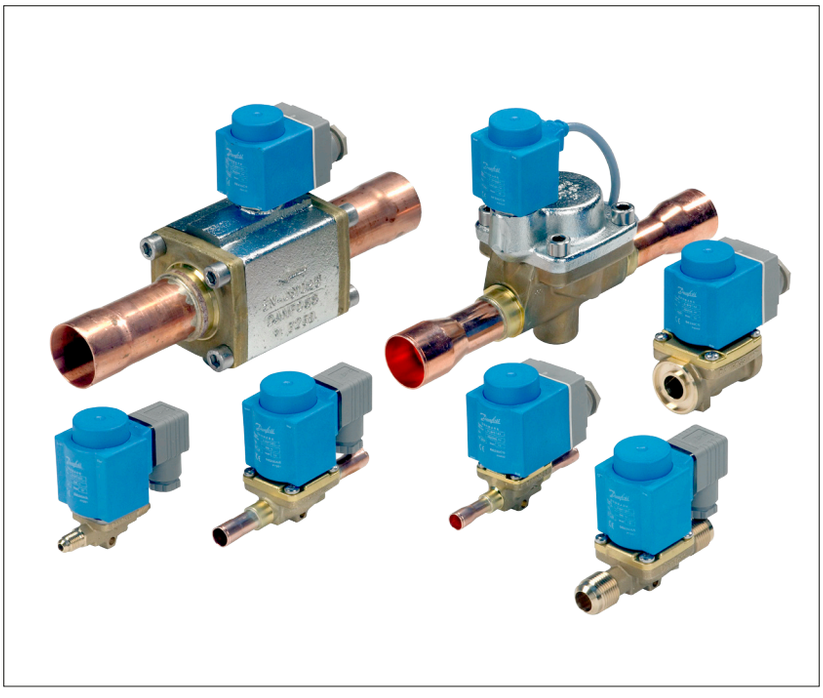
ENGINEERING
TOMORROW

Data sheet

# Solenoid valve
## Types EVR 2 - EVR 40 NC/NO



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

EVR valves are supplied complete or as separate components, i.e. valve body, coil and flanges, if required, can be ordered 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 all fluorinated refrigerants, including flammable refrigerants
- Designed for media temperatures up to 105 °C
- MOPD up to 25 bar with 12 W coil
- Flare connections up to $^{5}/_{8}$ in
- Solder connections up to 2 $^{1}/_{8}$ in
- Extended ends on solder versions make the installation easy. It is not necessary to dismantle the valve when soldering in
- Available in flare, solder and flange connection versions

**Approvals**

- Det norske Veritas, DNV
- Pressure Equipment Directive (PED) 2014/68/EU
- Low Voltage Directive (LVD) 2014/35/EU
- EAC
- UA
- ATEX zone 2
- CQC
- RoHS II
- For Marine approvals: Contact Danfoss for latest updates
- Versions with UL approval can be supplied to order

**Table of contents**



## Technical data

*Refrigerants*
R22/R407C, R404A/R507, R410A, R134a, R407A, R23, R32, R290, R600, and R600a.
For other refrigerants, contact Danfoss.

**Special note for R32, R290, R600, and R600a**: Use only for system in compliance with standard EN13463-1. Ignition risk is evaluated in accordance with standard EN13463-1.

Only EVR 2 - EVR 20 with solder connections and without manual stem can be applied in systems with R32, R290, R600, and R600a as the working fluid.

For countries where safety standards are not an indispensable part of the safety system Danfoss recommends the installer to seek third party approval for systems containing R32, R290, R600, and R600a.

Note, please follow specific selection criteria stated in the datasheet for these particular refrigerants.

*Temperature of medium*
-40 – 105 °C with 10 W or 12 W coil.
Max. 130 °C during defrosting.

*Ambient temperature and enclosure for coil*
See separate data sheet for coils and ATEX coils.

*Capacity*
The capacity of the valve depends on the flow direction, see $K_v$ values from the table.

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

See extended capacity tables later in this data sheet.

| | Opening differential pressure with standard coil Δp [bar] | | | |
|---|---|---|---|---|
| | | Max. (= MOPD) liquid [1] | | |
| Type | Min. | 10 W [AC] | 12 W [AC] | 20 W [DC] |
| **EVR 2** | 0.00 | 38 | — | 33 |
| **EVR 3** | 0.00 | 38 | — | 18 |
| **EVR 6** | 0.05 | 21 | 25 | 18 |
| **EVR 6 NO** | 0.05 | 21 | 21 | 21 |
| **EVR 10** | 0.05 | 21 | 25 | 18 |
| **EVR 10 NO** | 0.05 | 21 | 21 | 21 |
| **EVR 15** | 0.05 | 21 | 25 | 18 |
| **EVR 15 NO** | 0.05 | 21 | 21 | 21 |
| **EVR 20 with AC coil** | 0.05 | 21 | 25 | 13 |
| **EVR 20 with DC coil** | 0.05 | — | — | 16 |
| **EVR 20 NO** | 0.05 | 19 | 19 | 19 |
| **EVR 22** | 0.05 | 21 | 25 | 13 |
| **EVR 22 NO** | 0.05 | 19 | 19 | 19 |
| **EVR 25** [2] | 0.20 | 21 | 25 | 18 |
| **EVR 32** [2] | 0.20 | 21 | 25 | 18 |
| **EVR 40** [2] | 0.20 | 21 | 25 | 18 |

[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.

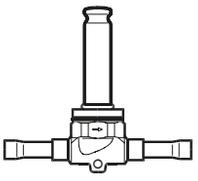
## Rated capacity [kW]

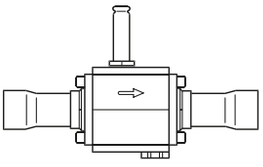
| | R22/R407C | R134a | R404A/R507 | R32 | R290 | R600 | R600a |
|---|---|---|---|---|---|---|---|
| **Liquid** | | | | | | | |
| **EVR 2** | 3.22 | 2.98 | 2.18 | 4.51 | 3.58 | 4.06 | 3.61 |
| **EVR 3** | 5.43 | 5.02 | 3.68 | 7.61 | 6.05 | 6.84 | 6.09 |
| **EVR 6** | 16.09 | 14.89 | 10.9 | 22.55 | 17.91 | 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 | — | — | — | — |
| **Suction vapour** | | | | | | | |
| **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 | — | — | — | — |
| **Hot gas** | | | | | | | |
| **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, 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 $t_c$ = 40 °C, pressure drop across valve Δp = 0.8 bar, hot gas temperature $t_h$ = 65 °C, and subcooling of refrigerant Δtsub = 4 K.

## Ordering
*(continued)*

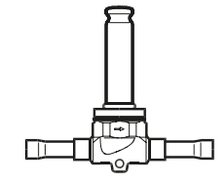


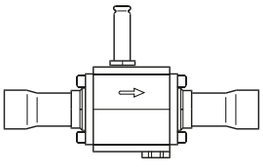


*EVR solder connections, Normally Closed (NC) - separate valve bodies*

| Type | Current type | Connection size [in] | Connection size [mm] | Manual operation | Max. working pressure [bar] | $K_v$ value [$m^3/h$] | Code no. |
|---|---|---|---|---|---|---|---|
| EVR 2 | AC | 1/4 | — | No | 45.2 | 0.15 | 032F1201 |
| | AC | — | 6 | No | 45.2 | 0.15 | 032F1202 |
| EVR 3 | AC / DC | 1/4 | — | No | 45.2 | 0.26 | 032F1206 |
| | AC / DC | 3/8 | — | No | 45.2 | 0.26 | 032F1204 |
| | AC / DC | — | 6 | No | 45.2 | 0.26 | 032F1207 |
| | AC / DC | — | 10 | No | 45.2 | 0.26 | 032F1208 |
| EVR 6 | AC / DC | 1/2 | — | No | 45.2 | 0.80 | 032F1209 |
| | AC / DC | 3/8 | — | No | 45.2 | 0.80 | 032F1212 |
| | AC / DC | — | 10 | No | 45.2 | 0.80 | 032F1213 |
| | AC / DC | — | 12 | No | 45.2 | 0.80 | 032F1236 |
| EVR 10 | AC / DC | 1/2 | — | No | 35 | 1.9 | 032F1217 |
| | AC / DC | — | 12 | No | 35 | 1.9 | 032F1218 |
| | AC / DC | 5/8 | 16 | No | 35 | 1.9 | 032F1214 |
| EVR 15 | AC / DC | 7/8 | 22 | No | 32 | 2.6 | 032F1225 |
| | AC / DC | — | 16 | Yes | 32 | 2.6 | 032F1227 |
| | AC / DC | 5/8 | 16 | No | 32 | 2.6 | 032F1228 |
| EVR 20 | AC | 7/8 | 22 | No | 32 | 5.0 | 032F1240 |
| | AC | 7/8 | — | Yes | 32 | 5.0 | 032F1254 |
| | AC | 1 1/8 | — | No | 32 | 5.0 | 032F1244 |
| | AC | — | 28 | No | 32 | 5.0 | 032F1245 |
| | DC | 7/8 | 22 | No | 32 | 5.0 | 032F1264 |
| | DC | 7/8 | — | Yes | 32 | 5.0 | 032F1274 |
| EVR 22 | AC | 1 3/8 | 35 | No | 32 | 6.0 | 032F3267 |
| EVR 25 | AC / DC | 1 1/8 | — | Yes | 32 | 10.0 | 032F2200 |
| | AC / DC | 1 1/8 | — | No | 32 | 10.0 | 032F2201 |
| | AC / DC | — | 28 | Yes | 32 | 10.0 | 032F2205 |
| | AC / DC | — | 28 | No | 32 | 10.0 | 032F2206 |
| | AC / DC | 1 3/8 | — | Yes | 32 | 10.0 | 032F2207 |
| | AC / DC | 1 3/8 | — | No | 32 | 10.0 | 032F2208 |
| EVR 32 | AC / DC | 1 5/8 | — | Yes | 32 | 16.0 | 042H1103 |
| | AC / DC | 1 5/8 | — | No | 32 | 16.0 | 042H1104 |
| | AC / DC | — | 35 | Yes | 32 | 16.0 | 042H1105 |
| | AC / DC | — | 35 | No | 32 | 16.0 | 042H1106 |
| | AC / DC | — | 42 | Yes | 32 | 16.0 | 042H1107 |
| | AC / DC | — | 42 | No | 32 | 16.0 | 042H1108 |
| EVR 40 | AC / DC | 1 5/8 | — | Yes | 32 | 25.0 | 042H1109 |
| | AC / DC | 1 5/8 | — | No | 32 | 25.0 | 042H1110 |
| | AC / DC | 2 1/8 | — | Yes | 32 | 25.0 | 042H1111 |
| | AC / DC | 2 1/8 | — | No | 32 | 25.0 | 042H1112 |
| | AC / DC | — | 42 | Yes | 32 | 25.0 | 042H1113 |
| | AC / DC | — | 42 | No | 32 | 25.0 | 042H1114 |

## Ordering
*(continued)*



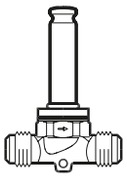


*EVR solder connections, Normally Open (NO) - separate valve bodies*

| Type | Current type | Connection size [in] | Connection size [mm] | Manual operation | Max. Working Pressure [bar] | $K_v$ value [$m^3/h$] | Code no. |
|---|---|---|---|---|---|---|---|
| EVR 6 | AC / DC | 3/8 | — | No | 45.2 | 0.80 | 032F1290 |
| | AC / DC | — | 10 | No | 45.2 | 0.80 | 032F1295 |
| EVR 10 | AC / DC | 1/2 | — | No | 35 | 1.9 | 032F1291 |
| | AC / DC | — | 12 | No | 35 | 1.9 | 032F1296 |
| EVR 15 | AC / DC | 5/8 | 16 | No | 32 | 2.6 | 032F1299 |
| | AC / DC | 7/8 | 22 | No | 32 | 2.6 | 032F3270 |
| EVR 20 | AC / DC | 7/8 | 22 | No | 32 | 5.0 | 032F1260 |
| | AC / DC | 1 1/8 | — | No | 32 | 5.0 | 032F1269 |
| | AC / DC | — | 28 | No | 32 | 5.0 | 032F1279 |
| EVR 22 | AC | 1 3/8 | 35 | No | 32 | 6.0 | 032F3268 |

