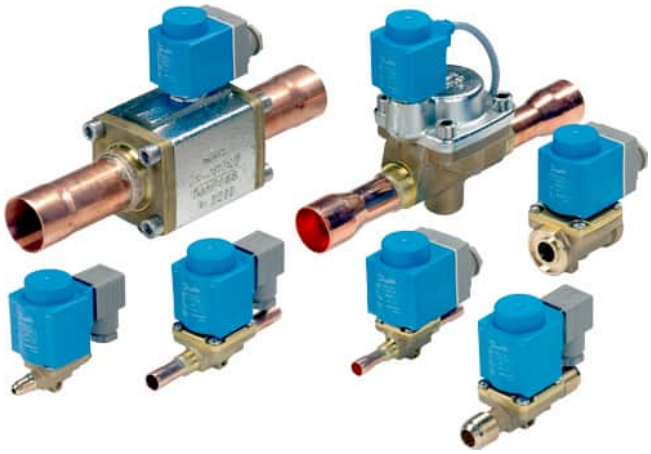
ENGINEERING TOMORROW

Data Sheet

Solenoid valve
Type **EVR 2 - EVR 40**

Version 2



EVR is a direct or servo operated solenoid valve suitable for liquid, suction, and hot gas lines with most refrigerants, including flammable refrigerants.

EVR valves and coils are sold separately.

Features

- Complete range of solenoid valves for refrigeration, freezing and air conditioning plant
- Supplied in versions normally closed (NC) and normally open (NO) with de-energized coil
- Wide choice of coils for AC and DC
- Suitable for most refrigerants, including flammable refrigerants
- Designed for media temperatures up to 105 °C
- Flare connections up to ⅝ in
- Solder connections up to 2 ⅛ in
- Extended ends on solder versions make the installation easy, eliminating the need to dismantle the valve when soldering in
- Available in flare, solder and flange connection versions

Product specification

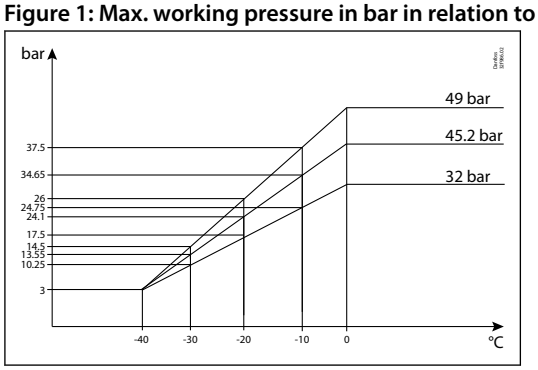
Technical data

Ambient temperature and enclosure for coil

See separate data sheet for solenoid and ATEX coils.

Max. working pressure

Figure 1: Max. working pressure in bar in relation to media temperature in °C.



WARNING:

Special note for EVR PED version: The EVR 2 - EVR 22 versions with solder connections and without manual stem can be applied to 49 bar MWP.

NOTE:

Excluded from this EVR 22 with connections 1 ⅜ inch / 35 mm related to higher PED requirements.

Capacity

For K_v values refer to the tables in Ordering.

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

See extended capacity tables on Coolselector®2.

Table 1: MOPD

Type	Opening differential pressure with standard coil Δp [bar]		
	Min.	Max. (= MOPD) liquid	
		AC coil [10 W]	DC coil [20 W]
EVR 2 NC	0.00	38	33
EVR 3 NC	0.00	38	18
EVR 4 NC	0.03	38	28
EVR 6 NC	0.03	38	28
EVR 6 NO	0.03	21	21
EVR 8 NC	0.03	38	28
EVR 10 NC	0.03	38	20
EVR 10 NO	0.03	21	21
EVR 15 NC	0.03	38	20
EVR 15 NO	0.03	21	21
EVR 18 NC	0.03	38	20
EVR 20 NC	0.03	38	20
EVR 20 NO	0.03	19	19
EVR 22 NC	0.03	38	20
EVR 22 NO	0.03	19	19
EVR 25 NC	0.2	38	17
EVR 32 NC	0.2	38	17
EVR 40 NC	0.2	38	17

NOTE:

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

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.

