	2.772	6495	2.887	8075	2.972	9920	3.012	12058	2.994	14520	2.905	17336	2.73	20536	2.456	24150	2.068	28209	1.555
			45	–	–	3860	3.845	4978	3.968	6278	4.1	7789	4.225	9540	4.331	11560	4.403	13879	4.429	16527	4.393	19532	4.283	22923	4.084
			65	–	–	–	–	–	–	–	–	–	–	6426	6.069	7912	6.187	9633	6.296	11616	6.383	13888	6.433	16477	6.434
VZH035CJ	1800	30	5	–	–	2268	0.658	2851	0.633	3542	0.608	4350	0.584	5287	0.561	6363	0.539	–	–	–	–	–	–	–	–
			25	–	–	1848	0.99	2370	0.98	2977	0.964	3677	0.94	4483	0.91	5403	0.874	6450	0.832	7634	0.784	8964	0.73	10452	0.67
			45	–	–	–	–	–	–	2284	1.461	2856	1.485	3508	1.496	4252	1.492	5098	1.475	6055	1.445	7134	1.401	8346	1.345
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	3808	1.268	4794	1.287	5981	1.27	7392	1.2	9052	1.059	10983	0.829	13209	0.491	–	–	–	–	–	–	–	–
			25	3002	1.82	3866	1.862	4890	1.917	6098	1.966	7512	1.992	9155	1.977	11050	1.903	13222	1.751	15692	1.505	18484	1.146	21622	0.657
			45	–	–	2891	2.799	3718	2.795	4687	2.833	5819	2.895	7137	2.965	8665	3.022	10424	3.051	12437	3.033	14727	2.95	17316	2.784
			65	–	–	–	–	–	–	–	–	–	–	4760	4.349	5851	4.408	7121	4.487	8594	4.566	10289	4.628	12228	4.655
	6000	100	5	6361	2.344	7977	2.398	9916	2.387	12217	2.293	14917	2.1	18055	1.792	21670	1.353	–	–	–	–	–	–	–	–
			25	5069	3.157	6516	3.314	8221	3.452	10222	3.553	12557	3.601	15263	3.58	18379	3.473	21944	3.264	25994	2.936	30570	2.473	35708	1.859
			45	–	–	4885	4.597	6301	4.745	7947	4.902	9859	5.052	12076	5.178	14633	5.265	17569	5.295	20920	5.253	24723	5.121	29017	4.883
			65	–	–	–	–	–	–	–	–	–	–	8134	7.256	10015	7.397	12193	7.528	14704	7.632	17580	7.692	20857	7.693
VZH044CJ	1800	30	5	–	–	2916	0.824	3666	0.792	4554	0.76	5594	0.731	6799	0.702	8183	0.675	–	–	–	–	–	–	–	–
			25	–	–	2377	1.239	3048	1.227	3828	1.206	4729	1.176	5765	1.139	6949	1.094	8295	1.041	9817	0.98	11527	0.913	13441	0.839
			45	–	–	–	–	–	–	2938	1.828	3673	1.858	4512	1.871	5468	1.867	6556	1.846	7787	1.808	9175	1.753	10733	1.682
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	4897	1.558	6165	1.581	7691	1.561	9507	1.475	11641	1.301	14124	1.018	16986	0.604	–	–	–	–	–	–	–	–
			25	3860	2.235	4972	2.288	6289	2.355	7842	2.416	9660	2.448	11773	2.429	14211	2.337	17003	2.152	20180	1.849	23770	1.408	27806	0.807
			45	–	–	3718	3.439	4782	3.433	6027	3.48	7483	3.557	9179	3.642	11143	3.713	13405	3.748	15994	3.726	18939	3.624	22269	3.42
			65	–	–	–	–	–	–	–	–	–	–	6122	5.343	7524	5.416	9158	5.512	11052	5.609	13232	5.685	15725	5.718
	6000	100	5	8180	2.932	10259	3	12752	2.986	15711	2.868	19183	2.627	23219	2.242	27868	1.692	–	–	–	–	–	–	–	–
			25	6518	3.949	8379	4.146	10572	4.318	13145	4.445	16148	4.505	19628	4.478	23636	4.345	28220	4.083	33429	3.673	39313	3.094	45920	2.326
			45	–	–	6283	5.751	8103	5.936	10220	6.132	12679	6.32	15529	6.478	18818	6.586	22593	6.624	26903	6.571	31794	6.406	37316	6.109
			65	–	–	–	–	–	–	–	–	–	–	10460	9.077	12879	9.254	15681	9.418	18909	9.547	22608	9.623	26823	9.624

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Qo: *Cooling capacity in [W]*
Pe: *Power input in [kW] (with drive loss)*
Superheat: *10 K*
Subcooling: *0 K*

Technical data and ordering

VZH - Inverter scrolls compressors - VZH028CG-VZH035CG-VZH044CG

EN12900

Type	[rpm]	[rps]	Te	-30		-25		-20		-15		-10		-5		0		5		10		15		20	
			Tc	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	–	–	1791	0.535	2252	0.514	2798	0.494	3437	0.474	4177	0.456	5027	0.438	–	–	–	–	–	–	–	–
			25	–	–	1460	0.804	1873	0.796	2351	0.783	2905	0.763	3541	0.739	4269	0.71	5096	0.676	6031	0.636	7081	0.593	8257	0.544
			45	–	–	–	–	–	–	1805	1.186	2256	1.206	2772	1.215	3359	1.212	4027	1.198	4783	1.173	5636	1.138	6593	1.092
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	3009	1.03	3787	1.045	4725	1.032	5840	0.975	7151	0.86	8676	0.673	10435	0.399	–	–	–	–	–	–	–	–
			25	2371	1.478	3054	1.512	3863	1.557	4817	1.597	5934	1.618	7232	1.605	8730	1.545	10445	1.422	12396	1.222	14602	0.931	17081	0.533
			45	–	–	2284	2.273	2937	2.269	3702	2.3	4597	2.351	5638	2.407	6845	2.454	8235	2.478	9825	2.463	11634	2.395	13680	2.261
			65	–	–	–	–	–	–	–	–	–	–	3761	3.531	4622	3.58	5626	3.643	6789	3.707	8128	3.758	9660	3.78
	6000	100	5	5025	1.941	6302	1.986	7834	1.976	9651	1.898	11784	1.739	14263	1.484	17119	1.12	–	–	–	–	–	–	–	–
			25	4004	2.614	5147	2.745	6495	2.859	8075	2.942	9920	2.982	12058	2.964	14520	2.876	17336	2.703	20536	2.431	24150	2.048	28209	1.539
			45	–	–	3860	3.807	4978	3.929	6278	4.059	7789	4.183	9540	4.288	11560	4.36	13879	4.385	16527	4.349	19532	4.24	22923	4.044
			65	–	–	–	–	–	–	–	–	–	–	6426	6.009	7912	6.126	9633	6.234	11616	6.32	13888	6.37	16477	6.37
VZH035CG	1800	30	5	–	–	2268	0.652	2851	0.627	3542	0.602	4350	0.578	5287	0.555	6363	0.534	–	–	–	–	–	–	–	–
			25	–	–	1848	0.981	2370	0.971	2977	0.954	3677	0.931	4483	0.901	5403	0.866	6450	0.824	7634	0.776	8964	0.723	10452	0.664
			45	–	–	–	–	–	–	2284	1.447	2856	1.471	3508	1.481	4252	1.478	5098	1.461	6055	1.431	7134	1.388	8346	1.331
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	3808	1.256	4794	1.274	5981	1.258	7392	1.188	9052	1.049	10983	0.82	13209	0.486	–	–	–	–	–	–	–	–
			25	3002	1.802	3866	1.844	4890	1.898	6098	1.947	7512	1.973	9155	1.958	11050	1.884	13222	1.734	15692	1.49	18484	1.135	21622	0.65
			45	–	–	2891	2.771	3718	2.767	4687	2.805	5819	2.867	7137	2.935	8665	2.993	10424	3.021	12437	3.003	14727	2.921	17316	2.757
			65	–	–	–	–	–	–	–	–	–	–	4760	4.306	5851	4.365	7121	4.442	8594	4.52	10289	4.582	12228	4.609
	6000	100	5	6361	2.321	7977	2.374	9916	2.363	12217	2.27	14917	2.079	18055	1.774	21670	1.339	–	–	–	–	–	–	–	–
			25	5069	3.126	6516	3.282	8221	3.418	10222	3.518	12557	3.565	15263	3.544	18379	3.438	21944	3.231	25994	2.907	30570	2.449	35708	1.841
			45	–	–	4885	4.551	6301	4.698	7947	4.853	9859	5.002	12076	5.127	14633	5.213	17569	5.243	20920	5.2	24723	5.07	29017	4.835
			65	–	–	–	–	–	–	–	–	–	–	8134	7.184	10015	7.324	12193	7.454	14704	7.556	17580	7.616	20857	7.617
VZH044CG	1800	30	5	–	–	2916	0.815	3666	0.784	4554	0.753	5594	0.723	6799	0.695	8183	0.668	–	–	–	–	–	–	–	–
			25	–	–	2377	1.227	3048	1.214	3828	1.194	4729	1.165	5765	1.128	6949	1.083	8295	1.03	9817	0.971	11527	0.904	13441	0.83
			45	–	–	–	–	–	–	2938	1.81	3673	1.84	4512	1.853	5468	1.849	6556	1.828	7787	1.79	9175	1.736	10733	1.666
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	4897	1.543	6165	1.565	7691	1.545	9507	1.46	11641	1.288	14124	1.008	16986	0.598	–	–	–	–	–	–	–	–
			25	3860	2.213	4972	2.265	6289	2.332	7842	2.392	9660	2.423	11773	2.405	14211	2.314	17003	2.13	20180	1.831	23770	1.394	27806	0.799
			45	–	–	3718	3.405	4782	3.399	6027	3.446	7483	3.522	9179	3.606	11143	3.676	13405	3.711	15994	3.689	18939	3.588	22269	3.386
			65	–	–	–	–	–	–	–	–	–	–	6122	5.29	7524	5.362	9158	5.457	11052	5.553	13232	5.629	15725	5.662
	6000	100	5	8180	2.903	10259	2.97	12752	2.956	15711	2.84	19183	2.601	23219	2.22	27868	1.675	–	–	–	–	–	–	–	–
			25	6518	3.91	8379	4.105	10572	4.276	13145	4.401	16148	4.46	19628	4.434	23636	4.302	28220	4.042	33429	3.637	39313	3.063	45920	2.303
			45	–	–	6283	5.694	8103	5.877	10220	6.071	12679	6.257	15529	6.414	18818	6.521	22593	6.559	26903	6.506	31794	6.343	37316	6.049
			65	–	–	–	–	–	–	–	–	–	–	10460	8.988	12879	9.162	15681	9.324	18909	9.453	22608	9.528	26823	9.528

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Qo: *Cooling capacity in [W]*
Pe: *Power input in [kW] (with drive loss)*
Subcooling: *0 K*
Superheat: *10 K*

Technical data and ordering

VZH - Inverter scrolls compressors - VZH028CJ-VZH035CJ-VZH044CJ

ARI

Type	[rpm]	[rps]	Te	-30		-25		-20		-15		-10		-5		0		5		10		15		20	
			Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VZH028CJ	1800	30	5	–	–	1894	0.54	2380	0.519	2954	0.499	3626	0.479	4405	0.46	5298	0.442	–	–	–	–	–	–	–	–
			25	–	–	1568	0.812	2009	0.804	2521	0.79	3111	0.771	3790	0.747	4565	0.717	5445	0.682	6440	0.643	7557	0.599	8805	0.55
			45	–	–	–	–	–	–	1990	1.198	2484	1.218	3048	1.227	3690	1.224	4418	1.21	5242	1.185	6171	1.149	7212	1.103
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	3183	1.04	4004	1.056	4992	1.042	6167	0.984	7546	0.869	9150	0.68	10999	0.403	–	–	–	–	–	–	–	–
			25	2550	1.492	3280	1.527	4145	1.572	5164	1.613	6356	1.634	7740	1.622	9336	1.56	11162	1.436	13237	1.234	15582	0.94	18215	0.539
			45	–	–	2526	2.296	3244	2.292	4082	2.323	5062	2.375	6200	2.431	7518	2.479	9034	2.502	10767	2.487	12737	2.419	14963	2.283
			65	–	–	–	–	–	–	–	–	–	–	4505	3.567	5520	3.615	6701	3.68	8067	3.744	9637	3.795	11431	3.818
	6000	100	5	5317	1.96	6663	2.006	8277	1.996	10191	1.917	12435	1.756	15043	1.499	18044	1.131	–	–	–	–	–	–	–	–
			25	4305	2.64	5528	2.772	6969	2.887	8657	2.972	10625	3.012	12905	2.994	15527	2.905	18525	2.73	21928	2.456	25770	2.068	30082	1.555
			45	–	–	4269	3.845	5497	3.968	6922	4.1	8576	4.225	10491	4.331	12697	4.403	15226	4.429	18111	4.393	21383	4.283	25074	4.084
			65	–	–	–	–	–	–	–	–	–	–	7698	6.069	9450	6.187	11474	6.296	13802	6.383	16466	6.433	19498	6.434
VZH035CJ	1800	30	5	–	–	2398	0.658	3012	0.633	3740	0.608	4590	0.584	5576	0.561	6707	0.539	–	–	–	–	–	–	–	–
			25	–	–	1985	0.99	2543	0.98	3191	0.964	3939	0.94	4797	0.91	5778	0.874	6893	0.832	8151	0.784	9565	0.73	11146	0.67
			45	–	–	–	–	–	–	2519	1.461	3145	1.485	3858	1.496	4670	1.492	5593	1.475	6636	1.445	7811	1.401	9129	1.345
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	4029	1.268	5069	1.287	6319	1.27	7806	1.2	9552	1.059	11583	0.829	13922	0.491	–	–	–	–	–	–	–	–
			25	3227	1.82	4152	1.862	5247	1.917	6537	1.966	8046	1.992	9798	1.977	11817	1.903	14129	1.751	16756	1.505	19724	1.146	23057	0.657
			45	–	–	3198	2.799	4106	2.795	5168	2.833	6407	2.895	7849	2.965	9517	3.022	11436	3.051	13630	3.033	16123	2.95	18941	2.784
			65	–	–	–	–	–	–	–	–	–	–	5703	4.349	6988	4.408	8483	4.487	10212	4.566	12199	4.628	14469	4.655
	6000	100	5	6730	2.344	8434	2.398	10478	2.387	12900	2.293	15741	2.1	19041	1.792	22841	1.353	–	–	–	–	–	–	–	–
			25	5449	3.157	6998	3.314	8821	3.452	10958	3.553	13449	3.601	16335	3.58	19655	3.473	23449	3.264	27758	2.936	32621	2.473	38079	1.859
			45	–	–	5403	4.597	6958	4.745	8763	4.902	10856	5.052	13279	5.178	16072	5.265	19274	5.295	22926	5.253	27067	5.121	31739	4.883
			65	–	–	–	–	–	–	–	–	–	–	9744	7.256	11962	7.397	14524	7.528	17471	7.632	20844	7.692	24681	7.693
VZH044CJ	1800	30	5	–	–	3083	0.824	3874	0.792	4809	0.76	5903	0.731	7171	0.702	8625	0.675	–	–	–	–	–	–	–	–
			25	–	–	2553	1.239	3271	1.227	4104	1.206	5065	1.176	6169	1.139	7431	1.094	8864	1.041	10483	0.98	12301	0.913	14333	0.839
			45	–	–	–	–	–	–	3239	1.828	4044	1.858	4961	1.871	6006	1.867	7192	1.846	8533	1.808	10045	1.753	11740	1.682
			65	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	60	5	5182	1.558	6518	1.581	8127	1.561	10038	1.475	12284	1.301	14896	1.018	17904	0.604	–	–	–	–	–	–	–	–
			25	4150	2.235	5340	2.288	6748	2.355	8407	2.416	10347	2.448	12600	2.429	15197	2.337	18169	2.152	21548	1.849	25365	1.408	29652	0.807
			45	–	–	4113	3.439	5280	3.433	6646	3.48	8239	3.557	10093	3.642	12238	3.713	14706	3.748	17528	3.726	20734	3.624	24357	3.42
			65	–	–	–	–	–	–	–	–	–	–	7334	5.343	8986	5.416	10909	5.512	13132	5.609	15688	5.685	18607	5.718
	6000	100	5	8654	2.932	10846	3	13474	2.986	16589	2.868	20243	2.627	24487	2.242	29373	1.692	–	–	–	–	–	–	–	–
			25	7008	3.949	9000	4.146	11344	4.318	14092	4.445	17296	4.505	21007	4.478	25276	4.345	30155	4.083	35696	3.673	41950	3.094	48969	2.326
			45	–	–	6949	5.751	8949	5.936	11269	6.132	13961	6.32	17077	6.478	20668	6.586	24786	6.624	29483	6.571	34809	6.406	40816	6.109
			65	–	–	–	–	–	–	–	–	–	–	12531	9.077	15383	9.254	18678	9.418	22468	9.547	26805	9.623	31740	9.624

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Qo: *Cooling capacity in [W]*
Pe: *Power input in [kW] (with drive loss)*
Subcooling: *8.3 K*
Superheat: *11.1 K*
Rating point: *ARI at 60 rps*
To / Tc / SH / SC: *7.2 °C / 54.4 °C / 11.1 K / 8.3 K at 60 rps*

Technical data and ordering

VZH - Inverter scrolls compressors - VZH028CG-VZH035CG-VZH044CG

ARI

Type	[rpm]	[rps]	Te	-30		-25		-20		-15		-10		-5		0		5		10		15		20	
			Tc	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

To: *Evaporating temperature in [°C]*
Tc: *Condensing temperature in [°C]*
Qo: *Cooling capacity in [W]*
Subcooling: *8.3 K*
Superheat: *11.1 K*
Pe: *Power input in [kW] (with drive loss)*
Rating point: *ARI at 60 rps*
To / Tc / SH / SC: *7.2° C / 54.4 °C / 11.1 K / 8.3 K at 60 rps*

Technical data and ordering

Inverter scrolls compressors - 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
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*

Technical data and ordering

Inverter scrolls compressors - 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
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*

Technical data and ordering

Inverter scrolls compressors - 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	Pe
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*

Technical data and ordering

Inverter scrolls compressors - 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	Pe
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*

Nomenclature and Dimensions

V Z H 044 C G A N A

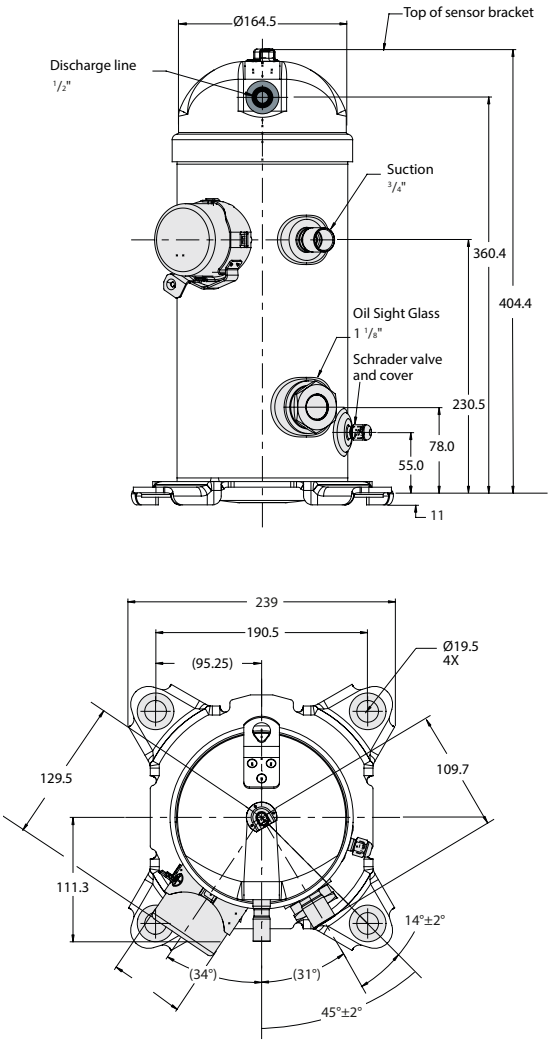
- **V** — Variable speed
- **Z** — Family: VZH scroll
- **H** — Lubricant: PVE 32(FVC32D) lubricant, R410A refrigerant
- **044** — Swept volume: in [cm³/rev]
- **C** — Design pressure ratio: C: IDV and IEER optimized
- **G** — Motor voltage code to CDS803: *)
  - G: 380 – 480 V / 3 ~ / 50 / 60 Hz
  - J: 200 – 240 V / 3 ~ / 50 / 60 Hz
- **A** — Equipement 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

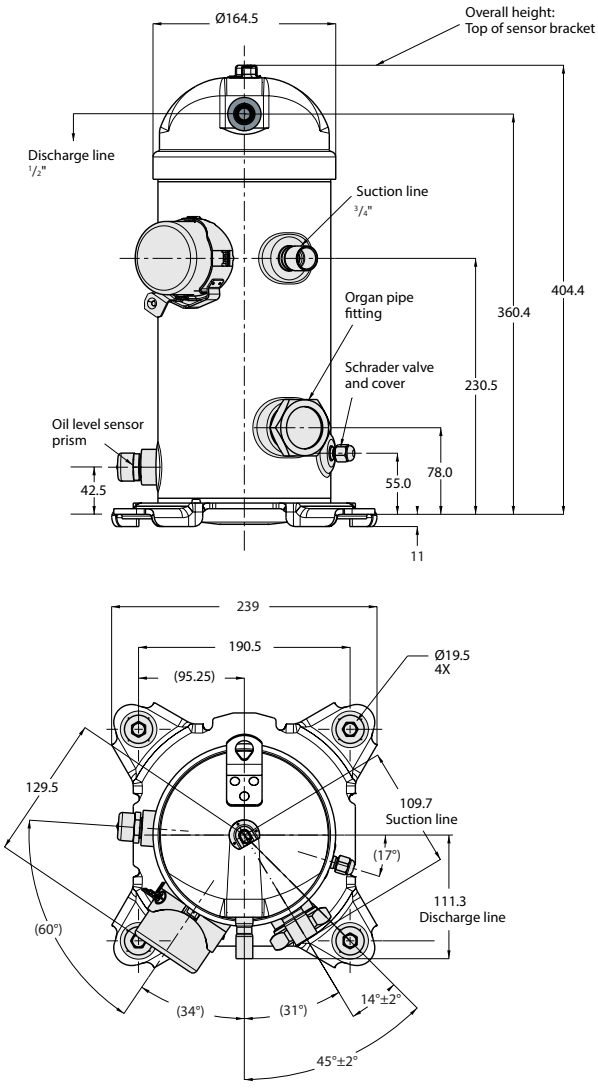
- **N** — Motor protection: N: no internal motor protection (protection by drive)
- **A** — Evolution index

*) main supply voltage to frequency converter

VZH028-035-044G / J - Single version



VZH028-035-044G / J - Manifold version



Note: Manifolding drawing is a preliminary version

Nomenclature and Dimensions

V Z H 117 A G A N A

Variable speed:

Family:
VZH scroll

Lubricant:
POE lubrificant
R410A refrigerant

Swept volume:
in [cm³/rev]

Design pressure ratio:
A: high PR
B: low PR

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

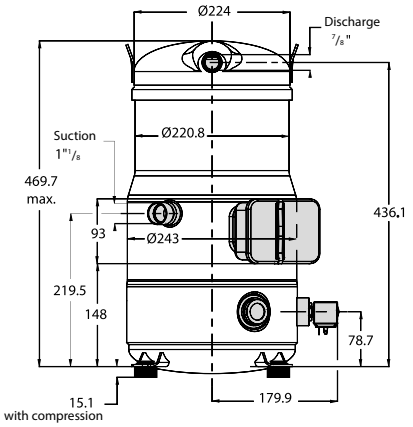
Equipement version:
A: brazed connections, single version
B: brazed connections, manifold version

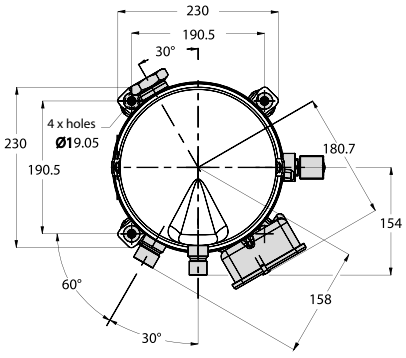
	Oil sight glass	Oil level switch
Single version	Threaded	None
Manifold version	None	Threaded

Motor protection:
N: no internal motor protection (protection by drive)

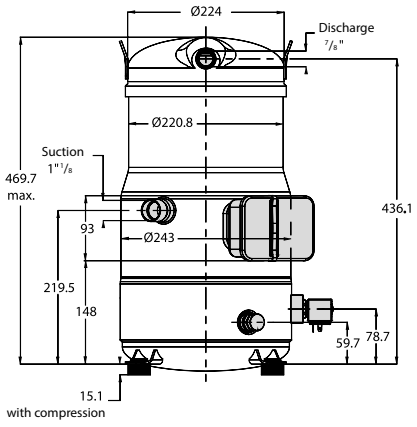
Evolution index

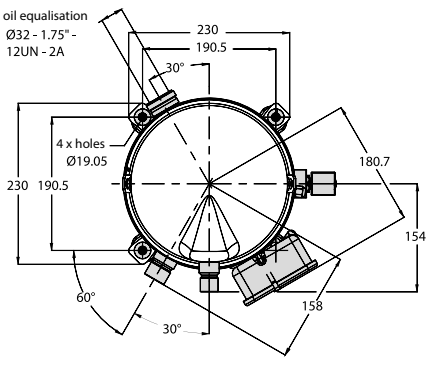
VZH088-G-H - Single version





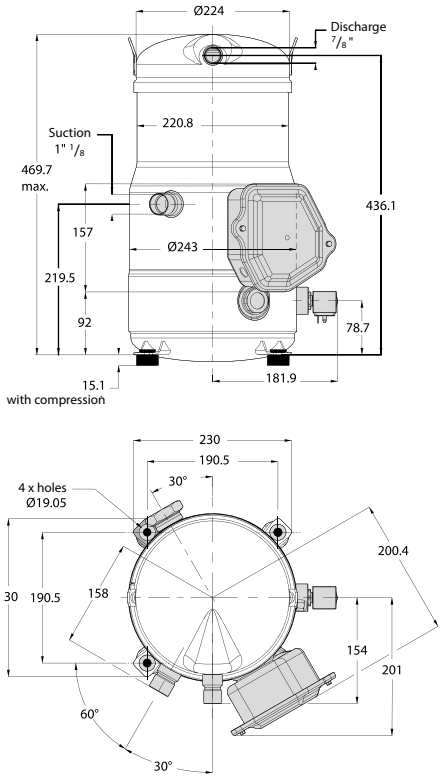
VZH088-G-H - Manifolded version



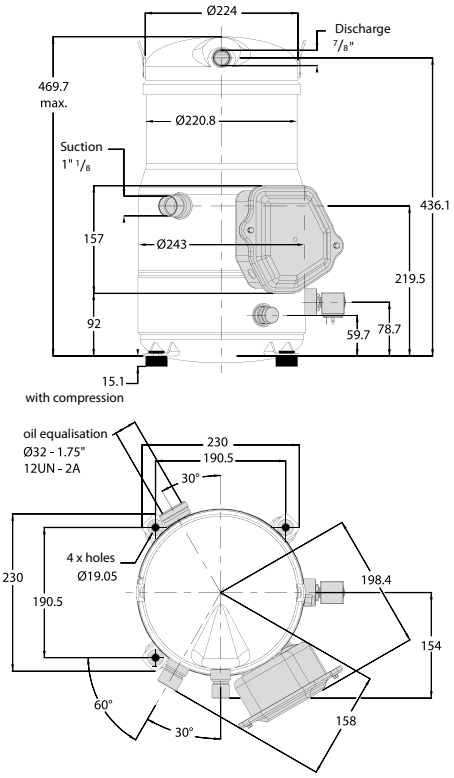


Dimensions

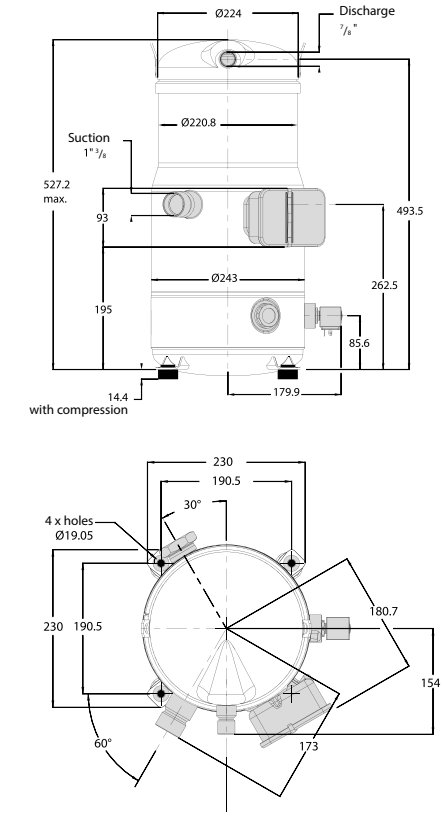
VZH088-J - Single version



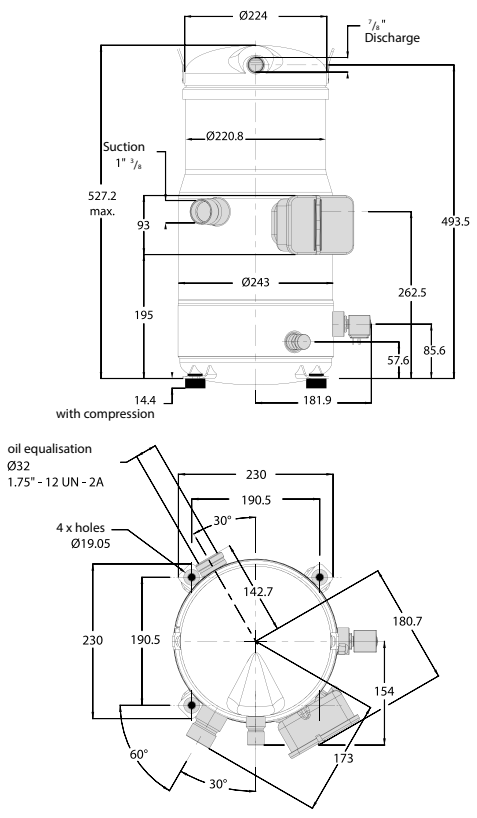
VZH088-J - Manifolded version



VZH117-G-H - Single version

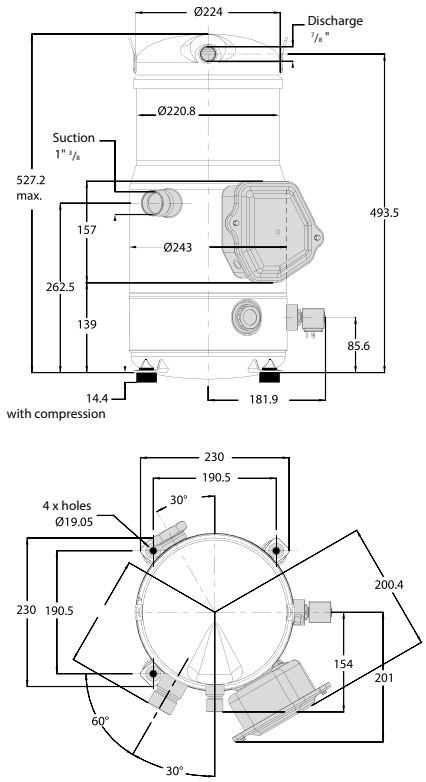


VZH117-G-H - Manifolded version

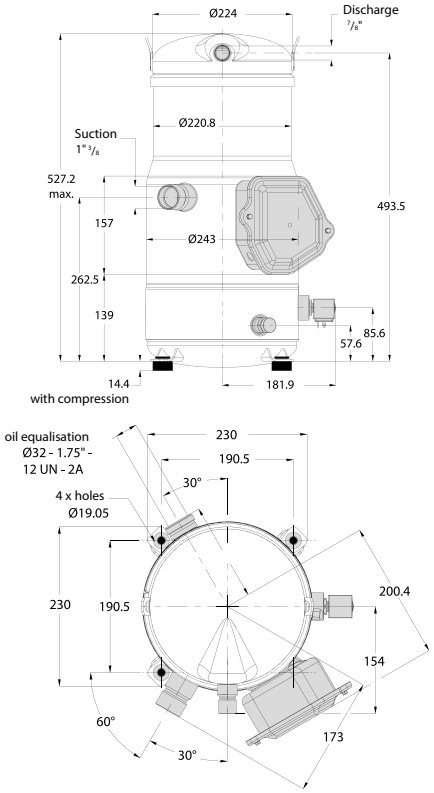


Dimensions

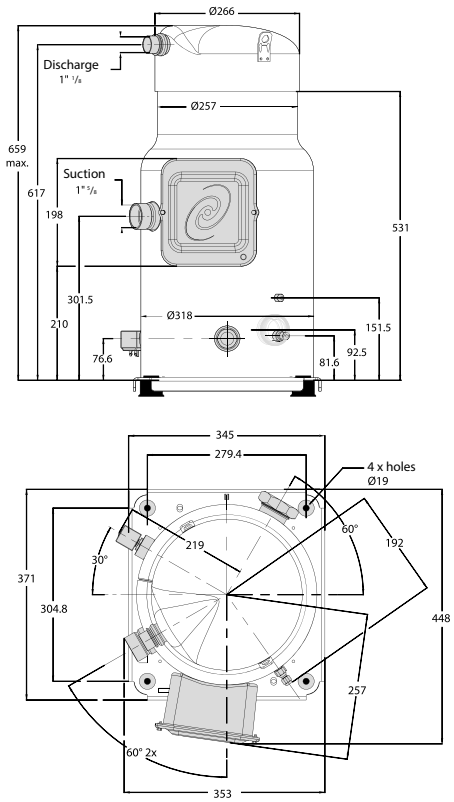
VZH117-J - Single version



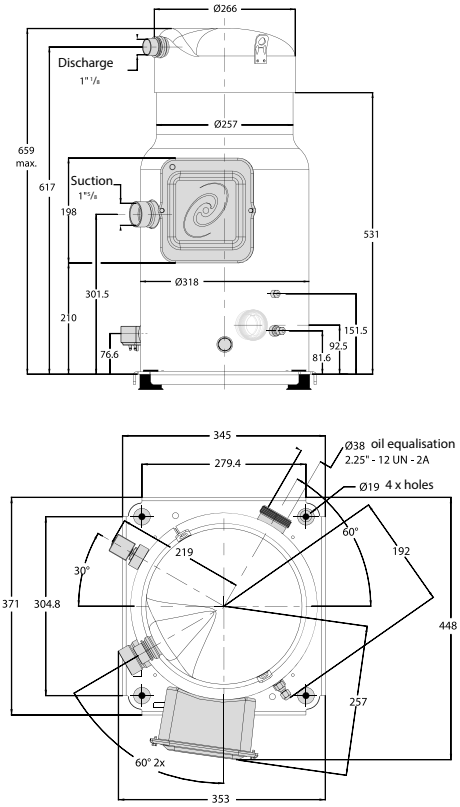
VZH117-J - Manifolded version



VZH170-G-H - Single version

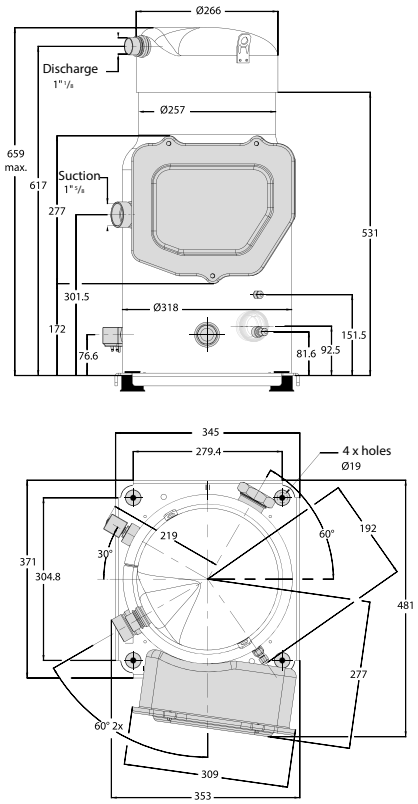


VZH170-G-H - Manifolded version

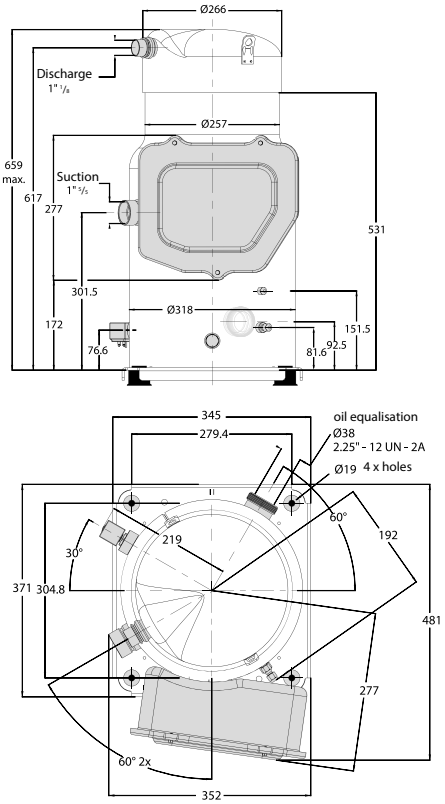


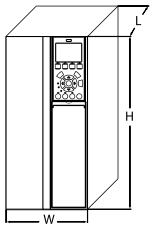
Dimensions

VZH170-J - Single version



VZH170-J - Manifolded version





Inverter Scroll Compressors - VZH 028-044 converter

Frequency converter dimensions

Drive supply voltage	Drive power [kW]	Compressor voltage code	Compressor model	IP20			
				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.]
T2: 200 – 240 / 3 / 50 – 60	6	J	VZH028	H4	296 x 135 x 241	359 x 135 x 241	100 / 4
	7.5		VZH035	H4	296 x 135 x 241	359 x 135 x 241	100 / 4
	10		VZH044	H5	334 x 150 x 255	402 x 150 x 255	100 / 4
T4: 380 – 480 / 3 / 50 – 60	6	G	VZH028	H3	255 x 100 x 206	329 x 100 x 206	100 / 4
	7.5		VZH035	H3	255 x 100 x 206	329 x 100 x 206	100 / 4
	10		VZH044	H4	296 x 135 x 241	359 x 135 x 241	100 / 4

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 Compressors - VZH 088-170 converter

Frequency converter dimensions

Drive supply voltage	Drive power [kW]	Compressor voltage code	Compressor model	IP20		IP55	
				Drive enclosure	Overall drive size (H x W x L) [mm]	Drive enclosure	Overall drive size (H x W x L) [mm]
T2:200 – 240 / 3 / 50 – 60	15	J	VZH088	B4	595 x 231 x 242	C1	680 x 308 x 310
	18.5	J	VZH117	C3	630 x 308 x 334	C1	680 x 308 x 310
	22	J	VZH170	C3	630 x 308 x 334	C1	680 x 308 x 310
T4: 380 – 480 / 3 / 50 – 60	15	G	VZH088	B3	419 x 165 x 248	B1	480 x 240 x 260
	18.5	G	VZH117	B4	595 x 231 x 242	B2	650 x 242 x 260
	22	G	VZH170	B4	595 x 231 x 242	B2	650 x 242 x 260
T6: 525 – 600 / 3 / 50 – 60	18	H	VZH088	B4	595 x 230 x 242	–	–
	30	H	VZH117	B4	595 x 230 x 242	–	–
	30	H	VZH170	B4	595 x 230 x 242	–	–

Frequency converter dimensions depend on supply voltage, IP rating and power
The table gives an overview of the overall dimensions and different drive enclosures (B1 - C3)
Details for each drive enclosure are on the following pages

VSH - Inverter Scroll Compressors - R410A

Danfoss Inverter Scroll VSH ranges 41 – 80 kW of cooling capacity / 11 – 23 TR, with a hermetic R410A compressor for commercial air conditioning and heating.