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

## Ordering



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

| Type | Current type | Connection size [in] | Connection size [mm] | Manual operation | Max. working pressure [bar] | $K_v$ value [$m^3/h$] | Code no. |
|---|---|---|---|---|---|---|---|
| EVR 2 | AC | 1/4 | 6 | No | 45.2 | 0.15 | 032F8056 |
| EVR 3 | AC / DC | 1/4 | 6 | No | 45.2 | 0.26 | 032F8107 |
| | AC / DC | 3/8 | 10 | No | 45.2 | 0.26 | 032F8116 |
| EVR 6 | AC / DC | 3/8 | 10 | No | 45.2 | 0.80 | 032F8072 |
| | AC / DC | 1/2 | 12 | No | 45.2 | 0.80 | 032F8079 |
| EVR 10 | AC / DC | 1/2 | 12 | No | 35 | 1.9 | 032F8095 |
| | AC / DC | 5/8 | 16 | No | 35 | 1.9 | 032F8098 |
| EVR 15 | AC / DC | 5/8 | 16 | No | 32 | 2.6 | 032F8101 |
| | AC / DC | 5/8 | 16 | Yes | 32 | 2.6 | 032F8100 |

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

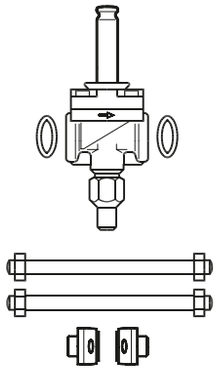
| Type | Current type | Connection size [in] | Connection size [mm] | Manual operation | Max. working pressure [bar] | $K_v$ value [$m^3/h$] | Code no. |
|---|---|---|---|---|---|---|---|
| EVR 6 | AC / DC | 3/8 | 10 | No | 45.2 | 0.80 | 032F8085 |
| EVR 10 | AC / DC | 1/2 | 12 | No | 35 | 1.9 | 032F8090 |

Valve bodies are supplied without flare nuts.
Separate flare nuts:
– 1/4 in or 6 mm, code no. **011L1101**
– 3/8 in or 10 mm, code no. **011L1135**
– 1/2 in or 12 mm, code no. **011L1103**
– 5/8 in or 16 mm, code no. **011L1167**

*See separate data sheet for coils.*

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

## Ordering
*(continued)*



*Separate valve bodies, normally closed (NC)*

| 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** |

See separate data sheet for coils.

*Flange sets*

| Type | Connection size | | Connection type | | | Code no. |
|---|---|---|---|---|---|---|
| | [in] | [mm] | Solder [in] | Solder [mm] | 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** |
| | 11/8 | — | yes | — | — | **027L1229** |
| | — | 28 | — | yes | — | **027L1228** |

*Example*
EVR 15 without manual operation,
code no. **032F1224**

½ in weld flange set,
code no. **027N1115**

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

See separate data sheet for coils.

*Accessories*

| Description | Code no. |
|---|---|
| **Strainer FA for direct mounting** | See "FA" |

## Capacity Liquid

| Type | Liquid capacity $Q_e$ [kW] at pressure drop across valve Δp [bar] | | | | |
|---|---|---|---|---|---|
| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| **R22/R407C** | | | | | |
| **EVR 2** | 2.6 | 3.7 | 4.5 | 5.2 | 5.9 |
| **EVR 3** | 4.4 | 6.3 | 7.7 | 8.8 | 9.9 |
| **EVR 6** | 13.1 | 18.5 | 22.7 | 26.2 | 29.3 |
| **EVR 10** | 31.1 | 44.0 | 53.9 | 62.2 | 69.6 |
| **EVR 15** | 42.6 | 60.2 | 73.8 | 85.2 | 95.2 |
| **EVR 20** | 81.9 | 115.8 | 141.9 | 163.8 | 183.2 |
| **EVR 22** | 98.3 | 139.0 | 170.2 | 196.6 | 219.8 |
| **EVR 25** | 163.8 | 231.7 | 283.7 | 327.6 | 366.3 |
| **EVR 32** | 262.1 | 370.7 | 454.0 | 524.2 | 586.1 |
| **EVR 40** | 409.5 | 579.2 | 709.3 | 819.1 | 915.8 |
| **R134a** | | | | | |
| **EVR 2** | 2.4 | 3.5 | 4.2 | 4.9 | 5.5 |
| **EVR 3** | 4.1 | 5.8 | 7.1 | 8.2 | 9.2 |
| **EVR 6** | 12.2 | 17.3 | 21.1 | 24.4 | 27.3 |
| **EVR 10** | 29.0 | 41.0 | 50.2 | 58.0 | 64.8 |
| **EVR 15** | 39.7 | 56.1 | 68.7 | 79.3 | 88.7 |
| **EVR 20** | 76.3 | 107.9 | 132.1 | 152.6 | 170.6 |
| **EVR 22** | 91.5 | 129.5 | 158.6 | 183.1 | 204.7 |
| **EVR 25** | 152.6 | 215.8 | 264.3 | 305.2 | 341.2 |
| **EVR 32** | 244.1 | 345.2 | 422.8 | 488.2 | 545.9 |
| **EVR 40** | 381.4 | 539.4 | 660.7 | 762.9 | 852.9 |

Capacities are based on:
– liquid temperature
$t_l$ = 25 °C ahead of valve,
– evaporating temperature
$t_e$ = -10 °C, superheat 0 K.

*Correction factors*
When sizing valves, the plant capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of valve/evaporator.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on liquid temperature $t_l$*

| $t_l$ [°C] | -10 | 0 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R22/R407C** | 1.31 | 1.22 | 1.13 | 1.09 | 1.04 | 1.00 | 0.96 | 0.91 | 0.86 | 0.82 | 0.77 |
| **R134a** | 1.37 | 1.27 | 1.16 | 1.11 | 1.05 | 1.00 | 0.95 | 0.89 | 0.84 | 0.78 | 0.73 |

## Capacity
## Liquid
*(continued)*

| Type | Liquid capacity $Q_e$ [kW] at pressure drop across valve Δp [bar] | | | | |
|---|---|---|---|---|---|
| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| **R404A/R507** | | | | | |
| **EVR 2** | 1.8 | 2.5 | 3.1 | 3.6 | 4.0 |
| **EVR 3** | 3.0 | 4.3 | 5.2 | 6.0 | 6.7 |
| **EVR 6** | 8.9 | 12.6 | 15.5 | 17.9 | 20.0 |
| **EVR 10** | 21.2 | 30.0 | 36.7 | 42.4 | 47.4 |
| **EVR 15** | 29.0 | 41.0 | 50.3 | 58.0 | 64.9 |
| **EVR 20** | 55.8 | 78.9 | 96.7 | 111.6 | 124.8 |
| **EVR 22** | 67.0 | 94.7 | 116.0 | 133.9 | 149.7 |
| **EVR 25** | 111.6 | 157.8 | 193.3 | 223.2 | 249.6 |
| **EVR 32** | 178.6 | 252.6 | 309.3 | 357.2 | 399.3 |
| **EVR 40** | 279.0 | 394.6 | 483.3 | 558.1 | 623.9 |
| **R32** | | | | | |
| **EVR 2** | 3.7 | 5.2 | 6.4 | 7.4 | 8.2 |
| **EVR 3** | 6.2 | 8.8 | 10.8 | 12.4 | 13.9 |
| **EVR 6** | 18.4 | 26.1 | 31.9 | 36.8 | 41.2 |
| **EVR 10** | 43.8 | 61.9 | 75.8 | 87.5 | 97.8 |
| **EVR 15** | 59.9 | 84.7 | 103.7 | 119.7 | 133.9 |
| **EVR 20** | 115.1 | 162.8 | 199.4 | 230.3 | 257.5 |

Capacities are based on:
– liquid temperature
$t_l$ = 25 °C ahead of valve,
– evaporating temperature
$t_e$ = -10 °C, superheat 0 K.

*Correction factors*
When sizing valves, the plant capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of valve/evaporator.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on liquid temperature $t_l$*

| $t_l$ [°C] | -10 | 0 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R404A/R507** | 1.50 | 1.36 | 1.22 | 1.14 | 1.07 | 1.00 | 0.93 | 0.85 | 0.78 | 0.70 | 0.62 |
| **R32** | 1.31 | 1.23 | 1.14 | 1.09 | 1.05 | 1.00 | 0.95 | 0.90 | 0.86 | 0.81 | 0.75 |

## Capacity
## Liquid
*(continued)*

| Type | Liquid capacity $Q_e$ [kW] at pressure drop across valve Δp [bar] | | | | |
|---|---|---|---|---|---|
| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| | | | | | **R290** |
| **EVR 2** | 2.9 | 4.2 | 5.1 | 5.9 | 6.6 |
| **EVR 3** | 5.0 | 7.0 | 8.6 | 9.9 | 11.1 |
| **EVR 6** | 14.7 | 20.8 | 25.5 | 29.4 | 32.9 |
| **EVR 10** | 35.0 | 49.4 | 60.6 | 69.9 | 78.2 |
| **EVR 15** | 47.8 | 67.7 | 82.9 | 95.7 | 107.0 |
| **EVR 20** | 92.0 | 130.1 | 159.4 | 184.0 | 205.7 |

Capacities are based on:
– liquid temperature
$t_l$ = 25 °C ahead of valve,
– evaporating temperature
$t_e$ = -10 °C, superheat 0 K.

*Correction factors*
When sizing valves, the plant capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of valve/evaporator.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on liquid temperature $t_l$*

| $t_l$ [°C] | -10 | 0 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R290** | 1.36 | 1.26 | 1.16 | 1.11 | 1.05 | 1.00 | 0.95 | 0.89 | 0.84 | 0.78 | 0.73 |

## Capacity
## Liquid
*(continued)*

| Type | Liquid capacity $Q_e$ [kW] at pressure drop across valve Δp [bar] | | | | |
|---|---|---|---|---|---|
| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| **R600** | | | | | |
| **EVR 2** | 3.3 | 4.7 | 5.7 | 6.6 | 7.4 |
| **EVR 3** | 5.6 | 7.9 | 9.7 | 11.2 | 12.5 |
| **EVR 6** | 16.6 | 23.4 | 28.7 | 33.1 | 37.1 |
| **EVR 10** | 39.4 | 55.7 | 68.2 | 78.7 | 88.0 |
| **EVR 15** | 53.9 | 76.2 | 93.3 | 107.7 | 120.4 |
| **EVR 20** | 103.6 | 146.5 | 179.4 | 207.2 | 231.6 |
| **EVR 22** | — | — | — | — | — |
| **EVR 25** | — | — | — | — | — |
| **EVR 32** | — | — | — | — | — |
| **EVR 40** | — | — | — | — | — |
| **R600a** | | | | | |
| **EVR 2** | 2.9 | 4.2 | 5.1 | 5.9 | 6.6 |
| **EVR 3** | 5.0 | 7.0 | 8.6 | 9.9 | 11.1 |
| **EVR 6** | 14.7 | 20.8 | 25.5 | 29.4 | 32.9 |
| **EVR 10** | 34.9 | 49.4 | 60.5 | 69.8 | 78.1 |
| **EVR 15** | 47.8 | 67.6 | 82.8 | 95.6 | 106.8 |
| **EVR 20** | 91.9 | 130.0 | 159.2 | 183.8 | 205.5 |

Capacities are based on:
– liquid temperature
$t_l$ = 25 °C ahead of valve,
– evaporating temperature
$t_e$ = -10 °C, superheat 0 K.

