Data sheet

Solenoid valve

CSV 2 - CSV 22

Normally Closed (NC)

Description

CSV is a direct or servo-operated solenoid valve for liquid, suction, and hot gas lines with common fluorinated refrigerants.

CSV valves are for refrigeration, freezing, and air conditioning plants.

CSV valves and coils are sold separately.

Features & benefits

- Designed for media temperatures up to 120 °C / 248 °F for CSV 2,3,6 and 105 °C / 221 °F for CSV 10-22
- Supplied as normally closed (NC) with de-energized coil
- Wide choice of coils for AC and DC
- Suitable for listed refrigerants, including flammable refrigerants
- Available in flare and solder connection versions:
  - Flare connections up to ½ in
  - Solder connections up to 1 ⅜ in
- Small encapsulated coils with long lifetime under extreme conditions
- Compact construction with small dimensions, low weight for both valve and coil
- Simple and fast mounting of coil — clip-ON/OFF

Ordering

Product code numbers

Ordering solder connection

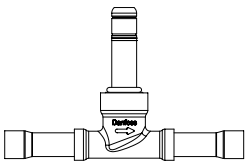
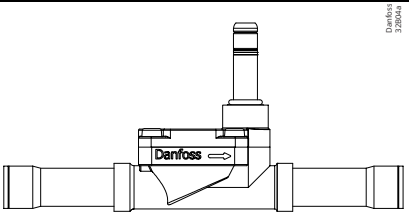
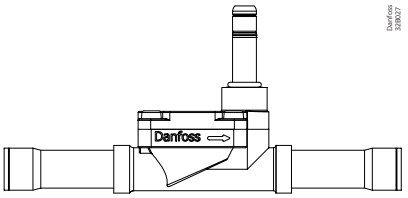
Figure: CSV 2, 3, 6	Figure: CSV 10, 15	Figure: CSV 20, 22
		

Table: Ordering - solder connection

Type	Connection (ODF)		Opening differential pressure with standard coil ΔP [bar]			K_v	Code no.
	[in]	[mm]	Min.	Max. (=MOPD liquid [1])		[m^3/ h]	
				AC	DC		
CSV 2	¼	–	0	26	26	0.1	032B2040
	–	6	0	26	26	0.1	032B2000
CSV 3	¼	–	0.05	35	26	0.3	032B2041
	–	6	0.05	35	26	0.3	032B2001
	⅜	–	0.05	35	26	0.3	032B2042
	–	10	0.05	35	26	0.3	032B2002
CSV 6	⅜	–	0.05	35	26	0.54	032B2043
	–	10	0.05	35	26	0.54	032B2003
	½	–	0.05	35	26	0.54	032B2044
	–	12	0.05	35	26	0.54	032B2004

CSV 10	½	–	0.05	26	26	1.5	032B2045
	–	12	0.05	26	26	1.5	032B2005
	⅝	16	0.05	26	26	1.5	032B2006
CSV 15	⅝	16	0.05	26	26	2.6	032B2007
	⅞	22	0.05	26	26	2.6	032B2008
CSV 20	⅞	22	0.05	26	26	5.0	032B2009
	1⅛	–	0.05	26	26	5.0	032B2050
	–	28	0.05	26	26	5.0	032B2010
CSV 22	1⅛	–	0.05	26	26	6.0	032B2051
	–	28	0.05	26	26	6.0	032B2011
	1⅜	35	0.05	26	26	6.0	032B2012

(1) For detailed MOPD, for media in gas form, please contact Danfoss.

Ordering flare connection

Figure: Flare connection

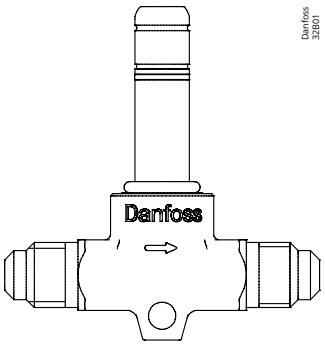


Table: Ordering - flare connection

Type	Connection (flare)		Opening differential pressure with standard coil Δp [bar]		K_v	Code no.
	[in]	[mm]	Min.	Max. (=MOPD liquid (1))	[m^3/ h]	
CSV 2	¼	–	0	26	0.1	032B2030
CSV 3	¼	–	0.05	35	0.3	032B2031
	⅜	–	0.05	35	0.3	032B2032
CSV 6	⅜	–	0.05	35	0.54	032B2033
	½	–	0.05	35	0.54	032B2034

(1) For detailed MOPD, for media in gas form, please contact Danfoss.

