

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 (CO₂) 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.

Features EVR / EVRH / EVRC

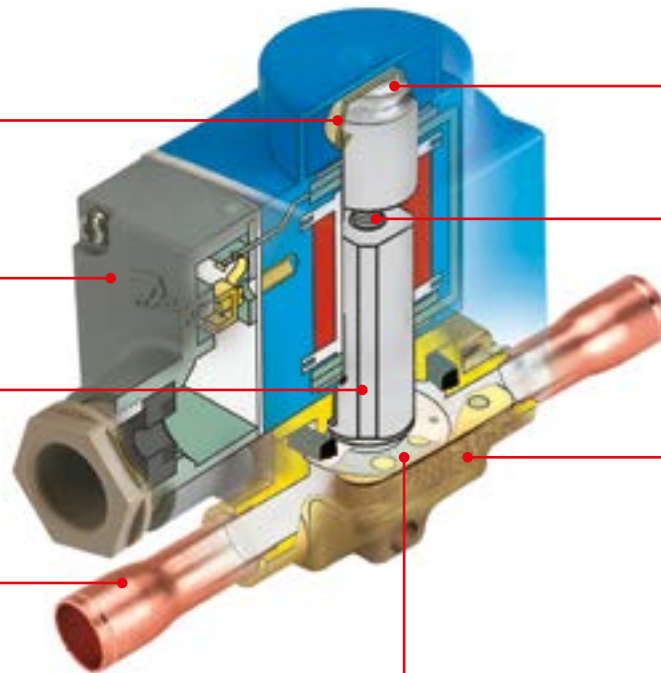


"Clip on" coil system for quick and easy mounting

Coil with terminal box, 1 m cable or DIN plug

Stainless steel armature

Extended ends for soldering make installation easy



Drawn stainless steel tube with internal armature top for maximum external tightness

Spring damping to increase the lifetime of the seat plate

Forged brass body for maximum external tightness

Teflon seat plate with cardan effect to secure maximum internal tightness

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
	Min.	Max. (= MOPD) liquid ¹⁾			
		10 W AC	12 W AC	20 W DC	[°C]
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 $t_e = -10\text{ °C} / 50\text{ °F}$
 liquid temperature ahead of valve $t_l = 25\text{ °C} / 77\text{ °F}$
 pressure drop in valve $\Delta p = 0.15\text{ bar} / 2.18\text{ psi}$

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

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 $t_e = -10\text{ °C} / 50\text{ °F}$, liquid temperature ahead of valve $t_l = 25\text{ °C} / 77\text{ °F}$, pressure drop in valve $\Delta p = 0.15\text{ bar} / 2.18\text{ psi}$.
Rated hot gas capacity is based on condensing temperature $t_c = 40\text{ °C} / 104\text{ °F}$, pressure drop across valve $\Delta p = 0.8\text{ bar} / 11.6\text{ psi}$, hot gas temperature $t_h = 25\text{ °C} / 77\text{ °F}$, and subcooling of refrigerant $\Delta t_{sub} = 4\text{ K}$.

EVRC

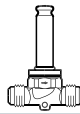
Rated capacity [kW]

Type	Rated capacity with normal flow direction ¹⁾ [kW]				Opening differential pressure with standard coil Δp [bar]			
	R22/R407C	R134A	R507	R407C	Min.	Max. (= MOPD) liquid		
						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 $t_e = -10\text{ °C} / 50\text{ °F}$, liquid temperature ahead of valve $t_l = 25\text{ °C} / 77\text{ °F}$, and pressure drop across valve $\Delta p = 0.15\text{ bar} / 2.18\text{ psi}$.

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

Ordering



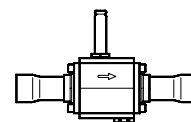
Type	Current type	Connection size		Manual operation	Max. working pressure		K_v value [m³/h]	C_v value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 2	AC	6	1/4	No	45.2	655	0.16	0.19	032F8056
EVR 3	AC / DC	6	1/4	No	45.2	655	0.27	0.32	032F8107
	AC / DC	10	3/8	No	45.2	655	0.27	0.32	032F8116
EVR 6	AC / 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 [m³/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

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 ⁷ / ₈	No	18.0	042H1176
	1 ³ / ₈	7 ⁷ / ₈	Yes	18.0	042H1177
	1 ⁵ / ₈	7 ⁷ / ₈	No	18.0	042H1178
	1 ⁵ / ₈	7 ⁷ / ₈	Yes	18.0	042H1179
	2 ¹ / ₈	7 ⁷ / ₈	No	18.0	042H1180
	2 ¹ / ₈	7 ⁷ / ₈	Yes	18.0	042H1181
EVR 40	2 ¹ / ₈	1	Yes	29.0	042H1188

Metric conversions

1 psi = 0.07 bar

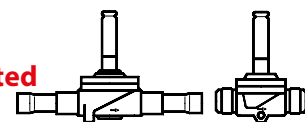
⁵/₉ (t₁ °F - 32) = t₂ °C

1 TR = 3.5 kW

1 in = 25.4 mm

US gal/min = 0.86 m³/h

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 ³ / ₈	1 ¹ / ₄	0.93	032F1164
EVR 10	1 ¹ / ₂	3 ³ / ₈	2.2	032F1169
EVR 15	5 ⁵ / ₈	9 ⁹ / ₁₆	3.0	032F1174

Metric conversions

1 psi = 0.07 bar

⁵/₉ (t₁ °F - 32) = t₂ °C

1 TR = 3.5 kW

1 in = 25.4 mm

US gal/min = 0.86 m³/h