It combines Danfoss know-how in both compressors and inverters.





Facts

Applications:
- Packaged air conditioning
- Rooftops
- Chillers
- Close controls
- Heat pumps
- Data centers

- Capacity modulation: adapts motor speed 30 – 90 rps to varying load continuously, quickly and smoothly
- Tight temperature control ± 0.3 °C
- Pre-qualified compressor and drive package
- Motor's protection is managed by the drive
- 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
- 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

VSH - Inverter Scroll Compressors

Technical data

Compressor	Height [mm]	Width [mm]	Depth [mm]	Weight [kg]
VSH088	578	455	355	59
VSH117	578	455	355	65
VSH170	765	515	450	106

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 (-10 – 10 V 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
Compressor function	Discharge gas temperature protection, pressostat/thermostat function, short cycle protection, oil return management

Technical data and ordering

VSH - Inverter scrolls compressors - Voltage code J – 200 – 240 V

Ordering

Compressor		Frequency converter					
Type	Code no.	Model & power [kW]	LCP	IP class	RFI class	Coating	Code no.
VSH088-J	120G0004	CDS302 - 15.0	No	IP20	H3	No	131H9122
	120G0004	CDS302 - 15.0	No	IP20	H3	Yes	131H9123
	120G0004	CDS302 - 15.0	No	IP20	H2	No	131H9124
	120G0004	CDS302 - 15.0	No	IP20	H2	Yes	131H9125
	120G0004	CDS302 - 15.0	No	IP55	H3	No	131H9127
	120G0004	CDS302 - 15.0	No	IP55	H3	Yes	131H9128
	120G0004	CDS302 - 15.0	No	IP55	H2	No	131H9129
	120G0004	CDS302 - 15.0	No	IP55	H2	Yes	131H9130
	120G0004	CDS302 - 15.0	Yes	IP20	H3	No	131F5246
	120G0004	CDS302 - 15.0	Yes	IP20	H3	Yes	131H9131
	120G0004	CDS302 - 15.0	Yes	IP20	H2	No	131H9132
	120G0004	CDS302 - 15.0	Yes	IP20	H2	Yes	131H9133
	120G0004	CDS302 - 15.0	Yes	IP55	H3	No	131H9134
	120G0004	CDS302 - 15.0	Yes	IP55	H3	Yes	131H9135
	120G0004	CDS302 - 15.0	Yes	IP55	H2	No	131H9136
	120G0004	CDS302 - 15.0	Yes	IP55	H2	Yes	131H9137
VSH117-J	120G0005	CDS302 - 18.5	No	IP20	H3	No	–
	120G0005	CDS302 - 18.5	No	IP20	H3	Yes	131H9139
	120G0005	CDS302 - 18.5	No	IP20	H2	No	131H9140
	120G0005	CDS302 - 18.5	No	IP20	H2	Yes	131H9141
	120G0005	CDS302 - 18.5	No	IP55	H3	No	131H9142
	120G0005	CDS302 - 18.5	No	IP55	H3	Yes	131H9143
	120G0005	CDS302 - 18.5	No	IP55	H2	No	131H9144
	120G0005	CDS302 - 18.5	No	IP55	H2	Yes	131H9145
	120G0005	CDS302 - 18.5	Yes	IP20	H3	No	–
	120G0005	CDS302 - 18.5	Yes	IP20	H3	Yes	131H9146
	120G0005	CDS302 - 18.5	Yes	IP20	H2	No	131H9147
	120G0005	CDS302 - 18.5	Yes	IP20	H2	Yes	131H9148
	120G0005	CDS302 - 18.5	Yes	IP55	H3	No	131H9149
	120G0005	CDS302 - 18.5	Yes	IP55	H3	Yes	131H9150
	120G0005	CDS302 - 18.5	Yes	IP55	H2	No	–
	120G0005	CDS302 - 18.5	Yes	IP55	H2	Yes	131H9152
VSH170-J	120G0006	CDS302 - 22.0	No	IP20	H3	No	131H9153
	120G0006	CDS302 - 22.0	No	IP20	H3	Yes	131H9154
	120G0006	CDS302 - 22.0	No	IP20	H2	No	131H9155
	120G0006	CDS302 - 22.0	No	IP20	H2	Yes	131H9156
	120G0006	CDS302 - 22.0	No	IP55	H3	No	131H9157
	120G0006	CDS302 - 22.0	No	IP55	H3	Yes	131H9158
	120G0006	CDS302 - 22.0	No	IP55	H2	No	131H9159
	120G0006	CDS302 - 22.0	No	IP55	H2	Yes	131H9160
	120G0006	CDS302 - 22.0	Yes	IP20	H3	No	131F0394
	120G0006	CDS302 - 22.0	Yes	IP20	H3	Yes	131H9161
	120G0006	CDS302 - 22.0	Yes	IP20	H2	No	131H9162
	120G0006	CDS302 - 22.0	Yes	IP20	H2	Yes	131H9163
	120G0006	CDS302 - 22.0	Yes	IP55	H3	No	131H9164
	120G0006	CDS302 - 22.0	Yes	IP55	H3	Yes	131H9165
	120G0006	CDS302 - 22.0	Yes	IP55	H2	No	131H9166
	120G0006	CDS302 - 22.0	Yes	IP55	H2	Yes	131H9167

Technical data and ordering

VSH - Inverter scrolls compressors - Voltage code G - 380 – 480 V

Ordering

Compressor		Frequency converter					
Type	Code no.	Model & power [kW]	LCP	IP class	RFI class	Coating	Code no.
VSH088-G	120G0001	CDS302 - 15.0	No	IP20	H3	–	131H4380
	120G0001	CDS302 - 15.0	No	IP20	H3	–	131H9079
	120G0001	CDS302 - 15.0	No	IP20	H2	–	131H9078
	120G0001	CDS302 - 15.0	No	IP20	H2	–	–
	120G0001	CDS302 - 15.0	No	IP55	H3	–	131H9081
	120G0001	CDS302 - 15.0	No	IP55	H3	–	131H9082
	120G0001	CDS302 - 15.0	No	IP55	H2	No	131H9083
	120G0001	CDS302 - 15.0	No	IP55	H2	Yes	131H9084
	120G0001	CDS302 - 15.0	Yes	IP20	H3	No	131B8789
	120G0001	CDS302 - 15.0	Yes	IP20	H3	Yes	–
	120G0001	CDS302 - 15.0	Yes	IP20	H2	No	131H9086
	120G0001	CDS302 - 15.0	Yes	IP20	H2	Yes	131H9087
	120G0001	CDS302 - 15.0	Yes	IP55	H3	No	131H9088
	120G0001	CDS302 - 15.0	Yes	IP55	H3	Yes	131H9089
	120G0001	CDS302 - 15.0	Yes	IP55	H2	No	131H9090
	120G0001	CDS302 - 15.0	Yes	IP55	H2	Yes	131H9091
VSH117-G	120G0002	CDS302 - 18.5	No	IP20	H3	No	131H4381
	120G0002	CDS302 - 18.5	No	IP20	H3	Yes	131H9092
	120G0002	CDS302 - 18.5	No	IP20	H2	No	131H9093
	120G0002	CDS302 - 18.5	No	IP20	H2	Yes	131H9094
	120G0002	CDS302 - 18.5	No	IP55	H3	No	131H9098
	120G0002	CDS302 - 18.5	No	IP55	H3	Yes	131H9095
	120G0002	CDS302 - 18.5	No	IP55	H2	No	131H9096
	120G0002	CDS302 - 18.5	No	IP55	H2	Yes	131H9097
	120G0002	CDS302 - 18.5	Yes	IP20	H3	No	131F5247
	120G0002	CDS302 - 18.5	Yes	IP20	H3	Yes	131H9099
	120G0002	CDS302 - 18.5	Yes	IP20	H2	No	131H9100
	120G0002	CDS302 - 18.5	Yes	IP20	H2	Yes	–
	120G0002	CDS302 - 18.5	Yes	IP55	H3	no	131H9103
	120G0002	CDS302 - 18.5	Yes	IP55	H3	Yes	–
	120G0002	CDS302 - 18.5	Yes	IP55	H2	No	131H9105
	120G0002	CDS302 - 18.5	Yes	IP55	H2	Yes	131H9106
VSH170-G	120G0003	CDS302 - 22.0	No	IP20	H3	No	131H4382
	120G0003	CDS302 - 22.0	No	IP20	H3	Yes	131H9107
	120G0003	CDS302 - 22.0	No	IP20	H2	No	131H9108
	120G0003	CDS302 - 22.0	No	IP20	H2	Yes	131H9109
	120G0003	CDS302 - 22.0	No	IP55	H3	No	131H9110
	120G0003	CDS302 - 22.0	No	IP55	H3	Yes	131H9111
	120G0003	CDS302 - 22.0	No	IP55	H2	No	–
	120G0003	CDS302 - 22.0	No	IP55	H2	Yes	131H9113
	120G0003	CDS302 - 22.0	Yes	IP20	H3	No	–
	120G0003	CDS302 - 22.0	Yes	IP20	H3	Yes	131H9114
	120G0003	CDS302 - 22.0	Yes	IP20	H2	No	131H9116
	120G0003	CDS302 - 22.0	Yes	IP20	H2	Yes	–
	120G0003	CDS302 - 22.0	Yes	IP55	H3	No	131H9118
	120G0003	CDS302 - 22.0	Yes	IP55	H3	Yes	131H9119
	120G0003	CDS302 - 22.0	Yes	IP55	H2	No	131H9120
	120G0003	CDS302 - 22.0	Yes	IP55	H2	Yes	131H9121

Technical data and ordering

VSH - Inverter scrolls compressors - Voltage code H - 525 – 600 V

Ordering

Compressor		Frequency converter					
Type	Code no.	Model & power [kW]	LCP	IP class	RFI class	Coating	Code no.
VSH088-H	120G0007	CDS302 - 15.0	No	IP20	HX	No	–
	120G0007	CDS302 - 15.0	No	IP20	HX	Yes	–
	120G0007	CDS302 - 15.0	No	IP55	HX	No	–
	120G0007	CDS302 - 15.0	No	IP55	HX	Yes	–
	120G0007	CDS302 - 15.0	Yes	IP20	HX	No	131N6981
	120G0007	CDS302 - 15.0	Yes	IP20	HX	Yes	–
	120G0007	CDS302 - 15.0	Yes	IP55	HX	No	–
	120G0007	CDS302 - 15.0	Yes	IP55	HX	Yes	–
VSH117-H	120G0008	CDS302 - 18.5	No	IP20	HX	No	–
	120G0008	CDS302 - 18.5	No	IP20	HX	Yes	–
	120G0008	CDS302 - 18.5	No	IP55	HX	No	–
	120G0008	CDS302 - 18.5	No	IP55	HX	Yes	–
	120G0008	CDS302 - 18.5	Yes	IP20	HX	No	131N6989
	120G0008	CDS302 - 18.5	Yes	IP20	HX	Yes	–
	120G0008	CDS302 - 18.5	Yes	IP55	HX	No	–
	120G0008	CDS302 - 18.5	Yes	IP55	HX	Yes	–
VSH170-H	120G0009	CDS302 - 22.0	No	IP20	HX	No	131N6993
	120G0009	CDS302 - 22.0	No	IP20	HX	Yes	131N6994
	120G0009	CDS302 - 22.0	No	IP55	HX	No	131N6996
	120G0009	CDS302 - 22.0	No	IP55	HX	Yes	131N6997
	120G0009	CDS302 - 22.0	Yes	IP20	HX	No	131N6998
	120G0009	CDS302 - 22.0	Yes	IP20	HX	Yes	131N6999
	120G0009	CDS302 - 22.0	Yes	IP55	HX	No	131N7000
	120G0009	CDS302 - 22.0	Yes	IP55	HX	Yes	131N7001

Technical data and ordering

VSH - Inverter scrolls compressors - 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	Pe
VSH088-G	1500	20	–	–	6600	2.25	8100	2.25	9900	2.236	12000	2.202	14400	2.144	17200	2.056	–	–	–	–
	1500	30	–	–	6000	2.814	7400	2.825	9100	2.828	11100	2.82	13500	2.796	16100	2.75	19100	2.679	22500	2.577
	1500	40	–	–	–	–	6500	3.517	8100	3.52	9900	3.52	12100	3.512	14500	3.49	17300	3.451	20400	3.389
	1500	50	–	–	–	–	–	–	–	–	8400	4.457	10300	4.446	12500	4.431	15000	4.406	17800	4.365
	1500	60	–	–	–	–	–	–	–	–	–	–	–	–	10100	5.726	12300	5.697	14700	5.661
	1500	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	20	11600	4.313	14200	4.38	17400	4.444	21100	4.499	25400	4.534	30400	4.542	36100	4.514	–	–	–	–
	3600	30	10200	5.338	12700	5.389	15700	5.455	19200	5.525	23300	5.591	28000	5.645	33300	5.679	39400	5.684	46200	5.651
	3600	40	–	–	–	–	14100	6.632	17400	6.699	21100	6.778	25400	6.86	30300	6.937	35800	7.001	42100	7.041
	3600	50	–	–	–	–	–	–	–	–	18600	8.256	22500	8.347	26900	8.449	31800	8.552	37500	8.648
	3600	60	–	–	–	–	–	–	–	–	–	–	–	–	23000	10.373	27400	10.498	32400	10.631
	3600	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	23900	12.447	28500	12.596
	6000	20	17500	5.763	21300	5.952	25900	6.1	31400	6.212	37800	6.292	45200	6.342	53800	6.368	–	–	–	–
	6000	30	15400	8.001	19200	8.229	23700	8.421	28900	8.581	35000	8.713	42000	8.822	50000	8.911	59200	8.984	69600	9.045
	6000	40	–	–	–	–	21300	10.237	26100	10.445	31800	10.631	38300	10.797	45700	10.949	54200	11.089	63800	11.223
	6000	50	–	–	–	–	–	–	–	–	28100	12.599	33900	12.823	40600	13.037	48300	13.245	57000	13.451
	6000	60	–	–	–	–	–	–	–	–	–	–	–	–	34800	15.73	41600	16.006	49400	16.284
	6000	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	36300	19.022	43400	19.358
VSH117-G	1500	20	–	–	7500	2.825	9500	2.856	12000	2.864	14900	2.858	18200	2.85	22100	2.85	–	–	–	–
	1500	30	–	–	7100	3.621	9100	3.659	11400	3.674	14200	3.676	17300	3.676	21000	3.685	25000	3.714	29700	3.772
	1500	40	–	–	–	–	8200	4.592	10400	4.607	13000	4.609	15800	4.609	19100	4.619	22800	4.648	27000	4.709
	1500	50	–	–	–	–	–	–	–	–	11300	5.798	13800	5.791	16700	5.793	19900	5.816	23600	5.871
	1500	60	–	–	–	–	–	–	–	–	–	–	–	–	13700	7.352	16400	7.36	19500	7.401
	1500	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	20	16200	5.814	19900	5.915	24200	6.035	29400	6.167	35300	6.305	42200	6.444	50100	6.576	–	–	–	–
	3600	30	13700	7.046	17200	7.127	21200	7.242	26000	7.386	31500	7.552	37800	7.734	45100	7.927	53400	8.125	62700	8.321
	3600	40	–	–	–	–	18600	8.723	23000	8.838	28000	8.991	33700	9.176	40300	9.389	47900	9.622	56400	9.87
	3600	50	–	–	–	–	–	–	–	–	24500	10.849	29700	10.998	35600	11.189	42300	11.417	50000	11.676
	3600	60	–	–	–	–	–	–	–	–	–	–	–	–	30700	13.555	36700	13.737	43500	13.966
	3600	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	32500	16.124	38900	16.301
	6000	20	23100	8.505	28400	8.836	34700	9.227	42200	9.643	50900	10.051	60900	10.417	72500	10.706	–	–	–	–
	6000	30	20200	10.491	25300	10.73	31400	11.074	38400	11.49	46600	11.944	56100	12.402	66900	12.829	79200	13.192	93200	13.458
	6000	40	–	–	–	–	28100	13.122	34600	13.464	42200	13.889	50900	14.365	60800	14.856	72200	15.329	85000	15.75
	6000	50	–	–	–	–	–	–	–	–	37300	16.258	45100	16.677	54100	17.158	64300	17.667	75900	18.17
	6000	60	–	–	–	–	–	–	–	–	–	–	–	–	46500	20.107	55600	20.577	65900	21.088
	6000	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	48900	23.567	58400	24.03
VSH170-G	1500	20	–	–	10400	4.076	14100	4.101	18500	4.109	23600	4.07	29300	3.957	35700	3.741	–	–	–	–
	1500	30	–	–	8600	5.298	12000	5.308	16000	5.341	20500	5.366	25600	5.358	31200	5.287	37500	5.125	44300	4.844
	1500	40	–	–	–	–	10100	6.774	13700	6.769	17800	6.796	22400	6.83	27400	6.84	32900	6.8	38800	6.681
	1500	50	–	–	–	–	–	–	–	–	15100	8.669	19200	8.682	23700	8.711	28500	8.73	33700	8.71
	1500	60	–	–	–	–	–	–	–	–	–	–	–	–	19600	11.209	24000	11.224	28600	11.24
	1500	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	20	22000	8.231	27200	8.353	33400	8.469	40600	8.559	49200	8.602	59000	8.577	70400	8.464	–	–	–	–
	3600	30	19100	10.658	24000	10.713	29900	10.8	36700	10.896	44700	10.983	53900	11.038	64500	11.041	76500	10.972	90100	10.81
	3600	40	–	–	–	–	26500	13.268	32800	13.318	40100	13.395	48500	13.477	58200	13.544	69200	13.575	81600	13.549
	3600	50	–	–	–	–	–	–	–	–	35200	16.309	42700	16.365	51300	16.442	61200	16.521	72400	16.579
	3600	60	–	–	–	–	–	–	–	–	–	–	–	–	43900	20.208	52600	20.28	62500	20.369
	3600	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	45900	24.189	55000	24.264
	6000	20	34000	12.656	41700	12.946	51000	13.264	61900	13.587	74600	13.891	89200	14.152	106000	14.348	–	–	–	–
	6000	30	29700	16.006	37200	16.211	46000	16.479	56300	16.787	68100	17.113	81800	17.431	97400	17.72	115000	17.956	134900	18.115
	6000	40	–	–	–	–	41300	19.87	50800	20.112	61700	20.406	74200	20.729	88500	21.058	104600	21.37	122800	21.641
	6000	50	–	–	–	–	–	–	–	–	54800	24.337	66000	24.612	78800	24.929	93400	25.265	109800	25.595
	6000	60	–	–	–	–	–	–	–	–	–	–	–	–	68200	29.901	81100	30.207	95700	30.544
	6000	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	71600	35.296	85000	35.6

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*

Technical data and ordering

VSH - Inverter scrolls compressors - R410A

High pressure ratio - ASERCOM

Type	[rpm]	Te	-25	-25	-20	-20	-15	-15	-10	-10	-5	-5	0	0	5	5	10	10	15	15
		Tc	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe	Qo	Pe
VSH088-G	1500	20	–	–	6200	2.25	7600	2.25	9300	2.236	11300	2.202	13500	2.144	16200	2.056	–	–	–	–
	1500	30	–	–	5500	2.814	6900	2.825	8500	2.828	10400	2.82	12500	2.796	15000	2.75	17800	2.679	21000	2.577
	1500	40	–	–	4700	3.515	6000	3.517	7400	3.52	9100	3.52	11100	3.512	13300	3.49	15900	3.451	18800	3.389
	1500	50	–	–	–	–	–	–	6100	4.467	7600	4.457	9300	4.446	11300	4.431	13500	4.406	16100	4.365
	1500	60	–	–	–	–	–	–	–	–	–	–	7200	5.753	8800	5.726	10700	5.697	12900	5.661
	1500	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	20	10800	4.313	13300	4.38	16300	4.444	19800	4.499	23800	4.534	28600	4.542	34000	4.514	–	–	–	–
	3600	30	9400	5.338	11800	5.389	14600	5.455	17900	5.525	21700	5.591	26000	5.645	31000	5.679	36700	5.684	43100	5.651
	3600	40	–	–	10300	6.585	12900	6.632	15900	6.699	19400	6.778	23300	6.86	27800	6.937	33000	7.001	38800	7.041
	3600	50	–	–	–	–	–	–	13700	8.182	16700	8.256	20200	8.347	24200	8.449	28700	8.552	33900	8.648
	3600	60	–	–	–	–	–	–	–	–	–	–	16600	10.266	20000	10.373	23900	10.498	28300	10.631
	3600	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19400	12.447	23200	12.596
	6000	20	16300	5.763	19900	5.952	24300	6.1	29400	6.212	35500	6.292	42500	6.342	50500	6.368	–	–	–	–
	6000	30	14300	8.001	17800	8.229	22000	8.421	26800	8.581	32500	8.713	39100	8.822	46600	8.911	55200	8.984	64900	9.045
	6000	40	–	–	15700	10.002	19500	10.237	24000	10.445	29100	10.631	35100	10.797	42000	10.949	49800	11.089	58700	11.223
	6000	50	–	–	–	–	–	–	20700	12.361	25300	12.599	30500	12.823	36600	13.037	43600	13.245	51500	13.451
	6000	60	–	–	–	–	–	–	–	–	–	–	25100	15.454	30300	15.73	36200	16.006	43100	16.284
	6000	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	29500	19.022	35400	19.358
VSH117-G	1500	20	–	–	7000	2.825	8900	2.856	11200	2.864	13900	2.858	17100	2.85	20700	2.85	–	–	–	–
	1500	30	–	–	6500	3.621	8400	3.659	10600	3.674	13200	3.676	16100	3.676	19500	3.685	23300	3.714	27700	3.772
	1500	40	–	–	5800	4.555	7500	4.592	9600	4.607	11900	4.609	14600	4.609	17600	4.619	21000	4.648	24900	4.709
	1500	50	–	–	–	–	–	–	8100	5.804	10100	5.798	12400	5.791	15000	5.793	18000	5.816	21300	5.871
	1500	60	–	–	–	–	–	–	–	–	–	–	9800	7.364	11900	7.352	14300	7.36	17100	7.401
	1500	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	20	15100	5.814	18600	5.915	22700	6.035	27500	6.167	33200	6.305	39700	6.444	47100	6.576	–	–	–	–
	3600	30	12700	7.046	15900	7.127	19700	7.242	24100	7.386	29300	7.552	35200	7.734	42000	7.927	49800	8.125	58500	8.321
	3600	40	–	–	13600	8.653	17100	8.723	21100	8.838	25700	8.991	31000	9.176	37100	9.389	44000	9.622	51900	9.87
	3600	50	–	–	–	–	–	–	18000	10.75	22100	10.849	26700	10.998	32100	11.189	38200	11.417	45200	11.676
	3600	60	–	–	–	–	–	–	–	–	–	–	22100	13.425	26700	13.555	31900	13.737	38000	13.966
	3600	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	26400	16.124	31600	16.301
	6000	20	21700	8.505	26600	8.836	32500	9.227	39500	9.643	47700	10.051	57200	10.417	68100	10.706	–	–	–	–
	6000	30	18700	10.491	23500	10.73	29100	11.074	35700	11.49	43300	11.944	52200	12.402	62300	12.829	73800	13.192	86900	13.458
	6000	40	–	–	20600	12.897	25700	13.122	31700	13.464	38700	13.889	46700	14.365	55900	14.856	66400	15.329	78300	15.75
	6000	50	–	–	–	–	–	–	27400	15.934	33500	16.258	40600	16.677	48700	17.158	58000	17.667	68600	18.17
	6000	60	–	–	–	–	–	–	–	–	–	–	33600	19.71	40500	20.107	48400	20.577	57600	21.088
	6000	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	39700	23.567	47500	24.03
VSH170-G	1500	20	–	–	9700	4.076	13300	4.101	17400	4.109	22100	4.07	27500	3.957	33600	3.741	–	–	–	–
	1500	30	–	–	7900	5.298	11100	5.308	14800	5.341	19100	5.366	23800	5.358	29100	5.287	34900	5.125	41300	4.844
	1500	40	–	–	6200	6.841	9200	6.774	12600	6.769	16400	6.796	20600	6.83	25200	6.84	30200	6.8	35700	6.681
	1500	50	–	–	–	–	–	–	10100	8.702	13500	8.669	17300	8.682	21300	8.711	25700	8.73	30400	8.71
	1500	60	–	–	–	–	–	–	–	–	–	–	13500	11.223	17100	11.209	20900	11.224	24900	11.24
	1500	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	3600	20	20600	8.231	25500	8.353	31300	8.469	38100	8.559	46100	8.602	55500	8.577	66200	8.464	–	–	–	–
	3600	30	17700	10.658	22300	10.713	27700	10.8	34100	10.896	41600	10.983	50200	11.038	60000	11.041	71300	10.972	84000	10.81
	3600	40	–	–	19300	13.265	24300	13.268	30100	13.318	36800	13.395	44600	13.477	53500	13.544	63700	13.575	75200	13.549
	3600	50	–	–	–	–	–	–	25700	16.296	31600	16.309	38500	16.365	46300	16.442	55300	16.521	65500	16.579
	3600	60	–	–	–	–	–	–	–	–	–	–	31500	20.173	38200	20.208	45800	20.28	54600	20.369
	3600	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	37300	24.189	44800	24.264
	6000	20	31800	12.656	39100	12.946	47800	13.264	58000	13.587	70000	13.891	83800	14.152	99600	14.348	–	–	–	–
	6000	30	27500	16.006	34500	16.211	42700	16.479	52300	16.787	63400	17.113	76100	17.431	90700	17.72	107200	17.956	125800	18.115
	6000	40	–	–	30200	19.704	37800	19.87	46600	20.112	56600	20.406	68200	20.729	81300	21.058	96300	21.37	113100	21.641
	6000	50	–	–	–	–	–	–	40300	24.127	49300	24.337	59500	24.612	71100	24.929	84300	25.265	99200	25.595
	6000	60	–	–	–	–	–	–	–	–	–	–	49300	29.649	59300	29.901	70700	30.207	83500	30.544
	6000	68	–	–	–	–	–	–	–	–	–	–	–	–	–	–	58100	35.296	69300	35.6

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*

Nomenclature and Dimensions

V SH 117 A G A N A

- **V** — Variable speed
- **SH** — Family lubrificant
  SH scroll
  POE lubrificant
  R410A refrigerant
- **117** — Swept volume
  in [cm³/rev]
- **A** — Standard approval
  UL index
- **G** — Motor voltage code to CDS803: *)
  - J: 200 – 240 V / 3 ph / 50 / 60 Hz
  - G: 380 – 480 V / 3 ph / 50 / 60 Hz
  - H: 525 – 600 V / 3 ph / 50 / 60 Hz
- **A** — Equipement version:
  - A: brazed connections
- **N** — Motor protection:
  - N: no internal motor protection (protection by drive)
- **A** — Evolution index:

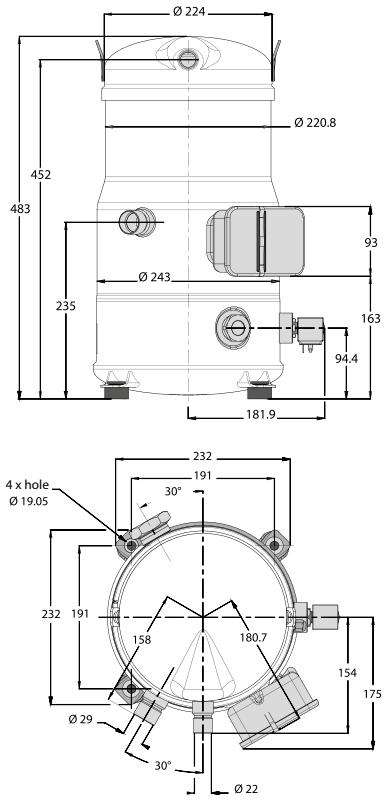
*) main supply voltage to frequency converter

Frequency converter nomenclature

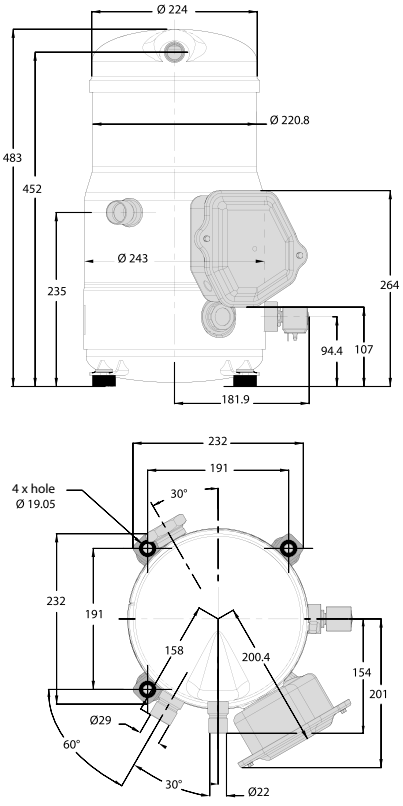
CDS 302 P15K T4 E20 H2

- **CDS** — Dedicated compressor drive
  for VSH scroll
- **302** — Serie 302
- **P15K** — Output power
  in [KW]
- **T4** — Main supply voltage
  - T2: 200 – 240 V / 3 ph / 50 / 60 Hz
  - T4: 380 – 480 V / 3 ph / 50 / 60 Hz
  - T6: 525 – 600 V / 3 ph / 50 / 60 Hz
- **E20** — Enclosure protection:
  IP rating
- **H2** — RFI class

VSH088-G and H

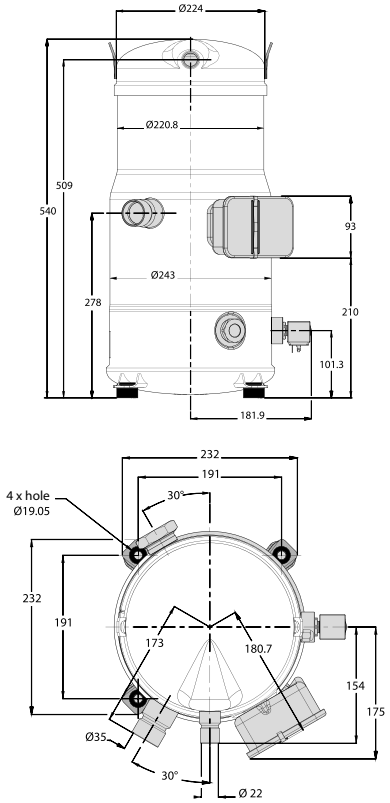


VSH088-J

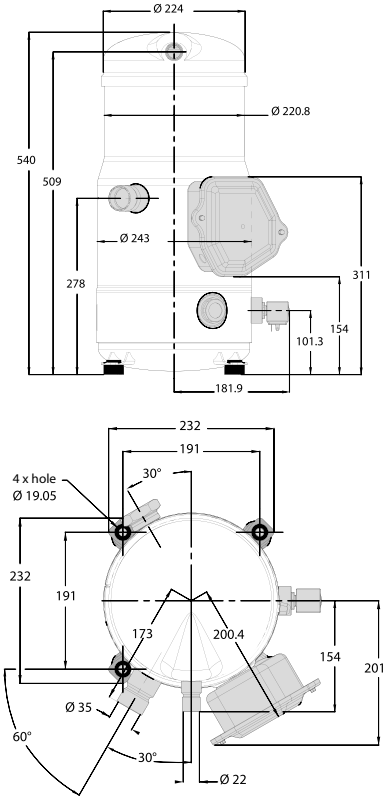


Dimensions

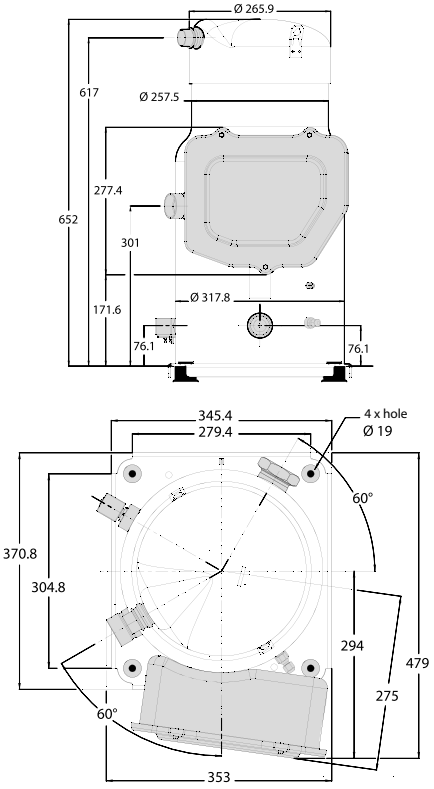
VSH117-G and H



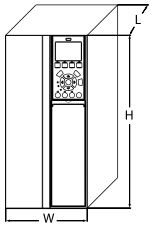
VSH117-J



VSH170-G-H and J



Technical data and ordering



VSH - Inverter Scroll Compressors

Frequency converter dimensions

Drive supply voltage	Drive power [kW]	Compressor voltage code	Compressor model	IP20			IP55		
				Drive enclosure	Overall drive size (H x W x L) [mm]	Net weight [kg]	Drive enclosure	Overall drive size (H x W x L) [mm]	Net weight [kg]
T2: 200-240/3 / 50-60	15	J	VSH088	B4	595x231x242	23.5	C1	680x308x310	45
	18.5	J	VSH117	C3	630x308x334	35	C1	680x308x310	45
	22	J	VSH170	C3	630x308x334	35	C1	680x308x310	45
T4: 380-480/3 / 50-60	15	G	VSH088	B3	419x165x248	12	B1	480x240x260	23
	18.5	G	VSH117	B4	595x231x242	23.5	B2	650x242x260	27
	22	G	VSH170	B4	595x231x242	23.5	B2	650x242x260	27
T6: 525-600/3 / 50-60	15	H	VSH088	B3	419x165x248	12	B1	480x240x260	23
	18.5	H	VSH117	B4	595x231x242	23.5	B2	650x242x260	27
	22	H	VSH170	B4	595x231x242	23.5	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

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 reciprocating compressors

Optyma™ **Slim Pack**

The compact and cost effective packaged unit with Micro Channel Heat Exchanger technology

Optyma™ **Plus New Generation**

The premium condensing unit: energy optimized, low noise levels and quick installation / maintenance

Optyma™ **Plus INVERTER**

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 New Generation	Optyma™ Plus INVERTER
MBP				
R134a	0.1 / 13.6	2.1 / 6.7	1.7 / 10.4	–
R404A	0.3 / 21.9	0.8 / 10.6	0.6 / 16.5	1.8 / 9.2
R407A	1.8 / 19.5	3.3 / 10.1	3.3 / 14.9	1.7 / 8.6
R407C	1.7 / 20	–	–	–
R407F	1.9 / 20.5	3.5 / 10.8	3.5 / 15.9	1.8 / 9.3
LBP				
R404A	0.2 / 10.3	0.6 / 5.6	0.7 / 9.6	–

Rating Conditions: Ambient Temperature 32 °C, Superheat 10 K, Subcooling 0 K, Evaporator Temperature MBP: -10 °C / LBP: -25 °C

Quick Selection Notes:

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 outmost to fulfil your needs. At Danfoss we simply believe it is important to offer an "Optimum service".