Ordering solenoid coil with DIN Terminal box IP65

NOTE:
For use with R290, the coil with DIN Plug (code 034Z2014) is validated in accordance to ISO 5149, IEC 60335 (ref. IEC/EN 60079-15). Ignition risk is evaluated in accordance to ISO 5149 and IEC 60335 (ref. IEC/EN 60079-15).

- Please make sure that there is no spark, arc on the spade connection during the application.
- If coils are below IPx5, they must be protected against ultraviolet, moisture and major impact, especially the connection of coils.
- Always install a fuse ahead of the coil to avoid short circuit.
- The coil should be used in area of not more than pollution degree 2.
- Use of socket cable with suitable mechanical lock function to connect with coils.
- Follow the installation guide to mount the coil correctly.

NOTE:
Please follow specific selection criteria stated in the data sheet for this particular refrigerant.

Ordering coil with DIN spade connection

Figure: Coil with DIN spade connection

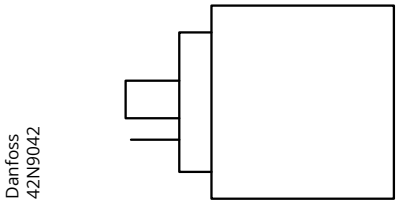


Table: Ordering Coil - DIN spade connection

Type	AC Voltage	Frequency	Power consumption	Code no.	
	[V]	[Hz]		Industrial pack	Single pack
CSV 2 – CSV 22	24	50 / 60	Holding: 6 W, 12 VA Inrush: 26 VA	042N8608	042N7608
	230	50 / 60		042N8601	042N7601
	240	50 / 60		–	042N7602
	12	DC	14 W	042N8686	–
	24	DC	14 W	042N8687	042N7687

Ordering coil cable connection

Figure: Coil cable connection

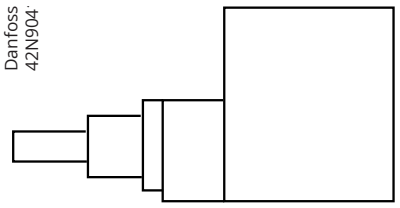


Table: Coil cable connection

Type	AC Voltage	Frequency	Power consumption	Code no.	
	[V]	[Hz]		Industrial pack	Single pack
CSV 2 – CSV 22	115	50 / 60	Holding: 6 W, 12 VA Inrush: 26 VA	042N8662	042N7662
	230	50 / 60		042N8651	042N7651
	240	50 / 60		042N8652	–

Accessories code numbers

Figure: DIN Plug with sealing ring

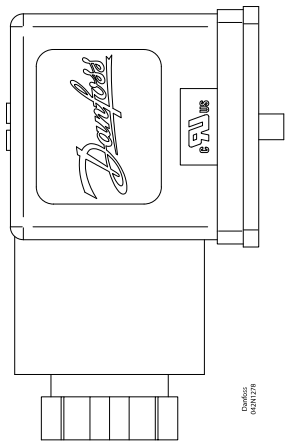


Table: Accessories

Description	Code no.
DIN Plug (EN175301-803 type A)	042N1278

Media

Table: Media features

Features	Description
Refrigerant	R22, R134a, R404A, R507, R407C, R513A, R452A, R1234ze, R600, R600a and R290.
Temperature of medium	CSV 2,3,6: -40 – 120 °C / -40 – 248 °F CSV 10 – 22: -40 – 105 °C / -40 – 221 °F (Maximum 130 °C / 265 °F during defrosting)
Maximum working pressure	CSV 2,3,6: 45 bar / 653 psi CSV 10 – 22: 35 bar / 508 psi

For a complete list of approved refrigerants, visit store.danfoss.com and search for individual code numbers, where refrigerants are listed as part of technical data.

NOTE:
Special note for R1234ze(E), R290, R600 and R600a: Ignition risk is evaluated in accordance to ISO 5149 and IEC 60335. EX range Zone 2 (category 3 IIA).

For countries where safety standards are not an indispensable part of the safety system Danfoss recommends the installer gets a third-party approval of any system containing flammable refrigerant.

NOTE:
- Please follow specific selection criteria stated in the data sheet for these particular refrigerants.
- CSV is not suitable for oil free application. For detailed information's please contact Danfoss
- Flare connections are only approved for A1 and A2L refrigerants.