Rated capacity [kW]

Table 2: Rated capacity [kW]

Type	R22/R407C	R134a	R404A/R507	R410A	R32	R290	R600a
Liquid							
EVR 2	3.02	2.79	2.04	2.96	4.23	3.36	3.38
EVR 3	5.43	5.02	3.68	5.32	7.61	6.05	6.09
EVR 4	13.68	12.66	9.26	13.41	19.17	15.23	15.33
EVR 6	17.90	16.56	12.12	17.55	25.09	19.93	20.07
EVR 8	21.32	19.73	14.44	20.90	29.88	23.74	23.90
EVR 10	37.62	34.80	25.47	36.88	52.71	41.88	42.17
EVR 15	57.93	53.60	39.23	56.79	81.18	64.49	64.94
EVR 18	75.84	70.16	51.36	74.35	106.26	84.43	85.01
EVR 20	120.29	111.29	81.46	117.93	168.56	133.92	134.85
EVR 22	137.19	126.92	92.90	134.49	192.23	152.73	153.79
EVR 25	149.23	138.06	101.06	146.30	–	–	–
EVR 32	254.97	235.89	172.66	249.96	–	–	–
EVR 40	368.74	341.15	249.71	361.49	–	–	–
Suction vapour							
EVR 2	0.33	0.24	0.29	0.42	0.54	0.41	0.23
EVR 3	0.60	0.44	0.52	0.75	0.96	0.73	0.41
EVR 4	1.51	1.10	1.32	1.90	2.43	1.85	1.03
EVR 6	1.98	1.44	1.72	2.48	3.18	2.42	1.35
EVR 8	2.35	1.71	2.05	2.96	3.78	2.88	1.60
EVR 10	4.15	3.02	3.62	5.22	6.67	5.09	2.83
EVR 15	6.40	4.65	5.57	8.03	10.28	7.83	4.36
EVR 18	8.37	6.09	7.30	10.52	13.45	10.26	5.70
EVR 20	13.28	9.66	11.57	16.68	21.34	16.27	9.04
EVR 22	15.15	11.02	13.20	19.02	24.34	18.55	10.31
EVR 25	16.33	11.79	14.25	20.58	–	–	–
EVR 32	27.90	20.14	24.35	35.16	–	–	–
EVR 40	40.35	29.12	35.21	50.85	–	–	–
Hot gas							
EVR 2	1.35	1.04	1.10	1.65	2.18	1.54	0.94
EVR 3	2.42	1.87	1.99	2.98	3.92	2.76	1.70
EVR 4	6.10	4.70	5.01	7.50	9.86	6.96	4.28
EVR 6	7.99	6.16	6.56	9.81	12.91	9.11	5.61
EVR 8	9.51	7.33	7.81	11.68	15.37	10.85	6.68
EVR 10	16.78	12.94	13.78	20.61	27.12	19.14	11.78
EVR 15	25.85	19.93	21.22	31.74	41.77	29.48	18.14
EVR 18	33.84	26.08	27.77	41.55	54.67	38.59	23.75
EVR 20	53.68	41.37	44.05	65.91	86.72	61.21	37.67
EVR 22	61.22	47.18	50.24	75.17	98.91	69.81	42.96
EVR 25	87.87	67.73	72.12	107.91	–	–	–
EVR 32	150.17	115.75	123.24	184.40	–	–	–
EVR 40	217.22	167.43	178.27	266.74	–	–	–

Rated liquid and suction vapor capacity is based on:

- vaporating temperature t_e = -10 °C
- liquid temperature ahead of valve t_l = 25 °C
- pressure drop in valve Δp = 0.15 bar

Rated hot gas capacity is based on:

- condensing temperature tc = 40 °C
- pressure drop across valve Δp = 0.8 bar
- hot gas temperature th = 65 °C
- subcooling of refrigerant Δtsub = 4 K