Features
Optyma™



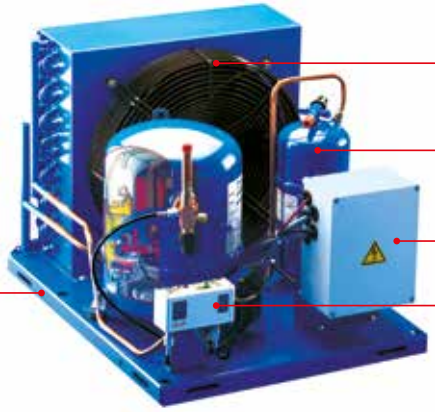
Optimum airflow due to Danfoss designed fan cowl

Pre-mounted LP / HP tubes for easy connection of pressure switch

Easy accessible valves

Base rails designed for easy installition

***) A01**



Single or double fan design

Receiver equipped with 3/8 inch. NPTF plug and shuft-OFF valve with access port

Fully prewired and factory tested

Combined HP / LP pressure switch Danfoss KP17WB

Compact design and extended application envelope

**) Version:*
A00 - without valves and receiver for capillary tubes
A04 - A01 + KP17WB + FSA-kit + power cord

A02

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
- HFC refrigerants R134a, R404A / R507, R407A, R407F, R407C and propane (R290)
- Capacity: from a few to 20000 Watt (R404A)
- High COP
- 100% factory tested for leakage
- Low energy consumption
- Wide application range
- Powder coated steel parts
- Crankcase heater standard (optional for fractional units)
- Service valves standard with access ports
- Access valves / stubs for easy connection
- High-efficiency condensers allowing an extended application envelope in high ambient conditions
- Low electrical consumption and low running costs
- Reliable components for longer life and less warranty call out costs
- Fully pre-wired and factory tested, reducing commissioning time on site
- Built-in grab handles for easier handling on site
- Base plate designed to allow easy mounting on wall brackets
- Flexible add-on design options including: fan speed control, oil separator, pressure switches or weather proof housing
- Easy access to all components for higher serviceability and simplified maintenance
- Compact dimensions and minimum foot print for easy handling, shipping and installation

Quick Selection Notes:

Technical data and ordering

Optyma™ - R404A / R507 LBP

Fan	Test conditions	Unit	Version	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at -25 °C evap temp
								-40 °C	-35 °C	-30 °C	-25 °C	-20 °C	-15 °C	-10 °C	
	CECOMAF	OP–LCHC004	A00	114X1208	G	TL4CLX	27	80	110	140	180	220	280	340	170
			A01	114X1209			32	70	90	120	160	200	250	310	
			A04	114X1211			38	60	80	100	130	170	220	270	
							43	–	–	–	–	–	–	–	
		OP-LCHC006	A00	114X1216	G	FR6CLX	27	130	170	230	290	370	460	570	270
			A01	114X1217			32	120	160	210	260	330	420	510	
			A04	114X1219			38	100	140	180	230	290	360	440	
							43	90	120	150	200	250	–	–	
		OP-LCHC008	A00	114X1324	G	FR8.5CLX	27	160	210	270	350	450	560	700	340
			A01	114X1325			32	140	190	250	320	410	510	630	
			A04	114X1327			38	110	150	200	270	350	–	–	
							43	–	–	–	–	–	–	–	
		OP-LCHC007	A00	114X1328	G	NL7CLX	27	170	230	310	400	500	620	760	300
			A01	114X1329			32	160	210	280	370	460	570	700	
			A04	114X1331			38	140	190	250	320	410	510	630	
							43	–	–	–	–	–	–	–	
		OP-LCHC008	A00	114X1304	G	NL8.4CLX	27	190	260	340	430	550	680	830	340
							32	170	230	310	400	500	620	760	
							38	150	200	270	350	450	560	680	
							43	130	180	240	310	390	490	610	
		OP-LCHC010	A00	114X1332	G	SC10CLX	27	–	230	330	450	600	760	950	390
			A01	114X1333			32	–	190	290	400	530	690	860	
			A04	114X1335			38	–	–	240	340	460	600	760	
							43	–	–	–	290	400	530	670	
		OP-LCHC012	A00	114X1440	G	SC12CLX	27	230	330	460	620	800	1000	1240	500
			A01	114X1441			32	170	280	400	540	710	910	1130	
			A04	114X1443			38	110	200	320	450	600	780	990	
							43	–	140	250	370	510	680	880	
		OP-LCHC012	A00	114X1444	G	SC12CLX.2	27	270	370	480	620	790	970	1190	530
							32	230	320	430	560	720	890	1100	
							38	180	270	370	490	630	790	980	
							43	–	230	320	430	560	710	880	
		OP-LCHC015	A00	114X1548	G	SC15CLX	27	280	410	560	730	910	1130	1370	600
			A01	114X1549			32	200	350	500	660	850	1050	1280	
			A04	114X1551			38	–	250	410	580	760	950	1170	
							43	–	–	330	500	670	860	1070	
		OP-LCHC018	A00	114X1556	G	SC18CLX	27	360	500	670	870	1110	1380	1690	660
			A01	114X1557			32	310	440	590	780	1000	1250	1530	
			A04	114X1559			38	240	360	500	670	870	1090	1350	
							43	–	300	430	580	760	960	1200	
		OP-LCHC021	A00	114X1564	G	SC21CLX	27	420	590	780	1010	1270	1570	1910	740
			A01	114X1565			32	360	510	680	890	1140	1420	1730	
			A04	114X1567			38	300	420	570	760	980	1230	1520	
							43	–	350	490	650	860	1090	1360	
	RGT20	OP-LCHC026	A01	114X1673	G	GS26CLX	27	550	770	1030	1340	1700	2120	2600	980
							32	470	670	910	1200	1530	1920	2360	
							38	370	560	780	1030	1330	1680	2080	
							43	300	470	660	900	1170	1490	1850	
		OP-LCHC034	A01	114X1781	G	GS34CLX	27	800	1080	1430	1830	2310	2860	3490	1300
							32	700	970	1290	1670	2110	2630	3220	
			A04	114X1783			38	580	830	1120	1470	1870	2350	2890	
							43	480	710	980	1300	1670	2110	2610	

Test condition

	RGT20	*CECOMAF*
Ambient temperature:	*32 °C*	*32 °C*
Suction gas temperature:	*20 °C*	*32 °C*
Subcooling:	*0 K*	*0 K*

Power consumption referred at 32 °C ambient temperature
Subcooling within the limits of the condensing unit

Electrical code

G: compressor 220 V / 1 phase / 50 Hz, fan 220 V / 1 phase / 50 Hz

Version

A00: without valves and receiver for capillary tubes
A01: with receiver, 2 stop valves, brackets and copper pipes for KP
A04: A01 + KP17WB + FSA-kit + power cord (except LCHC034)

Technical data and ordering

Optyma™ - R404A / R507 LBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg] (version A01)	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-LCHC004	BG2	231	0.25	1x200	0.8	1	226	304	446	1/4	1/4	19	17
OP-LCHC006	BG2	231	0.25	1x200	0.8	2	226	304	446	3/8	1/4	19	17
OP-LCHC008	BG3	518	0.31	1x230	1.1	2	256	321	458	3/8	1/4	20	18
OP-LCHC007	BG3	518	0.31	1x230	1.1	3	256	321	458	3/8	1/4	20	18
OP-LCHC008	BG3	518	0.31	1x230	1.1	3	256	321	458	3/8	1/4	18 *)	16 *)
OP-LCHC010	BG3	518	0.31	1x230	1.1	4	256	321	458	3/8	1/4	20	18
OP-LCHC012	BG4	631	0.40	1x254	1.1	4	296	331	465	3/8	1/4	25	22
OP-LCHC012	BG4	631	0.40	1x254	1.1	4	296	331	465	3/8	1/4	23 *)	20 *)
OP-LCHC015	BG5	583	0.53	1x254	1.1	4	296	331	465	3/8	1/4	26	23
OP-LCHC018	BG5	583	0.53	1x254	1.1	4	296	331	465	1/2	1/4	26	23
OP-LCHC021	BG5	583	0.53	1x254	1.1	4	296	331	465	1/2	1/4	26	23
OP-LCHC026	BG6	1150	0.63	1x300	2.4	7	340	430	480	1/2	3/8	45	39
OP-LCHC034	BG7	990	0.84	1x300	2.4	7	340	430	480	1/2	3/8	48	42

*) weight referred to version A00

Technical data and ordering

Optyma™ - R404A / R507 LBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at -25 °C evap temp
							-40 °C	-35 °C	-30 °C	-25 °C	-20 °C	-15 °C	-10 °C	
	SH = 10 K	OP-LCHC048	114X5044	G	NTZ048	27	750	1050	1400	1800	2250	2700	3150	1450
						32	650	900	1250	1600	2000	2400	2800	
			114X5037	E		38	500	750	1050	1350	1700	2050	2450	
						43	400	650	900	1150	1450	–	–	
		OP-LCHC068	114X5045	G	NTZ068	27	1350	1850	2400	3050	3750	4500	5300	2250
						32	1200	1650	2150	2750	3350	4050	4800	
			114X5038	E		38	1000	1400	1850	2350	2950	3550	4200	
						43	850	1200	1600	2050	2600	–	–	
		OP-LCHC096	114X5039	E	NTZ096	27	1550	2150	2850	3650	4550	5600	6700	2700
						32	1350	1850	2500	3250	4050	5000	6000	
						38	1050	1550	2100	2750	3500	4300	5200	
						43	850	1250	1750	2350	3000	–	–	
		OP-LCHC108	114X5040	E	NTZ108	27	1900	2600	3450	4400	5400	6550	7750	3200
						32	1600	2250	3050	3900	4850	5900	6950	
						38	1300	1900	2550	3350	4200	5100	6050	
						43	1050	1600	2200	2850	3600	–	–	
		OP-LCHC136	114X5041	E	NTZ136	27	2450	3300	4350	5500	6750	8150	9650	4300
						32	2150	2950	3850	4900	6100	7350	8750	
						38	1750	2450	3300	4250	5250	6400	7650	
						43	1450	2100	2850	3650	4600	–	–	
		OP-LCHC215	114X5042	E	NTZ215	27	3750	5100	6650	8400	10300	12400	14550	6700
						32	3200	4450	5900	7500	9250	11150	13100	
						38	2550	3700	4950	6400	7950	9600	11400	
						43	2000	3050	4200	5450	6850	–	–	
		OP-LCHC271	114X5043	E	NTZ271	27	5100	6850	8850	11100	13500	16050	18700	8600
						32	4500	6100	7900	9950	12100	14450	16850	
						38	3750	5150	6800	8550	10450	12500	14600	
						43	3100	4400	5800	7400	9100	–	–	
		OP-LGHC048	114X5089	E	NTZ048	27	750	1100	1450	1900	2350	2850	3400	1650
						32	650	950	1300	1700	2100	2550	3050	
						38	500	800	1100	1450	1800	2200	2650	
						43	400	650	950	1250	1550	–	–	
		OP-LGHC068	114X5090	E	NTZ068	27	1350	1800	2350	2950	3650	4350	5100	2550
						32	1150	1600	2100	2650	3250	3900	4600	
						38	950	1350	1800	2300	2850	3450	4050	
						43	800	1150	1550	2000	2500	–	–	
		OP-LGHC096	114X5091	E	NTZ096	27	1550	2150	2850	3650	4600	5650	6750	3050
						32	1350	1850	2500	3250	4100	5050	6100	
						38	1050	1550	2100	2750	3500	4350	5300	
						43	850	1250	1750	2350	3050	–	–	
		OP-LGHC108	114X5092	E	NTZ108	27	1900	2650	3500	4500	5650	6850	8100	3700
						32	1650	2350	3100	4050	5050	6150	7300	
						38	1350	1950	2650	3450	4350	5300	6350	
						43	1050	1600	2250	3000	3800	–	–	
		OP-LGHC136	114X5093	E	NTZ136	27	2550	3400	4500	5700	7100	8600	10250	4800
						32	2200	3000	4000	5100	6400	7800	9300	
						38	1800	2550	3400	4400	5550	6800	8150	
						43	1500	2150	2950	3850	4850	–	–	
		OP-LGHC215	114X5094	E	NTZ215	27	3950	5400	7100	9050	11250	13700	16350	7450
						32	3400	4750	6350	8150	10150	12400	14850	
						38	2750	3950	5400	7000	8800	10800	13000	
						43	2150	3250	4550	6000	7650	–	–	
		OP-LGHC271	114X5095	E	NTZ271	27	5250	7050	9150	11500	14100	16850	19800	9400
						32	4600	6250	8200	10350	12700	15250	17900	
						38	3850	5350	7050	8950	11000	13250	15600	
						43	3200	4550	6050	7750	9600	–	–	

Test condition

	SH 10K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Power consumption referred at 32 °C ambient temperature

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch (KP17WB), flexible hoses and electrical box

Technical data and ordering

Optyma™ - R404A / R507 LBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-LCHC048	A4	1200	1.2	1×300	3	5	402	500	600	5/8	3/8	52	45
OP-LCHC068	C4	2150	2.3	1×350	6	5	555	630	650	5/8	1/2	64	57
OP-LCHC096	D4	2000	3.1	1×350	6	5	555	630	650	7/8	1/2	78	71
OP-LCHC108	E4	3150	2.5	1×400	6	5	605	630	650	7/8	1/2	92	80
OP-LCHC136	G4	3150	4.1	1×400	8	5	656	755	700	7/8	1/2	95	83
OP-LCHC215	J4	6000	4.4	1×500	14	5	708	900	900	1 1/8	5/8	151	136
OP-LCHC271	L4	5850	6.3	1×500	14	5	759	900	900	1 1/8	5/8	166	151
OP-LGHC048	C3	1.300	1.6	2×254	3	6	392	700	500	5/8	3/8	52	45
OP-LGHC068	D3	2800	1.5	2×300	6	6	442	800	600	5/8	1/2	62	55
OP-LGHC096	E3	2600	2.2	2×300	6	6	442	800	600	7/8	1/2	78	71
OP-LGHC108	G3	4600	2.3	2×350	8	6	555	1000	700	7/8	1/2	102	89
OP-LGHC136	H3	3600	4.7	2×350	8	6	555	1000	700	7/8	1/2	107	94
OP-LGHC215	L3	8600	5.1	2×450	14	6	671	1200	800	1 1/8	5/8	152	138
OP-LGHC271	L3	8600	5.1	2×450	14	6	671	1200	800	1 1/8	5/8	158	144

Technical data and ordering

Optyma™ R404A / R507 MBP

Fan	Test conditions	Unit	Version	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
								-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MCHC004	A00	114X2208	G	TL4DLX	27	250	280	340	410	510	620	740	230	280
			A01	114X2209			32	220	250	300	380	460	570	680		
			A04	114X2211			38	180	210	260	330	410	500	–		
							43	–	–	–	–	–	–	–		
		OP-MCHC006	A00	114X2316	G	FR6DLX	27	380	460	560	690	830	1000	1190	380	480
			A01	114X2317			32	340	420	510	620	750	910	1080		
			A04	114X2319			38	300	360	440	540	660	790	–		
							43	–	–	–	–	–	–	–		
		OP-MCHC007	A00	114X2424	G	NF7MLX	27	–	600	740	910	1090	1300	–	450	530
			A01	114X2425			32	–	550	680	830	1000	1200	–		
			A04	114X2427			38	–	490	600	740	900	1080	–		
							43	–	430	540	670	810	970	–		
		OP-MCHC010	A00	114X2532	A	SC10MLX	27	650	810	1010	1240	1500	1810	–	560	670
			A01	114X2533			32	590	740	920	1130	1370	1650	–		
			A04	114X2535			38	510	650	810	1000	1210	1460	–		
							43	–	570	720	890	1080	1300	–		
		OP-MCHC012	A00	114X2540	G	SC12MLX	27	790	990	1220	1490	1810	2170	–	660	800
			A01	114X2541			32	720	900	1120	1370	1660	1990	–		
			A04	114X2543			38	630	790	990	1210	1470	1760	–		
							43	–	700	870	1080	1310	1570	–		
		OP-MCHC015	A01	114X2649	G	SC15MLX	27	980	1220	1510	1840	2220	2650	–	840	1030
							32	890	1120	1380	1690	2040	2450	–		
			A04	114X2651			38	790	990	1220	1500	1820	2200	–		
							43	–	880	1090	1350	1640	1980	–		
		OP-MCHC018	A00	114X2756	G	SC18MLX	27	1150	1430	1750	2140	2580	3080	–	920	1130
			A01	114X2757			32	1040	1300	1610	1960	2370	2840	–		
			A04	114X2759			38	920	1150	1430	1750	2120	2550	–		
							43	–	1030	1280	1570	1910	2300	–		
		OP-MCHC021	A01	114X2765	G	GS21MLX	27	1370	1730	2160	2670	3260	3950	–	1030	1260
							32	1230	1560	1960	2420	2960	3590	–		
			A04	114X2767			38	1080	1370	1720	2130	2610	3170	–		
							43	950	1220	1530	1900	2330	2820	–		
		OP-MCHC026	A01	114X2773	G	GS26MLX	27	1760	2220	2750	3360	4060	4870	–	1270	1570
							32	1600	2020	2510	3080	3730	4470	–		
							38	1400	1790	2230	2740	3320	3990	–		
							43	1240	1600	2000	2460	2990	3590	–		
		OP-MCHC034	A01	114X2881	G	GS34MLX	27	2360	2920	3560	4300	5140	6090	–	1830	2320
							32	2160	2680	3280	3970	4750	5640	–		
			A04	114X2883			38	1900	2380	2930	3550	4250	5060	–		
							43	1690	2130	2620	3180	3820	4550	–		

Test condition

	SH 10K
Ambient temperature:	*32 °C*
Superheat:	*32 K*
Subcooling:	*0 K*

Electrical code

G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
A: compressor 220 V / 1 phase / 50 + 60 Hz, fan 220 V / 1 phase / 50 + 60 H

Version

A00: without valves and receiver for capillary tubes
A01: with receiver, 2 stop valves, brackets and copper pipes for KP
A04: A01 + KP17WB + FSA-kit + power cord

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R404A / R507 MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg] (version A01)	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MCHC004	BG2	231	0.25	1X200	0.8	1	226	304	446	3/8	1/4	19	17
OP-MCHC006	BG3	518	0.31	1X230	1.1	2	256	321	458	3/8	1/4	20	18
OP-MCHC007	BG4	631	0.40	1X254	1.1	3	296	331	478	3/8	1/4	25	22
OP-MCHC010	BG5	583	0.53	1X254	1.1	4	296	331	478	3/8	1/4	26	23
OP-MCHC012	BG5	583	0.53	1X254	1.1	4	296	331	478	3/8	1/4	26	23
OP-MCHC015	BG6	1132	1.1	1X300	1.1	4	350	442	610	1/2	1/4	48	42
OP-MCHC018	BG7	827	1.8	1X300	1.1	4	350	442	610	1/2	1/4	50	44
OP-MCHC021	BG7	990	0.84	1X300	1.6	7	340	430	480	5/8	3/8	48	42
OP-MCHC026	BG7	990	0.84	1X300	1.6	7	340	430	480	5/8	3/8	48	42
OP-MCHC034	BG8	2300	1.36	1X350	2.4	8	450	500	600	5/8	3/8	51	44

Technical data and ordering

Optyma™ R404A / R507 MBP

Fan	Test conditions	Unit	Version	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
								-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MCZC030	A02	114X5024	G	MTZ018	27	1300	1700	2200	2700	3250	3850	4450	1350	1750
							32	1150	1550	2000	2450	2950	3500	4050		
				114X5012	E		38	1000	1350	1700	2150	2600	3050	3550		
							43	850	1150	1500	1900	2300	–	–		
		OP-MCZC038	A02	114X5025	G	MTZ022	27	1850	2400	3000	3700	4400	5150	5950	1700	2250
							32	1650	2150	2700	3300	4000	4650	5400		
				114X5013	E		38	1400	1850	2350	2900	3450	4100	4750		
							43	1200	1600	2050	2550	3050	–	–		
		OP-MCZC048	A02	114X5026	G	MTZ028	27	2500	3250	4050	4900	5850	6850	7900	2150	2850
							32	2250	2900	3650	4450	5300	6250	7200		
				114X5014	E		38	1900	2500	3150	3900	4700	5500	6400		
							43	1650	2150	2800	3450	4150	–	–		
		OP-MCZC054	A02	114X5027	G	MTZ032	27	2900	3650	4500	5400	6350	7400	8450	2350	3200
							32	2600	3300	4050	4900	5800	6700	7700		
				114X5015	E		38	2200	2850	3550	4300	5100	5900	6800		
							43	1900	2500	3100	3800	4500	–	–		
		OP-MCZC060	A02	114X5028	G	MTZ036	27	3350	4200	5150	6150	7200	8300	9400	2800	3800
							32	3050	3800	4650	5600	6550	7550	8550		
				114X5016	E		38	2650	3350	4100	4900	5750	6600	7500		
							43	2300	2950	3600	4350	5100	–	–		
		OP-MCZC068	A02	114X5017	E	MTZ040	27	3950	4900	5950	7050	8250	9450	10700	3250	4350
							32	3550	4450	5400	6400	7500	8600	9750		
							38	3100	3900	4750	5650	6600	7600	8600		
							43	2750	3450	4200	5000	5850	–	–		
		OP-MCZC086	A02	114X5018	E	MTZ050	27	4450	5650	6950	8350	9850	11450	13100	3500	4600
							32	4000	5050	6250	7550	8950	10400	11900		
							38	3450	4400	5450	6600	7850	9150	10550		
							43	3000	3850	4800	5850	6950	–	–		
		OP-MCZC096	A02	114X5019	E	MTZ056	27	4800	6100	7550	9150	10900	12700	14600	3800	5100
							32	4300	5500	6850	8300	9900	11600	13350		
							38	3700	4800	6000	7300	8750	10300	11900		
							43	3250	4200	5300	6500	7800	–	–		
		OP-MCZC108	A02	114X5020	E	MTZ064	27	5800	7350	9050	10950	13050	15200	17500	5000	6550
							32	5200	6600	8200	9950	11850	13900	16000		
							38	4500	5750	7150	8750	10450	12300	14250		
							43	3900	5050	6300	7750	9300	–	–		
		OP-MCZC121	A02	114X5021	E	MTZ072	27	6600	8350	10250	12400	14700	17150	19750	5450	7100
							32	5900	7500	9300	11250	13400	15700	18100		
							38	5150	6550	8150	9950	11850	13950	16150		
							43	4500	5800	7250	8850	10600	–	–		
		OP-MCZC136	A02	114X5022	E	MTZ080	27	7700	9550	11600	13850	16200	18700	21300	6450	8450
							32	6950	8650	10550	12600	14800	17100	19500		
							38	6050	7600	9300	11150	13100	15200	17350		
							43	5350	6750	8250	9950	11700	–	–		
		OP-MCZC171	A02	114X5023	E	MTZ100	27	8650	11000	13500	16200	19050	22000	25050	7650	9850
							32	7800	9950	12250	14700	17300	20000	22800		
							38	6750	8650	10700	12900	15200	17600	20100		
							43	5900	7600	9450	11400	13500	–	–		
		OP-MGZC215	A02	114X5073	E	MTZ125	27	11750	14750	18100	21800	25800	30050	34500	11450	14400
							32	10550	13300	16400	19800	23500	27400	31550		
							38	9150	11600	14350	17450	20750	24300	28100		
							43	8000	10250	12750	15500	18500	–	–		
		OP-MGZC242	A02	114X5074	E	MTZ144	27	13550	16750	20350	24200	28250	32550	36950	12950	16450
							32	12200	15150	18450	21950	25700	29650	33700		
							38	10600	13250	16200	19300	22650	26200	29850		
							43	9300	11700	14300	17150	20150	–	–		
		OP- MGZC271	A02	114X5075	E	MTZ160	27	15050	18700	22750	27150	31800	36750	41800	14200	18300
							32	13600	16950	20700	24700	29050	33550	38250		
							38	11850	14900	18200	21800	25700	29750	34000		
							43	10450	13150	16150	19400	22900	–	–		

Test condition

	SH 10K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

G: Compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
E: Compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: With receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R404A / R507 MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MCZC030	A4	1200	1.2	1 × 300	3	5	408	500	600	1/2	3/8	52	45
OP-MCZC038	B4	1750	1.3	1 × 350	3	5	451	500	620	1/2	3/8	54	47
OP-MCZC048	C4	2150	2.3	1 × 350	6	5	555	630	650	1/2	1/2	64	57
OP-MCZC054	C4	2150	2.3	1 × 350	6	5	555	630	650	5/8	1/2	65	58
OP-MCZC060	D4	2000	3.1	1 × 350	6	5	555	630	650	5/8	1/2	68	61
OP-MCZC068	E4	3150	2.5	1 × 400	6	5	605	630	650	5/8	1/2	72	65
OP-MCZC086	F4	3300	3.1	1 × 400	8	5	656	755	700	7/8	1/2	95	83
OP-MCZC096	G4	3150	4.1	1 × 400	8	5	656	755	700	7/8	1/2	100	88
OP-MCZC108	H4	4300	4.1	1 × 500	8	5	656	755	700	7/8	1/2	113	101
OP-MCZC121	J4	6000	4.4	1 × 500	10	5	708	900	900	1 1/8	1/2	127	113
OP-MCZC136	K4	6200	4.7	1 × 500	10	5	759	900	900	1 1/8	1/2	140	126
OP-MCZC171	L4	5850	6.3	1 × 500	14	5	759	900	900	1 1/8	5/8	162	147
OP-MGZC215	M4	11000	7.4	2 x 500	14	6	759	1350	820	1 1/8	5/8	191	176
OP-MGZC242	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	194	179
OP- MGZC271	N4	9200	12.3	2 x 500	14	6	759	1350	820	1 1/8	5/8	199	184

Technical data and ordering

Optyma™ R404A / R507 MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MGZD030	114X5061	E	MTZ018	32	1200	1600	2100	2600	3150	3750	4350	1500	1850
						38	1050	1400	1800	2250	2750	3300	3850		
						43	900	1200	1600	2000	2450	–	–		
						46	800	1100	1450	1850	2250	–	–		
		OP-MGZD038	114X5062	E	MTZ022	32	1750	2300	2900	3600	4350	5150	6050	1950	2450
						38	1500	1950	2500	3150	3800	4550	5350		
						43	1300	1700	2200	2750	3350	–	–		
						46	1150	1550	2000	2550	3100	–	–		
		OP-MGZD048	114X5063	E	MTZ028	32	2300	2950	3750	4600	5550	6550	7600	2450	3100
						38	1950	2550	3250	4050	4900	5800	6750		
						43	1650	2250	2900	3600	4350	–	–		
						46	1500	2050	2650	3300	4050	–	–		
		OP-MGZD054	114X5064	E	MTZ032	32	2650	3400	4200	5100	6050	7100	8150	2650	3450
						38	2300	2950	3650	4450	5350	6250	7200		
						43	2000	2550	3250	3950	4750	–	–		
						46	1800	2350	2950	3650	4400	–	–		
		OP-MGZD060	114X5065	E	MTZ036	32	3200	4100	5050	6100	7250	8450	9700	3300	4200
						38	2800	3600	4450	5400	6400	7500	8600		
						43	2450	3150	3950	4800	5700	–	–		
						46	2250	2900	3650	4450	5300	–	–		
		OP-MGZD068	114X5066	E	MTZ040	32	3800	4800	5950	7150	8500	9900	11450	3650	4550
						38	3350	4250	5250	6350	7550	8850	10200		
						43	2950	3800	4700	5650	6750	–	–		
						46	2700	3500	4350	5250	6250	–	–		
		OP-MGZD086	114X5067	E	MTZ050	32	4250	5450	6800	8300	9900	11700	13550	3950	4950
						38	3650	4700	5950	7300	8750	10350	12050		
						43	3200	4150	5250	6450	7800	–	–		
						46	2900	3800	4850	5950	7200	–	–		
		OP-MGZD108	114X5069	E	MTZ064	32	5450	6950	8700	10650	12800	15100	17600	5100	6550
						38	4700	6050	7650	9400	11300	13400	15700		
						43	4100	5350	6750	8350	10100	–	–		
						46	3750	4900	6200	7700	9350	–	–		
		OP-MGZD121	114X5070	E	MTZ072	32	6000	7600	9450	11500	13700	16050	18550	5600	7250
						38	5200	6650	8300	10150	12100	14300	16600		
						43	4550	5850	7350	9000	10850	–	–		
						46	4200	5400	6800	8350	10100	–	–		
		OP-MGZD136	114X5071	E	MTZ080	32	7300	9200	11300	13650	16200	18900	21800	7150	9000
						38	6400	8100	10000	12100	14400	16850	19500		
						43	5650	7200	8900	10850	12900	–	–		
						46	5200	6650	8250	10050	12050	–	–		
		OP-MGZD171	114X5072	E	MTZ100	32	8250	10600	13200	16050	19150	22450	25850	8300	10250
						38	7200	9300	11650	14200	16950	19850	22950		
						43	6300	8200	10300	12600	15100	–	–		
						46	5750	7550	9500	11650	13950	–	–		
		OP-MGZD215	114X5118	E	MTZ125	32	10900	13800	17150	20800	24850	29200	33850	11350	14100
						38	9450	12050	15050	18350	22000	25950	30200		
						43	8300	10650	13350	16350	19700	–	–		
						46	7650	9850	12350	15200	18300	–	–		
		OP-MGZD242	114X5119	E	MTZ144	32	12650	15850	19400	23250	27400	31850	36500	12800	16100
						38	11050	13900	17050	20500	24250	28250	32450		
						43	9700	12250	15100	18250	21650	–	–		
						46	8900	11300	13950	16900	20050	–	–		
		OP-MGZD271	114X5120	E	MTZ160	32	14200	17850	21900	26400	31250	36500	42000	13800	17600
						38	12400	15700	19350	23400	27750	32500	37500		
						43	10950	13900	17200	20900	24850	–	–		
						46	10100	12850	15950	19400	23150	–	–		

Test condition

	SH 10K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R404A / R507 MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MGZD030	C3	1300	1.7	2 × 254	3	6	392	700	500	1/2	3/8	56	46
OP-MGZD038	D3	2800	1.5	2 × 300	6	6	442	800	600	1/2	1/2	60	53
OP-MGZD048	E3	2600	2.2	2 × 300	6	6	442	800	600	1/2	1/2	64	57
OP-MGZD054	E3	2600	2.2	2 × 300	6	6	442	800	600	5/8	1/2	65	58
OP-MGZD060	G3	4600	2.3	2 × 350	8	6	555	1000	700	5/8	1/2	88	75
OP-MGZD068	H3	3600	4.7	2 × 350	8	6	555	1000	700	5/8	1/2	96	82
OP-MGZD086	H3	3600	4.7	2 × 350	8	6	555	1000	700	7/8	1/2	107	93
OP-MGZD108	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	113	99
OP-MGZD121	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	115	101
OP-MGZD136	L3	8600	5.1	2 × 450	10	6	671	1200	800	1 1/8	1/2	133	118
OP-MGZD171	M3	8200	6.8	2 × 450	14	6	671	1200	800	1 1/8	5/8	158	144
OP-MGZD215	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	196	180
OP-MGZD242	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	183
OP-MGZD271	U	14000	14.2	2 × 630	14	6	975	1500	870	1 1/8	5/8	230	212

Technical data and ordering

Optyma™ R134a LBP / MBP / HBP

Fan	Test conditions	Unit	Version	Code no.	Electrical code	Compressor	Amb. temp. °C	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at -10 °C evap temp
								-30 °C	-25 °C	-20 °C	-10 °C	0 °C	5 °C	10 °C	
	CECOMAF	OP-UCGC003	A00	114X0104	G	TL3GX	27	50	70	90	150	240	290	350	120
			A01	114X0105			32	40	60	80	140	220	270	330	
			A04	114X0107			38	40	50	70	130	200	250	300	
							43	30	40	60	110	180	220	270	
		OP-UCGC004	A00	114X0108	G	TL4GX	27	70	90	120	190	300	360	430	140
			A01	114X0109			32	60	80	110	180	280	340	410	
			A04	114X0111			38	50	70	90	160	250	310	–	
							43	40	60	80	150	240	–	–	
		OP-UCGC005	A00	114X0112	G	TL5GX	27	80	110	140	230	360	440	530	170
			A01	114X0113			32	70	100	130	220	340	410	500	
			A04	114X0115			38	70	90	120	200	310	380	460	
							43	60	80	110	190	290	360	430	
		OP-UCGC006	A00	114X0200	G	FR6GX	27	100	140	190	310	470	580	700	190
			A01	114X0201			32	90	120	170	290	440	540	660	
			A04	114X0203			38	70	110	150	260	410	500	610	
							43	50	90	130	240	380	470	570	
		OP-MCGC006	A00	114X0228	A	NL6.1MF	27	–	–	200	330	520	640	770	200
							32	–	–	180	310	490	600	720	
							38	–	–	170	280	440	550	660	
							43	–	–	150	260	410	500	610	
		OP-UCGC007	A00	114X0216	G	FR7.5GX	27	110	150	200	340	530	640	780	210
			A01	114X0217			32	100	140	190	320	490	610	740	
			A04	114X0227			38	80	120	170	290	460	560	690	
							43	70	110	150	270	430	530	640	
		OP-UCGC008	A00	114X0224	G	FR8.5GX	27	140	190	250	400	620	750	910	250
			A01	114X0225			32	130	170	230	380	590	720	860	
			A04	114X0227			38	110	150	200	340	540	660	800	
							43	90	130	180	310	500	620	750	
		OP-MCGC007	A00	114X0244	A	NL7.3MF	27	–	–	250	410	640	780	940	240
							32	–	–	230	380	590	730	880	
							38	–	–	210	350	540	670	810	
							43	–	–	190	320	500	620	750	
		OP-UCGC010	A00	114X0232	G	FR10GX	27	150	200	270	430	670	820	990	280
							32	130	180	240	400	630	770	930	
			A01	114X0233			38	110	160	220	370	580	710	860	
							43	100	140	200	340	540	660	–	
		OP-MCGC008	A00	114X0352	A	NL8.4MF	27	–	–	290	470	730	890	1080	270
							32	–	–	270	440	680	830	1010	
							38	–	–	240	400	620	760	930	
							43	–	–	220	370	580	710	860	
		OP-UCGC010	A04	114X0223	G	SC10GX	27	160	230	310	490	710	820	950	300
							32	140	210	280	450	660	780	910	
							38	110	170	240	400	610	730	–	
							43	90	140	210	370	–	–	–	
		OP-UCGC011	A00	114X0336	G	FR11GX	27	170	250	330	550	830	1000	–	330
			A01	114X0337			32	150	230	310	500	770	940	–	
			A04	114X0339			38	130	200	270	450	710	870	–	
							43	120	180	250	410	650	810	–	
		OP-UCGC012	A00	114X0340	G	SC12GX	27	210	290	390	660	1030	1260	1520	370
			A01	114X0341			32	180	260	350	610	960	1180	1430	
			A04	114X0343			38	150	220	310	540	870	1080	1320	
							43	120	190	270	490	800	1000	1230	
		OP-UCGC015	A00	114X0448	G	SC15GX	27	–	320	440	750	1170	1440	1740	460
			A01	114X0449			32	–	290	410	710	1110	1360	1640	
			A04	114X0451			38	–	240	360	650	1020	1250	1510	
							43	–	190	310	600	950	1160	1400	
		OP-UCGC018	A00	114X0556	G	SC18GX	27	–	410	550	910	1390	1670	2000	520
			A01	114X0557			32	–	370	500	840	1300	1570	1890	
			A04	114X0559			38	–	320	440	760	1190	1460	1760	
							43	–	290	410	710	1120	1380	1670	
		OP-UCGC021	A00	114X0564	G	SC21GX	27	–	490	660	1100	1670	2010	2390	600
			A01	114X0565			32	–	450	60	1020	1570	1900	2270	
			A04	114X0567			38	–	400	540	930	1450	1760	2110	
							43	–	360	480	840	1330	1630	1970	
		OP-MCGC021	A00	114X0568	G	SC21MF	27	–	–	680	1090	1670	2030	2440	630
							32	–	–	640	1030	1570	1910	2310	
							38	–	–	580	940	1450	1780	2150	
							43	–	–	540	880	1360	1660	2010	
	RGT20	OP-UCGC026	A01	114X0773	G	GS26MFX	27	–	–	860	1440	2240	2750	–	770
							32	–	–	800	1340	2080	2550	–	
							38	–	–	730	1220	1900	2320	–	
							43	–	–	660	1120	1750	2140	–	
		OP-UCGC034	A01	114X0781	G	GS34MFX	27	–	–	1150	1870	2860	3480	–	980
							32	–	–	1060	1740	2680	3270	–	
							38	–	–	950	1590	2470	3020	–	
							43	–	–	860	1460	2290	2810	–	

Test condition

	RGT20	CECOMAF
Ambient temperature:	*32 °C*	*32 °C*
Suction gas temperature:	*20 °C*	*32 °C*
Subcooling:	*0 K*	*0 K*

Power consumption referred at 32 °C ambient temperature

Electrical code

A: compressor 230 V / 1 phase / 50+60 Hz, fan 230 V / 1 phase / 50 + 60 Hz

G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A00: without valves and receiver for capillary tubes

A01: with receiver, 2 stop valves, brackets and copper pipes for KP

A04: A01 + KP17WB + FSA-kit + power cord

Technical data and ordering

Optyma™ R134a LBP / MBP / HBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg] (version A01)	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-UCGC003	BG1	243	0.13	1x172	0.8	1	197	289	410	1/4	1/4	16	14
OP-UCGC004	BG1	243	0.13	1x172	0.8	1	197	289	410	1/4	1/4	16	14
OP-UCGC005	BG1	243	0.13	1x172	0.8	1	197	289	410	1/4	1/4	16	14
OP-UCGC006	BG2	231	0.25	1x200	0.8	2	226	304	432	3/8	1/4	19	17
OP-MCGC006	BG2	231	0.25	1x200	0.8	2	226	304	432	3/8	1/4	19*	17 *)
OP-UCGC007	BG2	231	0.25	1x200	0.8	2	226	304	432	3/8	1/4	19	17
OP-UCGC008	BG2	231	0.25	1x200	0.8	2	226	304	432	3/8	1/4	19	17
OP-MCGC007	BG2	231	0.25	1x200	0.8	2	226	304	432	3/8	1/4	19	17
OP-UCGC010	BG2	231	0.25	1x200	0.8	4	226	304	432	3/8	1/4	19	17
OP-MCGC008	BG2	231	0.25	1x200	0.8	2	226	304	432	3/8	1/4	20 *)	18 *)
OP-UCGC010	BG2	231	0.25	1x200	0.8	4	226	304	432	3/8	1/4	21 **)	19 **)
OP-UCGC011	BG3	518	0.31	1x230	1.1	4	256	321	444	3/8	1/4	20	18
OP-UCGC012	BG3	518	0.31	1x230	1.1	4	256	321	444	3/8	1/4	22	20
OP-UCGC015	BG4	631	0.40	1x254	1.1	4	296	331	451	3/8	1/4	25	22
OP-UCGC018	BG5	583	0.53	1x254	1.1	4	296	331	473	3/8	1/4	26	23
OP-UCGC021	BG5	583	0.53	1x254	1.1	4	296	331	513	3/8	1/4	26	23
OP-MCGC021	BG5	583	0.53	1x254	1.1	4	296	331	513	3/8	1/4	26 *)	23 *)
OP-UCGC026	BG7	990	0.84	1x300	2.4	7	340	430	480	3/8	1/4	39	33
OP-UCGC034	BG7	990	0.84	1x300	2.4	7	340	430	480	1/2	3/8	40	34