Product details

Capacity

Table: Rated capacity [kW] for Liquid

Type	K_v [m^3/ h]	R22 / R407C	R134a	R404A / R507	R290	R513A	R452A	R600	R600a	R1234ze(E)
CSV 2	0.1	2.01	1.86	1.36	2.24	1.66	1.38	2.53	2.25	1.66
CSV 3	0.3	6.03	5.58	4.09	6.72	4.97	4.15	7.6	6.76	4.99
CSV 6	0.54	10.86	10.05	7.35	12.09	8.95	7.48	13.69	12.18	8.98
CSV 10	1.5	30.17	27.91	20.43	33.59	24.85	20.76	38.02	33.82	24.93
CSV 15	2.6	52.3	48.38	35.41	58.22	43.07	35.99	65.89	58.62	43.22
CSV 20	5	100.57	93.04	68.1	111.96	82.83	69.22	126.72	112.74	83.12
CSV 22	6	120.68	111.65	81.72	NA	99.39	83.06	NA	NA	NA

Table: Rated capacity [kW] for Suction

Type	K_v [m^3/ h]	R22 / R407C	R134a	R404A / R507	R290	R513A	R452A	R600	R600a	R1234ze(E)
CSV 2	0.1	0.22	0.16	0.19	0.27	0.16	0.19	0.13	0.15	0.13
CSV 3	0.3	0.67	0.48	0.58	0.82	0.47	0.56	0.38	0.45	0.39
CSV 6	0.54	1.2	0.87	1.05	1.47	0.84	1	0.68	0.82	0.7
CSV 10	1.5	3.33	2.42	2.91	4.08	2.35	2.78	1.89	2.27	1.95
CSV 15	2.6	5.77	4.2	5.04	7.07	4.07	4.81	3.27	3.93	3.38
CSV 20	5	11.1	8.08	9.69	13.6	7.82	9.26	6.3	7.56	6.49
CSV 22	6	13.32	9.69	11.61	NA	9.38	11.11	NA	NA	NA

Rated liquid and suction vapour capacity is based on:

- Evaporating temperature t_e = -10 °C
- Liquid temperature ahead of valve t_l = 25 °C
- Pressure drop in valve Δp = 0.15 bar

Table: Rated capacity [kW] for Hot-gas

Type	K_v [m^3/ h]	R22 / R407C	R134a	R404A / R507	R290	R513A	R452A	R600	R600a	R1234ze(E)
CSV 2	0.1	0.9	0.69	0.74	1.02	0.64	0.76	0.56	0.63	0.56
CSV 3	0.3	2.69	2.08	2.22	3.07	1.93	2.29	1.68	1.89	1.67
CSV 6	0.54	4.85	3.75	3.99	5.53	3.48	4.12	3.03	3.4	3.01
CSV 10	1.5	13.46	10.38	11.05	15.35	9.66	11.44	8.42	9.45	8.37
CSV 15	2.6	23.34	17.99	19.15	26.61	16.75	19.83	14.6	16.38	14.51
CSV 20	5	44.88	34.59	36.83	51.18	32.21	38.13	28.07	31.5	27.91
CSV 22	6	53.86	41.51	44.2	NA	38.65	45.76	NA	NA	NA

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 = 65 °C
- Subcooling of refrigerant Δt_{sub} = 4 K

Valve selection based on capacity calculation

As for extended capacity calculations and valve selection based on capacities and refrigerants, please refer to Coolselector®2. Rated and extended capacities are calculated with the Coolselector®2 calculation engine to ARI standards with the ASEREP equations based on laboratory measurements of selected valves.