For other refrigerants, please refer to Coolselector®2

Design and material

Figure 8: EVR 32 - EVR 40 Solder connection

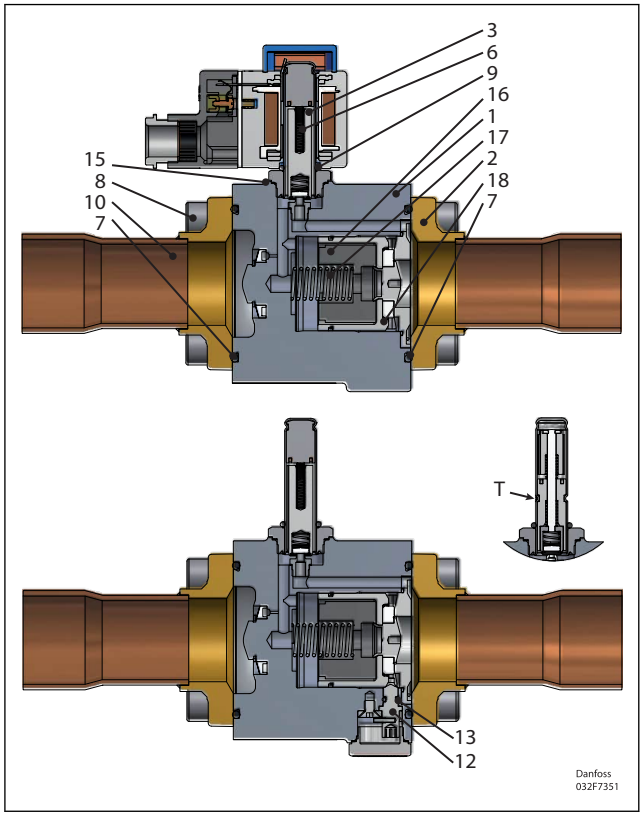


Figure 9: EVRC Solder connection

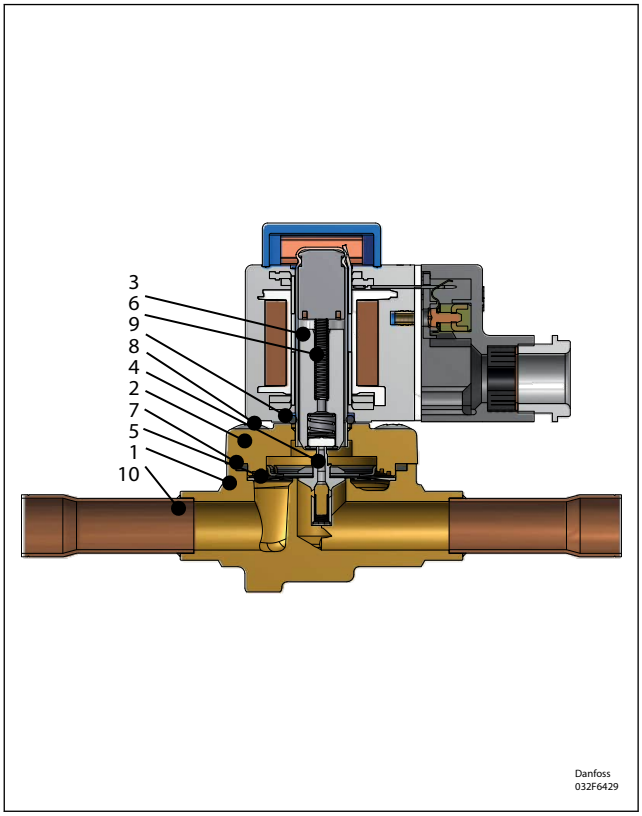


Table 6: Design and material for EVR 32, EVR 40, EVR Solder connection

Pos. no.	Description	Material
1	Valve housing assembly	Brass
2	Cover	Stainless steel
3	Armature assembly	Stainless steel/PTFE
4	Diaphragm assembly	Stainless steel/PTFE
5	Support washer	Stainless steel
6	Armature spring	Stainless steel
7	Seal	Chloroprene rubber
8	Screws	Stainless steel
9	O-ring	EPDM rubber
10	Solder connection	Copper
12	Manual stem	Brass
13	O-ring	Chloroprene rubber
15	Gasket	Aluminum
16	Insert	Nylon
17	Piston spring	Stainless steel
18	Piston	Stainless steel
T	Normally Open (NO) tube design	