*Correction factors*
When sizing valves, the plant capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of valve/evaporator.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on liquid temperature $t_l$*

| $t_l$ [°C] | -10 | 0 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **R600** | 1.31 | 1.22 | 1.13 | 1.09 | 1.04 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 | 0.77 |
| **R600a** | 1.34 | 1.25 | 1.15 | 1.10 | 1.05 | 1.00 | 0.95 | 0.90 | 0.85 | 0.80 | 0.75 |

## Capacity Suction

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | | | | | | **R22/R407C** |
| **EVR 2** | 0.1 | 0.15 | 0.19 | 0.24 | 0.29 | 0.35 | 0.42 |
| | 0.15 | 0.17 | 0.23 | 0.29 | 0.35 | 0.43 | 0.51 |
| | 0.2 | 0.19 | 0.26 | 0.33 | 0.41 | 0.49 | 0.59 |
| **EVR 3** | 0.1 | 0.25 | 0.32 | 0.40 | 0.49 | 0.60 | 0.71 |
| | 0.15 | 0.29 | 0.38 | 0.48 | 0.60 | 0.73 | 0.87 |
| | 0.2 | 0.32 | 0.43 | 0.55 | 0.69 | 0.83 | 1.00 |
| **EVR 6** | 0.10 | 0.73 | 0.94 | 1.19 | 1.46 | 1.77 | 2.11 |
| | 0.15 | 0.86 | 1.13 | 1.44 | 1.77 | 2.15 | 2.57 |
| | 0.20 | 0.96 | 1.28 | 1.64 | 2.03 | 2.47 | 2.96 |
| **EVR 10** | 0.10 | 1.73 | 2.24 | 2.82 | 3.47 | 4.20 | 5.01 |
| | 0.15 | 2.05 | 2.69 | 3.41 | 4.21 | 5.11 | 6.11 |
| | 0.20 | 2.29 | 3.04 | 3.88 | 4.82 | 5.87 | 7.02 |
| **EVR 15** | 0.10 | 2.37 | 3.07 | 3.86 | 4.75 | 5.75 | 6.85 |
| | 0.15 | 2.81 | 3.68 | 4.66 | 5.77 | 6.99 | 8.36 |
| | 0.20 | 3.13 | 4.16 | 5.32 | 6.60 | 8.03 | 9.61 |
| **EVR 20** | 0.10 | 4.55 | 5.90 | 7.42 | 9.13 | 11.05 | 13.18 |
| | 0.15 | 5.40 | 7.08 | 8.97 | 11.09 | 13.45 | 16.07 |
| | 0.20 | 6.02 | 8.01 | 10.22 | 12.69 | 15.44 | 18.48 |
| **EVR 22** | 0.10 | 5.46 | 7.08 | 8.90 | 10.96 | 13.26 | 15.81 |
| | 0.15 | 6.47 | 8.49 | 10.76 | 13.31 | 16.14 | 19.28 |
| | 0.20 | 7.22 | 9.61 | 12.27 | 15.23 | 18.53 | 22.17 |
| **EVR 25** | 0.10 | 9.11 | 11.79 | 14.84 | 18.27 | 22.10 | 26.35 |
| | 0.15 | 10.79 | 14.16 | 17.94 | 22.18 | 26.90 | 32.14 |
| | 0.20 | 12.03 | 16.01 | 20.45 | 25.39 | 30.88 | 36.95 |
| **EVR 32** | 0.10 | 14.57 | 18.87 | 23.74 | 29.23 | 35.36 | 42.17 |
| | 0.15 | 17.26 | 22.65 | 28.71 | 35.49 | 43.05 | 51.42 |
| | 0.20 | 19.25 | 25.62 | 32.71 | 40.62 | 49.40 | 59.12 |
| **EVR 40** | 0.10 | 22.76 | 29.48 | 37.10 | 45.67 | 55.25 | 65.88 |
| | 0.15 | 26.98 | 35.39 | 44.85 | 55.45 | 67.26 | 80.35 |
| | 0.20 | 30.08 | 40.03 | 51.11 | 63.47 | 77.19 | 92.38 |

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

*Correction factors*

When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors for evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R22/R407C** | 0.52 | 0.66 | 0.82 | 1.00 | 1.20 | 1.43 | 1.56 |

## Capacity Suction
*(continued)*

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | | | | | | **R134a** |
| **EVR 2** | 0.1 | 0.09 | 0.13 | 0.17 | 0.22 | 0.27 | 0.33 |
| | 0.15 | 0.10 | 0.15 | 0.20 | 0.26 | 0.33 | 0.41 |
| | 0.2 | 0.10 | 0.16 | 0.22 | 0.29 | 0.37 | 0.47 |
| **EVR 3** | 0.1 | 0.15 | 0.21 | 0.28 | 0.36 | 0.46 | 0.56 |
| | 0.15 | 0.17 | 0.25 | 0.34 | 0.44 | 0.55 | 0.69 |
| | 0.2 | 0.18 | 0.27 | 0.38 | 0.50 | 0.63 | 0.78 |
| **EVR 6** | 0.1 | 0.45 | 0.63 | 0.84 | 1.08 | 1.35 | 1.67 |
| | 0.15 | 0.50 | 0.73 | 1.00 | 1.30 | 1.64 | 2.03 |
| | 0.2 | 0.52 | 0.81 | 1.12 | 1.47 | 1.87 | 2.33 |
| **EVR 10** | 0.1 | 1.06 | 1.49 | 1.99 | 2.56 | 3.22 | 3.97 |
| | 0.15 | 1.19 | 1.74 | 2.37 | 3.08 | 3.89 | 4.82 |
| | 0.2 | 1.25 | 1.92 | 2.66 | 3.49 | 4.44 | 5.52 |
| **EVR 15** | 0.1 | 1.45 | 2.04 | 2.72 | 3.50 | 4.40 | 5.43 |
| | 0.15 | 1.63 | 2.39 | 3.24 | 4.21 | 5.33 | 6.60 |
| | 0.2 | 1.71 | 2.62 | 3.64 | 4.78 | 6.08 | 7.56 |
| **EVR 20** | 0.1 | 2.79 | 3.92 | 5.23 | 6.73 | 8.46 | 10.44 |
| | 0.15 | 3.14 | 4.59 | 6.23 | 8.10 | 10.25 | 12.69 |
| | 0.2 | 3.28 | 5.04 | 6.99 | 9.19 | 11.70 | 14.53 |
| **EVR 22** | 0.1 | 3.35 | 4.71 | 6.27 | 8.08 | 10.16 | 12.53 |
| | 0.15 | 3.77 | 5.50 | 7.47 | 9.73 | 12.30 | 15.22 |
| | 0.2 | 3.94 | 6.05 | 8.39 | 11.03 | 14.04 | 17.44 |
| **EVR 25** | 0.1 | 5.59 | 7.84 | 10.45 | 13.46 | 16.93 | 20.88 |
| | 0.15 | 6.28 | 9.17 | 12.46 | 16.21 | 20.50 | 25.37 |
| | 0.2 | 6.56 | 10.08 | 13.98 | 18.39 | 23.39 | 29.07 |
| **EVR 32** | 0.1 | 8.94 | 12.55 | 16.72 | 21.54 | 27.08 | 33.41 |
| | 0.15 | 10.05 | 14.68 | 19.93 | 25.93 | 32.79 | 40.60 |
| | 0.2 | 10.50 | 16.13 | 22.37 | 29.42 | 37.43 | 46.51 |
| **EVR 40** | 0.1 | 13.97 | 19.61 | 26.13 | 33.66 | 42.32 | 52.20 |
| | 0.15 | 15.70 | 22.94 | 31.14 | 40.52 | 51.24 | 63.44 |
| | 0.2 | 16.40 | 25.21 | 34.95 | 45.97 | 58.49 | 72.67 |

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

*Correction factors*
When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R134a** | 0.45 | 0.61 | 0.79 | 1.00 | 1.25 | 1.53 | 1.69 |

## Capacity Suction
*(continued)*

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | **R404A/R507** | | | | | |
| EVR 2 | 0.1 | 0.12 | 0.16 | 0.20 | 0.25 | 0.31 | 0.38 |
| | 0.15 | 0.14 | 0.19 | 0.25 | 0.31 | 0.38 | 0.47 |
| | 0.2 | 0.16 | 0.22 | 0.28 | 0.36 | 0.44 | 0.54 |
| EVR 3 | 0.1 | 0.20 | 0.27 | 0.34 | 0.43 | 0.53 | 0.65 |
| | 0.15 | 0.24 | 0.32 | 0.41 | 0.52 | 0.65 | 0.79 |
| | 0.2 | 0.27 | 0.36 | 0.47 | 0.60 | 0.74 | 0.91 |
| EVR 6 | 0.1 | 0.60 | 0.79 | 1.01 | 1.27 | 1.57 | 1.91 |
| | 0.15 | 0.71 | 0.95 | 1.23 | 1.55 | 1.92 | 2.33 |
| | 0.2 | 0.80 | 1.08 | 1.40 | 1.78 | 2.20 | 2.68 |
| EVR 10 | 0.1 | 1.42 | 1.88 | 2.41 | 3.03 | 3.73 | 4.54 |
| | 0.15 | 1.69 | 2.26 | 2.92 | 3.68 | 4.55 | 5.54 |
| | 0.2 | 1.90 | 2.57 | 3.33 | 4.22 | 5.23 | 6.37 |
| EVR 15 | 0.1 | 1.94 | 2.57 | 3.30 | 4.14 | 5.11 | 6.21 |
| | 0.15 | 2.32 | 3.09 | 4.00 | 5.03 | 6.23 | 7.58 |
| | 0.2 | 2.60 | 3.51 | 4.56 | 5.77 | 7.15 | 8.72 |
| EVR 20 | 0.1 | 3.74 | 4.94 | 6.34 | 7.96 | 9.83 | 11.95 |
| | 0.15 | 4.46 | 5.95 | 7.68 | 9.68 | 11.97 | 14.58 |
| | 0.2 | 5.00 | 6.75 | 8.77 | 11.10 | 13.75 | 16.77 |
| EVR 22 | 0.1 | 4.49 | 5.93 | 7.61 | 9.56 | 11.79 | 14.34 |
| | 0.15 | 5.35 | 7.14 | 9.22 | 11.62 | 14.37 | 17.49 |
| | 0.2 | 6.00 | 8.10 | 10.53 | 13.32 | 16.50 | 20.12 |
| EVR 25 | 0.1 | 7.48 | 9.88 | 12.68 | 15.93 | 19.65 | 23.89 |
| | 0.15 | 8.91 | 11.90 | 15.37 | 19.36 | 23.94 | 29.15 |
| | 0.2 | 10.00 | 13.50 | 17.55 | 22.19 | 27.50 | 33.54 |
| EVR 32 | 0.1 | 11.97 | 15.81 | 20.29 | 25.49 | 31.44 | 38.23 |
| | 0.15 | 14.26 | 19.04 | 24.59 | 30.98 | 38.31 | 46.65 |
| | 0.2 | 16.00 | 21.61 | 28.07 | 35.51 | 44.01 | 53.67 |
| EVR 40 | 0.1 | 18.70 | 24.70 | 31.71 | 39.82 | 49.13 | 59.73 |
| | 0.15 | 22.28 | 29.75 | 38.41 | 48.41 | 59.86 | 72.89 |
| | 0.2 | 25.01 | 33.76 | 43.86 | 55.48 | 68.76 | 83.85 |