Dimensions

Solder connection

Figure: CSV 2 – CSV 6

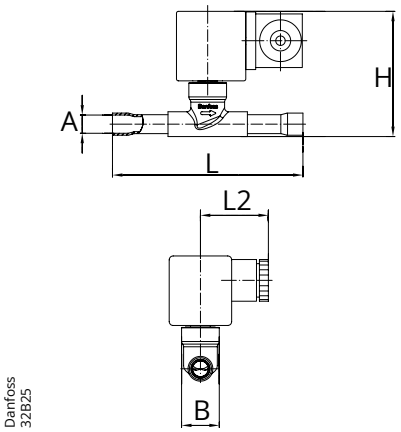


Figure: CSV 10 – CSV 15

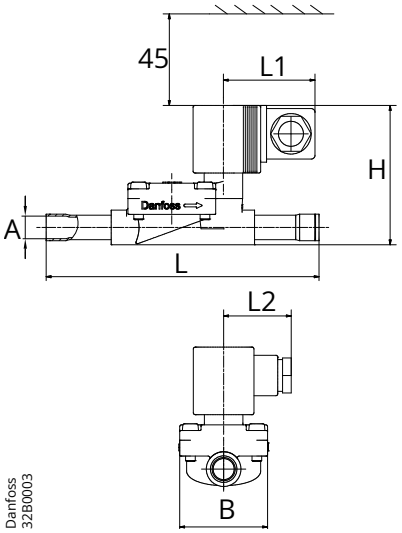


Figure: CSV 20 – CSV 22

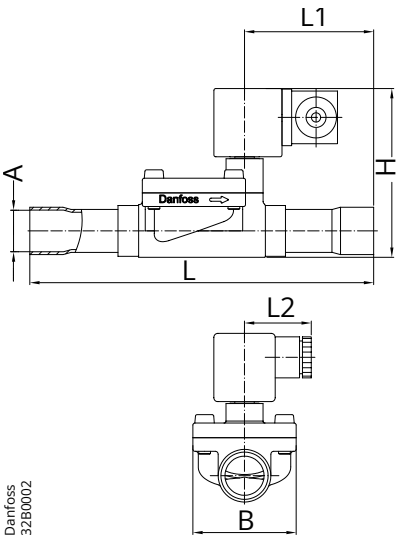


Table: Dimensions and weights - solder connection

Type	A Connection (ODF)		B	H	L	L1	L2	Weight
	[in]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
CSV 2	¼	6	19	56	82	–	34	0.1
CSV 3	¼	6	19	65	92	–	34	0.1
	⅜	10	19	65	96	–	34	0.1
CSV 6	⅜	10	19	65	96	–	34	0.1
	½	12	19	65	112	–	34	0.1
CSV 10	½	12	46	73	142	50	34	0.2
	⅝	16	46	73	142	50	34	0.2
CSV 15	⅝	16	46	74	167	62	34	0.4
	⅞	22	46	76	167	62	34	0.4
CSV 20	⅞	22	53	82	177	64	34	0.6
	1⅛	28	53	84	196	74	34	0.6
CSV 22	1⅛	28	62	87	240	91	34	0.9
	1⅜	35	62	89	240	91	34	0.9
Coil	–	–	–	–	–	–	–	0.1

Figure: Flare connection

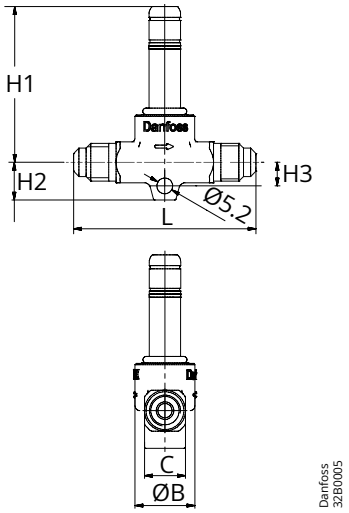


Table: Dimensions and weights - flare connection

Type	Connection (flare)		B	H	L	C	H1	H2	H3	Weight
	[in]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
CSV 2	¼	6	19	63	58	13	49	12	7.5	0.085
CSV 3	¼	6	19	69	58	13	55	12	7.5	0.096
	⅜	10	19	69	76	15	54	13	8.5	0.128
CSV 6	⅜	10	19	70	76	15	55	13	8.5	0.128
	½	12	19	70	76	15	55	13	8.5	0.137

Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Manufacturer's Declaration	Danfoss MD 032B9610.AE	Danfoss	EU RoHS
UA Declaration	Danfoss UA 8481	Danfoss	UA RoHS
Pressure Safety Certificate	LLC CDC EURO-TYSK UA.TR.089.1015.02-22	LLC CDC EURO TYSK - Ukraine	PED
Manufacturer's Declaration	Danfoss MD 033F0691.AJ	Danfoss	EU RoHS
Export Control Declaration	Commercial refrigeration solenoid valves and coils - Other - Polymer, Bronze, Brass and cast iron	Danfoss	
UA Declaration	Danfoss UA 2023-01-10 Valves PL01 PL40	Danfoss	PED
Manufacturer's Declaration	Danfoss MD 033F4006	Danfoss	China RoHS

Contact details

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Climate Solutions . danfoss.com . +45 7488 2222