*) weight referred to version A00
**) weight referred to version A04

Technical data and ordering

Optyma™ R134a MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	15 °C	-10 °C	5 °C
	SH = 10 K	OP-MCZC030	114X5024	G	MTZ018	27	1000	1350	1800	2250	2800	3350	4000	800	1000
						32	900	1250	1600	2050	2550	3100	3650		
			114X5012	E		38	750	1050	1450	1850	2300	2800	3300		
						43	650	950	1300	1650	2050	2500	–		
		OP-MCZC038	114X5025	G	MTZ022	27	1300	1750	2300	2900	3600	4400	5200	1000	1250
						32	1150	1600	2100	2700	3350	4050	4850		
			114X5013	E		38	1000	1400	1900	2400	3000	3650	4400		
						43	900	1250	1700	2200	2750	3350	–		
		OP-MCZC048	114X5026	G	MTZ028	27	1600	2200	2850	3650	4550	5600	6750	1150	1500
						32	1500	2000	2650	3400	4250	5200	6300		
			114X5014	E		38	1350	1800	2400	3050	3850	4750	5750		
						43	1200	1650	2150	2800	3550	4350	–		
		OP-MCZC054	114X5027	G	MTZ032	27	1900	2550	3300	4150	5200	6300	7550	1400	1900
						32	1700	2300	3050	3850	4800	5900	7050		
			114X5015	E		38	1500	2050	2700	3500	4350	5350	6400		
						43	1350	1850	2500	3200	4000	4900	–		
		OP-MCZC060	114X5028	G	MTZ036	27	2600	3250	4100	5050	6100	7300	8550	1600	2100
						32	2350	3000	3800	4700	5700	6850	8000		
			114X5016	E		38	2100	2750	3500	4300	5250	6250	7350		
						43	1950	2550	3200	4000	4850	5800	–		
		OP-MCZC068	114X5017	E	MTZ040	27	3000	3700	4550	5500	6550	7700	8950	1800	2300
						32	2750	3450	4300	5200	6200	7300	8500		
						38	2550	3200	3950	4800	5750	6750	7850		
						43	2350	2950	3700	4450	5350	6300	–		
		OP-MCZC086	114X5018	E	MTZ050	27	3200	4200	5400	6750	8300	10000	11850	2000	2600
						32	2850	3800	4950	6200	7700	9300	11050		
						38	2500	3350	4400	5600	6950	8450	10100		
						43	2200	3050	4000	5150	6400	7800	–		
		OP-MCZC096	114X5019	E	MTZ056	27	3150	4300	5650	7250	9050	11000	13200	2100	2800
						32	2850	3900	5200	6700	8400	10250	12350		
						38	2450	3450	4650	6050	7600	9400	11350		
						43	2150	3100	4200	5550	7000	8650	–		
		OP-MCZC108	114X5020	E	MTZ064	27	3650	5200	6700	8550	10600	12850	15350	2850	3650
						32	3350	4650	6150	7900	9850	12050	14350		
						38	2900	4150	5550	7200	9000	11050	13200		
						43	2550	3750	5100	6600	8300	10200	–		
		OP-MCZC121	114X5021	E	MTZ072	27	4250	5900	7600	9650	12050	14650	17500	3200	4100
						32	3900	5350	7050	9050	11300	13750	16500		
						38	3450	4800	6400	8300	10350	12700	15250		
						43	3050	4350	5900	7650	9600	11800	–		
		OP-MCZC136	114X5022	E	MTZ080	27	5350	6900	8850	11050	13600	16400	19450	3600	4650
						32	4850	6400	8250	10350	12700	15350	18250		
						38	4350	5800	7500	9450	11650	14150	16850		
						43	3900	5250	6850	8700	10800	13100	–		
		OP-MCZC171	114X5023	E	MTZ100	27	6250	8050	10350	13000	15950	19250	22850	4300	5500
						32	5550	7400	9550	12050	14850	17950	21350		
						38	4900	6600	8650	10950	13550	16400	19500		
						43	4400	6000	7900	10050	12450	15100	–		
		OP-MGZC215	114X5073	E	MTZ125	27	8000	10750	13400	16750	20500	24750	29400	7050	8600
						32	7250	9600	12350	15550	19100	23100	27500		
						38	6350	8550	11100	14100	17400	21150	25200		
						43	5600	7700	10100	12850	16000	19450	–		
		OP-MGZC242	114X5074	E	MTZ144	27	10250	12850	16150	19900	24100	28700	33700	8250	10100
						32	9150	11850	15000	18550	22550	26900	31600		
						38	8150	10700	13650	16950	20650	24650	29000		
						43	7350	9750	12500	15600	19000	22750	–		
		OP- MGZC271	114X5075	E	MTZ160	27	11300	14250	17950	22200	26950	32200	37850	8650	10750
						32	10200	13200	16700	20700	25200	30100	35450		
						38	9150	11950	15200	18900	23050	27550	32450		
						43	8350	10950	13950	17400	21200	25400	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R134a MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L] (without valve)	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MCZC030	A4	1200	1.2	1 × 300	3	5	408	500	600	1/2	3/8	52	45
OP-MCZC038	B4	1750	1.3	1 × 350	3	5	451	500	620	1/2	3/8	54	47
OP-MCZC048	C4	2150	2.3	1 × 350	6	5	555	630	650	1/2	1/2	64	57
OP-MCZC054	C4	2150	2.3	1 × 350	6	5	555	630	650	5/8	1/2	65	58
OP-MCZC060	D4	2000	3.1	1 × 350	6	5	555	630	650	5/8	1/2	68	61
OP-MCZC068	E4	3150	2.5	1 × 400	6	5	605	630	650	5/8	1/2	72	65
OP-MCZC086	F4	3300	3.1	1 × 400	8	5	656	755	700	7/8	1/2	95	83
OP-MCZC096	G4	3150	4.1	1 × 400	8	5	656	755	700	7/8	1/2	100	88
OP-MCZC108	H4	4300	4.1	1 × 500	8	5	656	755	700	7/8	1/2	113	101
OP-MCZC121	J4	6000	4.4	1 × 500	10	5	708	900	900	1 1/8	1/2	127	113
OP-MCZC136	K4	6200	4.7	1 × 500	10	5	759	900	900	1 1/8	1/2	140	126
OP-MCZC171	L4	5850	6.3	1 × 500	14	5	759	900	900	1 1/8	5/8	162	147
OP-MGZC215	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	191	176
OP-MGZC242	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	194	179
OP- MGZC271	N4	9200	12.3	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	184

Technical data and ordering

Optyma™ R134a MBP

Fan	Test conditions	Unit	Code no. Version: A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	15 °C	-10 °C	5 °C
	SH = 10 K	OP-MGZD030	114X5061	E	MTZ018	32	900	1250	1700	2150	2700	3250	3900	950	1150
						38	750	1100	1500	1900	2400	2900	3500		
						43	650	1000	1350	1750	2150	2650	3150		
						46	600	900	1250	1600	2050	2500	–		
		OP-MGZD038	114X5062	E	MTZ022	32	1200	1650	2200	2800	3500	4300	5200	1300	1550
						38	1050	1450	1950	2550	3200	3900	4700		
						43	900	1300	1750	2300	2900	3550	4300		
						46	850	1200	1650	2150	2750	3350	–		
		OP-MGZD048	114X5063	E	MTZ028	32	1500	2050	2650	3450	4350	5350	6500	1450	1800
						38	1350	1850	2400	3100	3950	4900	5950		
						43	1200	1650	2200	2850	3650	4500	5450		
						46	1150	1600	2100	2700	3450	4250	–		
		OP-MGZD054	114X5064	E	MTZ032	32	1750	2350	3100	3950	4950	6050	7300	1700	2150
						38	1550	2100	2800	3600	4500	5500	6650		
						43	1400	1900	2550	3250	4100	5050	6150		
						46	1300	1800	2400	3100	3900	4800	–		
		OP-MGZD060	114X5065	E	MTZ036	32	2400	3100	3950	4950	6050	7250	8600	2150	2600
						38	2200	2850	3650	4550	5550	6700	7950		
						43	2000	2600	3350	4200	5150	6200	7400		
						46	1900	2500	3200	4000	4900	5900	–		
		OP-MGZD068	114X5066	E	MTZ040	32	2850	3600	4450	5450	6550	7750	9100	2250	2700
						38	2600	3350	4150	5050	6100	7250	8500		
						43	2400	3100	3850	4750	5700	6800	7950		
						46	2300	2950	3700	4500	5450	6500	–		
		OP-MGZD086	114X5067	E	MTZ050	32	2950	3950	5150	6550	8200	9950	11950	2500	3050
						38	2550	3500	4650	5900	7400	9100	10900		
						43	2300	3150	4200	5400	6800	8350	10100		
						46	2100	2950	3950	5100	6450	7950	–		
		OP-MGZD108	114X5069	E	MTZ064	32	3400	4750	6350	8200	10300	12600	15150	3050	3750
						38	3000	4250	5750	7450	9400	11600	13950		
						43	2650	3850	5250	6850	8700	10700	12950		
						46	2450	3600	4950	6500	8250	10200	–		
		OP-MGZD121	114X5070	E	MTZ072	32	3900	5400	7100	9150	11400	13950	16750	3350	4250
						38	3450	4850	6500	8350	10500	12850	15450		
						43	3100	4400	5950	7700	9700	11950	14400		
						46	2850	4150	5600	7300	9250	11400	–		
		OP-MGZD136	114X5071	E	MTZ080	32	5000	6600	8550	10750	13350	16250	19500	4400	5350
						38	4450	6000	7800	9850	12300	15000	18000		
						43	4000	5450	7150	9100	11400	13950	16750		
						46	3750	5150	6750	8650	10850	13300	–		
		OP-MGZD171	114X5072	E	MTZ100	32	5750	7650	9950	12650	15750	19200	23000	5100	6200
						38	5050	6850	9000	11500	14350	17550	21100		
						43	4550	6250	8250	10550	13200	16200	19500		
						46	4250	5900	7800	10000	12550	15400	–		
		OP-MGZD215	114X5118	E	MTZ125	32	7400	9800	12650	15950	19700	23950	28600	7050	8450
						38	6450	8750	11400	14500	18000	21950	26300		
						43	5750	7850	10350	13250	16550	20250	24300		
						46	5300	7350	9750	12500	15650	19200	–		
		OP-MGZD242	114X5119	E	MTZ144	32	9350	12150	15400	19150	23350	28000	33100	8200	9950
						38	8350	10950	14000	17500	21400	25750	30450		
						43	7550	10000	12850	16100	19750	23800	28200		
						46	7050	9450	12150	15300	18800	22650	–		
		OP-MGZD271	114X5120	E	MTZ160	32	10450	13550	17200	21450	26250	31600	37450	8400	10400
						38	9400	12300	15700	19650	24050	29000	34450		
						43	8550	11250	14450	18100	22200	26800	31850		
						46	8050	10650	13700	17150	21100	25450	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R134a MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L] (without valve)	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MGZD030	C3	1300	1.7	2 × 254	3	6	392	700	500	1/2	3/8	56	46
OP-MGZD038	D3	2800	1.5	2 × 300	6	6	442	800	600	1/2	1/2	60	53
OP-MGZD048	E3	2600	2.2	2 × 300	6	6	442	800	600	1/2	1/2	64	57
OP-MGZD054	E3	2600	2.2	2 × 300	6	6	442	800	600	5/8	1/2	65	58
OP-MGZD060	G3	4600	2.3	2 × 350	8	6	555	1000	700	5/8	1/2	88	75
OP-MGZD068	H3	3600	4.7	2 × 350	8	6	555	1000	700	5/8	1/2	96	82
OP-MGZD086	H3	3600	4.7	2 × 350	8	6	555	1000	700	7/8	1/2	107	93
OP-MGZD108	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	113	99
OP-MGZD121	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	115	101
OP-MGZD136	L3	8600	5.1	2 × 450	10	6	671	1200	800	1 1/8	1/2	133	118
OP-MGZD171	M3	8200	6.8	2 × 450	14	6	671	1200	800	1 1/8	5/8	158	144
OP-MGZD215	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	196	180
OP-MGZD242	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	183
OP-MGZD271	U	14000	14.2	2 × 630	14	6	975	1500	870	1 1/8	5/8	230	212

Technical data and ordering

Optyma™ R407C MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]						Power consumption [W] at evap. temp.	
							-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MCZC030	114X5024	G	MTZ018	27	1450	1950	2500	3100	3750	4400	1050	1400
						32	1250	1750	2250	2850	3450	4050		
			114X5012	E		38	–	1500	2000	2500	3100	3650		
						43	–	–	1800	2300	–	–		
		OP-MCZC038	114X5025	G	MTZ022	27	2050	2650	3350	4100	4900	5700	1450	1950
						32	1850	2400	3050	3750	4500	5250		
			114X5013	E		38	–	2150	2700	3350	4050	4750		
						43	–	–	2450	3050	–	–		
		OP-MCZC048	114X5026	G	MTZ028	27	2550	3400	4350	5400	6500	7650	1700	2350
						32	2300	3100	4000	4950	6000	7100		
			114X5014	E		38	–	2750	3550	4450	5400	6400		
						43	–	–	3200	4050	–	–		
		OP-MCZC054	114X5027	G	MTZ032	27	3050	3950	4900	5950	7050	8200	1950	2700
						32	2800	3600	4500	5500	6500	7600		
			114X5015	E		38	–	3200	4050	4950	5850	6850		
						43	–	–	3650	4450	–	–		
		OP-MCZC060	114X5028	G	MTZ036	27	3600	4550	5550	6700	7850	9100	2300	3250
						32	3250	4150	5150	6200	7300	8400		
			114X5016	E		38	–	3750	4650	5600	6600	7600		
						43	–	–	4200	5100	–	–		
		OP-MCZC068	114X5017	E	MTZ040	27	4200	5300	6450	7750	9150	10550	2700	3750
						32	3850	4900	6000	7200	8500	9800		
						38	–	4400	5450	6550	7700	8900		
						43	–	–	4950	6000	–	–		
		OP-MCZC086	114X5018	E	MTZ050	27	4700	6000	7500	9100	10850	12650	2950	4100
						32	4250	5500	6900	8400	10000	11700		
						38	–	4850	6150	7500	9000	10550		
						43	–	–	5550	6800	–	–		
		OP-MCZC096	114X5019	E	MTZ056	27	5100	6650	8350	10200	12250	14400	3100	4400
						32	4650	6050	7650	9450	11300	13300		
						38	–	5400	6850	8500	10200	12050		
						43	–	–	6200	7700	–	–		
		OP-MCZC108	114X5020	E	MTZ064	27	6200	7900	9850	12000	14300	16850	4100	5500
						32	5650	7250	9050	11050	13250	15600		
						38	–	6500	8150	10000	12000	14150		
						43	–	–	7400	9100	–	–		
		OP-MCZC121	114X5021	E	MTZ072	27	7050	9050	11300	13800	16500	19400	4700	6300
						32	6450	8300	10400	12750	15300	18050		
						38	–	7450	9400	11550	13850	16350		
						43	–	–	8500	10500	–	–		
		OP-MCZC136	114X5022	E	MTZ080	27	7950	10150	12600	15300	18200	21250	5400	7300
						32	7300	9350	11700	14200	16900	19750		
						38	–	8450	10550	12850	15350	17950		
						43	–	–	9600	11750	–	–		
		OP-MCZC171	114X5023	E	MTZ100	27	8900	11550	14550	17800	21250	24950	6200	8450
						32	8000	10500	13300	16350	19600	23000		
						38	–	9300	11850	14650	17600	20700		
						43	–	–	10650	13200	–	–		
		OP-MGZC215	114X5073	E	MTZ125	27	12900	16350	20200	24450	29050	33950	9900	12650
						32	11750	15000	18650	22650	26950	31550		
						38	–	13450	16800	20450	24450	28650		
						43	–	–	15250	18650	–	–		
		OP-MGZC242	114X5074	E	MTZ144	27	13850	17550	21700	26250	31150	36300	10900	14100
						32	12650	16150	20050	24300	28900	33700		
						38	–	14450	18050	22000	26200	30600		
						43	–	–	16400	20050	–	–		
		OP- MGZC271	114X5075	E	MTZ160	27	16600	20750	25400	30500	36000	41900	12200	15800
						32	15250	19150	23550	28350	33500	38950		
						38	–	17300	21300	25700	30450	35450		
						43	–	–	19450	23550	–	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R407C MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MCZC030	A4	1200	1.2	1 × 300	3	5	408	500	600	1/2	3/8	52	45
OP-MCZC038	B4	1750	1.3	1 × 350	3	5	451	500	620	1/2	3/8	54	47
OP-MCZC048	C4	2150	2.3	1 × 350	6	5	555	630	650	1/2	1/2	64	57
OP-MCZC054	C4	2150	2.3	1 × 350	6	5	555	630	650	5/8	1/2	65	58
OP-MCZC060	D4	2000	3.1	1 × 350	6	5	555	630	650	5/8	1/2	68	61
OP-MCZC068	E4	3150	2.5	1 × 400	6	5	605	630	650	5/8	1/2	72	65
OP-MCZC086	F4	3300	3.1	1 × 400	8	5	656	755	700	7/8	1/2	95	83
OP-MCZC096	G4	3150	4.1	1 × 400	8	5	656	755	700	7/8	1/2	100	88
OP-MCZC108	H4	4300	4.1	1 × 500	8	5	656	755	700	7/8	1/2	113	101
OP-MCZC121	J4	6000	4.4	1 × 500	10	5	708	900	900	1 1/8	1/2	127	113
OP-MCZC136	K4	6200	4.7	1 × 500	10	5	759	900	900	1 1/8	1/2	140	126
OP-MCZC171	L4	5850	6.3	1 × 500	14	5	759	900	900	1 1/8	5/8	162	147
OP-MGZC215	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	191	176
OP-MGZC242	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	194	179
OP- MGZC271	N4	9200	12.3	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	184

Technical data and ordering

Optyma™ R407C MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]						Power consumption [W] at evap. temp.	
							-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MGZD030	114X5061	E	MTZ018	32	1300	1800	2350	2950	3650	4350	1200	1550
						38	1100	1550	2100	2650	3250	3900		
						43	950	1400	1900	2400	–	–		
						46	850	1300	1750	2250	–	–		
		OP-MGZD038	114X5062	E	MTZ022	32	1950	2550	3250	4000	4850	5750	1700	2150
						38	1650	2250	2900	3600	4350	5200		
						43	1450	2000	2600	3250	–	–		
						46	1350	1850	2450	3050	–	–		
		OP-MGZD048	114X5063	E	MTZ028	32	2350	3200	4100	5100	6200	7400	2000	2650
						38	2050	2800	3650	4600	5600	6700		
						43	1800	2500	3300	4200	–	–		
						46	1650	2350	3100	3950	–	–		
		OP-MGZD054	114X5064	E	MTZ032	32	2850	3700	4650	5700	6800	7950	2250	2950
						38	2500	3300	4150	5100	6150	7200		
						43	2200	2950	3750	4650	–	–		
						46	2000	2750	3550	4350	–	–		
		OP-MGZD060	114X5065	E	MTZ036	32	3450	4400	5500	6650	7950	9300	2800	3650
						38	3050	3950	4950	6050	7200	8450		
						43	2700	3600	4500	5500	–	–		
						46	2500	3350	4250	5200	–	–		
		OP-MGZD068	114X5066	E	MTZ040	32	4100	5200	6500	7900	9400	11050	3150	4000
						38	3700	4750	5900	7200	8600	10100		
						43	3300	4300	5400	6600	–	–		
						46	3100	4050	5100	6250	–	–		
		OP-MGZD086	114X5067	E	MTZ050	32	4500	5850	7350	9100	10950	12950	3400	4400
						38	3950	5200	6600	8150	9900	11750		
						43	3500	4650	5950	7400	–	–		
						46	3200	4350	5600	6950	–	–		
		OP-MGZD108	114X5069	E	MTZ064	32	5850	7550	9500	11700	14150	16800	4200	5500
						38	5200	6750	8550	10600	12800	15250		
						43	4700	6100	7800	9650	–	–		
						46	4400	5750	7300	9100	–	–		
		OP-MGZD121	114X5070	E	MTZ072	32	6500	8400	10550	12950	15600	18400	4850	6400
						38	5800	7550	9500	11700	14150	16700		
						43	5200	6800	8650	10700	–	–		
						46	4850	6400	8150	10050	–	–		
		OP-MGZD136	114X5071	E	MTZ080	32	7600	9850	12400	15200	18250	21550	6150	7800
						38	6800	8900	11200	13800	16650	19650		
						43	6100	8050	10250	12650	–	–		
						46	5700	7600	9650	11950	–	–		
		OP-MGZD171	114X5072	E	MTZ100	32	8450	11150	14250	17700	21450	25500	6950	8900
						38	7350	9900	12750	15900	19350	23050		
						43	6500	8850	11500	14400	–	–		
						46	6000	8250	10750	13500	–	–		
		OP-MGZD215	114X5118	E	MTZ125	32	12100	15500	19350	23650	28300	33350	9800	12350
						38	10700	13900	17450	21400	25700	30350		
						43	9550	12550	15850	19550	–	–		
						46	8850	11700	14900	18400	–	–		
		OP-MGZD242	114X5119	E	MTZ144	32	13050	16750	20900	25450	30450	35800	10800	13750
						38	11550	15000	18850	23100	27700	32600		
						43	10350	13600	17150	21100	–	–		
						46	9650	12750	16150	19900	–	–		
		OP-MGZD271	114X5120	E	MTZ160	32	15850	20000	24700	29950	35650	41850	11800	15100
						38	14200	18050	22400	27250	32500	38200		
						43	12800	16450	20500	25000	–	–		
						46	12000	15450	19350	23650	–	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R407C MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MGZD030	C3	1300	1.7	2 × 254	3	6	392	700	500	1/2	3/8	56	46
OP-MGZD038	D3	2800	1.5	2 × 300	6	6	442	800	600	1/2	1/2	60	53
OP-MGZD048	E3	2600	2.2	2 × 300	6	6	442	800	600	1/2	1/2	64	57
OP-MGZD054	E3	2600	2.2	2 × 300	6	6	442	800	600	5/8	1/2	65	58
OP-MGZD060	G3	4600	2.3	2 × 350	8	6	555	1000	700	5/8	1/2	88	75
OP-MGZD068	H3	3600	4.7	2 × 350	8	6	555	1000	700	5/8	1/2	96	82
OP-MGZD086	H3	3600	4.7	2 × 350	8	6	555	1000	700	7/8	1/2	107	93
OP-MGZD108	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	113	99
OP-MGZD121	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	115	101
OP-MGZD136	L3	8600	5.1	2 × 450	10	6	671	1200	800	1 1/8	1/2	133	118
OP-MGZD171	M3	8200	6.8	2 × 450	14	6	671	1200	800	1 1/8	5/8	158	144
OP-MGZD215	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	196	180
OP-MGZD242	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	183
OP-MGZD271	U	14000	14.2	2 × 630	14	6	975	1500	870	1 1/8	5/8	230	212

Technical data and ordering

Optyma™ R407A MBP

Fan	Test conditions	Unit	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MCZC030	114X5024	G	MTZ018	27	1100	1500	1950	2500	3050	3700	4350	1150	1550
						32	950	1350	1800	2250	2800	3350	3950		
			114X5012	E		38	850	1200	1550	2000	2500	3000	–		
						43	750	1050	1400	1800	2250	–	–		
		OP-MCZC038	114X5025	G	MTZ022	27	1550	2100	2700	3400	4150	4950	5800	1450	2000
						32	1400	1900	2450	3100	3800	4550	5300		
			114X5013	E		38	1200	1650	2150	2700	3350	4050	–		
						43	1000	1450	1900	2400	3000	–	–		
		OP-MCZC048	114X5026	G	MTZ028	27	2100	2800	3550	4450	5450	6500	7600	1850	2550
						32	1850	2500	3250	4100	5000	6000	7050		
			114X5014	E		38	1600	2200	2900	3650	4500	5400	–		
						43	1400	1950	2550	3300	4050	–	–		
		OP-MCZC054	114X5027	G	MTZ032	27	2400	3150	4050	4950	6000	7100	8200	2000	2850
						32	2150	2900	3650	4550	5500	6500	7600		
			114X5015	E		38	1850	2500	3250	4050	4900	5850	–		
						43	1600	2200	2900	3600	4400	–	–		
		OP-MCZC060	114X5028	G	MTZ036	27	2800	3700	4650	5650	6800	7950	9200	2400	3400
						32	2550	3350	4250	5200	6250	7350	8450		
			114X5016	E		38	2200	2950	3750	4650	5550	6550	–		
						43	1950	2600	3350	4150	5000	–	–		
		OP-MCZC068	114X5017	E	MTZ040	27	3300	4250	5300	6500	7750	9050	10400	2750	3850
						32	3000	3900	4900	6000	7150	8350	9600		
						38	2650	3450	4350	5350	6400	7500	–		
						43	2350	3100	3950	4800	5750	–	–		
		OP-MCZC086	114X5018	E	MTZ050	27	3750	4950	6250	7750	9350	11050	12800	2950	4100
						32	3350	4450	5700	7050	8550	10150	11800		
						38	2900	3900	5000	6250	7600	9050	–		
						43	2500	3400	4450	5600	6850	–	–		
		OP-MCZC096	114X5019	E	MTZ056	27	4000	5300	6800	8450	10250	12200	14250	3200	4550
						32	3600	4800	6200	7750	9400	11250	13200		
						38	3100	4200	5450	6900	8450	10150	–		
						43	2700	3700	4900	6200	7650	–	–		
		OP-MCZC108	114X5020	E	MTZ064	27	4850	6350	8100	10050	12250	14550	17050	4300	5900
						32	4350	5750	7400	9250	11250	13450	15800		
						38	3750	5050	6550	8200	10050	12100	–		
						43	3250	4450	5850	7400	9100	–	–		
		OP-MCZC121	114X5021	E	MTZ072	27	5550	7250	9200	11350	13750	16350	19150	4700	6400
						32	4950	6550	8350	10400	12650	15100	17750		
						38	4300	5750	7400	9300	11400	13650	–		
						43	3750	5100	6650	8400	10300	–	–		
		OP-MCZC136	114X5022	E	MTZ080	27	6450	8300	10400	12700	15250	17950	20800	5500	7600
						32	5800	7550	9550	11700	14050	16600	19250		
						38	5050	6700	8500	10500	12650	14950	–		
						43	4450	5950	7650	9500	11500	–	–		
		OP-MCZC171	114X5023	E	MTZ100	27	7300	9600	12150	14950	18000	21200	24550	6500	8800
						32	6600	8700	11100	13700	16550	19500	22600		
						38	5700	7650	9850	12200	14750	17450	–		
						43	4950	6750	8750	10950	13250	–	–		
		OP-MGZC215	114X5073	E	MTZ125	27	9800	12800	16200	19950	24100	28600	33400	8600	11600
						32	8800	11600	14750	18300	22200	26400	30900		
						38	7600	10150	13050	16300	19900	23800	–		
						43	6650	9000	11700	14700	18000	–	–		
		OP-MGZC242	114X5074	E	MTZ144	27	11300	14600	18250	22300	26650	31300	36150	9850	13450
						32	10200	13300	16700	20500	24550	28850	33350		
						38	8900	11700	14850	18300	22000	25900	–		
						43	7800	10400	13300	16450	19850	–	–		
		OP- MGZC271	114X5075	E	MTZ160	27	12550	16200	20350	24900	29850	35150	40700	10900	15050
						32	11350	14800	18650	22950	27550	32500	37700		
						38	9900	13100	16650	20550	24750	29300	–		
						43	8700	11650	14950	18550	22450	–	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ R407A MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MCZC030	A4	1200	1.2	1 × 300	3	5	408	500	600	1/2	3/8	52	45
OP-MCZC038	B4	1750	1.3	1 × 350	3	5	451	500	620	1/2	3/8	54	47
OP-MCZC048	C4	2150	2.3	1 × 350	6	5	555	630	650	1/2	1/2	64	57
OP-MCZC054	C4	2150	2.3	1 × 350	6	5	555	630	650	5/8	1/2	65	58
OP-MCZC060	D4	2000	3.1	1 × 350	6	5	555	630	650	5/8	1/2	68	61
OP-MCZC068	E4	3150	2.5	1 × 400	6	5	605	630	650	5/8	1/2	72	65
OP-MCZC086	F4	3300	3.1	1 × 400	8	5	656	755	700	7/8	1/2	95	83
OP-MCZC096	G4	3150	4.1	1 × 400	8	5	656	755	700	7/8	1/2	100	88
OP-MCZC108	H4	4300	4.1	1 × 500	8	5	656	755	700	7/8	1/2	113	101
OP-MCZC121	J4	6000	4.4	1 × 500	10	5	708	900	900	1 1/8	1/2	127	113
OP-MCZC136	K4	6200	4.7	1 × 500	10	5	759	900	900	1 1/8	1/2	140	126
OP-MCZC171	L4	5850	6.3	1 × 500	14	5	759	900	900	1 1/8	5/8	162	147
OP-MGZC215	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	191	176
OP-MGZC242	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	194	179
OP- MGZC271	N4	9200	12.3	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	184

Technical data and ordering

Optyma™ R407A MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MGZD030	114X5061	E	MTZ018	32	1000	1400	1850	2400	2950	3600	4250	1150	1550
						38	850	1200	1650	2100	2650	3200	3800		
						43	750	1100	1450	1900	2350	2900	–		
						46	700	1000	1350	1750	2200	–	–		
		OP-MGZD038	114X5062	E	MTZ022	32	1450	2000	2600	3300	4050	4900	5850	1500	1950
						38	1250	1700	2300	2900	3600	4400	5250		
						43	1050	1500	2000	2600	3250	3950	–		
						46	950	1400	1850	2400	3000	–	–		
		OP-MGZD048	114X5063	E	MTZ028	32	1900	2550	3350	4200	5150	6200	7350	1900	2550
						38	1650	2250	2950	3750	4650	5600	6650		
						43	1400	2000	2650	3400	4200	5100	–		
						46	1300	1850	2450	3150	3950	–	–		
		OP-MGZD054	114X5064	E	MTZ032	32	2200	2950	3800	4700	5700	6800	7950	2050	2850
						38	1900	2600	3350	4200	5100	6100	7150		
						43	1650	2300	3000	3750	4600	5500	–		
						46	1500	2100	2750	3500	4300	–	–		
		OP-MGZD060	114X5065	E	MTZ036	32	2650	3550	4500	5600	6800	8050	9450	2500	3400
						38	2350	3100	4000	5000	6100	7250	8500		
						43	2050	2750	3600	4500	5500	6550	–		
						46	1850	2550	3350	4200	5150	–	–		
		OP-MGZD068	114X5066	E	MTZ040	32	3150	4150	5250	6500	7850	9350	10950	2800	3750
						38	2800	3700	4750	5850	7100	8450	9900		
						43	2500	3350	4300	5300	6450	7700	–		
						46	2300	3100	4000	5000	6100	–	–		
		OP-MGZD086	114X5067	E	MTZ050	32	3550	4700	6050	7600	9300	11150	13150	3050	4050
						38	3050	4100	5350	6750	8300	10000	11850		
						43	2650	3650	4750	6050	7500	9100	–		
						46	2400	3350	4450	5650	7000	–	–		
		OP-MGZD108	114X5069	E	MTZ064	32	4500	6000	7750	9750	11950	14400	17050	4000	5450
						38	3900	5250	6850	8700	10750	13000	15450		
						43	3400	4650	6150	7850	9750	11800	–		
						46	3100	4300	5700	7300	9100	–	–		
		OP-MGZD121	114X5070	E	MTZ072	32	5000	6600	8500	10550	12900	15400	18150	4400	6050
						38	4300	5800	7500	9450	11600	13900	16450		
						43	3750	5150	6700	8500	10500	12700	–		
						46	3450	4750	6250	7950	9850	–	–		
		OP-MGZD136	114X5071	E	MTZ080	32	6050	7950	10100	12500	15100	18000	21100	5450	7350
						38	5300	7050	9000	11200	13650	16300	19150		
						43	4650	6300	8100	10150	12400	14900	–		
						46	4300	5850	7600	9550	11700	–	–		
		OP-MGZD171	114X5072	E	MTZ100	32	6900	9200	11800	14750	17950	21400	25100	6450	8450
						38	6000	8100	10500	13150	16100	19250	22650		
						43	5250	7200	9400	11850	14550	17450	–		
						46	4800	6650	8700	11050	13600	–	–		
		OP-MGZD215	114X5118	E	MTZ125	32	9050	11950	15300	19050	23250	27800	32750	8500	11300
						38	7850	10500	13550	17000	20900	25100	29700		
						43	6850	9300	12150	15350	18950	22850	–		
						46	6300	8600	11300	14350	17750	–	–		
		OP-MGZD242	114X5119	E	MTZ144	32	10550	13750	17400	21450	25850	30600	35650	9750	13050
						38	9200	12150	15500	19200	23200	27550	32200		
						43	8050	10800	13900	17300	21000	25050	–		
						46	7400	10000	12900	16150	–	–	–		
		OP-MGZD271	114X5120	E	MTZ160	32	11750	15400	19550	24150	29250	34750	40700	10650	14500
						38	10300	13650	17450	21700	26400	31450	36900		
						43	9050	12200	15700	19650	24000	28700	–		
						46	8350	11300	14650	18400	22500	–	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Power consumption referred at 32 °C ambient temperature

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Technical data and ordering

Optyma™ R407A MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MGZD030	C3	1300	1.7	2 × 254	3	6	392	700	500	1/2	3/8	56	46
OP-MGZD038	D3	2800	1.5	2 × 300	6	6	442	800	600	1/2	1/2	60	53
OP-MGZD048	E3	2600	2.2	2 × 300	6	6	442	800	600	1/2	1/2	64	57
OP-MGZD054	E3	2600	2.2	2 × 300	6	6	442	800	600	5/8	1/2	65	58
OP-MGZD060	G3	4600	2.3	2 × 350	8	6	555	1000	700	5/8	1/2	88	75
OP-MGZD068	H3	3600	4.7	2 × 350	8	6	555	1000	700	5/8	1/2	96	82
OP-MGZD086	H3	3600	4.7	2 × 350	8	6	555	1000	700	7/8	1/2	107	93
OP-MGZD108	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	113	99
OP-MGZD121	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	115	101
OP-MGZD136	L3	8600	5.1	2 × 450	10	6	671	1200	800	1 1/8	1/2	133	118
OP-MGZD171	M3	8200	6.8	2 × 450	14	6	671	1200	800	1 1/8	5/8	158	144
OP-MGZD215	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	196	180
OP-MGZD242	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	183
OP-MGZD271	U	14000	14.2	2 × 630	14	6	975	1500	870	1 1/8	5/8	230	212

Technical data and ordering

Optyma™ R407F MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MCZC030	114X5024	G	MTZ018	27	1150	1550	2050	2600	3200	3850	4500	1200	1650
						32	1000	1400	1850	2400	2950	3550	–		
			114X5012	E		38	900	1250	1650	2150	–	–	–		
						43	800	1150	1500	–	–	–	–		
		OP-MCZC038	114X5025	G	MTZ022	27	1650	2200	2850	3550	4300	5150	6050	1500	2100
						32	1450	2000	2550	3250	3950	4750	–		
			114X5013	E		38	1250	1750	2300	2900	–	–	–		
						43	1100	1550	2050	–	–	–	–		
		OP-MCZC048	114X5026	G	MTZ028	27	2200	2950	3750	4650	5700	6750	7950	1950	2700
						32	1950	2650	3400	4300	5250	6300	–		
			114X5014	E		38	1650	2300	3050	3850	–	–	–		
						43	1450	2100	2800	–	–	–	–		
		OP-MCZC054	114X5027	G	MTZ032	27	2550	3350	4200	5200	6250	7400	8600	2150	3050
						32	2250	3000	3850	4750	5750	6850	–		
			114X5015	E		38	1950	2650	3450	4300	–	–	–		
						43	1750	2400	3150	–	–	–	–		
		OP-MCZC060	114X5028	G	MTZ036	27	2950	3850	4850	5900	7050	8300	9600	2500	3650
						32	2650	3500	4450	5450	6550	7750	–		
			114X5016	E		38	2350	3150	4000	5000	–	–	–		
						43	2100	2850	–	–	–	–	–		
		OP-MCZC068	114X5017	E	MTZ040	27	3450	4450	5550	6750	8050	9450	10900	2900	4150
						32	3100	4050	5100	6250	7500	8800	–		
						38	2750	3650	4650	5700	–	–	–		
						43	2500	3350	–	–	–	–	–		
		OP-MCZC086	114X5018	E	MTZ050	27	3950	5150	6550	8050	9700	11500	13400	3150	4400
						32	3500	4650	5950	7400	9000	10700	–		
						38	3050	4150	5350	6700	–	–	–		
						43	2750	3750	–	–	–	–	–		
		OP-MCZC096	114X5019	E	MTZ056	27	4200	5550	7100	8800	10650	12700	14900	3400	4850
						32	3750	5000	6450	8100	9900	11850	–		
						38	3300	4450	5850	7350	–	–	–		
						43	2950	4100	–	–	–	–	–		
		OP-MCZC108	114X5020	E	MTZ064	27	5100	6700	8500	10500	12750	15200	17800	4500	6250
						32	4550	6050	7750	9650	11800	14150	–		
						38	3950	5350	6950	8800	–	–	–		
						43	3550	4850	6400	–	–	–	–		
		OP-MCZC121	114X5021	E	MTZ072	27	5800	7600	9600	11850	14350	17050	19950	4950	6800
						32	5200	6850	8750	10900	13300	15900	–		
						38	4550	6100	7900	9900	–	–	–		
						43	4050	5550	7250	–	–	–	–		
		OP-MCZC136	114X5022	E	MTZ080	27	6750	8700	10900	13250	15900	18700	21700	5800	8100
						32	6100	7950	10000	12300	14800	17500	–		
						38	5400	7150	9100	11250	–	–	–		
						43	4900	6550	–	–	–	–	–		
		OP-MCZC171	114X5023	E	MTZ100	27	7600	10000	12700	15600	18750	22100	25600	6900	9000 **)
						32	6850	9100	11650	14400	17400	–	–		
						38	6050	8150	10550	13100	–	–	–		
						43	5400	7450	–	–	–	–	–		
		OP-MGZC215	114X5073	E	MTZ125	27	10350	13450	16950	20850	25150	29800	34800	9050	12300
						32	9200	12150	15450	19150	23250	27700	–		
						38	8050	10800	13900	17400	–	–	–		
						43	7250	9850	12800	–	–	–	–		
		OP-MGZC242	114X5074	E	MTZ144	27	11900	15300	19100	23250	27800	32650	37800	10350	14350
						32	10700	13950	17550	21500	25850	30500	–		
						38	9450	12500	15900	19650	–	–	–		
						43	8550	11450	–	–	–	–	–		
		OP- MGZC271	114X5075	E	MTZ160	27	13250	17050	21300	26000	31100	36600	42500	11450	16050
						32	11900	15550	19550	24050	28950	34200	–		
						38	10550	13950	17750	22000	–	–	–		
						43	9500	12800	–	–	–	–	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G: compressor 230 V / 1 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Power consumption referred at 32 °C ambient temperature
***) Power consumption referred at 27 °C ambient temperature*