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

*Correction factors*
When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R404A/R507 | 0.48 | 0.63 | 0.80 | 1.00 | 1.23 | 1.49 | 1.63 |

## Capacity Suction
*(continued)*

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | | | | | | **R32** |
| **EVR 2** | 0.1 | 0.25 | 0.31 | 0.39 | 0.47 | 0.56 | 0.66 |
| | 0.15 | 0.30 | 0.38 | 0.47 | 0.57 | 0.68 | 0.81 |
| | 0.2 | 0.34 | 0.43 | 0.54 | 0.66 | 0.79 | 0.93 |
| **EVR 3** | 0.1 | 0.42 | 0.53 | 0.65 | 0.79 | 0.94 | 1.11 |
| | 0.15 | 0.50 | 0.64 | 0.79 | 0.96 | 1.15 | 1.36 |
| | 0.2 | 0.57 | 0.73 | 0.91 | 1.11 | 1.33 | 1.57 |
| **EVR 6** | 0.1 | 1.24 | 1.57 | 1.94 | 2.35 | 2.80 | 3.30 |
| | 0.15 | 1.49 | 1.90 | 2.35 | 2.86 | 3.42 | 4.03 |
| | 0.2 | 1.70 | 2.17 | 2.70 | 3.29 | 3.93 | 4.64 |
| **EVR 10** | 0.1 | 2.95 | 3.72 | 4.60 | 5.57 | 6.65 | 7.83 |
| | 0.15 | 3.55 | 4.51 | 5.59 | 6.79 | 8.11 | 9.57 |
| | 0.2 | 4.03 | 5.16 | 6.41 | 7.80 | 9.34 | 11.02 |
| **EVR 15** | 0.1 | 4.03 | 5.10 | 6.29 | 7.62 | 9.09 | 10.71 |
| | 0.15 | 4.86 | 6.18 | 7.65 | 9.29 | 11.10 | 13.09 |
| | 0.2 | 5.51 | 7.05 | 8.77 | 10.68 | 12.78 | 15.08 |
| **EVR 20** | 0.1 | 7.76 | 9.80 | 12.10 | 14.66 | 17.49 | 20.60 |
| | 0.15 | 9.34 | 11.88 | 14.71 | 17.87 | 21.35 | 25.17 |
| | 0.2 | 10.60 | 13.57 | 16.87 | 20.54 | 24.57 | 29.00 |

*Correction factors*
When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R32** | 0.54 | 0.67 | 0.83 | 1.00 | 1.19 | 1.40 | 1.51 |

**Capacity**
**Suction**
*(continued)*

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | | | | | | **R290** |
| EVR 2 | 0.1 | 0.18 | 0.23 | 0.29 | 0.36 | 0.44 | 0.52 |
| | 0.15 | 0.21 | 0.28 | 0.35 | 0.44 | 0.53 | 0.64 |
| | 0.2 | 0.24 | 0.31 | 0.40 | 0.50 | 0.61 | 0.73 |
| EVR 3 | 0.1 | 0.30 | 0.39 | 0.49 | 0.61 | 0.74 | 0.88 |
| | 0.15 | 0.36 | 0.47 | 0.59 | 0.74 | 0.90 | 1.08 |
| | 0.2 | 0.40 | 0.53 | 0.68 | 0.84 | 1.03 | 1.24 |
| EVR 6 | 0.89 | 0.89 | 1.16 | 1.46 | 1.80 | 2.19 | 2.62 |
| | 1.06 | 1.06 | 1.39 | 1.76 | 2.18 | 2.66 | 3.19 |
| | 1.18 | 1.18 | 1.57 | 2.01 | 2.50 | 3.05 | 3.67 |
| EVR 10 | 2.12 | 2.12 | 2.75 | 3.46 | 4.27 | 5.19 | 6.22 |
| | 2.52 | 2.52 | 3.30 | 4.18 | 5.18 | 6.31 | 7.58 |
| | 2.81 | 2.81 | 3.73 | 4.76 | 5.93 | 7.24 | 8.71 |
| EVR 15 | 2.91 | 2.91 | 3.76 | 4.74 | 5.85 | 7.10 | 8.51 |
| | 3.45 | 3.45 | 4.51 | 5.72 | 7.09 | 8.64 | 10.37 |
| | 3.85 | 3.85 | 5.10 | 6.52 | 8.11 | 9.91 | 11.92 |
| EVR 20 | 5.59 | 5.59 | 7.23 | 9.11 | 11.24 | 13.66 | 16.37 |
| | 6.63 | 6.63 | 8.68 | 11.01 | 13.64 | 16.62 | 19.95 |
| | 7.39 | 7.39 | 9.81 | 12.53 | 15.60 | 19.06 | 22.92 |

*Correction factors*
When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R290 | 0.51 | 0.65 | 0.82 | 1.00 | 1.21 | 1.44 | 1.57 |

## Capacity Suction
*(continued)*

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | | | | | | **R600** |
| **EVR 2** | 0.1 | — | 0.08 | 0.13 | 0.17 | 0.22 | 0.28 |
| | 0.15 | — | — | 0.14 | 0.20 | 0.26 | 0.34 |
| | 0.2 | — | — | — | 0.21 | 0.29 | 0.38 |
| **EVR 3** | 0.1 | — | 0.14 | 0.21 | 0.29 | 0.38 | 0.48 |
| | 0.15 | — | — | 0.23 | 0.34 | 0.45 | 0.57 |
| | 0.2 | — | — | — | 0.36 | 0.50 | 0.64 |
| **EVR 6** | 0.89 | — | 0.42 | 0.63 | 0.86 | 1.12 | 1.42 |
| | 1.06 | — | — | 0.70 | 0.99 | 1.32 | 1.70 |
| | 1.18 | — | — | — | 1.07 | 1.47 | 1.91 |
| **EVR 10** | 2.12 | — | 1.01 | 1.50 | 2.05 | 2.67 | 3.37 |
| | 2.52 | — | — | 1.65 | 2.36 | 3.15 | 4.03 |
| | 2.81 | — | — | — | 2.55 | 3.49 | 4.53 |
| **EVR 15** | 2.91 | — | 1.38 | 2.05 | 2.80 | 3.65 | 4.61 |
| | 3.45 | — | — | 2.26 | 3.23 | 4.30 | 5.51 |
| | 3.85 | — | — | — | 3.49 | 4.78 | 6.20 |
| **EVR 20** | 5.59 | — | 2.65 | 3.94 | 5.38 | 7.01 | 8.87 |
| | 6.63 | — | — | 4.35 | 6.21 | 8.28 | 10.60 |
| | 7.39 | — | — | — | 6.72 | 9.19 | 11.93 |

*Correction factors*
When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R600** | 0.42 | 0.58 | 0.77 | 1.00 | 1.27 | 1.57 | 1.74 |

**Capacity**
**Suction**
*(continued)*

Capacities are based on liquid temperature $t_l$ = 25 °C ahead of evaporator.

The table values refer to the evaporator capacity and are given as a function of evaporating temperature $t_e$ and pressure drop Δp across valve.

Capacities are based on dry, saturated vapour ahead of valve.

During operation with superheated vapour ahead of valve, the capacities are reduced by 4% for each 10 K superheat.

| Type | Pressure drop Δp [bar] | Suction vapour capacity $Q_e$ [kW] at evaporating temperature $t_e$ [°C] | | | | | |
|---|---|---|---|---|---|---|---|
| | | -40 | -30 | -20 | -10 | 0 | 10 |
| | | | | | | | **R600a** |
| **EVR 2** | 0.1 | 0.08 | 0.11 | 0.16 | 0.20 | 0.26 | 0.32 |
| | 0.15 | — | 0.13 | 0.18 | 0.24 | 0.31 | 0.39 |
| | 0.2 | — | — | 0.20 | 0.27 | 0.35 | 0.44 |
| **EVR 3** | 0.1 | 0.13 | 0.19 | 0.26 | 0.34 | 0.44 | 0.54 |
| | 0.15 | — | 0.21 | 0.30 | 0.41 | 0.52 | 0.66 |
| | 0.2 | — | — | 0.33 | 0.45 | 0.59 | 0.74 |
| **EVR 6** | 0.89 | 0.38 | 0.57 | 0.78 | 1.02 | 1.30 | 1.61 |
| | 1.06 | — | 0.63 | 0.90 | 1.21 | 1.55 | 1.94 |
| | 1.18 | — | — | 0.98 | 1.34 | 1.75 | 2.21 |
| **EVR 10** | 2.12 | 0.90 | 1.34 | 1.85 | 2.42 | 3.08 | 3.83 |
| | 2.52 | — | 1.49 | 2.14 | 2.86 | 3.68 | 4.61 |
| | 2.81 | — | — | 2.32 | 3.19 | 4.15 | 5.24 |
| **EVR 15** | 2.91 | 1.23 | 1.84 | 2.53 | 3.31 | 4.21 | 5.24 |
| | 3.45 | — | 2.04 | 2.92 | 3.92 | 5.04 | 6.31 |
| | 3.85 | — | — | 3.17 | 4.36 | 5.68 | 7.17 |
| **EVR 20** | 5.59 | 2.36 | 3.53 | 4.86 | 6.37 | 8.10 | 10.07 |
| | 6.63 | — | 3.92 | 5.62 | 7.53 | 9.69 | 12.14 |
| | 7.39 | — | — | 6.10 | 8.38 | 10.93 | 13.79 |

*Correction factors*
When sizing valves, the evaporator capacity must be multiplied by a correction factor depending on liquid temperature $t_l$ ahead of expansion valve.

When the corrected capacity is known, the selection can be made from the table.

*Correction factors based on evaporating temperature $t_l$*

| $t_l$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R600a** | 0.45 | 0.60 | 0.78 | 1.00 | 1.25 | 1.54 | 1.70 |

**Capacity**
**Suction**
*(continued)*

*Hot gas defrosting*
With hot gas defrosting it is not normally possible to select a valve from condensing temperature $t_c$ and evaporating temperature $t_e$.

This is because the pressure in the evaporator as a rule quickly rises to a value near that of the condensing pressure. It remains at this value until the defrosting is finished.

In most cases therefore, the valve will be selected from condensing temperature $t_c$ and pressure drop Δp across the valve, as shown in the example for heat recovery.

*Heat recovery*
The following is given:

- Refrigerant = R22/R407C
- Evaporating temperature $t_e$ = -30 °C
- Condensing temperature $t_c$ = 40 °C
- Hot gas temperature ahead of valve $t_h$ = 85 °C
- Heat recovery condenser yield $Q_h$ = 8 kW

The capacity table for R22/R407C with $t_c$ = 40 °C gives the capacity for an EVR 10 as 8.9 kW, when pressure drop Δp is 0.2 bar.

The required capacity is calculated as :

$$Q_{table} = f_{evaporator} \times f_{hot\_temperature} \times Q_h$$

The correction factor for $t_e$ = -30 °C is given in the table as 0.95.

The correction for hot gas temperature $t_h$ = 85 °C has been calculated as 4% which corresponds to a factor of 1.04.

$Q_h$ must be corrected with factors found:
With Δp = 0.2 bar
is $Q_h$ = 8.71 x 0.95 x 1.04 = 8.6 kW.

With Δp = 0.1 bar, $Q_h$ becomes only 6.19 x 0.95 x 1.04 = 6.1 kW.

An EVR 6 would also be able to give the required capacity, but with Δp at approx. 1 bar.
The EVR 6 is therefore too small.

The EVR 15 is so large that it is doubtful whether the necessary Δp of approx. 0.1 bar could be obtained.
An EVR 15 would therefore be too large.

Result: An EVR 10 is the correct valve for the given conditions.