Dimensions and weights for EVR 32 - EVR 40 Solder connection

Figure 39: EVR and Cable coil

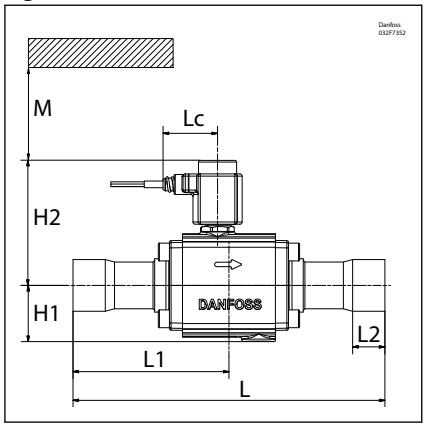


Figure 40: EVR and DIN plug coil

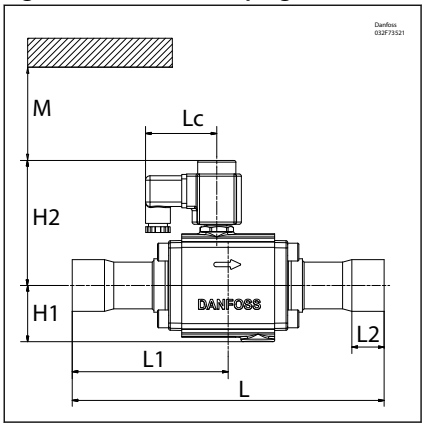


Figure 41: EVR and Terminal box coil

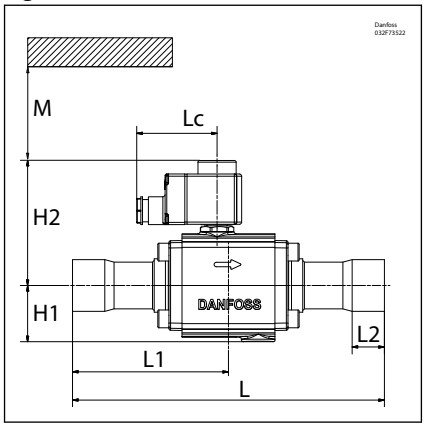


Figure 42: Manual stem

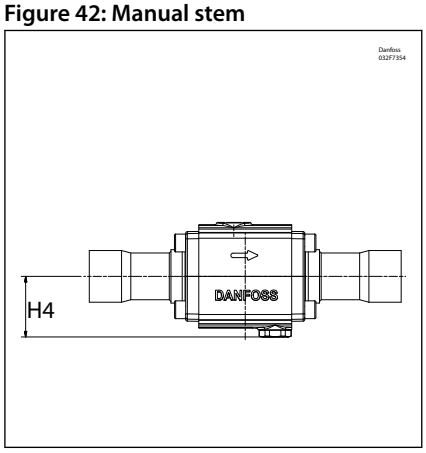


Figure 43: End view

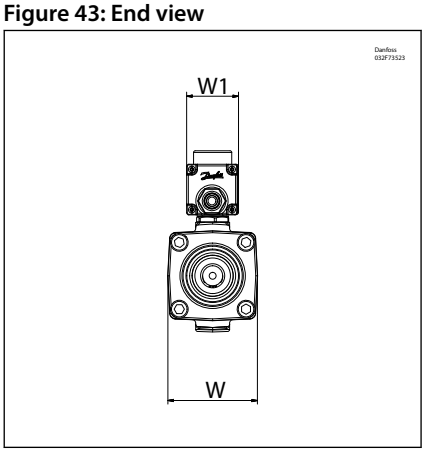


Table 13: Dimensions and weights for EVR 32 - EVR 40 Solder connection

Type	Connection		Manual operation	H1	H2	H4	M min.	L	L1	L2	Lc	W	W1 max.	Net weight without coil[2]
	[in]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
Valve body														
EVR 32	1 3/8	35	Yes	–	111	55	65	280	140	25	–	81	–	4.3
	1 3/8	35	No	51	111	–	65	280	140	25	–	81	–	4.3
	1 5/8	42	Yes	–	111	55	65	280	140	29	–	81	–	4.4
	1 5/8	42	No	51	111	–	65	280	140	29	–	81	–	4.4
	2 1/8	–	Yes	–	111	55	65	280	140	34	–	80	–	4.57
	2 1/8	–	No	51	111	–	65	280	140	34	–	80	–	4.57
EVR 40	1 5/8	42	Yes	–	111	55	65	280	140	29	–	81	–	4.4
	1 5/8	42	No	51	111	–	65	280	140	29	–	81	–	4.4
	2 1/8	–	Yes	–	111	55	65	280	140	34	–	80	–	4.57
	2 1/8	–	No	51	111	–	65	280	140	34	–	80	–	4.57
Coil														
Cable coil											49	–	46	–
DIN plug coil											64	–	47	–
Terminal box coil 10 W											72	–	47	–
Terminal box coil 12 / 20 W											80	–	68	–

[2] Net weight of coil for 10 W is approx. 0.3 kg and for 12 and 20 W is approx. 0.5 kg