Technical data and ordering

Optyma™ R407F MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weigh [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MCZC030	A4	1200	1.2	1 × 300	3	5	408	500	600	1/2	3/8	52	45
OP-MCZC038	B4	1750	1.3	1 × 350	3	5	451	500	620	1/2	3/8	54	47
OP-MCZC048	C4	2150	2.3	1 × 350	6	5	555	630	650	1/2	1/2	64	57
OP-MCZC054	C4	2150	2.3	1 × 350	6	5	555	630	650	5/8	1/2	65	58
OP-MCZC060	D4	2000	3.1	1 × 350	6	5	555	630	650	5/8	1/2	68	61
OP-MCZC068	E4	3150	2.5	1 × 400	6	5	605	630	650	5/8	1/2	72	65
OP-MCZC086	F4	3300	3.1	1 × 400	8	5	656	755	700	7/8	1/2	95	83
OP-MCZC096	G4	3150	4.1	1 × 400	8	5	656	755	700	7/8	1/2	100	88
OP-MCZC108	H4	4300	4.1	1 × 500	8	5	656	755	700	7/8	1/2	113	101
OP-MCZC121	J4	6000	4.4	1 × 500	10	5	708	900	900	1 1/8	1/2	127	113
OP-MCZC136	K4	6200	4.7	1 × 500	10	5	759	900	900	1 1/8	1/2	140	126
OP-MCZC171	L4	5850	6.3	1 × 500	14	5	759	900	900	1 1/8	5/8	162	147
OP-MGZC215	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	191	176
OP-MGZC242	M4	11000	7.4	2 × 500	14	6	759	1350	820	1 1/8	5/8	194	179
OP- MGZC271	N4	9200	12.3	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	184

Technical data and ordering

Optyma™ R407F MBP

Fan	Test conditions	Unit	Code no. Version A02	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Power consumption [W] at evap. temp.	
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C	-10 °C	5 °C
	SH = 10 K	OP-MGZD030	114X5061	E	MTZ018	27	1200	1650	2150	2750	3350	4050	4800	1200	1650
						32	1050	1450	1950	2500	3100	3750	–		
						38	900	1300	1750	2250	2800	–	–		
						43	800	1150	1550	–	–	–	–		
		OP-MGZD038	114X5062	E	MTZ022	27	1750	2350	3000	3800	4650	5600	6600	1550	2100
						32	1550	2100	2700	3450	4250	5150	–		
						38	1300	1800	2400	3100	3850	–	–		
						43	1150	1600	2150	–	–	–	–		
		OP-MGZD048	114X5063	E	MTZ028	27	2300	3000	3900	4850	5900	7050	8250	2000	2700
						32	2000	2700	3500	4400	5400	6500	–		
						38	1700	2350	3100	3950	4900	–	–		
						43	1500	2150	2850	–	–	–	–		
		OP-MGZD054	114X5064	E	MTZ032	27	2600	3450	4350	5350	6500	7700	9000	2200	3050
						32	2300	3100	3950	4900	6000	7150	–		
						38	2000	2750	3550	4450	5450	–	–		
						43	1800	2450	3250	–	–	–	–		
		OP-MGZD060	114X5065	E	MTZ036	27	3100	4100	5150	6350	7700	9100	10600	2650	3600
						32	2800	3700	4700	5850	7100	8450	–		
						38	2450	3300	4250	5300	6450	–	–		
						43	2200	3000	3900	–	–	–	–		
		OP-MGZD068	114X5066	E	MTZ040	27	3700	4800	6000	7400	8900	10550	12300	2950	3950
						32	3300	4350	5500	6800	8250	9800	–		
						38	2900	3900	5000	6200	7500	–	–		
						43	2650	3550	4600	–	–	–	–		
		OP-MGZD086	114X5067	E	MTZ050	27	4200	5500	7000	8700	10600	12600	14800	3250	4300
						32	3700	4950	6350	7950	9750	11650	–		
						38	3200	4350	5650	7150	8800	–	–		
						43	2850	3950	5200	–	–	–	–		
		OP-MGZD108	114X5069	E	MTZ064	27	5300	7000	8950	11100	13550	16250	19150	4200	5750
						32	4750	6300	8150	10200	12500	15100	–		
						38	4100	5600	7300	9200	11400	–	–		
						43	3650	5050	6650	–	–	–	–		
		OP-MGZD121	114X5070	E	MTZ072	27	5900	7700	9750	12050	14600	17350	20350	4650	6450
						32	5250	6950	8900	11050	13500	16150	–		
						38	4550	6150	8000	10050	12350	–	–		
						43	4100	5600	7350	–	–	–	–		
		OP-MGZD136	114X5071	E	MTZ080	27	7100	9200	11550	14200	17100	20250	23650	5750	7800
						32	6350	8350	10550	13050	15800	18850	–		
						38	5600	7450	9550	11900	14500	–	–		
						43	5050	6850	8850	–	–	–	–		
		OP-MGZD171	114X5072	E	MTZ100	27	8000	10600	13550	16800	20350	24150	28250	6750	8950
						32	7200	9600	12350	15400	18750	22400	–		
						38	6300	8600	11150	14000	17100	–	–		
						43	5650	7800	10200	–	–	–	–		
		OP-MGZD215	114X5118	E	MTZ125	27	10700	13950	17650	21800	26350	31400	36800	8950	11950
						32	9500	12550	16000	19950	24300	29100	–		
						38	8300	11100	14350	18000	22100	–	–		
						43	7450	10100	13150	–	–	–	–		
		OP-MGZD242	114X5119	E	MTZ144	27	12300	15900	19900	24350	29200	34500	40100	10250	13900
						32	11050	14450	18250	22450	27100	32100	–		
						38	9750	12900	16450	20400	24800	–	–		
						43	8750	11800	15150	–	–	–	–		
		OP-MGZD271	114X5120	E	MTZ160	27	13800	17850	22400	27450	33050	39100	45600	11200	15350
						32	12350	16150	20500	25300	30600	36350	–		
						38	10900	14450	18500	23000	28000	–	–		
						43	9850	13250	17050	–	–	–	–		

Test condition

	SH 10 K
Ambient temperature:	*32 °C*
Superheat:	*10 K*
Subcooling:	*0 K*

Power consumption referred at 32 °C ambient temperature

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz

Version

A02: with receiver, stop valve, universal pressure switch, (KP17WB), flexible hoses and electrical box

Technical data and ordering

Optyma™ R407F MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Fig.	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]			Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MGZD030	C3	1300	1.7	2 × 254	3	6	392	700	500	1/2	3/8	56	46
OP-MGZD038	D3	2800	1.5	2 × 300	6	6	442	800	600	1/2	1/2	60	53
OP-MGZD048	E3	2600	2.2	2 × 300	6	6	442	800	600	1/2	1/2	64	57
OP-MGZD054	E3	2600	2.2	2 × 300	6	6	442	800	600	5/8	1/2	65	58
OP-MGZD060	G3	4600	2.3	2 × 350	8	6	555	1000	700	5/8	1/2	88	75
OP-MGZD068	H3	3600	4.7	2 × 350	8	6	555	1000	700	5/8	1/2	96	82
OP-MGZD086	H3	3600	4.7	2 × 350	8	6	555	1000	700	7/8	1/2	107	93
OP-MGZD108	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	113	99
OP-MGZD121	J3	5400	4.7	2 × 400	10	6	555	1000	700	7/8	1/2	115	101
OP-MGZD136	L3	8600	5.1	2 × 450	10	6	671	1200	800	1 1/8	1/2	133	118
OP-MGZD171	M3	8200	6.8	2 × 450	14	6	671	1200	800	1 1/8	5/8	158	144
OP-MGZD215	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	196	180
OP-MGZD242	N4	9200	12.25	2 × 500	14	6	759	1350	820	1 1/8	5/8	199	183
OP-MGZD271	U	14000	14.2	2 × 630	14	6	975	1500	870	1 1/8	5/8	230	212

Technical data and ordering

Optyma™ - LBP

Electrical characteristics - 230 V / 1phase / 50 Hz

Unit	Wiring diagram	LRA compressor (A) 230 V / 1 phase	MCC compressor (A) 230 V / 1 phase	MCC Fan (A) 230 V / 1 phase
OP-LCHC004	–	5.7	–	0.19
OP-LCHC006	–	8.2	–	0.19
OP-LCHC008 (FR)	–	10	–	0.25
OP-LCHC007	–	10.4	–	0.25
OP-LCHC008 (NL)	–	13.7	–	0.25
OP-LCHC010	–	14.8	–	0.39
OP-LCHC012 (SC12CLX)	–	14.8	–	0.39
OP-LCHC012 (SC12CLX.2)	–	19.6	–	0.39
OP-LCHC015	–	18.6	–	0.39
OP-LCHC018	–	20	–	0.39
OP-LCHC021	–	23.4	–	0.39
OP-LCHC026	–	25.7	–	0.75
OP-LCHC034	–	40	–	0.75
OP-LCHC048	6002113P02	37	11	0.32
OP-LCHC068	6002113P02	53	17	0.58

Optyma™ - LBP

Electrical characteristics - 400 V / 3phase / 50 Hz

Unit	Wiring diagram	LRA compressor (A) 400 V / 3phase	MCC compressor (A) 400 V / 3phase	MCC Fan (A) 230 V / 1 phase
OP-LCHC048	6002113P06	16	4.8	0.32
OP-LCHC068	6002113P06	25	8.4	0.73
OP-LCHC096	6002113P06	32	10.1	0.73
OP-LCHC108	6002113P06	45	12.1	0.73
OP-LCHC136	6002113P06	51	14.3	0.73
OP-LCHC215	6002113P06	74	22.3	3.0
OP-LCHC271	6002113P06	96	27	3.0
OP-LGHC048	6002113P16	16	4.8	2x0.32
OP-LGHC068	6002113P06	25	8.4	2x0.32
OP-LGHC096	6002113P06	32	10.1	2x0.32
OP-LGHC108	6002113P06	45	12.1	2x0.73
OP-LGHC136	6002113P06	51	14.3	2x0.73
OP-LGHC215	6002113P06	74	22.3	2x2.1
OP-LGHC271	6002113P06	96	27	2x2.1

Technical data and ordering

Optyma™ - LBP

Spare parts

Unit	Condenser	Receiver	Rotalock valve		Fan motor	Weatherproof housing	Filter drier Type	Sight glass type	Pressure control type	Solenoid valve type (excl coil)
			Suction	Discharge	230 V					
OP-LCHC004	118U0029	118U0517	–`	–	118U0032	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 2
OP-LCHC006	118U0029	118U0517	–	–	118U0032	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 2
OP-LCHC008	118U0030	118U0523	–	–	118U0033	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 2
OP-LCHC007	118U0030	118U0523	–	–	118U0033	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 2
OP-LCHC008	118U0030	118U0523	–	–	118U0033	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 2
OP-LCHC010	118U0030	118U0523	–	–	118U0033	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 2
OP-LCHC012	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC012	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC015	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC018	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC021	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 032	SGN 6	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC026	118U0054	118U0078	–	–	118U0058	118U4621	DML / DCL 032	SGN 10	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC034	118U0069	118U0078	–	–	118U0058	118U4621	DML / DCL 032	SGN 10	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC048	118U8000	8168179	7968014	7968012	8176043	–	DML / DCL 053	SGN 10	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC068	118U8002	8168180	7968014	7968013	8176045	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC096	118U8003	8168180	7968017	7968014	8176045	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC108	118U8004	8168180	7968017	7968014	8176047	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 3
OP-LCHC136	118U8006	8168181	7968017	7968014	8176047	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 6
OP-LCHC215	118U8008	8168183	7968018	7968015	118U8023	–	DML / DCL 165	SGN 16	KP 1 / KP 7 / KP 17	EVR 6
OP-LCHC271	118U8010	8168183	7968018	7968015	118U8023	–	DML / DCL 165	SGN 16	KP 1 / KP 7 / KP 17	EVR 6
OP-LGHC048	8174036	8168179	7968014	7968012	8176018	–	DML / DCL 053	SGN 10	KP 1 / KP 7 / KP 17	EVR 3
OP-LGHC068	8174037	8168180	7968014	7968013	8176043	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 3
OP-LGHC096	8174038	8168180	7968017	7968014	8176043	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 3
OP-LGHC108	8174041	8168181	7968017	7968014	8176045	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 3
OP-LGHC136	8174041	8168181	7968017	7968014	8176045	–	DML / DCL 084	SGN 12	KP 1 / KP 7 / KP 17	EVR 6
OP-LGHC215	8174044	8168183	7968018	7968015	8176070	–	DML / DCL 165	SGN 16	KP 1 / KP 7 / KP 17	EVR 6
OP-LGHC271	8174044	8168183	7968018	7968015	8176070	–	DML / DCL 165	SGN 16	KP 1 / KP 7 / KP 17	EVR 6

Note:
LRA: Locked Rotor Amps
MCC: Maximum Continuous Current

Technical data and ordering

Optyma™ - MBP

Electrical characteristics - 230 V / 1phase / 50 Hz

Unit	Wiring diagram	LRA compressor (A) 230 V / 1 phase	MCC compressor (A) 230 V / 1 phase	MCC Fan (A) 230 V / 1 phase
OP-MCHC004	–	7.5	–	0.19
OP-MCHC006	–	10.0	–	0.25
OP-MCHC007	–	20.0	–	0.39
OP-MCHC010	–	18.4	–	0.39
OP-MCHC012	–	23.4	–	0.39
OP-MCHC015	–	23.5	–	0.48
OP-MCHC018	–	23.4	–	0.48
OP-MCHC021	–	24.4	–	0.75
OP-MCHC026	–	34.6	–	0.75
OP-MCHC034	–	45.7	–	0.62
OP-MCZC030	6002113P02	40	10	0.32
OP-MCZC038	6002113P02	41	15	0.58
OP-MCZC048	6002113P02	51	20	0.58
OP-MCZC054	6002113P02	70	20	0.58
OP-MCZC060	6002113P02	60	22	0.58

Optyma™ - MBP

Electrical characteristics - 400 V / 3phase / 50 Hz

Unit	Wiring diagram	LRA compressor (A) 400 V / 3phase	MCC compressor (A) 400 V / 3phase	MCC Fan (A) 230 V / 1 phase
OP-MCZC030	6002113P06	20	5	0.85
OP-MCZC038	6002113P06	16	6	1.2
OP-MCZC048	6002113P06	23	7.5	1.2
OP-MCZC054	6002113P06	25	8	1.2
OP-MCZC060	6002113P06	30	9	1.2
OP-MCZC068	6002113P06	38	10	1.3
OP-MCZC086	6002113P06	48.5	11.5	1.3
OP-MCZC096	6002113P06	64	12	1.3
OP-MCZC108	6002113P06	64	14	3.4
OP-MCZC121	6002113P06	80	17	3.4
OP-MCZC136	6002113P06	80	19	3.4
OP-MCZC171	6002113P06	90	22	3.4
OP-MGZC215	6002113P06	105	27	2 x 3.0
OP-MGZC242	6002113P06	130	36	2 x 3.0
OP- MGZC271	6002113P06	130	36	2 x 3.0
OP-MGZD030	6002113P16	20	5	2x0.32
OP-MGZD038	6002113P06	16	6	2x0.32
OP-MGZD048	6002113P06	23	7.5	2x0.32
OP-MGZD054	6002113P06	25	8	2x0.32
OP-MGZD060	6002113P06	30	9	2x0.73
OP-MGZD068	6002113P06	38	10	2x0.73
OP-MGZD086	6002113P06	48.5	11.5	2x0.73
OP-MGZD108	6002113P06	64	14	2x0.73
OP-MGZD121	6002113P06	80	17	2x0.73
OP-MGZD136	6002113P06	80	19	2x2.1
OP-MGZD171	6002113P06	90	22	2x2.1
OP-MGZD215	6002113P06	105	27	2x3.0
OP-MGZD242	6002113P06	130	36	2x3.0
OP-MGZD271	6002113P06	130	36	2x2.12

Technical data and ordering

Optyma™ - MBP

Spare parts

Unit	Condenser	Receiver	Rotolock valve		Fan motor	Watherproof housing	Filter drier type	Sight glass type	Pressure control type	Solenoid valve type (excl coil)
			Suction	Discharge	230 V					
OP-MCHC004	118U0029	118U0517	–	–	118U0032	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 2
OP-MCHC006	118U0030	118U0517	–	–	118U0033	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 2
OP-MCHC007	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 2
OP-MCHC010	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 2
OP-MCHC012	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 3
OP-MCHC015	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 3
OP-MCHC018	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 3
OP-MCHC021	118U0031	118U0523	–	–	118U0034	118U4620	DML / DCL 052	SGN 6	KP1 / KP7 / KP17	EVR 3
OP-MCHC026	118U0069	118U0078	–	–	118U0058	118U4621	DML / DCL 052	SGN10	KP1 / KP7 / KP17	EVR 3
OP-MCHC034	118U0070	118U0078	–	–	118U0059	118U4621	DML / DCL 052	SGN10	KP1 / KP7 / KP17	EVR 3
OP-MCZC030	118U8000	8168179	7968013	7968012	8176043	–	DML / DCL053	SGN10	KP1 / KP7 / KP17	EVR 3
OP-MCZC038	118U8001	8168179	7968013	7968012	8176045	–	DML / DCL053	SGN10	KP1 / KP7 / KP17	EVR 3
OP-MCZC048	118U8002	8168180	7968013	7968013	8176045	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC054	118U8002	8168180	7968014	7968013	8176045	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC060	118U8003	8168180	7968014	7968013	8176045	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC068	118U8004	8168180	7968014	7968013	8176047	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC086	118U8005	8168181	7968017	7968014	8176047	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC096	118U8006	8168181	7968017	7968014	8176047	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC108	118U8007	8168181	7968017	7968014	118U8023	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC121	118U8008	8168182	7968018	7968015	118U8023	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC136	118U8010	8168182	7968018	7968015	118U8023	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MCZC171	118U8010	8168183	7968018	7968015	118U8023	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP-MGZC215	118U8012	8168183	7968018	7968016	118U8023	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP-MGZC242	118U8012	8168183	7968018	7968016	118U8023	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP- MGZC271	118U8012	8168183	7968018	7968016	118U8023	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP-MGZD030	8174036	8168179	7968013	7968012	8176018	–	DML / DCL053	SGN10	KP1 / KP7 / KP17	EVR 3
OP-MGZD038	8174037	8168180	7968013	7968013	8176043	–	DML / DCL053	SGN10	KP1 / KP7 / KP17	EVR 3
OP-MGZD048	8174038	8168180	7968013	7968013	8176043	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD054	8174038	8168180	7968014	7968013	8176043	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD060	8174041	8168181	7968014	7968013	8176045	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD068	8174041	8168181	7968014	7968013	8176045	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD086	8174041	8168181	7968017	7968014	8176045	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD108	8174042	8168182	7968017	7968014	8176047	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD121	8174042	8168182	7968017	7968014	8176047	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD136	8174044	8168182	7968018	7968015	8176070	–	DML / DCL084	SGN12	KP1 / KP7 / KP17	EVR 3
OP-MGZD171	8174045	8168183	7968018	7968015	8176070	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP-MGZD215	118U8012	8168183	7968018	7968016	118U8023	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP-MGZD242	118U8012	8168183	7968018	7968016	118U8023	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6
OP-MGZD271	118U0375 *)	8168183	7968018	7968016	118U0373 *)	–	DML / DCL165	SGN16	KP1 / KP7 / KP17	EVR 6

Note:
LRA: Locked Rotor Amps
MCC: Maximum Continuous Current
**) For units with serial number up to 2915092004 produced before the 10th week of 2015 please use:*
Fan motor - 8176098 (Ø600mm)
Condenser - 8174048 (for fans Ø600mm)

Technical data and ordering

Optyma™ - LBP / MBP / HBP

Electrical characteristics - 230 V / 1phase /50 Hz

Unit	LRA compressor (A) 230 V / 1 phase	MCC Fan (A) 230 V / 1 phase
OP-UCGC003	4.9	0.19
OP-UCGC004	5.1	0.19
OP-UCGC005	5.7	0.19
OP-UCGC006	7.5	0.19
OP-MCGC006	9.2	0.19
OP-UCGC007	8.1	0.19
OP-UCGC008	8.2	0.19
OP-MCGC007	11.3	0.19
OP-UCGC010 (FR)	10	0.19
OP-MCGC008	11.7	0.19
OP-UCGC010 (SC)	11.1	0.19
OP-UCGC011	10	0.25
OP-UCGC012	12.6	0.25
OP-UCGC015	14.8	0.39
OP-UCGC018	18.6	0.39
OP-UCGC021	21.8	0.39
O P-MCGC021	23.6	0.39
OP-UCGC026	20.2	0.75
OP-UCGC034	25.7	0.75

Optyma™ - LBP / MBP / HBP

Spare parts

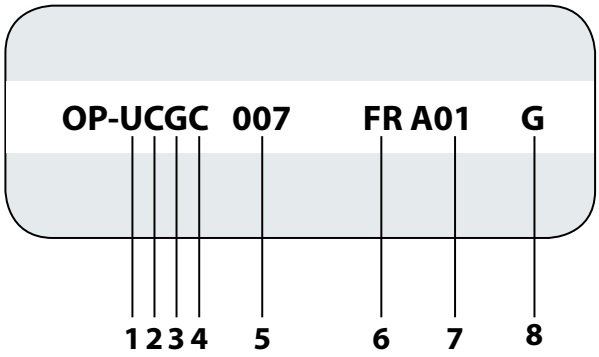
Unit	Condenser	Receiver	Fan motor 230 V	Weatherproof housing	Filter drier Type	Sight glass type	Pressure control type	Solenoid valve type (excl coil)
OP-UCGC003	118U0028	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC004	118U0028	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC005	118U0028	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC006	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-MCGC006	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC007	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC008	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-MCGC007	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC010 (FR)	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-MCGC008	118U0030	118U0523	118U0033	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC010 (SC)	118U0029	118U0517	118U0032	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC011	118U0030	118U0523	118U0033	118U4620	DML / DCL032	SGN6	KP1 / KP5 / KP17	EVR2
OP-UCGC012	118U0030	118U0523	118U0033	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3
OP-UCGC015	118U0031	118U0523	118U0033	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3
OP-UCGC018	118U0031	118U0523	118U0033	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3
O P-UCGC021	118U0031	118U0523	118U0033	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3
OP-MCGC021	118U0031	118U0523	118U0033	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3
OP-UCGC026	118U0069	118U0078	118U0058	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3
OP-UCGC034	118U0069	118U0078	118U0058	118U4620	DML / DCL052	SGN6	KP1 / KP5 / KP17	EVR3

Note:
LRA: Locked Rotor Amps
MCC :Maximum Continuous Current

Nomenclature

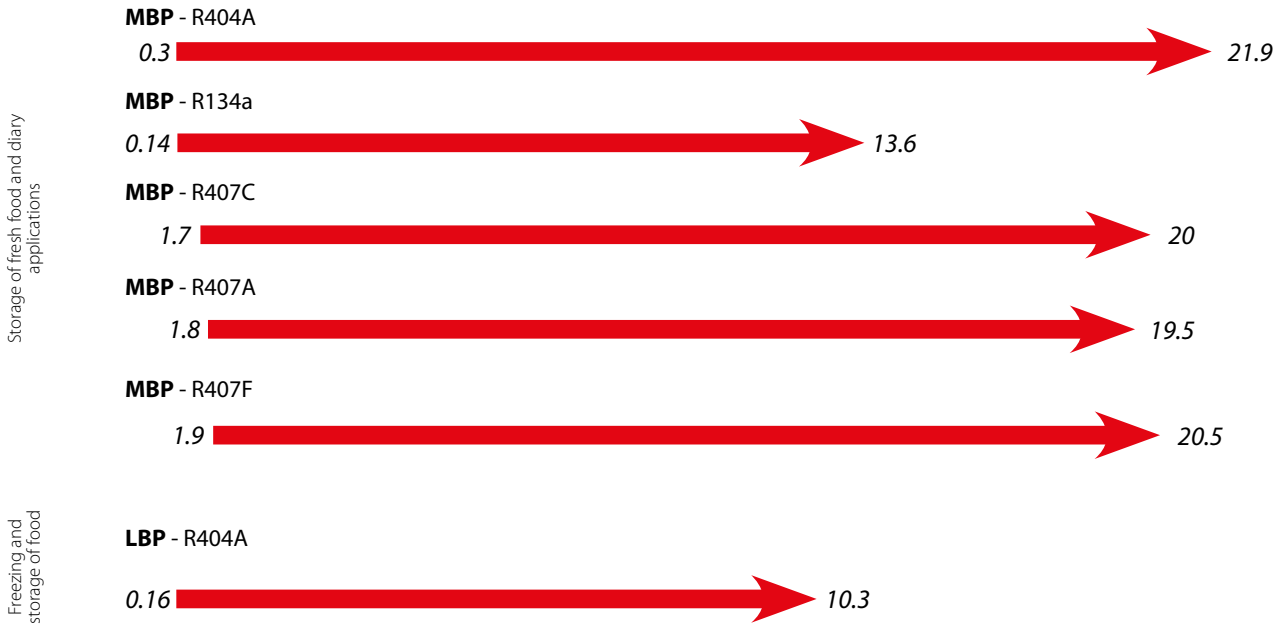
Designation system for the Optyma™ standard programm

(additional programm voltage, frequency etc.: please contact your local wholesaler)



No.	Title	Description	No.	Title	Description
1	Application	L = Low M = Medium U = Low / Medium / High	5	Displacement	[cm³]
2	Platform or design	C = Air cooled condensing unit with 1 fan and hermetic compressor G = Air cooled condensing unit with 2 fan and hermetic compressor	6	Compressor platform	SC = SC reciprocating AJ = CAJ / TAJ reciprocating ML = MLZ scroll NT = NTZ reciprocating LL = LLZ scroll MT = MT reciprocating SM = SM scroll SZ = SZ scroll
3	Refrigerant	G = R134a H = R404A / R507 Z = R404A / R134a / R507 / R407C / R407A / R407F U = R404A / R507 / R407C / R134a / R22	7	Version	W05 A06
4	Condenser option	C = Standard D/E = With oversized condenser (for higher ambient temperature and / or higher efficiency)	8	Electrical code	G = 230 V/1ph 50Hz compressor and fan E = 400 V/3ph 50Hz compressor and 230 V/1ph 50Hz fan

Cooling capacity range [kW]



Test condition	***LBP***	***MBP***
Ambient temperature:	*32 °C*	*32 °C*
Evaporating temperature:	*-25 °C*	*-10 °C*

Superheat and Subcooling depend on compressor type used in condensing units: for details please see cooling capacity tables

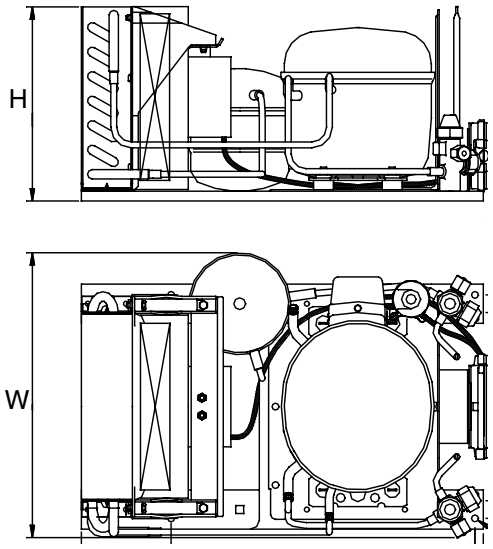
Optyma™ units can work in the following evaporating temperature range:

LBP R404A:	*-40 °C – -10 °C*
MBP R404A:	*-20 – 10 °C*
MBP R407A / R407F:	*-20 – 10 °C*
MBP R134a:	*-15 °C – 15 °C*
MBP R407C:	*-15 °C – 10 °C*

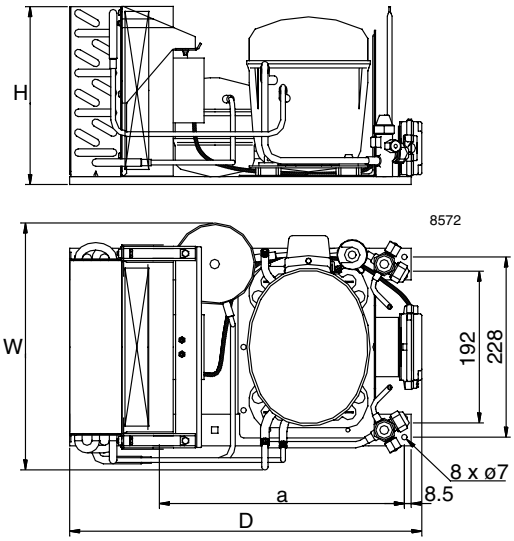
For further detailed information, please contact Danfoss or use dedicated software

Dimensions

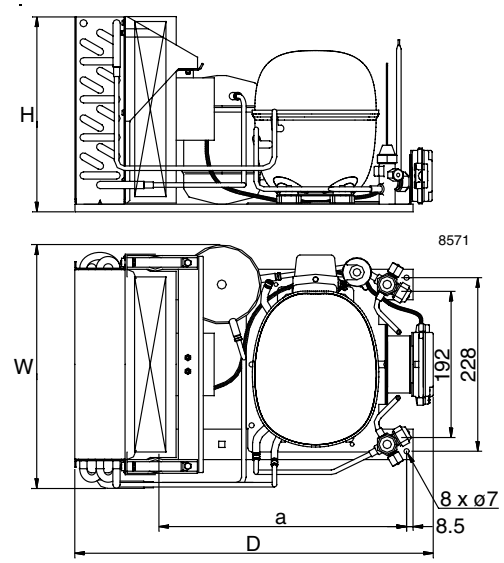
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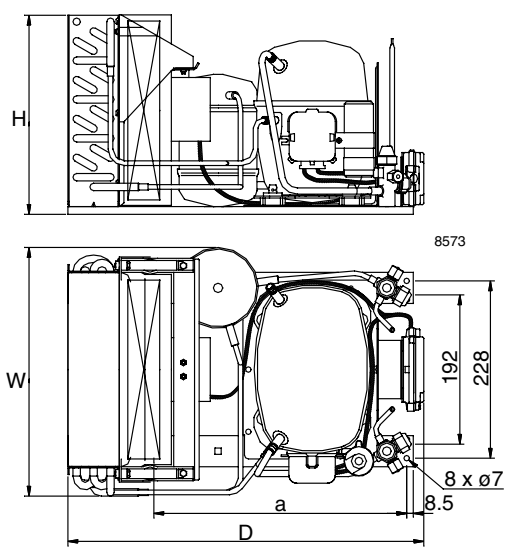
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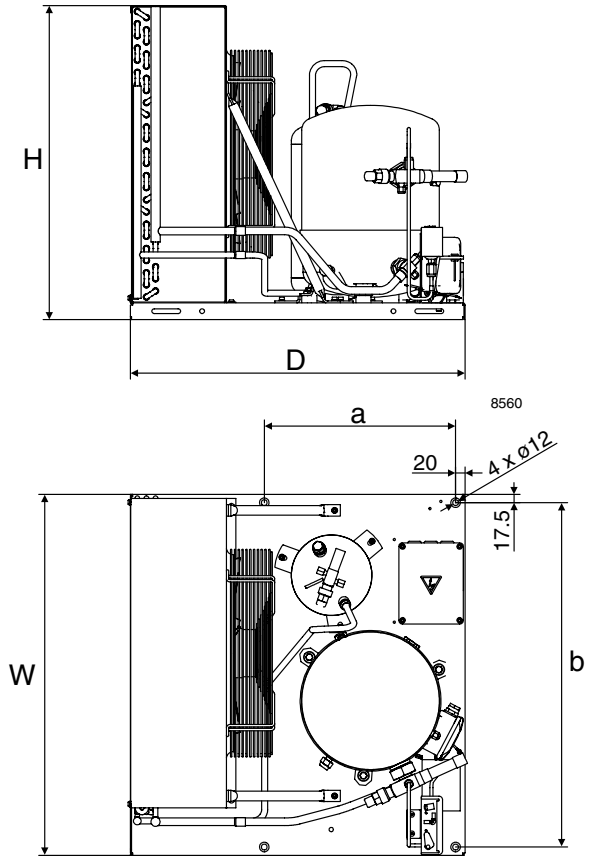
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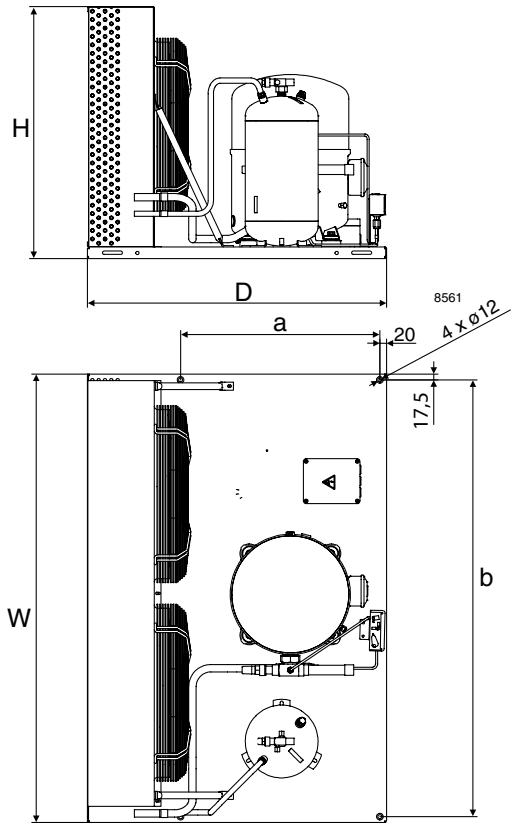


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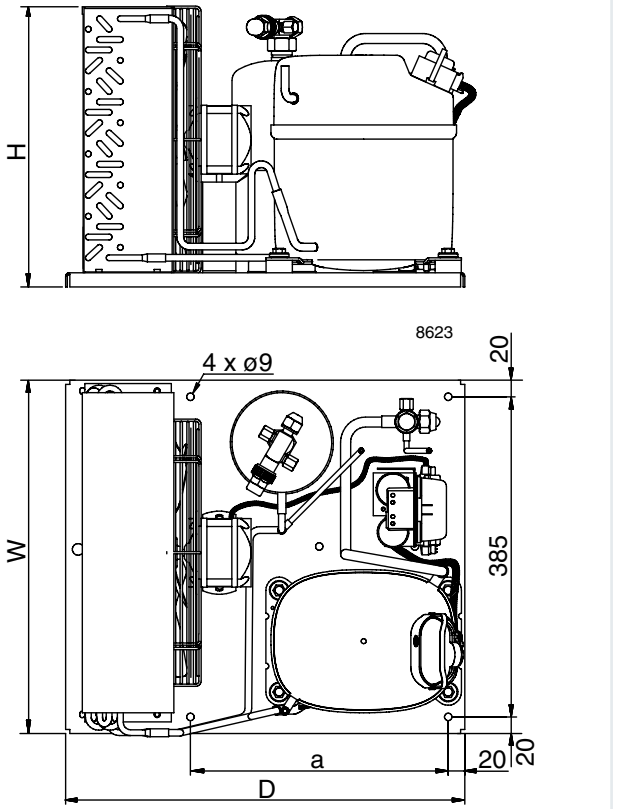


Dimensions

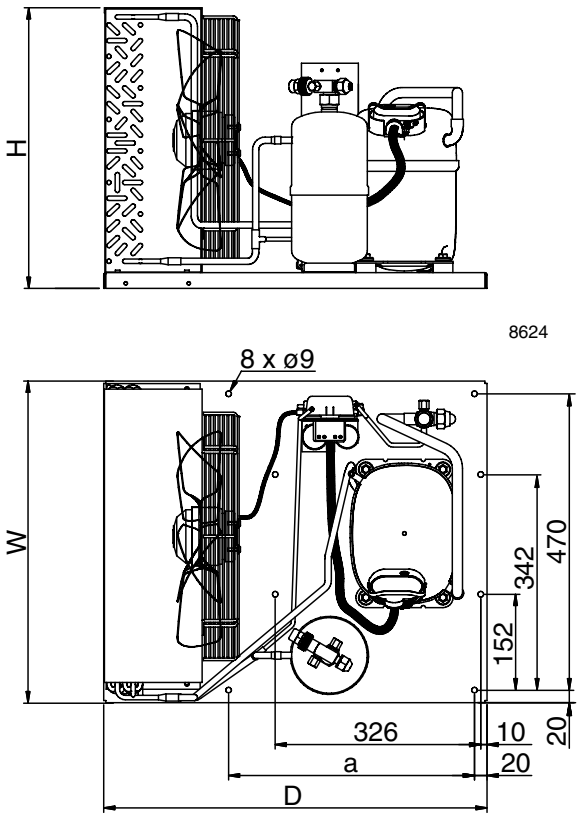
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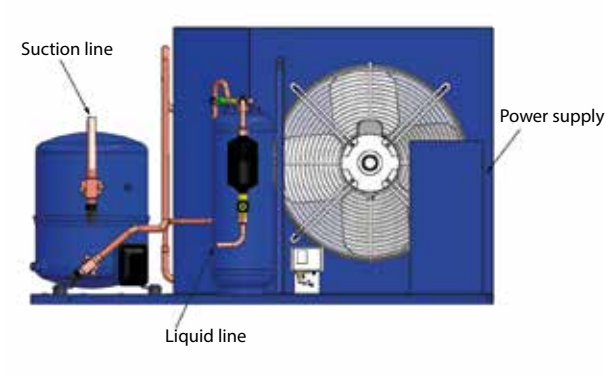
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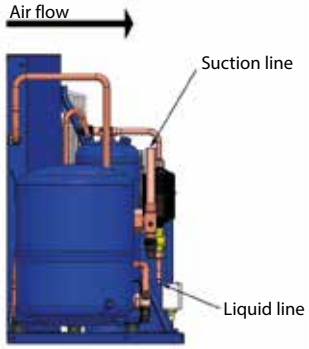
Dimensions

Figure 1A - D32 version (Reciprocating compressor - 1 fan)