## Capacity
## Hot gas

| Type | Pressure drop across valve Δp [bar] | Hot gas capacity Qh [kW] Evaporating temp. $t_e$= -10 °C. Hot gas temp. $t_h$= $t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| | | **R22/R407C** | | | | |
| **EVR 2** | 0.1 | 0.47 | 0.50 | 0.52 | 0.54 | 0.55 |
| | 0.2 | 0.65 | 0.70 | 0.73 | 0.76 | 0.77 |
| | 0.4 | 0.91 | 0.98 | 1.03 | 1.07 | 1.08 |
| | 0.8 | 1.25 | 1.35 | 1.43 | 1.49 | 1.51 |
| | 1.6 | 1.65 | 1.81 | 1.95 | 2.04 | 2.09 |
| **EVR 3** | 0.1 | 0.79 | 0.84 | 0.88 | 0.91 | 0.92 |
| | 0.2 | 1.10 | 1.18 | 1.24 | 1.28 | 1.30 |
| | 0.4 | 1.54 | 1.65 | 1.74 | 1.80 | 1.83 |
| | 0.8 | 2.11 | 2.27 | 2.41 | 2.51 | 2.56 |
| | 1.6 | 2.78 | 3.06 | 3.28 | 3.44 | 3.53 |
| **EVR 6** | 0.1 | 2.33 | 2.48 | 2.61 | 2.69 | 2.73 |
| | 0.2 | 3.27 | 3.49 | 3.67 | 3.79 | 3.85 |
| | 0.4 | 4.55 | 4.88 | 5.14 | 5.33 | 5.42 |
| | 0.8 | 6.24 | 6.74 | 7.14 | 7.43 | 7.57 |
| | 1.6 | 8.24 | 9.07 | 9.73 | 10.20 | 10.47 |
| **EVR 10** | 0.1 | 5.53 | 5.89 | 6.19 | 6.39 | 6.48 |
| | 0.2 | 7.76 | 8.29 | 8.71 | 9.01 | 9.14 |
| | 0.4 | 10.81 | 11.59 | 12.21 | 12.65 | 12.86 |
| | 0.8 | 14.82 | 16.01 | 16.96 | 17.64 | 17.99 |
| | 1.6 | 19.58 | 21.53 | 23.10 | 24.24 | 24.86 |
| **EVR 15** | 0.1 | 7.57 | 8.07 | 8.47 | 8.75 | 8.87 |
| | 0.2 | 10.62 | 11.34 | 11.92 | 12.33 | 12.51 |
| | 0.4 | 14.80 | 15.86 | 16.71 | 17.32 | 17.60 |
| | 0.8 | 20.28 | 21.90 | 23.21 | 24.15 | 24.61 |
| | 1.6 | 26.79 | 29.47 | 31.61 | 33.16 | 34.02 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ +25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R22/R407C** | 0.92 | 0.95 | 0.98 | 1.00 | 1.02 | 1.04 | 1.05 |

## Capacity
### Hot gas
*(continued)*

**R22/R407C** *(continued)*

| Type | Pressure drop across valve Δp [bar] | Hot gas capacity Qh [kW] Evaporating temp. $t_e$= -10 °C. Hot gas temp. $t_h$= $t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K<br>Condensing temperature $t_c$ [°C] | | | | |
|---|---|---|---|---|---|---|
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 14.55 | 15.51 | 16.28 | 16.82 | 17.06 |
| | 0.2 | 20.43 | 21.81 | 22.93 | 23.71 | 24.07 |
| | 0.4 | 28.45 | 30.50 | 32.14 | 33.30 | 33.85 |
| | 0.8 | 38.99 | 42.12 | 44.64 | 46.43 | 47.33 |
| | 1.6 | 51.52 | 56.67 | 60.79 | 63.78 | 65.42 |
| EVR 22 | 0.1 | 17.46 | 18.61 | 19.54 | 20.19 | 20.48 |
| | 0.2 | 24.51 | 26.17 | 27.51 | 28.45 | 28.88 |
| | 0.4 | 34.15 | 36.59 | 38.57 | 39.96 | 40.62 |
| | 0.8 | 46.79 | 50.55 | 53.57 | 55.72 | 56.80 |
| | 1.6 | 61.82 | 68.00 | 72.95 | 76.53 | 78.50 |
| EVR 25 | 0.1 | 29.10 | 31.02 | 32.57 | 33.65 | 34.13 |
| | 0.2 | 40.86 | 43.62 | 45.86 | 47.42 | 48.13 |
| | 0.4 | 56.91 | 60.99 | 64.28 | 66.60 | 67.69 |
| | 0.8 | 77.99 | 84.24 | 89.28 | 92.87 | 94.67 |
| | 1.6 | 103.03 | 113.33 | 121.58 | 127.56 | 130.84 |
| EVR 32 | 0.1 | 46.57 | 49.64 | 52.11 | 53.83 | 54.60 |
| | 0.2 | 65.37 | 69.80 | 73.37 | 75.87 | 77.01 |
| | 0.4 | 91.05 | 97.59 | 102.85 | 106.56 | 108.31 |
| | 0.8 | 124.78 | 134.79 | 142.85 | 148.59 | 151.47 |
| | 1.6 | 164.86 | 181.33 | 194.53 | 204.09 | 209.34 |
| EVR 40 | 0.1 | 72.76 | 77.55 | 81.42 | 84.12 | 85.32 |
| | 0.2 | 102.14 | 109.06 | 114.64 | 118.55 | 120.33 |
| | 0.4 | 142.27 | 152.48 | 160.70 | 166.50 | 169.23 |
| | 0.8 | 194.97 | 210.61 | 223.20 | 232.17 | 236.67 |
| | 1.6 | 257.59 | 283.33 | 303.96 | 318.89 | 327.09 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R22/R407C | 0.92 | 0.95 | 0.98 | 1.00 | 1.02 | 1.04 | 1.05 |

## Capacity
## Hot gas
*(continued)*

| Type | Pressure drop across valve Δp [bar] | Hot gas capacity Qh [kW] Evaporating temp. $t_e$ = -10 °C. Hot gas temp. $t_h$ = $t_c$ 25 °C. Subcooling $\Delta t_{sub}$ = 4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| | | | | | | **R134a** |
| **EVR 2** | 0.1 | 0.37 | 0.39 | 0.41 | 0.42 | 0.42 |
| | 0.2 | 0.52 | 0.55 | 0.58 | 0.59 | 0.59 |
| | 0.4 | 0.71 | 0.77 | 0.81 | 0.83 | 0.83 |
| | 0.8 | 0.95 | 1.04 | 1.11 | 1.15 | 1.15 |
| | 1.6 | 1.19 | 1.35 | 1.47 | 1.55 | 1.57 |
| **EVR 3** | 0.1 | 0.63 | 0.67 | 0.70 | 0.71 | 0.71 |
| | 0.2 | 0.87 | 0.93 | 0.98 | 1.00 | 1.00 |
| | 0.4 | 1.20 | 1.29 | 1.36 | 1.40 | 1.40 |
| | 0.8 | 1.61 | 1.76 | 1.87 | 1.93 | 1.94 |
| | 1.6 | 2.01 | 2.28 | 2.48 | 2.61 | 2.65 |
| **EVR 6** | 0.1 | 1.85 | 1.97 | 2.06 | 2.10 | 2.10 |
| | 0.2 | 2.59 | 2.76 | 2.89 | 2.96 | 2.95 |
| | 0.4 | 3.57 | 3.84 | 4.03 | 4.14 | 4.14 |
| | 0.8 | 4.77 | 5.21 | 5.54 | 5.73 | 5.76 |
| | 1.6 | 5.95 | 6.76 | 7.35 | 7.73 | 7.85 |
| **EVR 10** | 0.1 | 4.40 | 4.69 | 4.89 | 5.00 | 4.98 |
| | 0.2 | 6.15 | 6.57 | 6.87 | 7.03 | 7.01 |
| | 0.4 | 8.47 | 9.11 | 9.58 | 9.83 | 9.83 |
| | 0.8 | 11.34 | 12.38 | 13.15 | 13.60 | 13.67 |
| | 1.6 | 14.13 | 16.05 | 17.47 | 18.35 | 18.65 |
| **EVR 15** | 0.1 | 6.02 | 6.41 | 6.69 | 6.84 | 6.81 |
| | 0.2 | 8.41 | 8.98 | 9.40 | 9.62 | 9.60 |
| | 0.4 | 11.59 | 12.47 | 13.11 | 13.46 | 13.46 |
| | 0.8 | 15.51 | 16.95 | 18.00 | 18.61 | 18.71 |
| | 1.6 | 19.34 | 21.97 | 23.90 | 25.12 | 25.52 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R134a** | 0.88 | 0.92 | 0.96 | 1.00 | 1.04 | 1.08 | 1.09 |

## Capacity
## Hot gas
*(continued)*

**R134a** *(continued)*

| Type | Pressure drop across valve Δp [bar] | Hot gas capacity Qh [kW] Evaporating temp. $t_e$= -10 °C. Hot gas temp. $t_h$= $t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K<br>Condensing temperature $t_c$ [°C] | | | | |
|---|---|---|---|---|---|---|
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 11.58 | 12.33 | 12.87 | 13.15 | 13.10 |
| | 0.2 | 16.17 | 17.28 | 18.08 | 18.50 | 18.45 |
| | 0.4 | 22.29 | 23.98 | 25.20 | 25.88 | 25.88 |
| | 0.8 | 29.83 | 32.59 | 34.61 | 35.79 | 35.97 |
| | 1.6 | 37.19 | 42.25 | 45.97 | 48.30 | 49.08 |
| EVR 22 | 0.1 | 13.90 | 14.80 | 15.45 | 15.78 | 15.73 |
| | 0.2 | 19.41 | 20.73 | 21.69 | 22.20 | 22.15 |
| | 0.4 | 26.74 | 28.77 | 30.25 | 31.06 | 31.06 |
| | 0.8 | 35.80 | 39.11 | 41.54 | 42.95 | 43.17 |
| | 1.6 | 44.63 | 50.70 | 55.16 | 57.96 | 58.89 |
| EVR 25 | 0.1 | 23.16 | 24.66 | 25.74 | 26.30 | 26.21 |
| | 0.2 | 32.35 | 34.56 | 36.15 | 37.00 | 36.91 |
| | 0.4 | 44.57 | 47.95 | 50.41 | 51.76 | 51.76 |
| | 0.8 | 59.66 | 65.18 | 69.23 | 71.59 | 71.95 |
| | 1.6 | 74.38 | 84.50 | 91.94 | 96.60 | 98.16 |
| EVR 32 | 0.1 | 37.06 | 39.46 | 41.19 | 42.09 | 41.93 |
| | 0.2 | 51.75 | 55.29 | 57.85 | 59.20 | 59.06 |
| | 0.4 | 71.32 | 76.73 | 80.66 | 82.82 | 82.81 |
| | 0.8 | 95.45 | 104.29 | 110.77 | 114.54 | 115.11 |
| | 1.6 | 119.01 | 135.20 | 147.10 | 154.55 | 157.05 |
| EVR 40 | 0.1 | 57.91 | 61.66 | 64.36 | 65.76 | 65.52 |
| | 0.2 | 80.87 | 86.39 | 90.39 | 92.50 | 92.27 |
| | 0.4 | 111.44 | 119.88 | 126.02 | 129.40 | 129.40 |
| | 0.8 | 149.15 | 162.96 | 173.07 | 178.97 | 179.87 |
| | 1.6 | 185.95 | 211.24 | 229.84 | 241.49 | 245.39 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R134a | 0.88 | 0.92 | 0.96 | 1.00 | 1.04 | 1.08 | 1.09 |