For 3D CAD models on individual code numbers visit store.danfoss.com

Ordering

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

Figure 79: EVR 2 / EVR 3

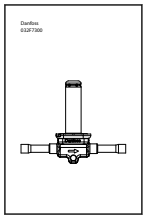


Figure 80: EVR 4 / EVR 6 / EVR 8

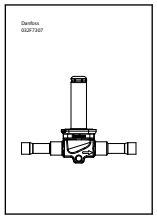


Figure 81: EVR 10

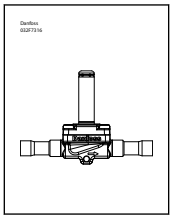


Figure 82: EVR 15 / EVR 18 / EVR 20 / EVR 22

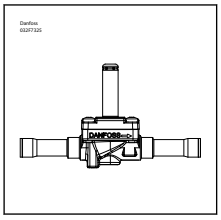


Figure 83: EVR 25

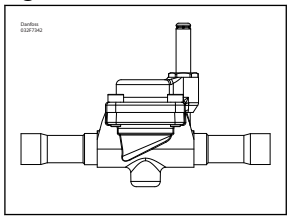


Figure 84: EVR 32 / EVR 40

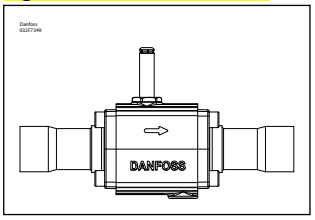


Table 21: Ordering EVR solder connection, Normally Closed (NC) - separate valve bodies

Type	Coil voltage	Connection size		Manual operation	K_v value	Code no.
		[in]	[mm]		[m^3/h]	
EVR 2	AC / DC	1/4	–	No	0.15	032F1201
	AC / DC	1/4	–	No	0.15	032F7100
	AC / DC	–	6	No	0.15	032F1202
EVR 3	AC / DC	1/4	–	No	0.26	032F1206
	AC / DC	3/8	–	No	0.26	032F1204
	AC / DC	–	6	No	0.26	032F1207
	AC / DC	–	10	No	0.26	032F1208
EVR 4	AC / DC	3/8	–	No	0.7	032L7110
EVR 6	AC / DC	3/8	–	No	1.0	032L1212
	AC / DC	3/8	–	Yes	0.87	032L7116
	AC / DC	–	10	No	1.0	032L1213
	AC / DC	–	12	No	1.0	032L1236
	AC / DC	1/2	–	No	1.0	032L1209
	AC / DC	1/2	–	Yes	0.87	032L7144
	AC / DC	5/8	–	No	1.0	032L7117
EVR 8	AC /DC	1/2	–	No	1.15	032L7121
	AC / DC	1/2	–	Yes	1.09	032L7148
	AC / DC	5/8	–	No	1.15	032L7122
EVR 10	AC / DC	3/8	–	No	1.56	032L7125
	AC / DC	–	12	No	2.2	032L1218
	AC / DC	1/2	–	No	2.2	032L1217
	AC / DC	1/2	–	Yes	2.2	032L1188
	AC / DC	5/8	16	No	2.2	032L1214
	AC / DC	5/8	–	Yes	2.2	032L7149
EVR 15	AC / DC	5/8	16	No	3.3	032L1228
	AC / DC	5/8	16	Yes	3.3	032L1227
	AC / DC	7/8	22	No	3.3	032L1225
EVR 18	AC / DC	7/8	–	Yes	3.9	032L1004
EVR 20	AC / DC	7/8	–	No	6.0	032L1240
	AC / DC	7/8	–	Yes	6.0	032L1254
	AC / DC	1 1/8	–	No	6.0	032L1244
	AC / DC	–	28	No	6.0	032L1245

Type	Coil voltage	Connection size		Manual operation	K_v value	Code no.
		[in]	[mm]		[m³/h]	
EVR 22	AC / DC	1 1⁄8	–	No	6.2	032L7145
	AC / DC	1 1⁄8	–	Yes	6.2	032L7137
	AC / DC	1 3⁄8	–	No	6.2	032L3267
EVR 25	AC / DC	1 1⁄8	–	Yes	9.8	032L2200
	AC / DC	1 1⁄8	–	No	9.8	032L2201
	AC / DC	–	28	Yes	9.8	032L2205
	AC / DC	–	28	No	9.8	032L2206
	AC / DC	1 3⁄8	–	Yes	9.8	032L2207
	AC / DC	1 3⁄8	–	No	9.8	032L2208
EVR 32	AC / DC	1 3⁄8	35	Yes	16.7	032L1105
	AC / DC	1 3⁄8	35	No	16.7	032L1106
	AC / DC	1 5⁄8	–	Yes	16.7	032L1103
	AC / DC	1 5⁄8	–	No	16.7	032L1104
	AC / DC	–	42	Yes	16.7	032L1107
	AC / DC	–	42	No	16.7	032L1108
	AC / DC	2 1⁄8	–	No	16.7	032L1180
	AC / DC	2 1⁄8	–	Yes	16.7	032L1181
EVR 40	AC / DC	1 5⁄8	–	Yes	24.2	032L1109
	AC / DC	1 5⁄8	–	No	24.2	032L1110
	AC / DC	–	42	Yes	24.2	032L1113
	AC / DC	–	42	No	24.2	032L1114
	AC / DC	2 1⁄8	–	Yes	24.2	032L1111
	AC / DC	2				