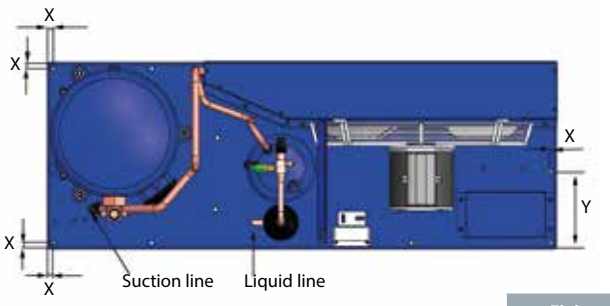
Front view



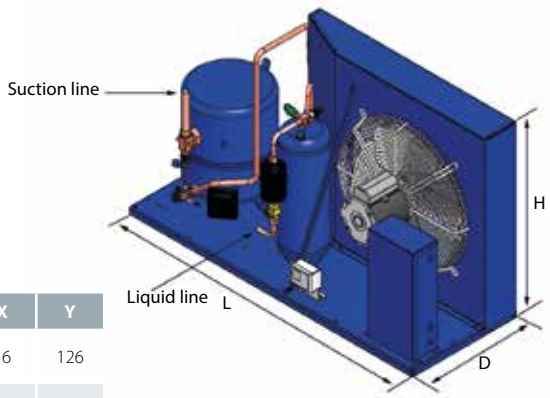
Viewed from rear left



Top view



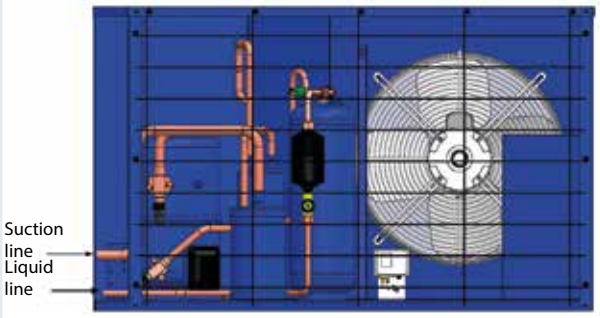
Isometric view



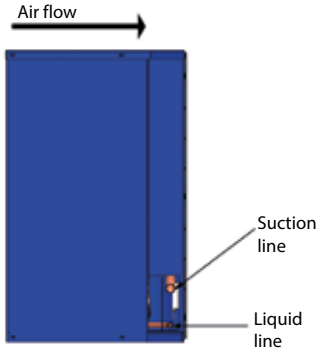
Fixing points	X	Y
OP-HJ...018D to 022D	16	126
OP-HJ...028D to 050D	14	174

Figure 1B - D40 version (Reciprocating compressor - 1 fan)

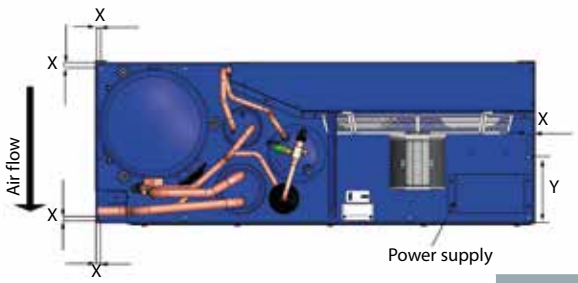
Front view



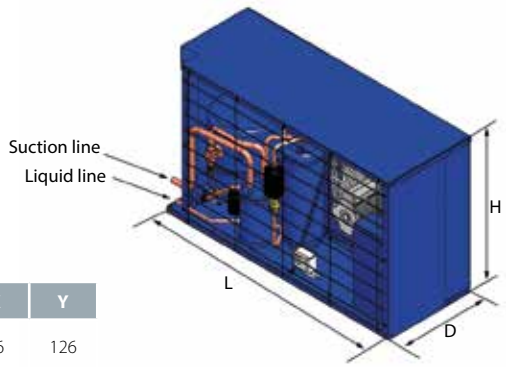
Viewed from rear left



Top view (without cover cap)



Isometric view

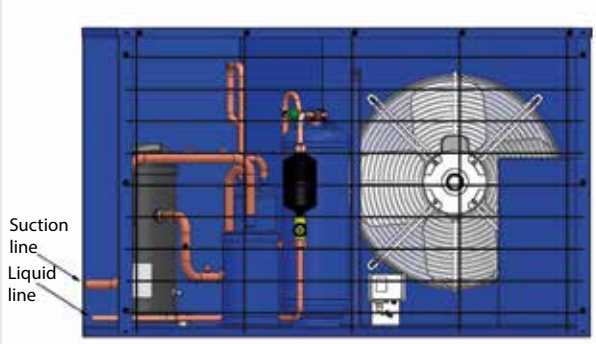


Fixing points	X	Y
OP-HJ...018D to 022D OP-LJ...048D to 068D	16	126
OP-HJ...028D to 050D OP-LJ…108D to 136D	14	174

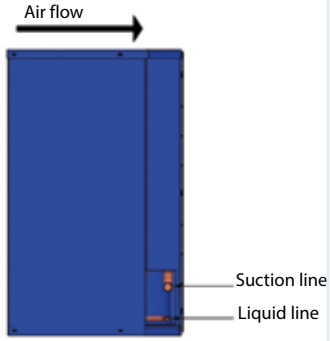
Dimensions

Figure 3A - D40 version (scroll compressor - 1 fan)

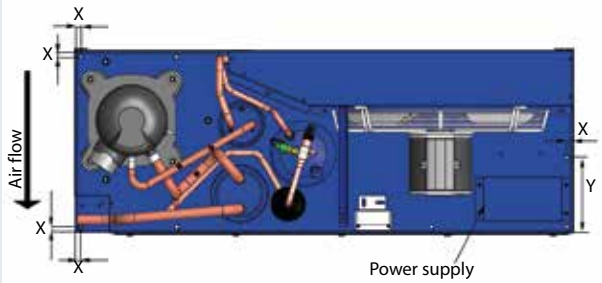
Front view



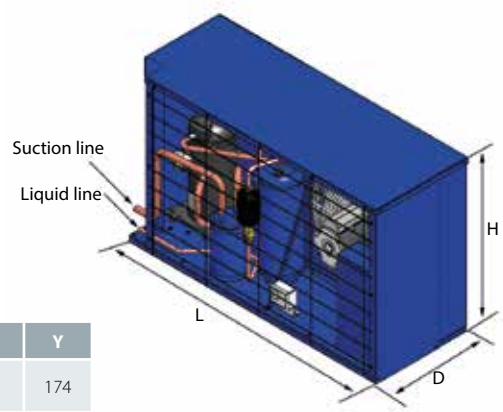
Viewed from rear left



Top view (without cover cap)



Isometric view



Fixing points	X	Y
OP-HNU…015D to 030D	14	174

Figure 2A - D32 version (Reciprocating compressor - 2 fans)

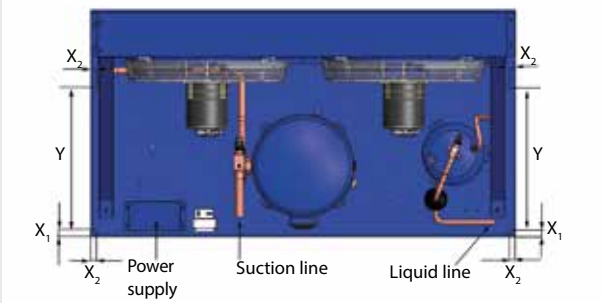
Front view



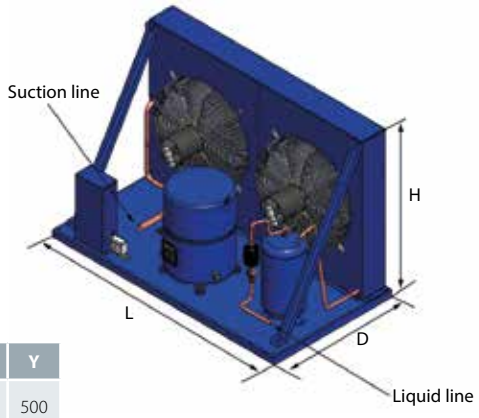
Viewed from rear left



Top view



Isometric view

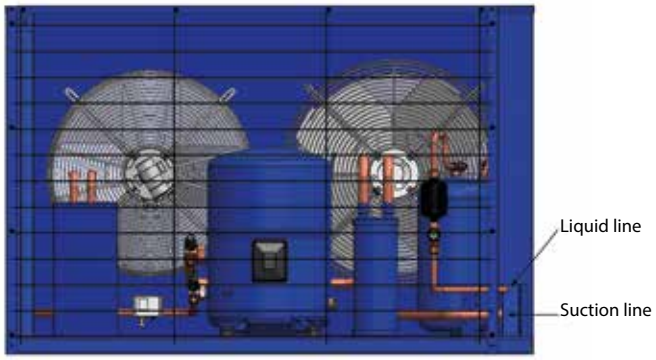


Fixing points	X_1	X_2	Y
OP-HG...064D to 160D	25	20	500

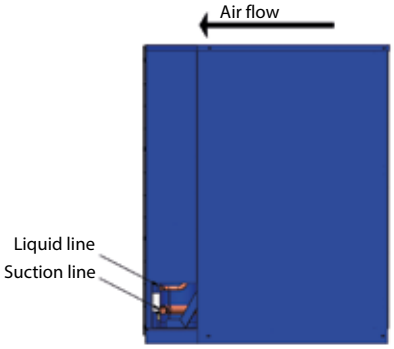
Dimensions

Figure 2B - D40 version (Reciprocating compressor - 2 fans)

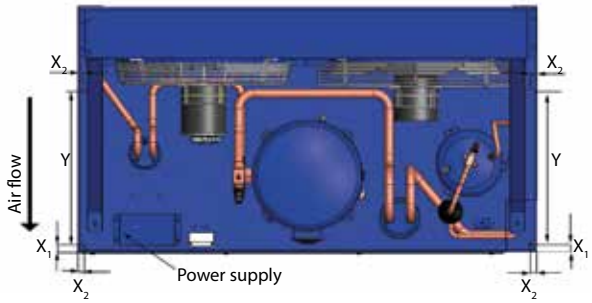
Front view



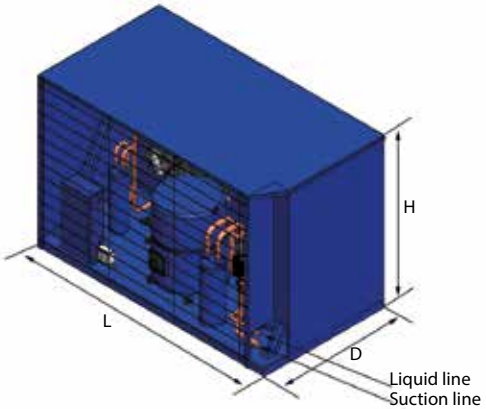
Viewed from rear right



Top view (without cover cap)



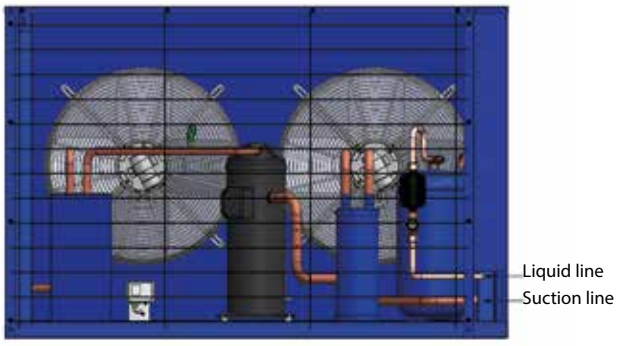
Isometric view



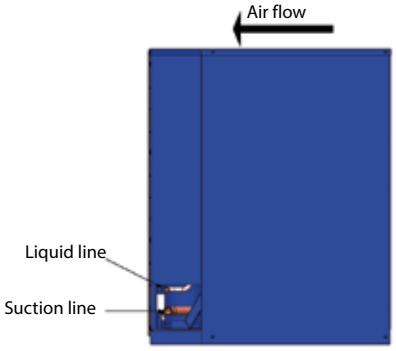
Fixing points	X_1	X_2	Y
OP-HG...064D to 160D OP-LG…215D to 271D	25	20	500

Figure 4A - D40 version (scroll compressor - 2 fans)

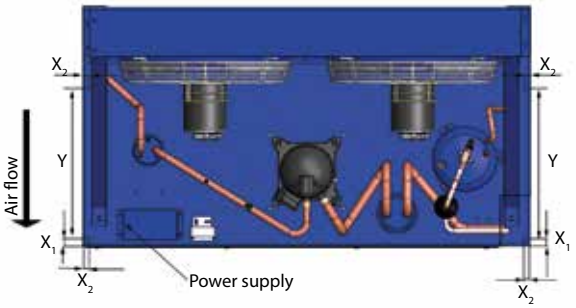
Front view



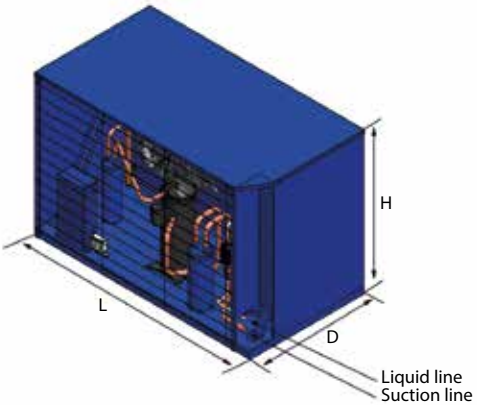
Viewed from rear right



Top view (without cover cap)



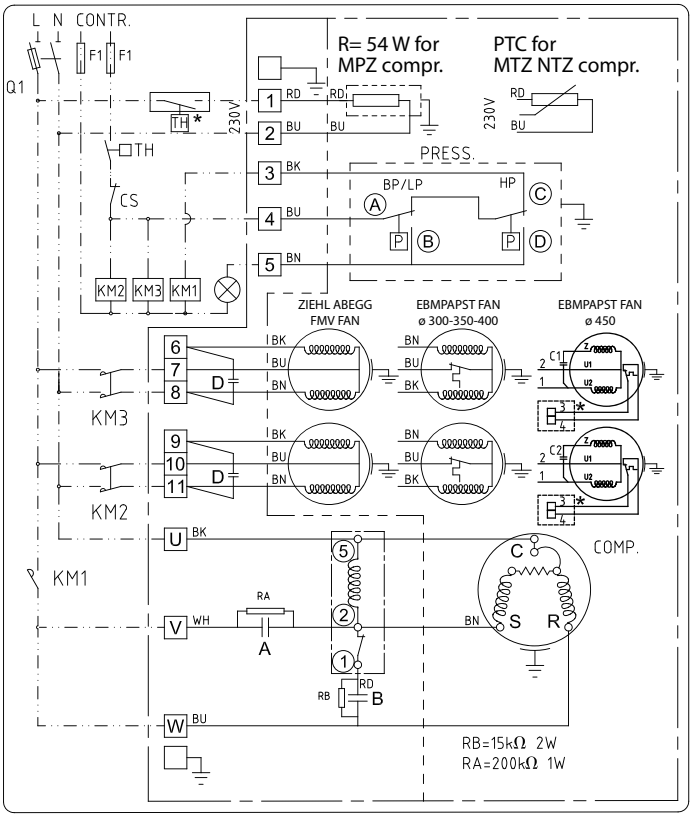
Isometric view



Fixing points	X_1	X_2	Y
OP-HRU…038D to 076D	25	20	500

Wiring diagram

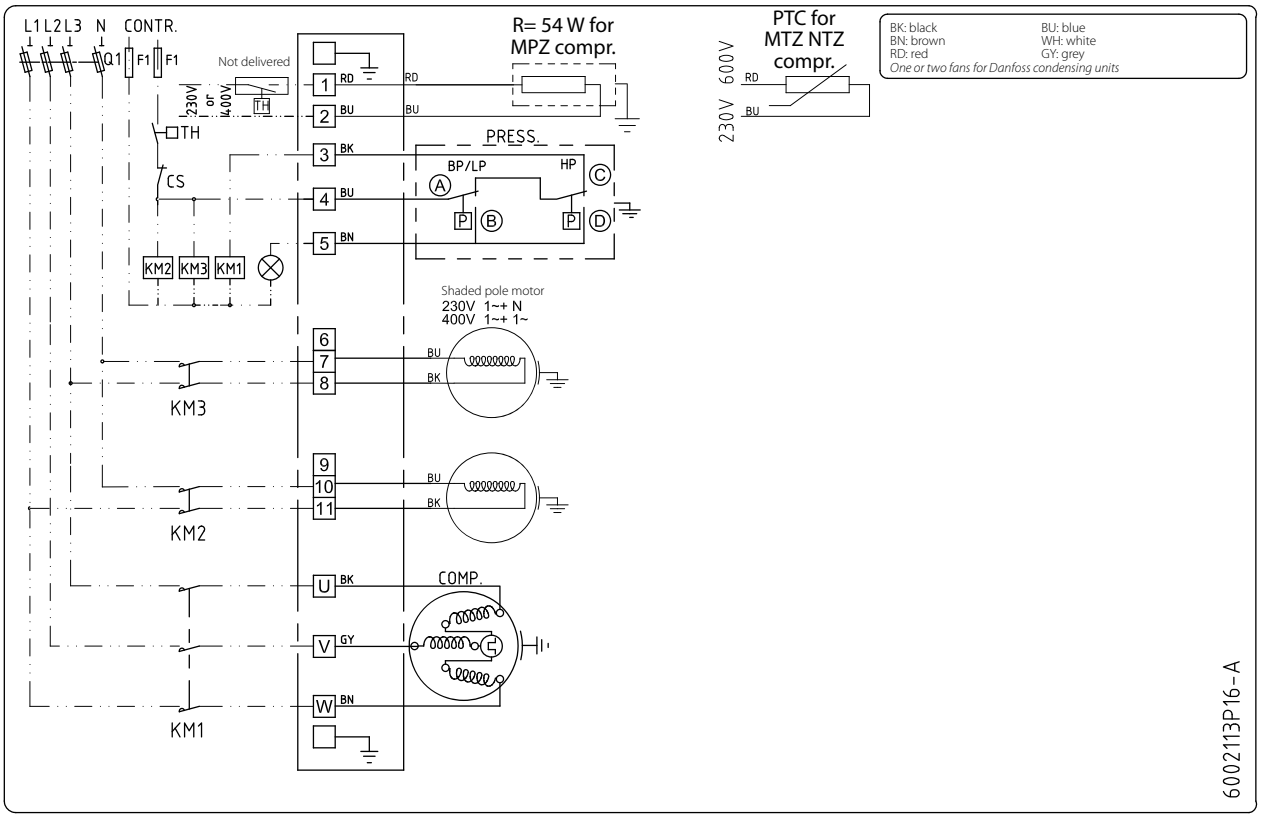
1



BK: black
BN: brown
RD: red
BU: blue
WH: white
GY: grey
One or two fans for Danfoss condensing units

*) *Option:*
overload protector if available

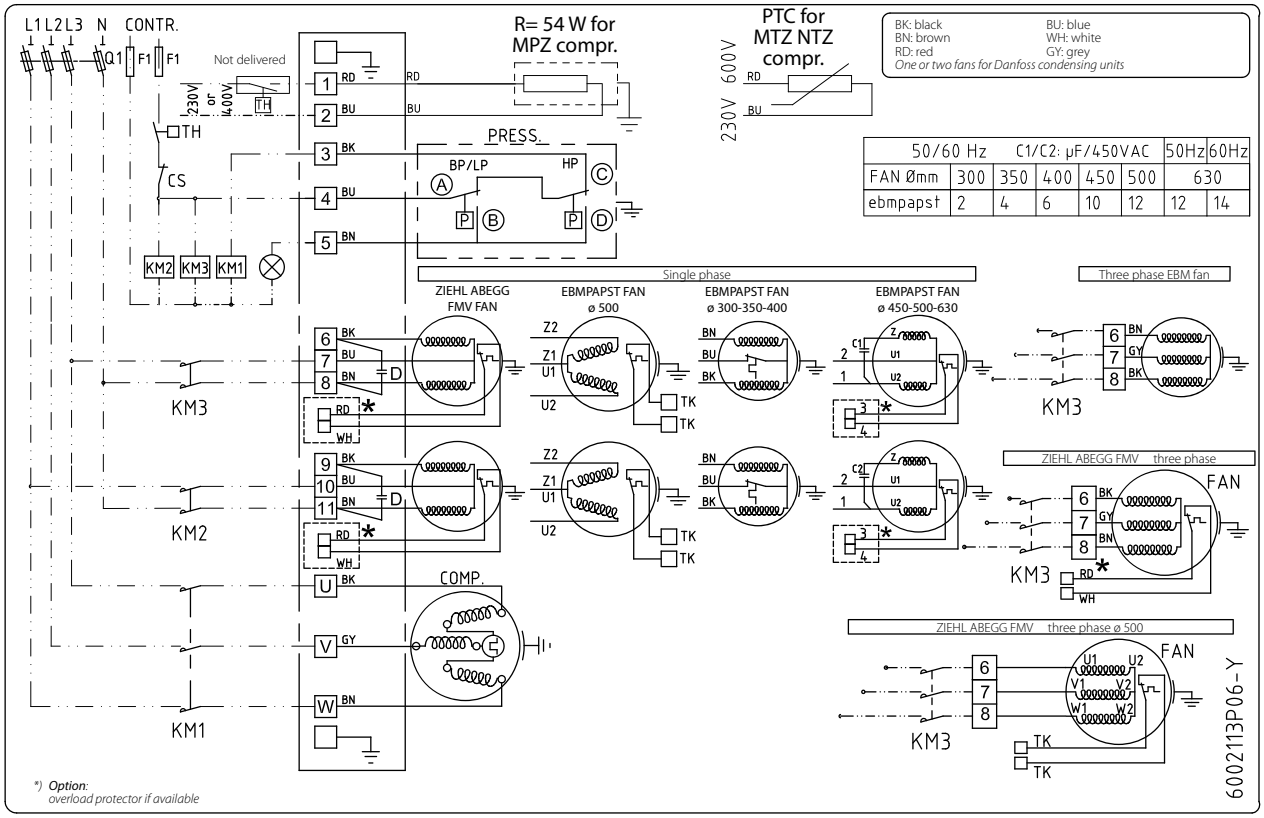
2



BK: black
BN: brown
RD: red
BU: blue
WH: white
GY: grey
One or two fans for Danfoss condensing units

Wiring diagram

3



50/60 Hz	C1/C2: µF/450VAC					50Hz	60Hz
FAN Ømm	300	350	400	450	500	630	
ebmpapst	2	4	6	10	12	12	14

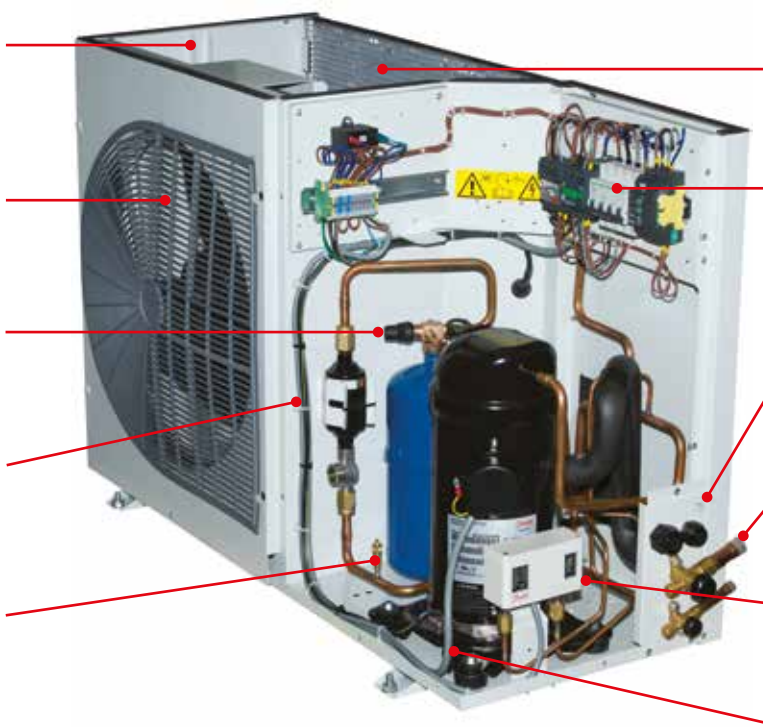
Quick Selection Notes:

Optyma™ **Slim Pack - The cost effective outdoor solution**

Optyma™ **Slim Pack** is the cost effective packaged condensing unit with a new condenser technology - Micro Channel Heat Exchanger. Danfoss has developed Optyma™ **Slim Pack** to meet all customers' needs in MBP and LBP applications.

Reliability, compactness 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.





Resistance to corrosion of the heat exchanger and housing prolongs the lifetime of the unit

Accessible fan and condenser for easy maintenance

Receiver with shut-off valve makes servicing easier

Filter drier and sight glass protect the unit from moisture, acids and solid particles. Flare connections simplify maintenance

Thanks to Schrader valve the unit is prepared for using different types of fan control

Micro-channel heat exchanger is light and easy to clean

Accessible pre-wired electrical junction panel enables easy servicing

Quick connections accelerate installation: just mount, braze and plug

Accessible service ports on service valves (suction and liquid)

Dual KP17WB pressure control for enhanced safety

Crankcase heater protects the compressor when operating under cold weather conditions

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
- Freezers

- 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
- Thanks to weatherproof housing the Optyma™ **Slim Pack** meets outdoor application requirements and completes the Optyma™ range

- We provide the units with highly reliable compressors, micro channel heat exchangers and all needed components which are pre-assembled, integrated and factory tested
- Danfoss Optyma™ **Slim Pack** extends your possibilities with models for low and medium temperatures
- Danfoss Optyma™ **Slim Pack** condensing units meet the Energy related Product (ErP) directive applicable for fan motors

Quick Selection Notes:

Technical data and ordering

Optyma™ Slim Pack - R404A / R507 LBP

Fan	Test conditions	Unit	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Sound power level [dB (A)]	Sound pressure level full sphere 10 m [dB (A)]
							-40 °C	-35 °C	-30 °C	-25 °C	-20 °C	-15 °C	-10 °C		
	SH = 10 K	OP- LSHM015	114X7081	G	SC15CLX.2	27	340	460	590	760	950	1170	1420	63	32
						32	300	400	530	680	860	1070	1300		
						38	240	340	460	600	760	950	1160		
						43	200	290	390	520	670	840	1040		
		OP- LSHM018	114X7082	G	SC18CLX.2	27	370	500	650	830	1030	1270	1540	63	32
						32	320	440	580	750	940	1160	1410		
						38	270	370	500	650	820	1030	1260		
						43	220	310	430	570	730	910	1120		
		OP- LSHM026	114X7085	G	CAJ2446Z	27	500	700	1000	1250	1600	2000	2450	67	36
						32	450	650	850	1150	1450	1800	2200		
						38	–	550	750	1000	1250	1600	1950		
						43	–	450	650	850	1100	1400	1750		
		OP-LSHM034	114X7086	G	CAJ2464Z	27	700	950	1250	1650	2100	2600	3150	68	37
						32	600	850	1150	1500	1900	2350	2900		
						38	500	750	1000	1300	1650	2100	2600		
						43	–	650	850	1150	1500	1850	2300		
		OP-LSHM048	114X7087	G	NTZ048	27	800	1150	1550	2050	2650	3300	4000	71	40
						32	650	1000	1400	1850	2350	2950	3600		
			114X7088	E		38	550	850	1200	1600	2050	2550	3150		
						43	450	700	1000	1350	1750	–	–		
		OP- LSHM074	114X7095	G	FH2511Z	27	1200	1650	2250	2950	3700	4550	5450	71	40
						32	1000	1450	1950	2600	3300	4050	4950		
			114X7096	E	TFH2511Z	38	–	1150	1650	2200	2800	3550	4300		
						43	–	950	1400	1900	2450	3100	3800		
		OP-LSHM068	114X7089	G	NTZ068	27	1350	1850	2450	3100	3850	4650	5550	71	40
						32	1150	1650	2150	2750	3450	4200	5050		
			114X7090	E		38	950	1350	1850	2400	3000	3650	4400		
						43	800	1200	1600	2100	2600	–	–		
		OP-LSHM067	114X7091	E	LLZ013	27	2200	2850	3550	4450	5400	6550	7850	71	40
						32	2050	2600	3300	4100	5000	6050	7250		
						38	1800	2350	2950	3700	4500	5450	6550		
						43	1600	2100	2650	3300	4100	4950	5950		
		OP-LSHM084	114X7092	E	LLZ015	27	2650	3400	4300	5300	6550	7900	9500	73	42
						32	2450	3150	3950	4900	6000	7300	8750		
						38	2200	2800	3550	4400	5400	6550	7850		
						43	1950	2500	3150	3950	4850	5850	7050		
		OP-LSHM098	114X7075	E	LLZ018	27	3100	3950	4950	6150	7550	9100	10900	74	43
						32	2850	3650	4600	5650	6950	8400	10000		
						38	2550	3250	4100	5050	6200	7500	8950		
						43	2250	2900	3650	4550	5550	6700	8050		

Test condition

	SH 10 K
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G compressor 230 V / 1 phase / 50Hz, fan 230 V / 1 phase / 50 Hz

Power consumption referred at 32 °C ambient temperature

LLZ type compressor models are scroll compressors.
Cooling capacity is given for units with 3-phase compressor.
Capacity of single-phase versions is within ± 1% of this value.

Technical data and ordering

Optyma™ Slim Pack - R404A / R507 LBP

Unitw	Condenser coil			Condenser fan Fan blade Ø [mm]	Receiver volume [L]	Power consumption [W] at evap. temp. -25 °C	Housing	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]					Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-LSHM015	A7	2200	0.4	365	1.3	600	B1	680	950	443	3/8	3/8	53	41
OP-LSHM018	A7	2200	0.4	365	1.3	720	B1	680	950	443	3/8	3/8	53	41
OP-LSHM026	D7	3300	0.6	450	3.4	900	B2	695	1106	464	1/2	1/2	78	63
OP-LSHM034	D7	3300	0.6	450	3.4	1100	B2	695	1106	464	1/2	1/2	79	64
OP-LSHM048	D7	3300	0.6	450	3.4	1450	B2	695	1106	464	5/8	1/2	74	60
OP-LSHM074	D7	3300	0.6	450	3.4	2100	B2	695	1106	464	5/8	1/2	92 88	77 73
OP-LSHM068	D7	3300	0.6	450	3.4	2150	B2	695	1106	464	5/8	1/2	74	60
OP-LSHM067	G7	5200	1.8	500	6.2	2850	B3	830	1106	464	3/4	1/2	90	73
OP-LSHM084	G7	5200	1.8	500	6.2	3400	B3	830	1106	464	3/4	1/2	90	73
OP-LSHM098	G7	5200	1.8	500	6.2	3850	B3	830	1106	464	3/4	1/2	90	73

Technical data and ordering

Optyma™ Slim Pack - R404A / R507 MBP

Fan	Test conditions	Unit	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Cooling capacity range in [W] at evaporating temperature [°C]							Sound power level [dB (A)]	Sound pressure level full sphere 10 m [dB (A)]
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C		
	SH = 10 K	OP-MSHM010	114X7077	G	SC10MLX	27	570	730	920	1140	1410	1710	–	62	31
						32	510	650	820	1030	1270	1550	–		
						38	430	560	710	890	1110	1360	–		
						43	–	480	610	780	970	–	–		
		OP-MSHM012	114X7078	G	SC12MLX	27	700	890	1110	1380	1690	2060	–	62	31
						32	620	790	1000	1240	1530	1870	–		
						38	530	680	860	1080	1340	1640	–		
						43	–	590	750	940	1170	–	–		
		OP-MSHM015	114X7079	G	SC15MLX	27	870	1100	1370	1690	2070	2510	–	63	32
						32	770	980	1230	1540	1890	2300	–		
						38	660	850	1070	1340	1660	2040	–		
						43	–	730	940	1180	1470	–	–		
		OP-MSHM018	114X7080	G	SC18MLX	27	1010	1280	1590	1970	2410	2920	–	63	32
						32	900	1140	1440	1790	2200	2670	–		
						38	770	990	1250	1560	1930	2370	–		
						43	–	860	1090	1370	1710	–	–		
		OP-MSHM024	114X7097	G	CAJ9513Z	27	1400	1800	2300	2800	3400	4100	4800	67	36
						32	1250	1650	2050	2550	3100	3700	4400		
						38	1100	1400	1800	2250	2750	3300	3900		
						43	–	1250	1600	2000	2450	2950	3500		
		OP-MSHM026	114X7083	G	CAJ4517Z	27	1600	2050	2500	3100	3700	4400	5150	67	36
						32	1400	1800	2300	2800	3400	4000	4700		
			114X7093	E	TAJ4517Z	38	1200	1550	2000	2450	3000	3550	4200		
						43	–	1350	1750	2200	2650	3200	3750		
		OP-MSHM034	114X7084	G	CAJ4519Z	27	2000	2550	3100	3750	4450	5250	6100	68	37
						32	1800	2300	2800	3400	4100	4800	5600		
			114X7094	E	TAJ4519Z	38	1550	2000	2500	3000	3600	4250	4950		
						43	–	1750	2200	2700	3250	3800	4450		
		OP-MSUM034	114X7061	G	MLZ015	27	2500	3100	3750	4450	5250	6150	7100	69	38
						32	2250	2800	3400	4050	4800	5650	6550		
			114X7062	E		38	1950	2400	2950	3600	4250	5000	5800		
						43	1650	2100	2600	3150	3750	4450	5200		
		OP-MSUM046	114X7063	G	MLZ021	27	3400	4100	4950	5850	6800	7900	9100	69	38
						32	3100	3750	4500	5350	6250	7250	8400		
			114X7064	E		38	2750	3350	4000	4750	5550	6500	7500		
						43	2400	2950	3550	4200	4950	5800	–		
		OP-MSUM057	114X7065	G	MLZ026	27	4100	4900	5850	6900	8000	9200	10500	69	38
						32	3700	4500	5350	6250	7300	8400	9600		
			114X7066	E		38	3200	3900	4650	5500	6450	7450	8550		
						43	2800	3400	4100	4850	5700	6600	–		
		OP-MSUM068	114X7067	G	MLZ030	27	5400	6600	7950	9500	11200	13100	15200	70	39
						32	4950	6050	7300	8750	10350	12150	14100		
			114X7068	E		38	4400	5400	6550	7850	9300	10950	12800		
						43	3900	4800	5850	7050	8400	9900	11600		
		OP-MSUM080	114X7069	G	MLZ038	27	6300	7700	9250	11000	12950	15100	17500	70	39
						32	5800	7050	8500	10150	11950	13950	16200		
			114X7070	E		38	5100	6250	7550	9050	10700	12550	14600		
						43	4550	5600	6750	8100	9600	11300	13200		
		OP-MSUM099	114X7071	E	MLZ045	27	7400	9000	10800	12800	15000	17400	20000	70	39
						32	6750	8250	9900	11750	13800	16050	18500		
						38	5950	7250	8750	10450	12300	14350	16650		
						43	5250	6400	7750	9300	11000	12900	15000		
		OP-MSUM108	114X7072	E	MLZ048	27	8000	9700	11600	13700	16000	18550	21350	70	39
						32	7300	8850	10600	12550	14700	17050	19700		
						38	6400	7800	9350	11100	13050	15200	17650		
						43	5600	6900	8300	9850	11650	13650	–		

Test condition

	SH 10 K
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G compressor 220 V / 1phase / 50Hz, fan 220 V / 1phase / 50 Hz

MLZ type compressor models are scroll compressors.Cooling capacity is given for units with 3-phase compressor. Capacity of single-phase versions is within ± 1% of this value

Power consumption referred at 32 °C ambient temperature

Technical data and ordering

Optyma™ Slim Pack - R404A / R507 MBP

Unit	Condenser coil			Condenser fan Fan blade Ø [mm]	Receiver volume [L]	Power consumption [W] at evap. temp.		Housing	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]			-10 °C	5 °C		Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MSHM010	A7	2200	0.4	365	1.3	570	680	B1	680	950	443	3/8	1/4	53	41
OP-MSHM012	A7	2200	0.4	365	1.3	660	800	B1	680	950	443	3/8	3/8	53	41
OP-MSHM015	A7	2200	0.4	365	1.3	830	1020	B1	680	950	443	3/8	3/8	53	41
OP-MSHM018	A7	2200	0.4	365	1.3	910	1120	B1	680	950	443	3/8	3/8	53	41
OP-MSHM024	D7	3300	0.6	450	3.4	1050	1300	B2	695	1106	464	1/2	1/2	78	63
OP-MSHM026	D7	3300	0.6	450	3.4	1250	1550	B2	695	1106	464	1/2	1/2	78 76	63 61
OP-MSHM034	D7	3300	0.6	450	3.4	1550	2000	B2	695	1106	464	1/2	1/2	79 78	64 63
OP-MSUM034	D7	3300	0.6	450	3.4	1700	1750	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM046	D7	3300	0.6	450	3.4	2300	2550	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM057	D7	3300	0.6	450	3.4	3050	3450	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM068	G7	5200	1.8	500	6.2	3200	3450	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM080	G7	5200	1.8	500	6.2	3850	4250	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM099	G7	5200	1.8	500	6.2	4800	5400	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM108	G7	5200	1.8	500	6.2	5250	5850	B3	830	1106	464	7/8	1/2	96	87