## Capacity
## Hot gas
*(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| | | **R404A/R507** | | | | |
| **EVR 2** | 0.1 | 0.42 | 0.43 | 0.43 | 0.41 | 0.37 |
| | 0.2 | 0.59 | 0.61 | 0.60 | 0.58 | 0.52 |
| | 0.4 | 0.83 | 0.85 | 0.85 | 0.81 | 0.73 |
| | 0.8 | 1.14 | 1.18 | 1.18 | 1.14 | 1.03 |
| | 1.6 | 1.52 | 1.60 | 1.62 | 1.57 | 1.42 |
| **EVR 3** | 0.1 | 0.71 | 0.73 | 0.72 | 0.69 | 0.62 |
| | 0.2 | 1.00 | 1.02 | 1.02 | 0.98 | 0.88 |
| | 0.4 | 1.40 | 1.44 | 1.43 | 1.37 | 1.24 |
| | 0.8 | 1.93 | 1.99 | 1.99 | 1.92 | 1.73 |
| | 1.6 | 2.57 | 2.69 | 2.73 | 2.64 | 2.40 |
| **EVR 6** | 0.1 | 2.11 | 2.16 | 2.14 | 2.05 | 1.84 |
| | 0.2 | 2.97 | 3.04 | 3.02 | 2.89 | 2.60 |
| | 0.4 | 4.14 | 4.25 | 4.24 | 4.06 | 3.66 |
| | 0.8 | 5.71 | 5.89 | 5.90 | 5.68 | 5.13 |
| | 1.6 | 7.62 | 7.99 | 8.08 | 7.83 | 7.11 |
| **EVR 10** | 0.1 | 5.02 | 5.12 | 5.09 | 4.87 | 4.38 |
| | 0.2 | 7.05 | 7.21 | 7.17 | 6.87 | 6.18 |
| | 0.4 | 9.84 | 10.10 | 10.07 | 9.65 | 8.70 |
| | 0.8 | 13.55 | 13.99 | 14.01 | 13.48 | 12.18 |
| | 1.6 | 18.10 | 18.96 | 19.18 | 18.59 | 16.89 |
| **EVR 15** | 0.1 | 6.87 | 7.01 | 6.97 | 6.67 | 6.00 |
| | 0.2 | 9.65 | 9.87 | 9.82 | 9.40 | 8.46 |
| | 0.4 | 13.47 | 13.82 | 13.77 | 13.21 | 11.90 |
| | 0.8 | 18.54 | 19.15 | 19.18 | 18.45 | 16.67 |
| | 1.6 | 24.76 | 25.95 | 26.25 | 25.44 | 23.11 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R404A/R507** | 0.86 | 0.91 | 0.96 | 1.00 | 1.04 | 1.08 | 1.10 |

## Capacity
### Hot gas
*(continued)*

**R404A/R507** *(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K<br>Condensing temperature $t_c$ [°C] | | | | |
|---|---|---|---|---|---|---|
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 13.21 | 13.49 | 13.40 | 12.82 | 11.53 |
| | 0.2 | 18.56 | 18.98 | 18.88 | 18.07 | 16.27 |
| | 0.4 | 25.90 | 26.58 | 26.49 | 25.40 | 22.89 |
| | 0.8 | 35.66 | 36.83 | 36.88 | 35.49 | 32.06 |
| | 1.6 | 47.62 | 49.91 | 50.48 | 48.93 | 44.44 |
| EVR 22 | 0.1 | 15.85 | 16.18 | 16.08 | 15.38 | 13.84 |
| | 0.2 | 22.27 | 22.78 | 22.65 | 21.69 | 19.52 |
| | 0.4 | 31.08 | 31.89 | 31.79 | 30.48 | 27.47 |
| | 0.8 | 42.79 | 44.19 | 44.25 | 42.58 | 38.47 |
| | 1.6 | 57.15 | 59.89 | 60.58 | 58.72 | 53.33 |
| EVR 25 | 0.1 | 26.41 | 26.97 | 26.80 | 25.64 | 23.06 |
| | 0.2 | 37.11 | 37.96 | 37.75 | 36.14 | 32.53 |
| | 0.4 | 51.80 | 53.15 | 52.98 | 50.81 | 45.79 |
| | 0.8 | 71.32 | 73.66 | 73.76 | 70.97 | 64.12 |
| | 1.6 | 95.24 | 99.81 | 100.97 | 97.86 | 88.89 |
| EVR 32 | 0.1 | 42.26 | 43.16 | 42.87 | 41.02 | 36.90 |
| | 0.2 | 59.38 | 60.74 | 60.40 | 57.83 | 52.05 |
| | 0.4 | 82.89 | 85.04 | 84.77 | 81.29 | 73.26 |
| | 0.8 | 114.11 | 117.85 | 118.01 | 113.56 | 102.60 |
| | 1.6 | 152.39 | 159.70 | 161.55 | 156.58 | 142.22 |
| EVR 40 | 0.1 | 66.03 | 67.43 | 66.99 | 64.09 | 57.65 |
| | 0.2 | 92.78 | 94.90 | 94.38 | 90.36 | 81.33 |
| | 0.4 | 129.51 | 132.88 | 132.45 | 127.02 | 114.47 |
| | 0.8 | 178.29 | 184.14 | 184.39 | 177.43 | 160.31 |
| | 1.6 | 238.11 | 249.53 | 252.42 | 244.65 | 222.22 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R404A/R507 | 0.86 | 0.91 | 0.96 | 1.00 | 1.04 | 1.08 | 1.10 |

## Capacity
## Hot gas
*(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| **R32** | | | | | | |
| **EVR 2** | 0.1 | 0.74 | 0.79 | 0.83 | 0.87 | 0.88 |
| | 0.2 | 1.04 | 1.11 | 1.18 | 1.22 | 1.24 |
| | 0.4 | 1.46 | 1.56 | 1.66 | 1.72 | 1.75 |
| | 0.8 | 2.02 | 2.18 | 2.32 | 2.41 | 2.46 |
| | 1.6 | 2.75 | 3.00 | 3.20 | 3.36 | 3.43 |
| **EVR 3** | 0.1 | 1.25 | 1.33 | 1.41 | 1.46 | 1.48 |
| | 0.2 | 1.75 | 1.88 | 1.99 | 2.06 | 2.09 |
| | 0.4 | 2.46 | 2.64 | 2.79 | 2.90 | 2.95 |
| | 0.8 | 3.41 | 3.68 | 3.91 | 4.07 | 4.15 |
| | 1.6 | 4.64 | 5.06 | 5.41 | 5.66 | 5.79 |
| **EVR 6** | 0.1 | 3.69 | 3.95 | 4.17 | 4.33 | 4.39 |
| | 0.2 | 5.19 | 5.57 | 5.88 | 6.11 | 6.21 |
| | 0.4 | 7.28 | 7.82 | 8.28 | 8.60 | 8.75 |
| | 0.8 | 10.11 | 10.91 | 11.58 | 12.07 | 12.29 |
| | 1.6 | 13.76 | 14.99 | 16.02 | 16.78 | 17.14 |
| **EVR 10** | 0.1 | 8.76 | 9.39 | 9.91 | 10.28 | 10.44 |
| | 0.2 | 12.34 | 13.23 | 13.97 | 14.51 | 14.74 |
| | 0.4 | 17.29 | 18.58 | 19.66 | 20.44 | 20.77 |
| | 0.8 | 24.01 | 25.91 | 27.50 | 28.66 | 29.18 |
| | 1.6 | 32.67 | 35.61 | 38.05 | 39.84 | 40.72 |
| **EVR 15** | 0.1 | 11.99 | 12.84 | 13.56 | 14.07 | 14.28 |
| | 0.2 | 16.88 | 18.10 | 19.12 | 19.86 | 20.17 |
| | 0.4 | 23.66 | 25.43 | 26.90 | 27.96 | 28.43 |
| | 0.8 | 32.85 | 35.46 | 37.63 | 39.22 | 39.93 |
| | 1.6 | 44.71 | 48.73 | 52.07 | 54.52 | 55.72 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R32** | 0.96 | 0.97 | 0.99 | 1.00 | 1.01 | 1.01 | 1.01 |

## Capacity
## Hot gas
*(continued)*

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

**R32** *(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 23.06 | 24.70 | 26.07 | 27.06 | 27.47 |
| | 0.2 | 32.47 | 34.81 | 36.77 | 38.18 | 38.78 |
| | 0.4 | 45.50 | 48.89 | 51.73 | 53.78 | 54.67 |
| | 0.8 | 63.18 | 68.19 | 72.37 | 75.42 | 76.80 |
| | 1.6 | 85.98 | 93.71 | 100.13 | 104.85 | 107.15 |

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R32 | 0.96 | 0.97 | 0.99 | 1.00 | 1.01 | 1.01 | 1.01 |

## Capacity
## Hot gas
*(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| | | | | | | **R290** |
| **EVR 2** | 0.1 | 0.57 | 0.59 | 0.60 | 0.60 | 0.59 |
| | 0.2 | 0.79 | 0.83 | 0.85 | 0.85 | 0.83 |
| | 0.4 | 1.10 | 1.15 | 1.18 | 1.19 | 1.16 |
| | 0.8 | 1.50 | 1.59 | 1.64 | 1.65 | 1.62 |
| | 1.6 | 1.97 | 2.12 | 2.22 | 2.26 | 2.23 |
| **EVR 3** | 0.1 | 0.95 | 0.99 | 1.02 | 1.02 | 0.99 |
| | 0.2 | 1.34 | 1.40 | 1.43 | 1.43 | 1.39 |
| | 0.4 | 1.86 | 1.95 | 2.00 | 2.01 | 1.96 |
| | 0.8 | 2.54 | 2.68 | 2.77 | 2.79 | 2.73 |
| | 1.6 | 3.32 | 3.58 | 3.74 | 3.81 | 3.76 |
| **EVR 6** | 0.1 | 2.83 | 2.94 | 3.01 | 3.01 | 2.93 |
| | 0.2 | 3.97 | 4.14 | 4.23 | 4.24 | 4.13 |
| | 0.4 | 5.51 | 5.77 | 5.92 | 5.95 | 5.81 |
| | 0.8 | 7.52 | 7.94 | 8.20 | 8.27 | 8.10 |
| | 1.6 | 9.83 | 10.60 | 11.09 | 11.29 | 11.14 |
| **EVR 10** | 0.1 | 6.72 | 6.99 | 7.15 | 7.15 | 6.96 |
| | 0.2 | 9.42 | 9.83 | 10.05 | 10.07 | 9.82 |
| | 0.4 | 13.09 | 13.71 | 14.07 | 14.12 | 13.79 |
| | 0.8 | 17.86 | 18.87 | 19.48 | 19.63 | 19.24 |
| | 1.6 | 23.35 | 25.16 | 26.34 | 26.81 | 26.46 |
| **EVR 15** | 0.1 | 9.19 | 9.57 | 9.78 | 9.78 | 9.53 |
| | 0.2 | 12.89 | 13.45 | 13.76 | 13.78 | 13.43 |
| | 0.4 | 17.92 | 18.76 | 19.26 | 19.32 | 18.87 |
| | 0.8 | 24.44 | 25.82 | 26.66 | 26.87 | 26.33 |
| | 1.6 | 31.95 | 34.44 | 36.05 | 36.69 | 36.21 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R290** | 0.88 | 0.92 | 0.96 | 1.00 | 1.04 | 1.07 | 1.09 |

**Capacity**
**Hot gas**
*(continued)*

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

**R290** *(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 17.68 | 18.40 | 18.80 | 18.81 | 18.33 |
| | 0.2 | 24.79 | 25.86 | 26.46 | 26.49 | 25.83 |
| | 0.4 | 34.46 | 36.09 | 37.03 | 37.16 | 36.29 |
| | 0.8 | 47.01 | 49.65 | 51.26 | 51.67 | 50.63 |
| | 1.6 | 61.45 | 66.22 | 69.32 | 70.55 | 69.63 |

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.
*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R290 | 0.88 | 0.92 | 0.96 | 1.00 | 1.04 | 1.07 | 1.09 |