Technical data and ordering

Optyma™ Slim Pack - R134a MBP

Fan	Test conditions	Unit	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Coling capacity range in [W] at evaporating temperature [°C]						Sound power level [dB (A)]	Sound pressure level full sphere 10 m [dB (A)]
							-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C		
	SH = 10 K	OP-MSUM034	114X7061	G	MLZ015	27	1800	2300	2850	3500	4200	5050	69	38
						32	1700	2150	2700	3300	4000	4800		
			114X7062	E		38	1600	2000	2500	3100	3750	4500		
						43	–	1900	2350	2900	3500	4250		
		OP-MSUM046	114X7063	G	MLZ021	27	2450	3100	3800	4650	5600	6650	69	38
						32	2350	2900	3600	4400	5300	6300		
			114X7064	E		38	2150	2700	3350	4100	4950	5900		
						43	–	2500	3150	3850	4650	5550		
		OP-MSUM057	114X7065	G	MLZ026	27	2950	3750	4600	5600	6700	7950	69	38
						32	2800	3500	4350	5300	6350	7550		
			114X7066	E		38	2600	3250	4050	4900	5900	7050		
						43	2400	3050	3750	4600	5550	6600		
		OP-MSUM068	114X7067	G	MLZ030	27	3750	4700	5850	7150	8650	10400	70	39
						32	3550	4450	5550	6800	8250	9900		
			114X7068	E		38	3300	4150	5150	6350	7750	9300		
						43	3100	3900	4850	6000	7300	8750		
		OP-MSUM080	114X7069	G	MLZ038	27	4350	5500	6800	8350	10050	12000	70	39
						32	4100	5200	6450	7900	9550	11450		
			114X7070	E		38	3800	4800	6000	7400	8950	10700		
						43	3550	4500	5650	6950	8400	10100		
		OP-MSUM099	114X7071	E	MLZ045	27	5350	6750	8350	10200	12300	14600	70	39
						32	5050	6350	7900	9650	11700	13900		
						38	4700	5900	7300	9000	10900	13000		
						43	4400	5500	6850	8400	10200	12200		
		OP-MSUM108	114X7072	E	MLZ048	27	5700	7100	8800	10750	12900	15300	70	39
						32	5350	6700	8300	10150	12250	14550		
						38	4950	6200	7700	9450	11400	13600		
						43	4600	5800	7200	8850	10700	12750		

Test condition

	SH 10 K
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G compressor 220 V / 1phase / 50Hz, fan 220 V / 1phase / 50 Hz

Power consumption referred at 32 °C ambient temperature

MLZ type compressor models are scroll compressors.Cooling capacity is given for units with 3-phase compressor.
Capacity of single-phase versions is within ± 1% of this value

Technical data and ordering

Optyma™ Slim Pack - R134a MBP

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Power consumption [W] at evap. temp.		Housing	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]		-10 °C	5 °C		Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MSUM034	D7	3300	0.6	450	3.4	1000	1050	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM046	D7	3300	0.6	450	3.4	1300	1450	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM057	D7	3300	0.6	450	3.4	1600	1850	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM068	G7	5200	1.8	500	6.2	1850	2000	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM080	G7	5200	1.8	500	6.2	2250	2450	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM099	G7	5200	1.8	500	6.2	2600	2900	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM108	G7	5200	1.8	500	6.2	2800	3150	B3	830	1106	464	7/8	1/2	96	87

Technical data and ordering

Optyma™ Slim Pack - R407A MBP

Fan	Test conditions	Unit	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Coling capacity range in [W] at evaporating temperature [°C]							Sound power level [dB (A)]	Sound pressure level full sphere 10 m [dB (A)]
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C		
	SH = 10 K	OP-MSUM034	114X7061	G	MLZ015	27	2300	2850	3550	4300	5200	6200	7350	69	38
						32	2100	2650	3300	4000	4850	5800	6900		
			114X7062	E		38	1850	2350	2950	3650	4450	5300	6350		
						43	–	2150	2700	3300	4050	4900	5850		
		OP-MSUM046	114X7063	G	MLZ021	27	2950	3700	4550	5550	6600	7850	9150	69	38
						32	2700	3400	4250	5150	6200	7300	8550		
			114X7064	E		38	2400	3100	3850	4700	5650	6700	7850		
						43	–	2750	3450	4250	5150	6150	–		
		OP-MSUM057	114X7065	G	MLZ026	27	3600	4500	5500	6650	7900	9300	10800	69	38
						32	3300	4150	5100	6150	7350	8650	10050		
			114X7066	E		38	2900	3700	4600	5550	6650	7850	9150		
						43	–	3300	4150	5050	6050	7150	–		
		OP-MSUM068	114X7067	G	MLZ030	27	4800	5950	7350	8950	10800	12850	15200	70	39
						32	4500	5550	6850	8350	10100	12050	14300		
			114X7068	E		38	4150	5100	6300	7650	9250	11100	13200		
						43	–	4750	5850	7100	8600	10300	12250		
		OP-MSUM080	114X7069	G	MLZ038	27	5500	6800	8350	10150	12250	14550	17150	70	39
						32	5150	6350	7800	9500	11450	13650	16100		
			114X7070	E		38	4750	5850	7150	8700	10500	12550	14850		
						43	–	5450	6650	8050	9700	11600	13800		
		OP-MSUM099	114X7071	E	MLZ045	27	6500	8200	10150	12350	14850	17600	20650	70	39
						32	5900	7500	9350	11450	13800	16400	19300		
						38	5150	6650	8350	10300	12500	14950	17650		
						43	–	5900	7500	9350	11400	13700	16250		
		OP-MSUM108	114X7072	E	MLZ048	27	7050	8900	11000	13350	16000	18900	22100	70	39
						32	6400	8100	10100	12350	14850	17600	20650		
						38	5600	7200	9000	11100	13450	16000	18900		
						43	–	6350	8100	10050	12200	14650	–		

Test condition

	SH 10 K
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G compressor 230 V / 1phase / 50Hz, fan 230 V / 1phase / 50 Hz

Power consumption referred at 32 °C ambient temperature

MLZ type compressor models are scroll compressors.Cooling capacity is given for units with 3-phase compressor.
Capacity of single-phase versions is within ± 1% of this value

Technical data and ordering

Optyma™ Slim Pack - R407A MBP *)

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Power consumption [W] at evap. temp.		Housing	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]		-10 °C	5 °C		Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MSUM034	D7	3300	0.6	450	3.4	1500	1700	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM046	D7	3300	0.6	450	3.4	2200	2650	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM057	D7	3300	0.6	450	3.4	2850	3550	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM068	G7	5200	1.8	500	6.2	2850	3150	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM080	G7	5200	1.8	500	6.2	3350	3750	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM099	G7	5200	1.8	500	6.2	4500	5150	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM108	G7	5200	1.8	500	6.2	5050	5800	B3	830	1106	464	7/8	1/2	96	87

Technical data and ordering

Optyma™ Slim Pack - R407F MBP

Fan	Test conditions	Unit	Code no.	Electrical code	Compressor	Amb. temp. [°C]	Coling capacity range in [W] at evaporating temperature [°C]							Sound power level [dB (A)]	Sound pressure level full sphere 10 m [dB (A)]
							-20 °C	-15 °C	-10 °C	-5 °C	0 °C	5 °C	10 °C		
	SH = 10 K	OP-MSUM034	114X7061	G	MLZ015	27	2450	3050	3750	4600	5500	6600	7750	69	38
						32	2250	2850	3500	4300	5150	6200	7300		
			114X7062	E		38	–	2550	3200	3900	4750	5650	6700		
						43	–	–	–	–	–	–	–		
		OP-MSUM046	114X7063	G	MLZ021	27	3150	3950	4850	5900	7050	8300	9650	69	38
						32	2900	3650	4550	5500	6550	7750	9050		
			114X7064	E		38	–	3300	4100	5000	6000	–	–		
						43	–	–	–	–	–	–	–		
		OP-MSUM057	114X7065	G	MLZ026	27	3850	4800	5850	7050	8400	9800	11350	69	38
						32	3550	4450	5450	6550	7800	9150	10600		
			114X7066	E		38	–	–	4900	5950	7050	–	–		
						43	–	–	–	–	–	–	–		
		OP-MSUM068	114X7067	G	MLZ030	27	5150	6400	7850	9500	11400	13600	16000	70	39
						32	4850	6000	7350	8900	10750	12800	15100		
			114X7068	E		38	–	5550	6800	8250	9900	11800	14000		
						43	–	–	–	–	–	–	–		
		OP-MSUM080	114X7069	G	MLZ038	27	5900	7300	8900	10800	12950	15350	18050	70	39
						32	5550	6850	8350	10150	12150	14450	17000		
			114X7070	E		38	–	6350	7700	9350	11200	13350	15750		
						43	–	–	–	–	–	–	–		
		OP-MSUM099	114X7071	E	MLZ045	27	7000	8750	10800	13100	15700	18550	21700	70	39
						32	6350	8050	10000	12200	14650	17350	20350		
						38	–	7150	9000	11050	13300	15850	18700		
						43	–	–	–	–	–	–	–		
		OP-MSUM108	114X7072	E	MLZ048	27	7550	9500	11700	14150	16900	19950	23250	70	39
						32	6900	8700	10800	13100	15750	18600	21750		
						38	–	7750	9650	11850	14300	–	–		
						43	–	–	–	–	–	–	–		

Test condition

	SH 10 K
Superheat:	*10 K*
Subcooling:	*0 K*

Electrical code

E: compressor 400 V / 3 phase / 50 Hz, fan 230 V / 1 phase / 50 Hz
G compressor 230 V / 1phase / 50Hz, fan 230 V / 1phase / 50 Hz

Power consumption referred at 32 °C ambient temperature

MLZ type compressor models are scroll compressors.Cooling capacity is given for units with 3-phase compressor.
Capacity of single-phase versions is within ± 1% of this value

Technical data and ordering

Optyma™ **Slim Pack - R407F MBP *)**

Unit	Condenser coil			Condenser fan	Receiver volume [L]	Power consumption [W] at evap. temp.		Housing	Dimensions [mm]			Line [in]		Weight [kg]	
	Type	Air flow [m³/h]	Int. volume [dm³]	Fan blade Ø [mm]		-10 °C	5 °C		Height H	Width W	Depth D	Suction	Liquid	Gross	Net
OP-MSUM034	D7	3300	0.6	450	3.4	1600	1850	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM046	D7	3300	0.6	450	3.4	2400	2900	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM057	D7	3300	0.6	450	3.4	3150	3900	B2	695	1106	464	3/4	1/2	74	66
OP-MSUM068	G7	5200	1.8	500	6.2	3050	3400	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM080	G7	5200	1.8	500	6.2	3600	4050	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM099	G7	5200	1.8	500	6.2	4900	5650	B3	830	1106	464	7/8	1/2	96	87
OP-MSUM108	G7	5200	1.8	500	6.2	5500	6400	B3	830	1106	464	7/8	1/2	96	87

Technical data and ordering

Optyma™ Slim Pack - MBP

Electrical characteristics - 230 V / 1phase - 50 Hz

Unit	Wiring diagram	LRA compressor (A) 230 V / 1 phase	MCC compressor (A) 230 V / 1 phase	Max cont. power consumption (kW)	MCC Fan (A) 230 V / 1 phase	Fan Power [W]
OP-MSHM010	WD 1	18.4	4.8	0.78	0.32	1x25
OP-MSHM012		23.4	5.7	0.93	0.32	1x25
OP-MSHM015		23.5	6.2	1.17	0.32	1x25
OP-MSHM018	WD 2	23.6	6.1	1.28	0.32	1x25
OP-MSHM024		33.5	10.2	1.75	0.47	1x68
OP-MSHM026		38.5	12.7	2	0.47	1x68
OP-MSHM034		45.0	15.2	2.74	0.47	1x68
OP-MSUM034	WD 3	60	19	2.53	0.47	1x68
OP-MSUM046		97	25	3.38	0.47	1x68
OP-MSUM057		97	26	4.42	0.47	1x68
OP-MSUM068	WD 4	127	32	4.89	0.97	1x130
OP-MSUM080		130	38	5.77	0.97	1x130

Optyma™ Slim Pack - MBP

Electrical characteristics - 400 V / 3phase - 50 Hz

Unit	Wiring diagram	LRA compressor (A) 400 V / 3phase	MCC compressor (A) 400 V / 3phase	Max cont. power consumption (kW)	MCC Fan (A) 230 V / 1 phase	Fan Power [W]
OP-MSHM026	WD 7	18	4	2.09	0.47	1x68
OP-MSHM034		22	4.8	2.7	0.47	1x68
OP-MSUM034	WD 6	30	7	2.73	0.47	1x68
OP-MSUM046		45	9.5	3.33	0.47	1x68
OP-MSUM057		45	10	4.14	0.47	1x68
OP-MSUM068	WD 5	60	13	4.88	0.97	1x130
OP-MSUM080		70	15	5.78	0.97	1x130
OP-MSUM099		82	15	7.01	0.97	1x130
OP-MSUM108		87	16	7.55	0.97	1x130

Note:
LRA: Locked Rotor Amps
MCC: Maximum Continuous Current

Optyma™ Slim Pack - MBP

Spare parts

Unit	Compressor			Filter drier *)		Sight glass		Receiver [L]		Condenser	Dual Pressure switch	
	Model	1 phase	3 phases									
OP-MSHM010	SC10MLX	195B0345	–	DML083	023Z5040	SGP 10s N	014L0182	1.3	118U3474	118U3492	KP 17 WB	060-539766
OP-MSHM012	SC12MLX	195B0323	–	DML083	023Z5040	SGP 10s N	014L0182	1.3	118U3474	118U3492	KP 17 WB	060-539766
OP-MSHM015	SC15MLX	195B0391	–	DML083	023Z5040	SGP 10s N	014L0182	1.3	118U3474	118U3492	KP 17 WB	060-539766
OP-MSHM018	SC18MLX	195B0624	–	DML083	023Z5040	SGP 10s N	014L0182	1.3	118U3474	118U3492	KP 17 WB	060-539766
OP-MSHM024	CAJ9513Z	118U3912	–	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-MSHM026	CAJ4517Z / TAJ4517Z	118U3810	118U3770	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-MSHM034	CAJ4519Z / TAJ4519Z	118U3811	118U3751	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-MSUM034	MLZ015	121U8024	121U8002	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-MSUM046	MLZ021	121U8028	121U8006	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-MSUM057	MLZ026	121U8030	121U8008	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-MSUM068	MLZ030	121U8032	121U8010	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766
OP-MSUM080	MLZ038	121U8034	121U8012	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766
OP-MSUM099	MLZ045	–	121U8014	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766
OP-MSUM108	MLZ048	–	121U8016	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766

**) Filter drier DCL (appropriate model and size) can be used as a service replacememnt of DML*

Technical data and ordering

Optyma™ **Slim Pack - MBP**

Spare parts

Unit	Fan capacitor [µF]		Fan motor [W] (capacitor not included)		Fan blad [mm]		Fan grill		Crankcase heater		Suction valve [in]		Liquid valve [in]	
OP-MSHM010	1.8	118U3296	25	118U3477	365	118U3480	B1	118U3483	Belt 50 W	120Z0057	3/8 brazed	118U3414	1/4 brazed	118U3413
OP-MSHM012	1.8	118U3296	25	118U3477	365	118U3480	B1	118U3483	Belt 50 W	120Z0057	3/8 brazed	118U3414	3/8 brazed	118U3414
OP-MSHM015	1.8	118U3296	25	118U3477	365	118U3480	B1	118U3483	Belt 50 W	120Z0057	3/8 brazed	118U3414	3/8 brazed	118U3414
OP-MSHM018	1.8	118U3296	25	118U3477	365	118U3480	B1	118U3483	Belt 50 W	120Z0057	3/8 brazed	118U3414	3/8 brazed	118U3414
OP-MSHM024	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 50 W	120Z0057	1/2 brazed	118U3761	1/2 brazed	118U3761
OP-MSHM026	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 50 W	120Z0057	1/2 brazed	118U3761	1/2 brazed	118U3761
OP-MSHM034	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 50 W	120Z0057	1/2 brazed	118U3761	1/2 brazed	118U3761
OP-MSUM034	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 70 W	120Z5040	3/4 brazed	118U3762	1/2 brazed	118U3761
OP-MSUM046	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 70 W	120Z5040	3/4 brazed	118U3762	1/2 brazed	118U3761
OP-MSUM057	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 70 W	120Z5040	3/4 brazed	118U3762	1/2 brazed	118U3761
OP-MSUM068	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	7/8 brazed	118U3763	1/2 brazed	118U3761
OP-MSUM080	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	7/8 brazed	118U3763	1/2 brazed	118U3761
OP-MSUM099	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	7/8 brazed	118U3763	1/2 brazed	118U3761
OP-MSUM108	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	7/8 brazed	118U3763	1/2 brazed	118U3761

**) For B3 models produced before the 26th week of 2014 fan parts are the following:*
Fan capacitor - 118U3298 (6 µF)
Fan motor - 118U3479 (130 W)
Fan blade - 118U3833 (f24")

Optyma™ **Slim Pack - MBP**

Accessory

Unit	Acoustic hood	Fan speed control	Oil
OP-MSHM010	N/A	061H3142	N/A
OP-MSHM012	N/A	061H3142	N/A
OP-MSHM015	N/A	061H3142	N/A
OP-MSHM018	N/A	061H3142	N/A
OP-MSHM024	N/A	061H3142	N/A
OP-MSHM026	N/A	061H3142	N/A
OP-MSHM034	N/A	061H3142	N/A
OP-MSUM034	120Z5043	061H3142	120Z5034
OP-MSUM046	120Z5043	061H3142	120Z5034
OP-MSUM057	120Z5043	061H3142	120Z5034
OP-MSUM068	120Z5044	061H3142	120Z5034
OP-MSUM080	120Z5044	061H3142	120Z5034
OP-MSUM099	120Z5044	061H3142	120Z5034
OP-MSUM108	120Z5044	061H3142	120Z5034

Technical data and ordering

Optyma™ **Slim Pack - LBP**

Electrical characteristics - 230 V / 1phase - 50 Hz

Unit	Wiring diagram	LRA compressor [A] 230 V / 1 phase	MCC compressor [A] 230 V / 1 phase	Max cont. power consumption [kW]	MCC Fan [A] 230 V /1 phase	Fan Power [kW]
OP-LSHM015	WD 1	19.6	4.7	0.95	0.32	1x25
OP-LSHM018		23.5	5.3	1.07	0.32	1x25
OP-LSHM026	WD 2	29	7.9	1.4	0.47	1x68
OP-LSHM034		40	10	1.87	0.47	1x68
OP-LSHM048		37	11	2.19	0.47	1x68
OP-LSHM074		81	24	3.45	0.47	1x68
OP-LSHM068		53	17	3.62	0.47	1x68

Optyma™ **Slim Pack - LBP**

Electrical characteristics - 400 V / 3phase - 50 Hz

Unit	Wiring diagram	LRA compressor [A] 400 V / 3 phase	MCC compressor [A] 400 V / 3 phase	Max cont. power consumption [kW]	MCC Fan [A] 230 V / 1 phase	Fan Power [kW]
OP-LSHM048	WD 7	16	4.8	2.28	0.47	1x68
OP-LSHM074		28	7.2	3.34	0.47	1x68
OP-LSHM068		25	8.4	3.57	0.47	1x68
OP-LSHM067	WD5	62	12	4.59	0.97	1x130
OP-LSHM084		88.5	15	5.49	0.97	1x130
OP-LSHM098		90	14.4	6.2	0.97	1x130

Note:
LRA: Locked Rotor Amps
MCC: Maximum Continuous Current

Optyma™ **Slim Pack - LBP**

Spare parts

Unit	Compressor			Filter drier *)		Sight glass		Receiver [L]		Condenser	Dual Pressure switch	
	Model	1 phase	3 phases									
OP-LSHM015	SC15CLX.2	195B0399	–	DML083	023Z5040	SGP 10s N	014L0182	1.3	118U3474	118U3492	KP 17 WB	060-539766
OP-LSHM018	SC18CLX.2	195B0332	–	DML083	023Z5040	SGP 10s N	014L0182	1.3	118U3474	118U3492	KP 17 WB	060-539766
OP-LSHM026	CAJ2446Z	118U3779	–	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-LSHM034	CAJ2464Z	118U3769	–	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-LSHM048	NTZ048	120F0087	120F0001	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-LSHM074	FH2511Z	118U3914	–	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
	TFH2511Z	–	118U3915	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-LSHM068	NTZ068	120F0088	120F0002	DML084	023Z5041	SGP 12 N	014L0173	3.4	118U3475	118U3493	KP 17 WB	060-539766
OP-LSHM067	LLZ013	–	121L9517	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766
OP-LSHM084	LLZ015	–	121L9513	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766
OP-LSHM098	LLZ018	–	121L9509	DML164	023Z5044	SGP 12 N	014L0173	6.2	118U3476	118U3494	KP 17 WB	060-539766

**) Filter drier DCL (appropriate model and size) can be used as a service replacememnt of DML*

Technical data and ordering

Optyma™ Slim Pack - LBP

Spare parts

Unit	Fan capacitor [µF]		Fan motor [W] (capacitor not included)		Fan blade [mm]		Fan grill		Crankcase heater		Suction valve [in]		Liquid valve [in]	
OP-LSHM015	1.8	118U3296	25	118U3477	365	118U3480	B1	118U3483	Belt 50 W	120Z0057	3/8 brazed	118U3414	3/8 brazed	118U3414
OP-LSHM018	1.8	118U3296	25	118U3477	365	118U3480	B1	118U3483	Belt 50 W	120Z0057	3/8 brazed	118U3414	3/8 brazed	118U3414
OP-LSHM026	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 50 W	120Z0057	1/2 brazed	118U3761	1/2 brazed	118U3761
OP-LSHM034	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	Belt 50 W	120Z0057	1/2 brazed	118U3761	1/2 brazed	118U3761
OP-LSHM048	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	PTC 35 W	120Z0459	5/8 brazed	118U3764	1/2 brazed	118U3761
OP-LSHM074	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	PTC 35 W	120Z0459	5/8 brazed	118U3764	1/2 brazed	118U3761
OP-LSHM068	3.5	118U3297	68	118U3823	450	118U3481	B2	118U3484	PTC 35 W	120Z0459	5/8 brazed	118U3764	1/2 brazed	118U3761
OP-LSHM067	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	3/4 brazed	118U3762	1/2 brazed	118U3761
OP-LSHM084	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	3/4 brazed	118U3762	1/2 brazed	118U3761
OP-LSHM098	5	included	130	Full fan assembly *) 118U3829 (500 mm)			B3	118U3485	Belt 70 W	120Z5040	3/4 brazed	118U3762	1/2 brazed	118U3761

**) For B3 models produced before the 26th week of 2014 fan parts are the following:*
Fan capacitor - 118U3298 (6 µF)
Fan motor - 118U3479 (130 W)
Fan blade - 118U3833 (f24")

Optyma™ Slim Pack - LBP

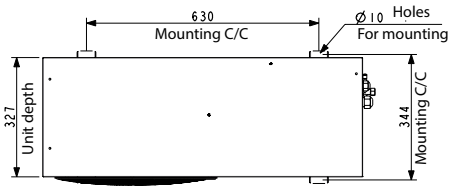
Accessory

Unit	Acoustic hood	Fan speed control	Oil
OP-LSHM015	N/A	061H3142	N/A
OP-LSHM018	N/A	061H3142	N/A
OP-LSHM026	N/A	061H3142	N/A
OP-LSHM034	N/A	061H3142	N/A
OP-LSHM048	120Z0471	061H3142	7754019
OP-LSHM074	N/A	061H3142	N/A
OP-LSHM068	120Z0471	061H3142	7754019
OP-LSHM067	120Z5052 **)	061H3142	120Z5034
OP-LSHM084	120Z5052 **)	061H3142	120Z5034
OP-LSHM098	120Z5052 **)	061H3142	120Z5034

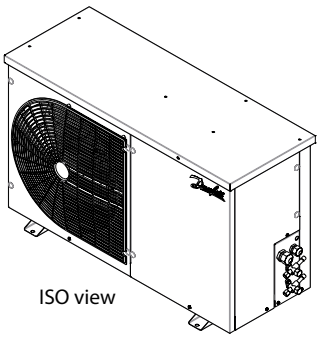
***) Acoustic hood is included*

Dimensions

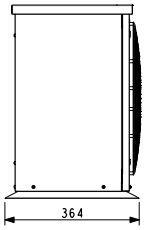
Housing B1



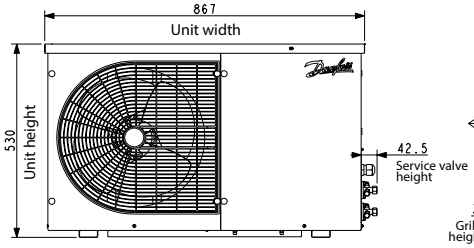
Top view



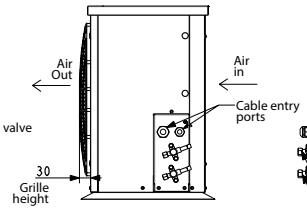
ISO view



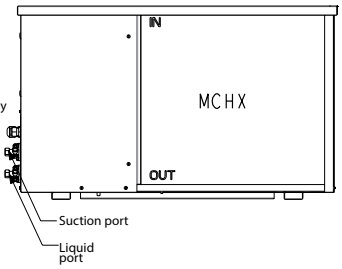
LH view



Front view

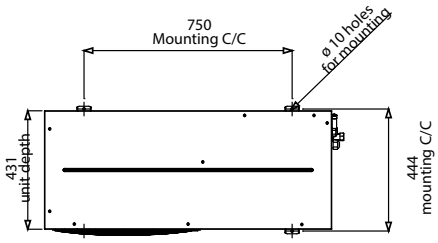


RH view

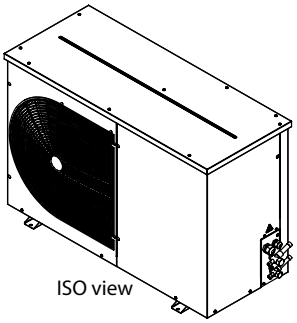


Back view

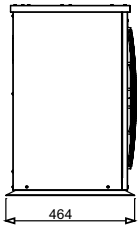
Housing B2



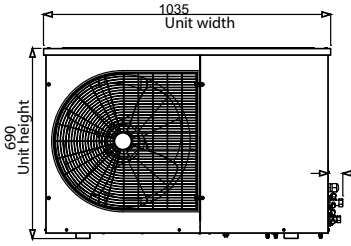
Top view



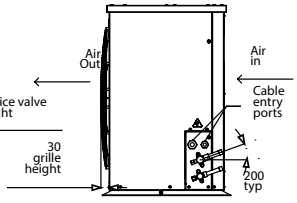
ISO view



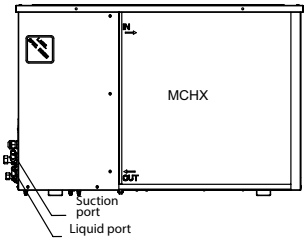
LH view



Front view



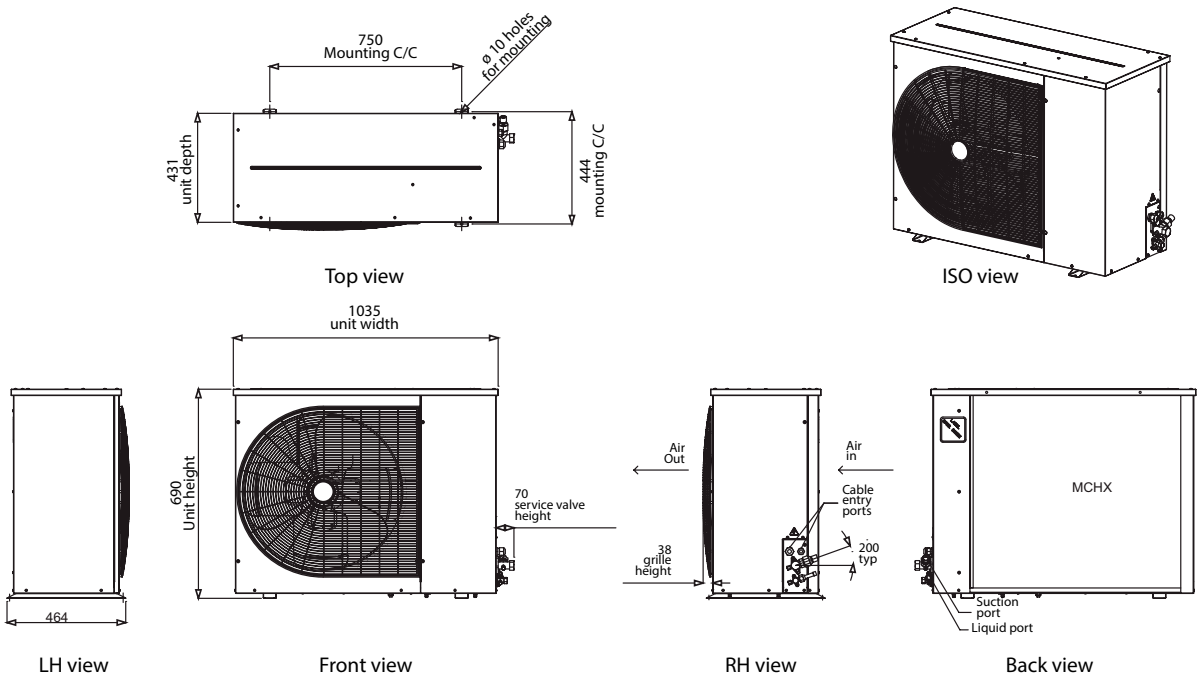
RH view



Back view

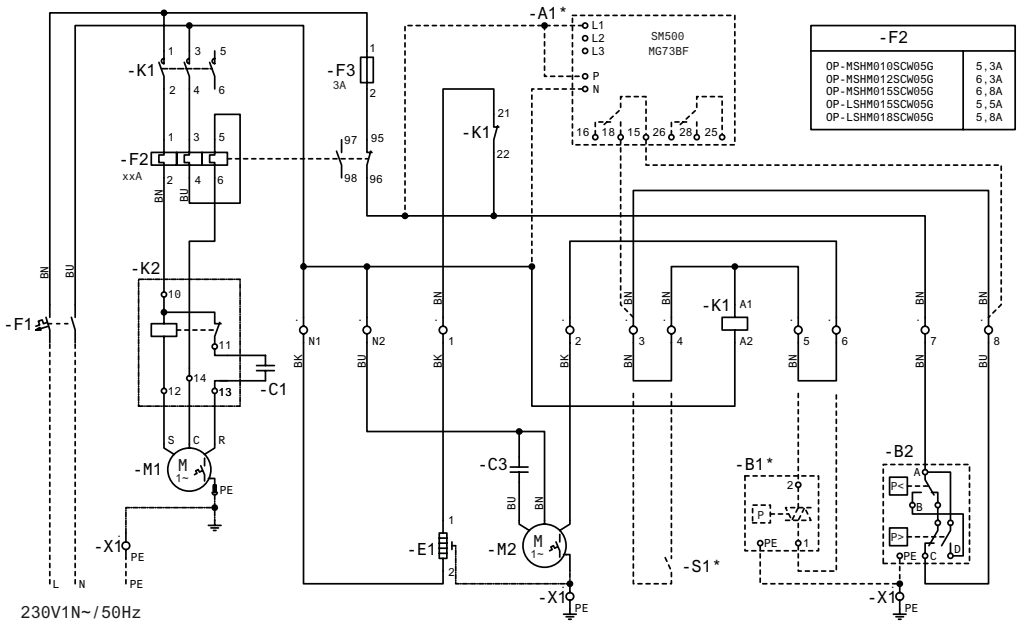
Dimensions

Housing B3



Wiring diagram

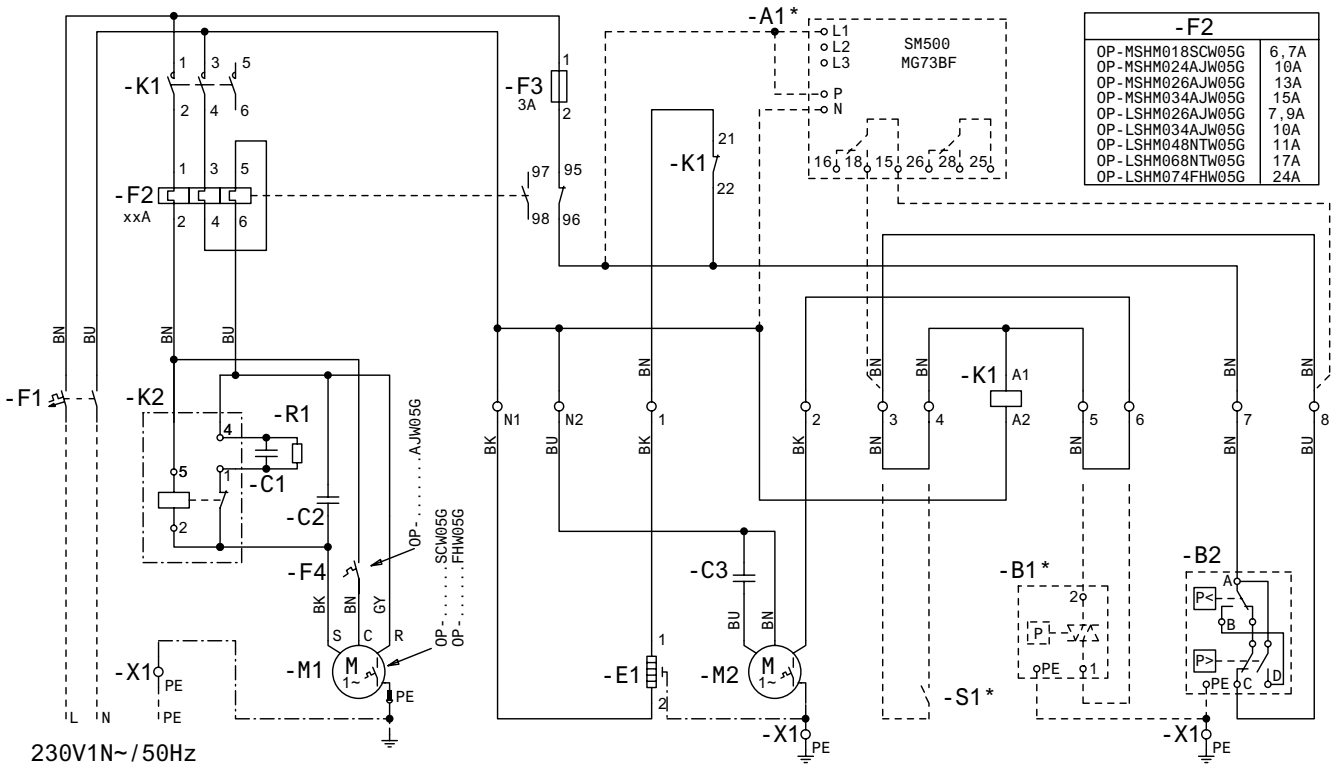
Code G : OP-MSHM010- 012 - 015, OP-LSHM015 - 018



-F2	
OP-MSHM010SCW05G	5,3A
OP-MSHM012SCW05G	6,3A
OP-MSHM015SCW05G	6,8A
OP-LSHM015SCW05G	5,5A
OP-LSHM018SCW05G	5,8A

WD 1

Code G : OP-LSHM026 - 034 - 048 - 074 - 068, OP-MSHM018 - 024 - 026 - 034



-F2	
OP-MSHM018SCW05G	6,7A
OP-MSHM024AJW05G	10A
OP-MSHM026AJW05G	13A
OP-MSHM034AJW05G	15A
OP-LSHM026AJW05G	7,9A
OP-LSHM034AJW05G	10A
OP-LSHM048NTW05G	11A
OP-LSHM068NTW05G	17A
OP-LSHM074FHW05G	24A

WD 2

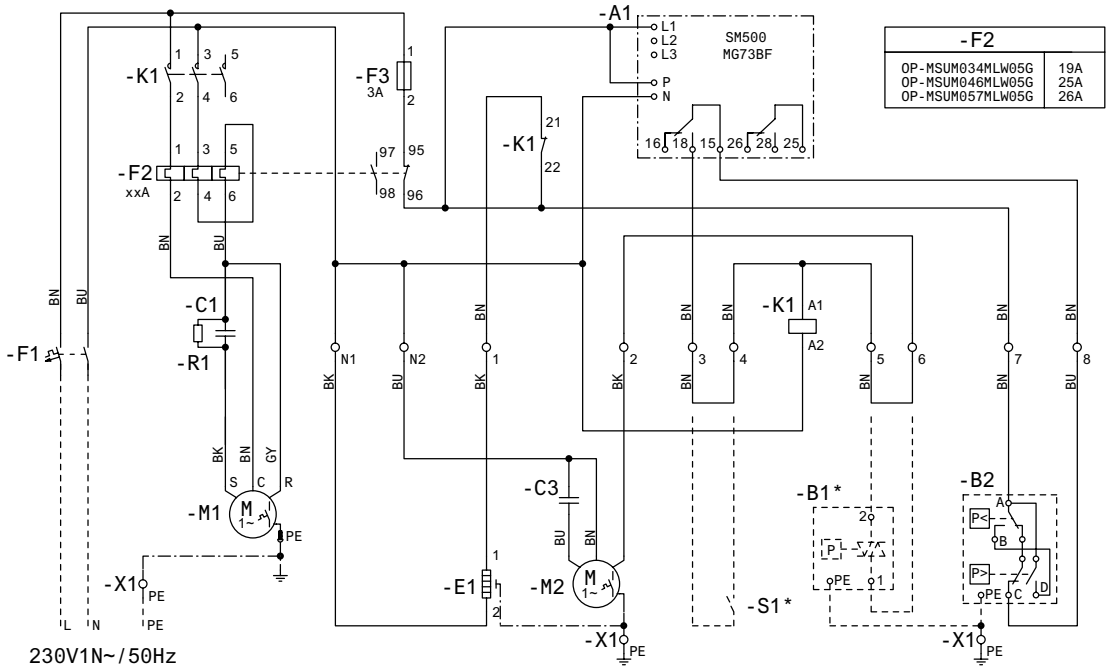
BK) *black*
BU) *blue*
BN) *brown*
GY) *grey*
RD) *red*
WH) *white*

A1*) *Voltage relay (option)*
B1*) *Fan speed controller (option)*
B2) *High and Low pressure switch*
C1) *Start capacitor compressor*
C2) *WD1:Start capacitor compressor*
WD2: Run capacitor compressor
C3) *Run capacitor fan*
E1) *Crankcase heater*
F1) *Main switch*
F2) *Overload relay*
F3) *Fuse control circuit*

F4) *Compressor thermal protector*
M1) *Compressor*
M2) *Fan motor*
K1) *Contactor*
K2) *Start relay*
R1) *Bleeder resistor*
S1*) *Room thermostat (option)*
X1) *Terminals*
****)*** *Option (remove bridge)*

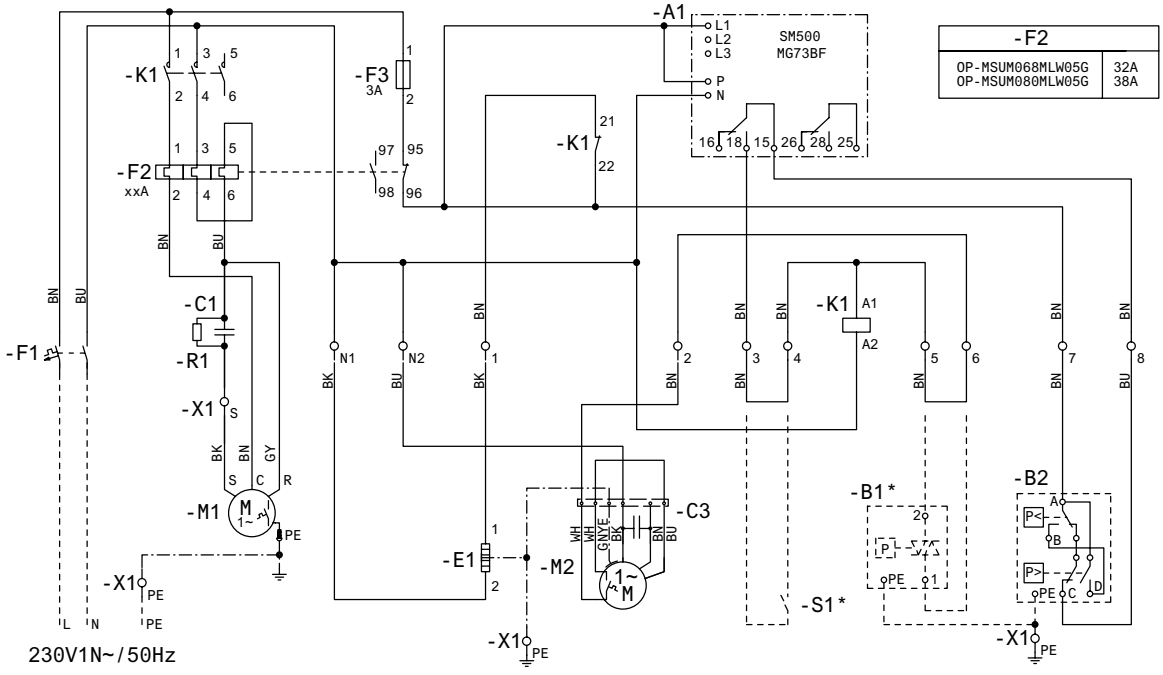
Wiring diagram

Code G : OP-MSUM034 - 046 - 057



WD 3

Code G : OP-MSUM068 - 080



WD 4

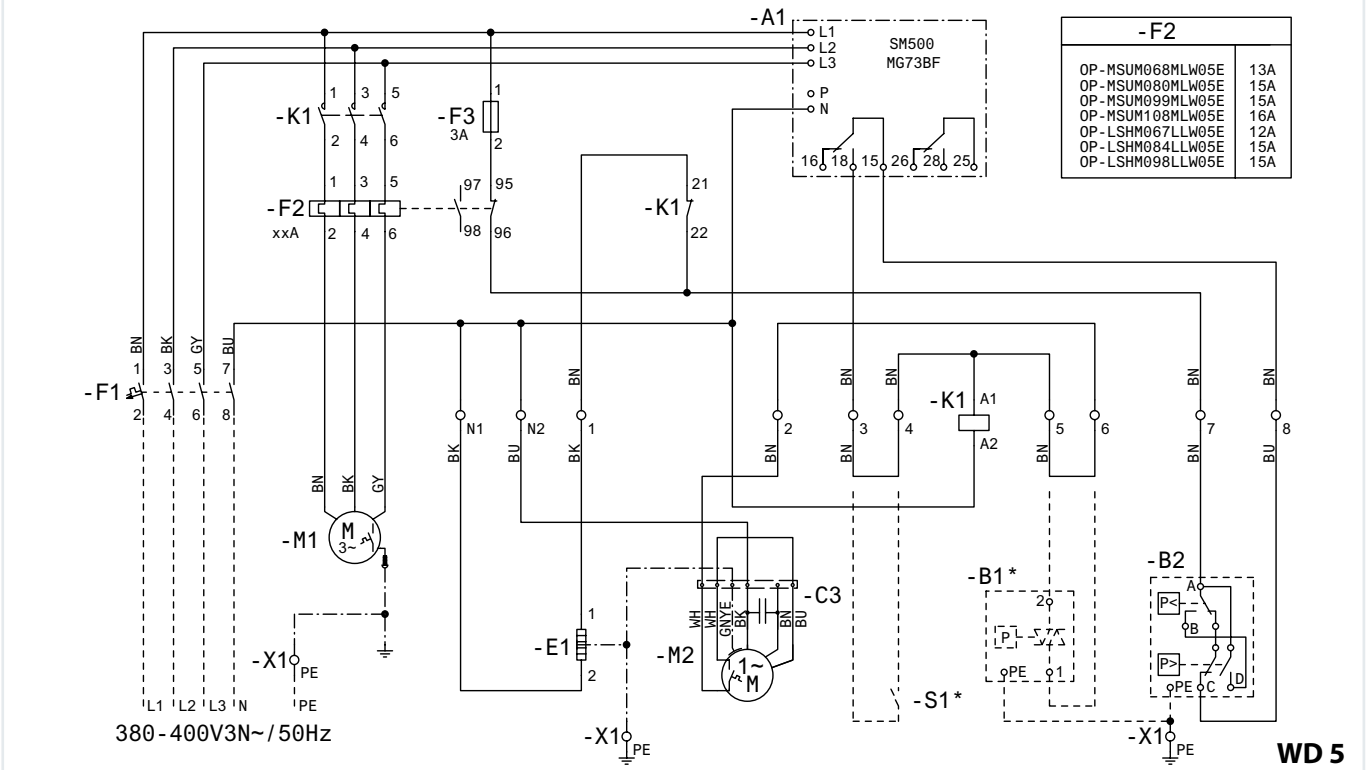
BK)	*black*
BU)	*blue*
BN)	*brown*
GY)	*grey*
RD)	*red*
WH)	*white*

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*

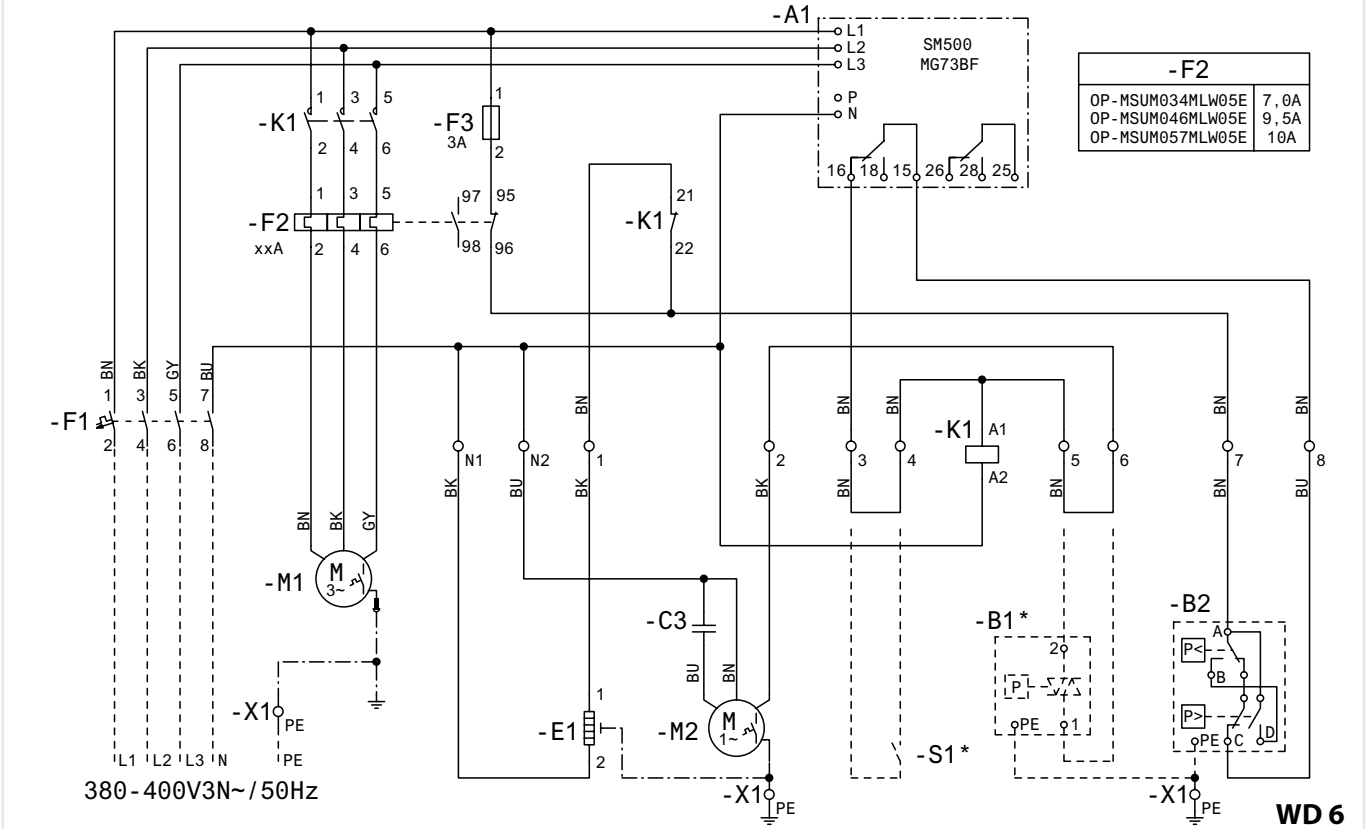
M1)	*Compressor*
M2)	*Fan motor*
K1)	*Contactor*
K2)	*Start relay*
R1)	*Bleeder resistor*
S1*)	*Room thermostat (option)*
X1)	*Terminals*
****)***	*Option (remove bridge)*

Wiring diagram

Code E : OP-MSUM068 - 080 - 099 - 108, OP-LSHM067 - 084 - 098



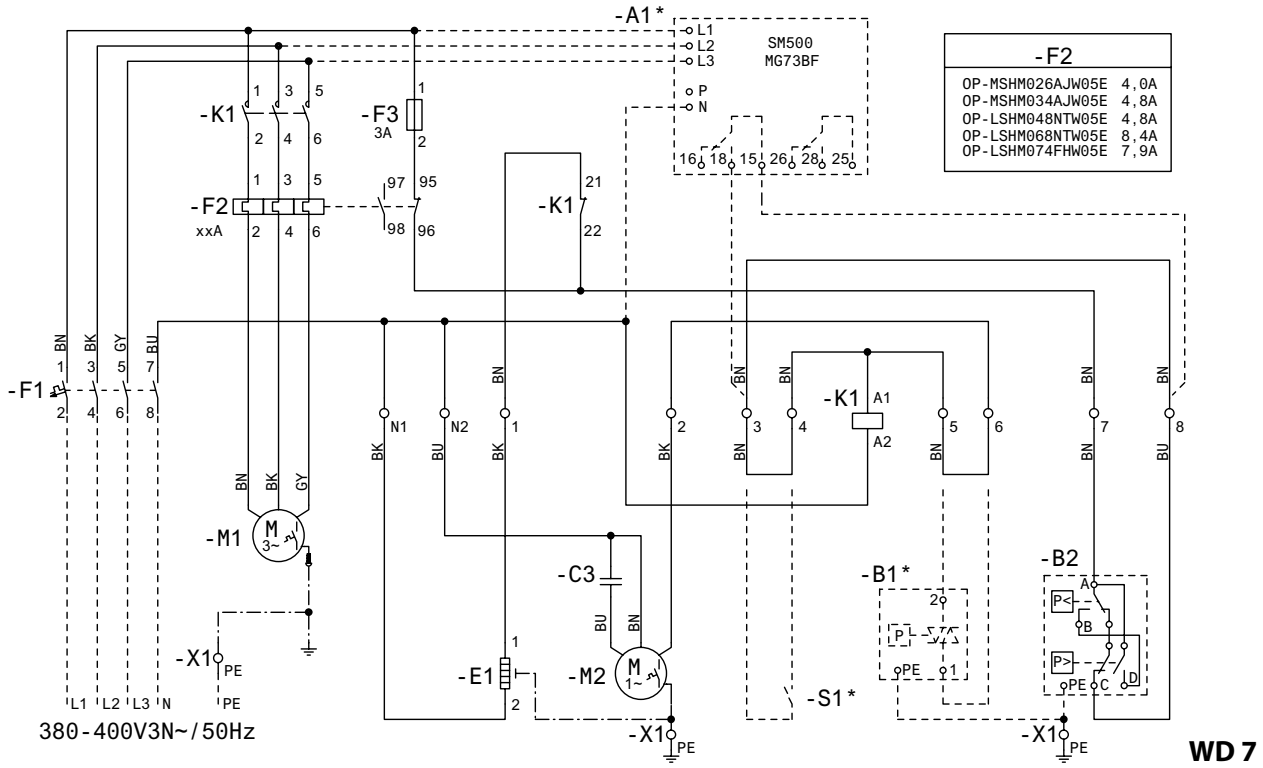
Code E : OP-MSUM034 - 046 - 057



BK)	*black*	***A1)***	*Voltage relay*	***M1)***	*Compressor*
BU)	*blue*	***B1*)***	*Fan speed controller (option)*	***M2)***	*Fan motor*
BN)	*brown*	***B2)***	*High and Low pressure switch*	***K1)***	*Contactor*
GY)	*grey*	***C3)***	*Run capacitor fan*	***K2)***	*Start relay*
RD)	*red*	***E1)***	*Crankcase heater*	***S1*)***	*Room thermostat (option)*
WH)	*white*	***F1)***	*Main switch*	***X1)***	*Terminals*
		F2)	*Overload relay*	****)***	*Option (remove bridge)*
		F3)	*Fuse control circuit*		

Wiring diagram

Code E : OP-LSHM048 - 074 - 068, OP-MSHM026 - 034

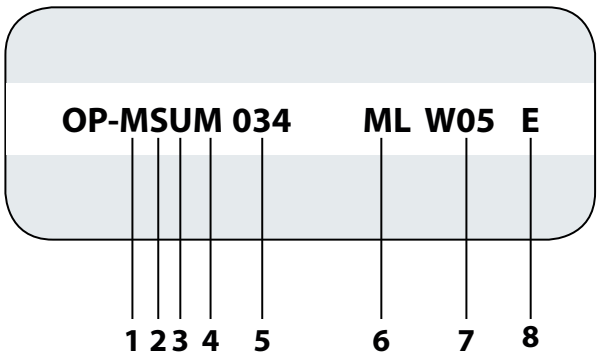


BK)	*black*	***A1*)***	*Voltage relay (option)*	***M1)***	*Compressor*
BU)	*blue*	***B1*)***	*Fan speed controller (option)*	***M2)***	*Fan motor*
BN)	*brown*	***B2)***	*High and Low pressure switch*	***K1)***	*Contactor*
GY)	*grey*	***C3)***	*Run capacitor fan*	***K2)***	*Start relay*
RD)	*red*	***E1)***	*Crankcase heater*	***S1*)***	*Room thermostat (option)*
WH)	*white*	***F1)***	*Main switch*	***X1)***	*Terminals*
		F2)	*Overload relay*	****)***	*Option (remove bridge)*
		F3)	*Fuse control circuit*		

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	Condensing unit family	S = Optyma™ **Slim Pack**
3	Refrigerant	U = R134a / R404A / R507 / R22 / R407A / R407F H = R404A / R507
4	Condenser type	M = Standard with micro channel heat exchanger
5	Displacement	cm^3
6	Compressor platform	SC = SC reciprocating AJ = CAJ / TAJ reciprocating ML = MLZ scroll NT = NTZ reciprocating LL = LLZ scroll
7	Version	W05
8	Voltage code:	G = 230 V / 1ph compressor and fan E = 400 V / 3ph compressor and 230 V / 1ph fan

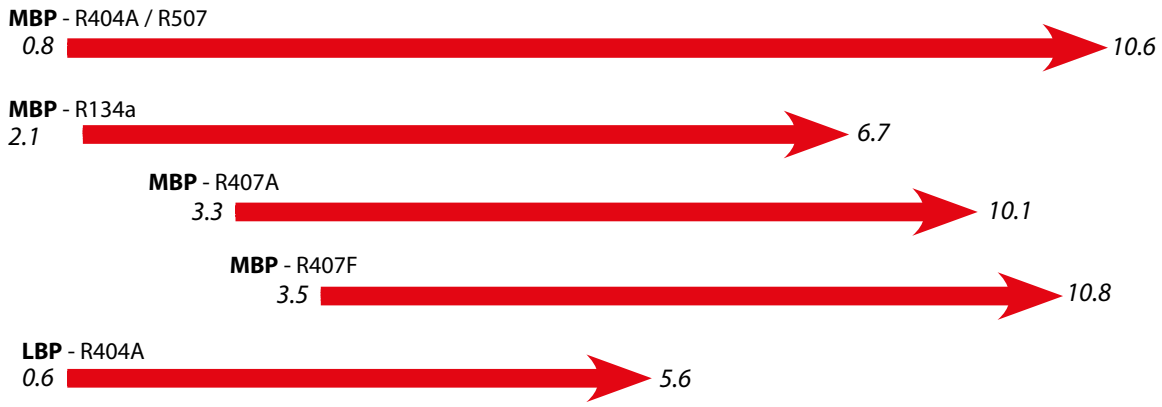
Quick selection

Select the right Danfoss Optyma™ **Slim Pack** condensing unit according to your needs

Model and cooling capacity by cold room type	Meat 1 °C – 18 h		Fish 1 °C – 18 h		Laboratory 12 °C – 18 h		Fruit & vegetables 8 °C – 18 h		Fruit & vegetables 0 °C – 18 h		Butter, eggs & cheese 5 °C – 18 h		Freezers -18 °C – 16 h	
	Cap. *) [W]	CR **) [m³]	Cap. *) [W]	CR **) [m³]	Cap. *) [W]	CR **) [m³]	Cap. *) [W]	CR **) [m³]	Cap. *) [W]	CR **) [m³]	Cap. *) [W]	CR **) [m³]	Cap. *) [W]	CR **) [m³]
OP-MSHM010	900	6	900	6	1270	8	1270	17	900	7	1030	9	–	–
OP-MSHM012	1090	8	1090	8	1530	10	1530	25	1090	8	1240	12	–	–
OP-MSHM015	1350	11	1350	11	1890	13	1890	30	1350	12	1530	16	–	–
OP-MSHM018	1570	14	1570	14	2200	15	2200	40	1570	14	1790	20	–	–
OP-MSHM024	2280	20	2280	20	3100	20	3100	60	2280	20	2250	25	–	–
OP-MSHM026	2600	22	2600	22	3500	22	3500	70	2600	22	2900	35	–	–
OP-MSHM034	3200	30	3200	30	4300	30	4300	90	3200	30	3600	45	–	–
OP-MSUM034	3700	45	3700	45	4800	40	4800	120	3700	45	4050	65	–	–
OP-MSUM046	4850	60	4850	60	6250	60	6250	180	4850	65	5350	85	–	–
OP-MSUM057	5500	75	5500	75	7300	75	7300	210	5500	75	6250	110	–	–
OP-MSUM068	7850	110	7850	110	10350	150	10350	280	7850	120	8750	160	–	–
OP-MSUM080	9100	140	9100	140	11950	180	11950	350	9100	140	10150	200	–	–
OP-MSUM099	10800	170	10800	170	13800	210	13800	430	10800	170	11750	245	–	–
OP-MSUM108	11350	180	11350	180	14700	220	14700	450	11350	180	12550	260	–	–
OP-LSHM015	–	–	–	–	–	–	–	–	–	–	–	–	680	2
OP-LSHM018	–	–	–	–	–	–	–	–	–	–	–	–	750	3
OP-LSHM026	–	–	–	–	–	–	–	–	–	–	–	–	1200	6
OP-LSHM034	–	–	–	–	–	–	–	–	–	–	–	–	1500	9
OP-LSHM048	–	–	–	–	–	–	–	–	–	–	–	–	1850	16
OP-LSHM074	–	–	–	–	–	–	–	–	–	–	–	–	2600	25
OP-LSHM068	–	–	–	–	–	–	–	–	–	–	–	–	2750	30
OP-LSHM067	–	–	–	–	–	–	–	–	–	–	–	–	4100	50
OP-LSHM084	–	–	–	–	–	–	–	–	–	–	–	–	4900	60
OP-LSHM098	–	–	–	–	–	–	–	–	–	–	–	–	5650	70

Data refers to 32 °C ambient temperature
Refer to Danfoss for different working conditions
Application - Cold room Temperature - Daily working hours
**) Cooling capacity at 32 °C ambient temperature*
***) Volume of cold room*

Optyma™ **Slim Pack - COOLING CAPACITY RANGE [kW]**



Conditions:	***MBP***	***LBP***
Ambient temperature:	*32 °C*	*32 °C*
Evaporating temperature:	*-10 °C*	*-25 °C*

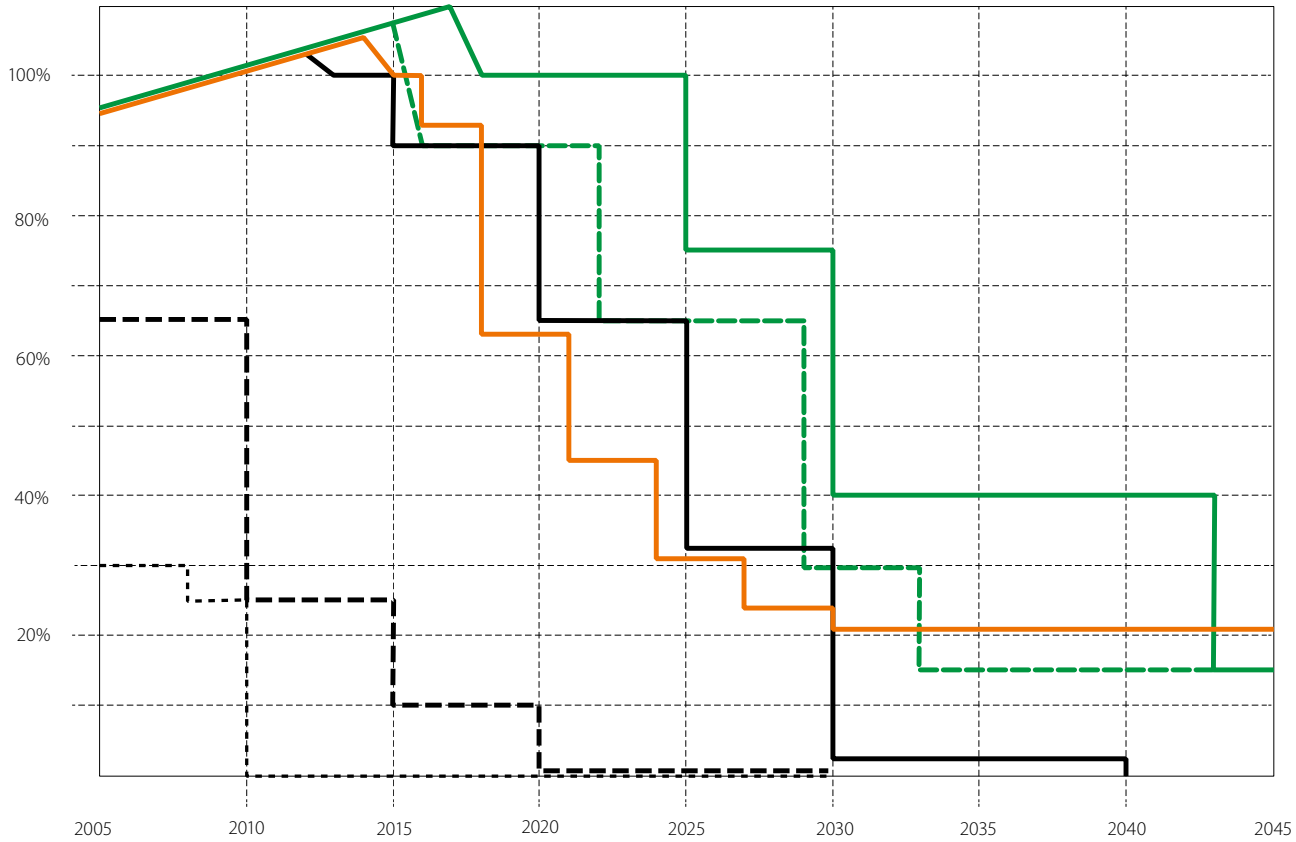
Optyma™ Slim Pack units can work in the following evaporating temperature range:

MBP R404A / R507	*-20 – 10 °C*
MBP R407A / R407F	*-20 – 10 °C*
MBP R134a	*-15 °C – 15 °C*
LBP R404A / R507	*-40 °C – -10 °C*

For further detailed information, please contact Danfoss

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.



HCFC Phase-out
US, other developed countries
EU regulations
Developing countries

HFC Phase-down
(US Proposal)
US, other developed countries
Developing countries

HFC Phase-down
(Proposal by EU Commission)
EU F-gas regulations

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 / Region	Refrigeration										Air Conditioning			
		Domestic – household refrigerators		Mobile – containers, trucks		Light Commercial		Commercial		Industrial		Air Conditioning		Heat pumps	
		50 – 300 W		100 – 10,000 W		150 – 5,000 W		> 5,000 W		> 100,000 W		All		All	
		Today	2020	Today	2020	Today	2020	Today	2020	Today	2020	Today	2020	Today	2020
CO_2	Europe														
	North America														
	Rest of the world														
NH_3	Europe														
	North America														
	Rest of the world														
HC	Europe														
	North America														
	Rest of the world														
HFC	Europe														
	North America														
	Rest of the world														
Mildly flammable HFC and HFO	Europe														
	North America														
	Rest of the world														

Main refrigerant
Some use
Limited use and only niche applications
Not applicable or unclear situation

Refrigerant benefits in your application

The refrigeration and air conditioning industry has made tremendous progress over the past two decades in reducing the use of ozone-depleting refrigerants. Seen from a global perspective, the tendency is that the industry is moving more and more toward natural refrigerants where this is technologically feasible. Synthetic refrigerants are still likely to play a large role in the refrigeration and air conditioning industry, but this will be in minimal charge systems and with new low-GWP substances. Parameters such as efficiency, safety, environmental impact, relatively short atmospheric lifetimes, chemical properties and economy all influence the choice of future refrigerant options. Below is a brief overview of the refrigerant benefits in various applications.

CO_2 (R744)

- The low-GWP nature of CO_2 lends itself well to **food retail applications**, where there is a minimal impact in case of leaks and where the thermodynamic properties make it the ideal media for heat recovery
- Transcritical CO_2 cycles reject a large proportion of the cycle heat at high temperatures which makes it suitable for **heat pumps**
- In **industrial refrigeration**, CO_2 provides a means to reduce the charge of Ammonia, increase efficiency and decrease the footprint of freezing equipment
- In **transport refrigeration, light commercial applications** and **electronics cooling**, CO_2 provides a non-flammable, environmentally benign solution

Ammonia (NH_3)

- 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 safe and sustainable choice for the future
- Ammonia has better **heat transfer properties** than most of chemical refrigerants and therefore plant construction cost will be lower. These properties also benefit the thermodynamic efficiency in the system, hence it reduces the operating costs
- With a GWP and ODP (Ozone Depletion Potential) equal to zero ammonia is a very **environmentally friendly refrigerant**
- In many countries the cost of ammonia (per kg) is considerably lower than the cost of HFCs

Hydrocarbons (R290, R600)

- Provides high energy-efficiency and capacities compared to HFCs
- The flammability limits the use to **small systems** and **chillers** (e.g. **chillers for food retail systems** or for **air conditioning** for a whole 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)

HFC

- A transitional solution that can be used in retrofitting high-GWP HFC systems. Typically R407A / F replacing R404A

Mildly flammable HFC & HFO

- The low GWP and low flammability makes it suitable for **relatively large systems**
- Especially interesting for **air conditioning** where there is a lack of ultra low-GWP natural alternatives
- Also suitable for **refrigeration** systems where traditional HFC system design can be used with minor modifications (often with a minor performance decrease)

Products for low GWP refrigerants

Danfoss' approval process

Danfoss uses a thorough approval process when releasing products for flammable refrigerants. The major steps includes:

- Ensure compliance with the EU Pressure Equipment Regulation 97 / 23 / EC (PED) for fluid group I. Attain 3rd party approval if needed
- Evaluate ignition sources for compliance with ATEX zone 2. Attain 3rd party approval if needed
- Evaluate or test chemical compatibility between elastomers and the specific flammable refrigerants in question
- Update internal documentation to ensure future product changes will take flammability into account
- Update literature, capacity tables and other relevant documentation for Danfoss customers

The approval process is one part of the continuous risk evaluation process that guides our approach to flammable refrigerants. This process continuously evaluates the legislation, safety standards and the industry's experience with flammable refrigerants. The outcome is a continuously updated internal framework for sales and product design matching the market needs while prioritising safety.

Products for low-GWP refrigerants

Product grouping	Product	Product description	Refrigerants					
			CO_2	NH_3	R290, R600	R32	R407A	R407F
Electronic controllers	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, EKD 316, EXD 316	Electronic superheat controllers [1]	•		•	•	•	•
	EKC 316A, EKC 312	Electronic superheat controllers [1]	•		•	•	•	
	EKC 313	Cascade injection with CO_2	•	•	•	•	•	•
	EKC 315a	Superheat controllers	•	•	•	•	•	•
	EKC 361	Liquid level controllers	•	•	•	•	•	•
	EKE 347	Temperature controllers	•	•	•	•	•	•
Compressors	MTZ	Reciprocating compressor for medium temperature refrigeration					•	•
	MLZ	Scroll compressor for medium temperature refrigeration					•	•
	ASL	Scroll compressor for air conditioning [2]				•		
	P / T / D / N / SC	AC reciprocating compressor for LBP / MBP refrigeration			•			
	SLV	Variable speed reciprocating compressor for LBP / MBP refrigeration			•			
	BD	AC / DC compressors for mobile cooling			•			
Condensing units	Optyma™	Condensing Units for low and medium refrigeration [2]			•		•	•
	Optyma™ Slim Pack	Packaged Condensing Units for low and medium refrigeration [2]					•	•
	Optyma™ Plus	Premium packaged Condensing Units for low and medium refrigeration [2]					•	•
Electronic expansion valves	AKV	Pulse width modulating expansion valves	46 bar				•	•
	AKVA	Pulse width modulating expansion valves	42 bar	•			•	•
	AKVH	Pulse width modulating expansion valves	90 bar				•	•
	CCM	High pressure standstill capable motorized expansion valves	90 bar					
	CCMT	High pressure standstill capable motorized expansion valves	140 bar					
	ETS	Electronically operated expansion valves					•	•
	ICM	Industrial motorized expansion valves	65 bar	•			•	•
	ICMTS	High pressure industrial motorized expansion valves	140 bar					
Electronic pressure & temperature regulating valves	CCM	Standstill capable electronic backpressure regulators	90 bar					
	CCMT	Standstill capable electronic backpressure regulators	140 bar					
	KVS	Electronic suction modulating valves					•	•
	ICM	Industrial motorized regulating valves	65 bar	•			•	•
	ICMTS	High pressure industrial motorized regulating valves	140 bar					
Sensors & transmitters	AKS 32	1 – 5 / 0 – 10 / 0 – 5 / 1 – 6 V DC, high accuracy	100 bar	•	•	•	•	•
	AKS 32 R	0.5 – 4.5 V DC – 5 V supply, ratiometric, compact	55 bar	•	•	•	•	•
	AKS 33	4 – 20 mA, high accuracy	55 bar	•	•	•	•	•
	AKS 3000	4 – 20 mA, compact	100 bar	•	•	•	•	•
	AKS 11	Temperature sensors, Pt 1000	•	•	•	•	•	•
	AKS 12	Temperature sensors, Pt 1000	•	•	•	•	•	•
	AKS 21	Temperature sensors, Pt 1000	•	•	•	•	•	•
	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

Refrigerant

Product grouping	Product	Product description	Refrigerants					
			CO_2	NH_3	R290, R600	R32	R407A	R407F
Thermostatic expansion valves	TUB / TCB	Stainless steel thermostatic expansion valves	42 bar			•	•	•
	TUC / TCC	Stainless steel thermostatic expansion valves	42 bar		•	•	•	•
	T2	Small thermostatic expansion valves					•	•
	TD1	Thermostatic expansion valves			•		•	•
	TGE	Large thermostatic expansion valves			•	•	•	•
	TEA	Industrial thermostatic expansion valves		•				
Solenoid valves	EVR	Allround solenoid valves			•	•	•	•
	EVRA	Solenoid valves	42 bar	•			•	•
	EVRH	High pressure solenoid valves	46 bar					
	EVU	Semi-hermetic solenoid valves	70 bar				•	•
	EVUL	Fully-hermetic solenoid valves	90 bar			•	•	•
	ICLX	Flexline™ solenoid valves	52 bar	•	•	•	•	•
Valve stations	ICF	Flexline™ valve stations	52 bar	•			•	•
Mechanical pressure and 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			•		•	•
	ICS	Mechanical backpressure regulators	52 bar	•	•	•	•	•
	REG-S	Flexline™ regulating valves	52 bar	•		•	•	•
Switches	AKS 38	Electro-mechanical float switches	28 bar	•		•	•	•
	KP	Pressure switches	46 bar	•	•		•	•
	RT	Pressure switches		•	•		•	•
	MP	Differential pressure switches		•	•		•	•
	RT	Differential pressure switches		•	•		•	•
	CCB	Cartridge pressure controls	165 bar					
Water regulating valves	WVFX	Pressure operated water valves			•		•	•
	WVO	Pressure operated water valves			•		•	•
	WVS	Pressure operated water valves		•	•		•	•
Filters and driers	DCR	Receiver filter driers	46 bar		•	•	•	•
	DMC	Receiver filter driers				•	•	•
	DCC	Receiver filter driers				•	•	•
	DML	Liquid line filter driers	46 bar		•	•	•	•
	DCL	Liquid line filter driers			•	•	•	•
	DMB	Bi-flow filter driers	46 bar		•	•	•	•
	DCB	Bi-flow filter driers			•	•	•	•
	DAS	Burn-out filter driers				•	•	•
	DMT	Filter driers for transcritical applications	140 bar					
	FIA	Flexline™ filters	65 bar	•		•	•	•
Check valves	NRV	Piston check valves	90 bar		•	•	•	•
	NRVA	Piston check valves		•	•	•	•	•
	CHV-X	Flexline™ check valves	65 bar	•			•	•
	SCA-X	Flexline™ check and stop valves	65 bar	•			•	•
Shut-off valves	GBC	Shut-off ball valves	90 bar			•	•	•
	BML	Shut-off diaphragm valves			•		•	•
	SVA	Flexline™ stop valves	65 bar	•	•	•	•	•
Sight glasses	SG	Sight glasses for low pressures					•	•
	SGP	Sight glasses for high pressures	52 bar		•	•	•	•
	MLI	Sight glasses		•			•	•

Our portfolio is constantly being updated – to see an updated list of our low-GWP products go to www.danfoss.com/lowGWP

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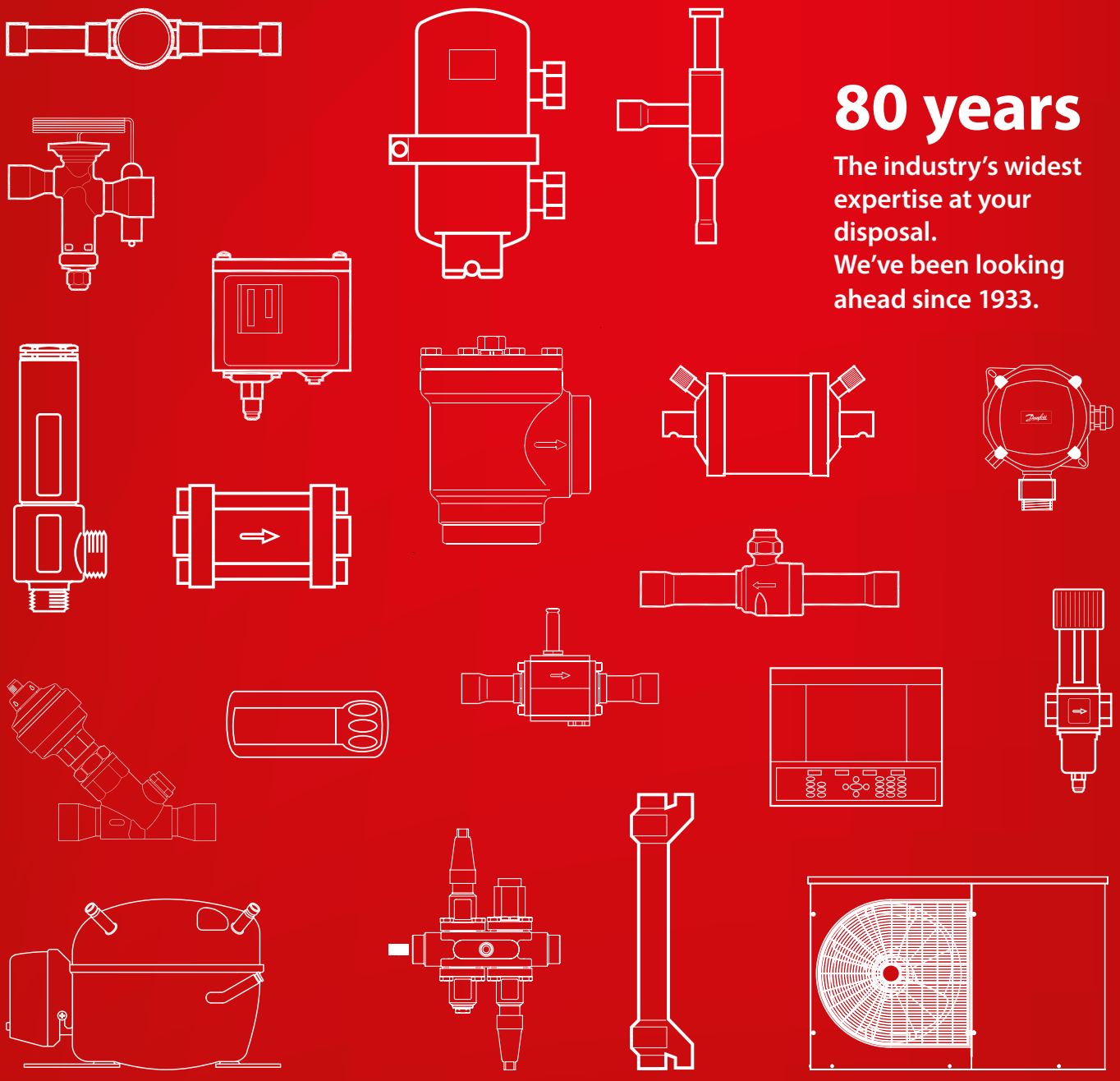
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