## Capacity
## Hot gas
*(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| | | | | | | **R600** |
| **EVR 2** | 0.1 | 0.31 | 0.34 | 0.36 | 0.38 | 0.38 |
| | 0.2 | 0.43 | 0.47 | 0.50 | 0.52 | 0.54 |
| | 0.4 | 0.56 | 0.63 | 0.68 | 0.72 | 0.74 |
| | 0.8 | 0.65 | 0.78 | 0.88 | 0.95 | 1.00 |
| | 1.6 | 0.71 | 0.89 | 1.07 | 1.15 | 1.26 |
| **EVR 3** | 0.1 | 0.53 | 0.57 | 0.61 | 0.63 | 0.65 |
| | 0.2 | 0.72 | 0.79 | 0.84 | 0.88 | 0.90 |
| | 0.4 | 0.94 | 1.06 | 1.15 | 1.21 | 1.25 |
| | 0.8 | 1.09 | 1.31 | 1.48 | 1.60 | 1.68 |
| | 1.6 | 1.20 | 1.50 | 1.81 | 1.94 | 2.13 |
| **EVR 6** | 0.1 | 1.57 | 1.70 | 1.81 | 1.88 | 1.92 |
| | 0.2 | 2.14 | 2.34 | 2.50 | 2.62 | 2.68 |
| | 0.4 | 2.79 | 3.13 | 3.40 | 3.59 | 3.70 |
| | 0.8 | 3.23 | 3.89 | 4.39 | 4.75 | 4.98 |
| | 1.6 | 3.55 | 4.46 | 5.36 | 5.76 | 6.30 |
| **EVR 10** | 0.1 | 3.72 | 4.04 | 4.29 | 4.46 | 4.55 |
| | 0.2 | 5.07 | 5.56 | 5.95 | 6.22 | 6.36 |
| | 0.4 | 6.62 | 7.43 | 8.07 | 8.53 | 8.78 |
| | 0.8 | 7.68 | 9.23 | 10.43 | 11.29 | 11.82 |
| | 1.6 | 8.43 | 10.58 | 12.73 | 13.68 | 14.96 |
| **EVR 15** | 0.1 | 5.10 | 5.52 | 5.87 | 6.11 | 6.22 |
| | 0.2 | 6.94 | 7.61 | 8.14 | 8.51 | 8.70 |
| | 0.4 | 9.06 | 10.17 | 11.04 | 11.67 | 12.02 |
| | 0.8 | 10.51 | 12.63 | 14.27 | 15.45 | 16.18 |
| | 1.6 | 11.53 | 14.48 | 17.43 | 18.72 | 20.47 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R600** | 0.87 | 0.91 | 0.95 | 1.00 | 1.05 | **1.09** | **1.11** |

## Capacity
## Hot gas
*(continued)*

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

**R600** *(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 9.80 | 10.62 | 11.28 | 11.74 | 11.97 |
| | 0.2 | 13.36 | 14.63 | 15.65 | 16.36 | 16.73 |
| | 0.4 | 17.42 | 19.55 | 21.24 | 22.44 | 23.12 |
| | 0.8 | 20.21 | 24.29 | 27.44 | 29.71 | 31.11 |
| | 1.6 | 22.17 | 27.85 | 33.51 | 36.00 | 39.36 |

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.
*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R600 | 0.87 | 0.91 | 0.95 | 1.00 | 1.05 | 1.09 | 1.11 |

## Capacity
## Hot gas
*(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| **R600a** | | | | | | |
| **EVR 2** | 0.1 | 0.35 | 0.37 | 0.39 | 0.40 | 0.40 |
| | 0.2 | 0.48 | 0.52 | 0.54 | 0.56 | 0.56 |
| | 0.4 | 0.65 | 0.71 | 0.75 | 0.77 | 0.77 |
| | 0.8 | 0.82 | 0.92 | 0.99 | 1.04 | 1.06 |
| | 1.6 | 0.95 | 1.06 | 1.22 | 1.33 | 1.39 |
| **EVR 3** | 0.1 | 0.59 | 0.63 | 0.66 | 0.67 | 0.67 |
| | 0.2 | 0.82 | 0.88 | 0.92 | 0.94 | 0.94 |
| | 0.4 | 1.10 | 1.19 | 1.26 | 1.30 | 1.31 |
| | 0.8 | 1.38 | 1.55 | 1.68 | 1.76 | 1.78 |
| | 1.6 | 1.61 | 1.79 | 2.06 | 2.24 | 2.34 |
| **EVR 6** | 0.1 | 1.76 | 1.87 | 1.95 | 1.99 | 1.99 |
| | 0.2 | 2.42 | 2.60 | 2.72 | 2.79 | 2.79 |
| | 0.4 | 3.25 | 3.53 | 3.74 | 3.86 | 3.87 |
| | 0.8 | 4.08 | 4.60 | 4.97 | 5.21 | 5.29 |
| | 1.6 | 4.76 | 5.30 | 6.11 | 6.65 | 6.93 |
| **EVR 10** | 0.1 | 4.17 | 4.44 | 4.63 | 4.73 | 4.72 |
| | 0.2 | 5.76 | 6.17 | 6.46 | 6.62 | 6.62 |
| | 0.4 | 7.72 | 8.39 | 8.88 | 9.16 | 9.20 |
| | 0.8 | 9.69 | 10.92 | 11.82 | 12.37 | 12.56 |
| | 1.6 | 11.30 | 12.58 | 14.51 | 15.80 | 16.45 |
| **EVR 15** | 0.1 | 5.71 | 6.08 | 6.34 | 6.47 | 6.46 |
| | 0.2 | 7.88 | 8.44 | 8.84 | 9.06 | 9.06 |
| | 0.4 | 10.57 | 11.49 | 12.15 | 12.53 | 12.59 |
| | 0.8 | 13.27 | 14.94 | 16.17 | 16.93 | 17.19 |
| | 1.6 | 15.46 | 17.21 | 19.86 | 21.62 | 22.51 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h$ = $t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.

*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| **R600a** | 0.86 | 0.91 | 0.95 | 1.00 | 1.05 | 1.10 | 1.12 |

## Capacity
## Hot gas
*(continued)*

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

**R600a** *(continued)*

| Type | Pressure drop across valve Δp bar | Hot gas capacity Qh [kW] Evaporating temp. $t_e$=-10 °C. Hot gas temp. $t_h$=$t_c$ 25 °C. Subcooling $\Delta t_{sub}$ =4 K | | | | |
|---|---|---|---|---|---|---|
| | | Condensing temperature $t_c$ [°C] | | | | |
| | | 20 | 30 | 40 | 50 | 60 |
| EVR 20 | 0.1 | 10.98 | 11.69 | 12.19 | 12.45 | 12.42 |
| | 0.2 | 15.15 | 16.23 | 17.00 | 17.41 | 17.41 |
| | 0.4 | 20.33 | 22.09 | 23.37 | 24.10 | 24.21 |
| | 0.8 | 25.51 | 28.74 | 31.09 | 32.55 | 33.06 |
| | 1.6 | 29.73 | 33.10 | 38.19 | 41.57 | 43.30 |

*Correction factors*
When sizing valves, the table value must be multiplied by a correction factor depending on evaporating temperature $t_e$.
*Correction factors for evaporating temperature $t_e$*

| $t_e$ [°C] | -40 | -30 | -20 | -10 | 0 | 10 | 15 |
|---|---|---|---|---|---|---|---|
| R600a | 0.86 | 0.91 | 0.95 | 1.00 | 1.05 | 1.10 | 1.12 |

## Capacity
## Hot gas
*(continued)*

| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | | | | | | | | | **R22/R407C** |
| **EVR 2** | 90 | 25 | 0.005 | 0.007 | 0.010 | 0.011 | 0.012 | 0.012 | 0.012 | — | — |
| | 90 | 35 | 0.006 | 0.009 | 0.012 | 0.014 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 |
| | 90 | 45 | 0.007 | 0.010 | 0.014 | 0.016 | 0.018 | 0.019 | 0.020 | 0.020 | 0.020 |
| **EVR 3** | 90 | 25 | 0.009 | 0.013 | 0.017 | 0.019 | 0.019 | 0.020 | 0.020 | — | — |
| | 90 | 35 | 0.011 | 0.015 | 0.020 | 0.023 | 0.025 | 0.026 | 0.026 | 0.026 | 0.026 |
| | 90 | 45 | 0.012 | 0.017 | 0.023 | 0.027 | 0.030 | 0.032 | 0.033 | 0.034 | 0.034 |
| **EVR 6** | 90 | 25 | 0.027 | 0.037 | 0.049 | 0.055 | 0.058 | 0.058 | 0.058 | — | — |
| | 90 | 35 | 0.032 | 0.044 | 0.059 | 0.068 | 0.073 | 0.076 | 0.076 | 0.076 | 0.076 |
| | 90 | 45 | 0.037 | 0.051 | 0.069 | 0.081 | 0.089 | 0.095 | 0.098 | 0.099 | 0.099 |
| **EVR 10** | 90 | 25 | 0.065 | 0.089 | 0.117 | 0.131 | 0.137 | 0.138 | 0.138 | — | — |
| | 90 | 35 | 0.076 | 0.105 | 0.140 | 0.161 | 0.174 | 0.180 | 0.181 | 0.181 | 0.181 |
| | 90 | 45 | 0.088 | 0.122 | 0.165 | 0.193 | 0.212 | 0.225 | 0.233 | 0.236 | 0.236 |
| **EVR 15** | 90 | 25 | 0.089 | 0.122 | 0.160 | 0.179 | 0.188 | 0.188 | 0.188 | — | — |
| | 90 | 35 | 0.104 | 0.143 | 0.191 | 0.220 | 0.238 | 0.247 | 0.248 | 0.248 | 0.248 |
| | 90 | 45 | 0.120 | 0.167 | 0.226 | 0.264 | 0.291 | 0.308 | 0.319 | 0.323 | 0.323 |
| **EVR 20** | 90 | 25 | 0.171 | 0.234 | 0.307 | 0.345 | 0.361 | 0.362 | 0.362 | — | — |
| | 90 | 35 | 0.200 | 0.275 | 0.368 | 0.424 | 0.457 | 0.474 | 0.477 | 0.477 | 0.477 |
| | 90 | 45 | 0.231 | 0.320 | 0.434 | 0.508 | 0.559 | 0.593 | 0.613 | 0.621 | 0.622 |
| **EVR 22** | 90 | 25 | 0.206 | 0.281 | 0.368 | 0.414 | 0.433 | 0.435 | 0.435 | — | — |
| | 90 | 35 | 0.240 | 0.330 | 0.441 | 0.509 | 0.549 | 0.569 | 0.573 | 0.573 | 0.573 |
| | 90 | 45 | 0.277 | 0.384 | 0.521 | 0.610 | 0.671 | 0.711 | 0.735 | 0.745 | 0.746 |
| **EVR 25** | 90 | 25 | 0.343 | 0.468 | 0.614 | 0.690 | 0.722 | 0.724 | 0.724 | — | — |
| | 90 | 35 | 0.399 | 0.550 | 0.736 | 0.848 | 0.915 | 0.948 | 0.955 | 0.955 | 0.955 |
| | 90 | 45 | 0.462 | 0.641 | 0.869 | 1.017 | 1.118 | 1.185 | 1.226 | 1.242 | 1.243 |
| **EVR 32** | 90 | 25 | 0.548 | 0.749 | 0.982 | 1.104 | 1.155 | 1.159 | 1.159 | — | — |
| | 90 | 35 | 0.639 | 0.880 | 1.177 | 1.356 | 1.464 | 1.517 | 1.527 | 1.527 | 1.527 |
| | 90 | 45 | 0.740 | 1.025 | 1.390 | 1.626 | 1.788 | 1.896 | 1.961 | 1.988 | 1.989 |
| **EVR 40** | 90 | 25 | 0.857 | 1.171 | 1.535 | 1.726 | 1.805 | 1.811 | 1.811 | — | — |
| | 90 | 35 | 0.998 | 1.375 | 1.839 | 2.119 | 2.287 | 2.371 | 2.387 | 2.387 | 2.387 |
| | 90 | 45 | 1.156 | 1.602 | 2.171 | 2.541 | 2.794 | 2.963 | 3.064 | 3.106 | 3.108 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

**Capacity**
**Hot gas**
*(continued)*

| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **R134a** | | | | | | | | | | | |
| **EVR 2** | 60 | 25 | 0.005 | 0.007 | 0.008 | 0.008 | 0.008 | — | — | — | — |
| | 60 | 35 | 0.006 | 0.008 | 0.010 | 0.011 | 0.011 | 0.011 | 0.011 | — | — |
| | 60 | 45 | 0.007 | 0.010 | 0.013 | 0.014 | 0.015 | 0.015 | 0.015 | 0.015 | 0.015 |
| **EVR 3** | 60 | 25 | 0.008 | 0.011 | 0.014 | 0.014 | 0.014 | — | — | — | — |
| | 60 | 35 | 0.010 | 0.013 | 0.017 | 0.019 | 0.019 | 0.019 | 0.019 | — | — |
| | 60 | 45 | 0.012 | 0.016 | 0.021 | 0.024 | 0.025 | 0.026 | 0.026 | 0.026 | 0.026 |
| **EVR 6** | 60 | 25 | 0.024 | 0.033 | 0.040 | 0.042 | 0.042 | — | — | — | — |
| | 60 | 35 | 0.029 | 0.040 | 0.051 | 0.056 | 0.056 | 0.056 | 0.056 | — | — |
| | 60 | 45 | 0.035 | 0.048 | 0.063 | 0.071 | 0.075 | 0.076 | 0.076 | 0.076 | 0.076 |
| **EVR 10** | 60 | 25 | 0.058 | 0.077 | 0.095 | 0.099 | 0.099 | — | — | — | — |
| | 60 | 35 | 0.069 | 0.094 | 0.121 | 0.132 | 0.134 | 0.134 | 0.134 | — | — |
| | 60 | 45 | 0.083 | 0.113 | 0.149 | 0.169 | 0.179 | 0.181 | 0.181 | 0.181 | 0.181 |
| **EVR 15** | 60 | 25 | 0.080 | 0.106 | 0.131 | 0.135 | 0.135 | — | — | — | — |
| | 60 | 35 | 0.095 | 0.129 | 0.165 | 0.181 | 0.184 | 0.184 | 0.184 | — | — |
| | 60 | 45 | 0.113 | 0.155 | 0.204 | 0.231 | 0.244 | 0.247 | 0.247 | 0.247 | 0.247 |
| **EVR 20** | 60 | 25 | 0.153 | 0.204 | 0.251 | 0.259 | 0.259 | — | — | — | — |
| | 60 | 35 | 0.183 | 0.248 | 0.318 | 0.348 | 0.353 | 0.353 | 0.353 | — | — |
| | 60 | 45 | 0.217 | 0.297 | 0.392 | 0.444 | 0.470 | 0.475 | 0.475 | 0.475 | 0.475 |
| **EVR 22** | 60 | 25 | 0.184 | 0.245 | 0.301 | 0.311 | 0.311 | — | — | — | — |
| | 60 | 35 | 0.219 | 0.297 | 0.382 | 0.418 | 0.424 | 0.424 | 0.424 | — | — |
| | 60 | 45 | 0.261 | 0.357 | 0.471 | 0.533 | 0.564 | 0.570 | 0.570 | 0.570 | 0.570 |
| **EVR 25** | 60 | 25 | 0.306 | 0.408 | 0.502 | 0.519 | 0.519 | — | — | — | — |
| | 60 | 35 | 0.366 | 0.495 | 0.636 | 0.697 | 0.706 | 0.706 | 0.706 | — | — |
| | 60 | 45 | 0.434 | 0.595 | 0.785 | 0.889 | 0.940 | 0.951 | 0.951 | 0.951 | 0.951 |
| **EVR 32** | 60 | 25 | 0.490 | 0.652 | 0.803 | 0.830 | 0.830 | — | — | — | — |
| | 60 | 35 | 0.585 | 0.792 | 1.018 | 1.114 | 1.130 | 1.130 | 1.130 | — | — |
| | 60 | 45 | 0.695 | 0.952 | 1.255 | 1.422 | 1.504 | 1.521 | 1.521 | 1.521 | 1.521 |
| **EVR 40** | 60 | 25 | 0.765 | 1.019 | 1.255 | 1.297 | 1.297 | — | — | — | — |
| | 60 | 35 | 0.914 | 1.238 | 1.591 | 1.741 | 1.765 | 1.765 | 1.765 | — | — |
| | 60 | 45 | 1.086 | 1.487 | 1.962 | 2.222 | 2.350 | 2.377 | 2.377 | 2.377 | 2.377 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

## Capacity
## Hot gas
*(continued)*

| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **R404A/R507** | | | | | | | | | | | |
| **EVR 2** | 60 | 25 | 0.007 | 0.010 | 0.013 | 0.015 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 |
| | 60 | 35 | 0.008 | 0.011 | 0.015 | 0.018 | 0.020 | 0.021 | 0.021 | 0.021 | 0.021 |
| | 60 | 45 | 0.010 | 0.014 | 0.019 | 0.022 | 0.024 | 0.026 | 0.027 | 0.028 | 0.028 |
| **EVR 3** | 60 | 25 | 0.012 | 0.016 | 0.021 | 0.025 | 0.026 | 0.027 | 0.027 | 0.027 | 0.027 |
| | 60 | 35 | 0.014 | 0.019 | 0.026 | 0.030 | 0.033 | 0.035 | 0.036 | 0.036 | 0.036 |
| | 60 | 45 | 0.017 | 0.023 | 0.031 | 0.037 | 0.041 | 0.044 | 0.046 | 0.047 | 0.048 |
| **EVR 6** | 60 | 25 | 0.035 | 0.048 | 0.064 | 0.073 | 0.078 | 0.079 | 0.079 | 0.079 | 0.079 |
| | 60 | 35 | 0.041 | 0.057 | 0.077 | 0.089 | 0.098 | 0.103 | 0.105 | 0.106 | 0.106 |
| | 60 | 45 | 0.049 | 0.068 | 0.093 | 0.109 | 0.121 | 0.130 | 0.136 | 0.139 | 0.141 |
| **EVR 10** | 60 | 25 | 0.083 | 0.114 | 0.151 | 0.173 | 0.184 | 0.188 | 0.189 | 0.189 | 0.189 |
| | 60 | 35 | 0.098 | 0.135 | 0.183 | 0.213 | 0.232 | 0.244 | 0.250 | 0.252 | 0.252 |
| | 60 | 45 | 0.116 | 0.162 | 0.221 | 0.260 | 0.288 | 0.308 | 0.323 | 0.331 | 0.335 |
| **EVR 15** | 60 | 25 | 0.113 | 0.156 | 0.207 | 0.236 | 0.252 | 0.258 | 0.258 | 0.258 | 0.258 |
| | 60 | 35 | 0.134 | 0.185 | 0.250 | 0.291 | 0.318 | 0.334 | 0.343 | 0.344 | 0.344 |
| | 60 | 45 | 0.159 | 0.221 | 0.302 | 0.356 | 0.394 | 0.422 | 0.441 | 0.453 | 0.459 |
| **EVR 20** | 60 | 25 | 0.218 | 0.300 | 0.398 | 0.454 | 0.485 | 0.496 | 0.496 | 0.496 | 0.496 |
| | 60 | 35 | 0.258 | 0.356 | 0.481 | 0.559 | 0.611 | 0.643 | 0.659 | 0.662 | 0.662 |
| | 60 | 45 | 0.306 | 0.426 | 0.581 | 0.684 | 0.758 | 0.812 | 0.849 | 0.872 | 0.883 |
| **EVR 22** | 60 | 25 | 0.262 | 0.360 | 0.477 | 0.545 | 0.582 | 0.595 | 0.595 | 0.595 | 0.595 |
| | 60 | 35 | 0.309 | 0.428 | 0.577 | 0.671 | 0.733 | 0.772 | 0.791 | 0.794 | 0.794 |
| | 60 | 45 | 0.368 | 0.511 | 0.697 | 0.821 | 0.910 | 0.974 | 1.018 | 1.046 | 1.059 |
| **EVR 25** | 60 | 25 | 0.436 | 0.599 | 0.795 | 0.908 | 0.969 | 0.992 | 0.992 | 0.992 | 0.992 |
| | 60 | 35 | 0.515 | 0.713 | 0.961 | 1.119 | 1.222 | 1.286 | 1.318 | 1.324 | 1.324 |
| | 60 | 45 | 0.613 | 0.852 | 1.161 | 1.368 | 1.517 | 1.624 | 1.697 | 1.744 | 1.766 |
| **EVR 32** | 60 | 25 | 0.698 | 0.959 | 1.272 | 1.453 | 1.551 | 1.587 | 1.588 | 1.588 | 1.588 |
| | 60 | 35 | 0.825 | 1.140 | 1.538 | 1.790 | 1.955 | 2.058 | 2.109 | 2.118 | 2.118 |
| | 60 | 45 | 0.980 | 1.362 | 1.858 | 2.190 | 2.427 | 2.598 | 2.716 | 2.790 | 2.825 |
| **EVR 40** | 60 | 25 | 1.091 | 1.498 | 1.988 | 2.270 | 2.424 | 2.480 | 2.481 | 2.481 | 2.481 |
| | 60 | 35 | 1.289 | 1.782 | 2.403 | 2.797 | 3.055 | 3.215 | 3.296 | 3.310 | 3.310 |
| | 60 | 45 | 1.532 | 2.129 | 2.903 | 3.421 | 3.792 | 4.059 | 4.243 | 4.359 | 4.414 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

## Capacity
## Hot gas
*(continued)*

**R32**

| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| EVR 2 | 60 | 25 | 0.006 | 0.008 | 0.011 | 0.013 | 0.014 | 0.015 | 0.016 | 0.016 | 0.016 |
| | 60 | 35 | 0.007 | 0.010 | 0.013 | 0.016 | 0.018 | 0.019 | 0.020 | 0.021 | 0.021 |
| | 60 | 45 | 0.008 | 0.012 | 0.016 | 0.019 | 0.022 | 0.023 | 0.025 | 0.026 | 0.027 |
| EVR 3 | 60 | 25 | 0.010 | 0.014 | 0.019 | 0.022 | 0.024 | 0.026 | 0.027 | 0.027 | 0.027 |
| | 60 | 35 | 0.012 | 0.017 | 0.023 | 0.027 | 0.030 | 0.032 | 0.034 | 0.035 | 0.036 |
| | 60 | 45 | 0.014 | 0.020 | 0.027 | 0.032 | 0.036 | 0.040 | 0.042 | 0.044 | 0.046 |
| EVR 6 | 60 | 25 | 0.030 | 0.041 | 0.056 | 0.065 | 0.072 | 0.076 | 0.079 | 0.080 | 0.080 |
| | 60 | 35 | 0.035 | 0.049 | 0.067 | 0.079 | 0.088 | 0.095 | 0.100 | 0.104 | 0.106 |
| | 60 | 45 | 0.042 | 0.058 | 0.080 | 0.096 | 0.108 | 0.117 | 0.125 | 0.131 | 0.136 |
| EVR 10 | 60 | 25 | 0.071 | 0.098 | 0.133 | 0.156 | 0.171 | 0.181 | 0.187 | 0.190 | 0.190 |
| | 60 | 35 | 0.083 | 0.116 | 0.159 | 0.189 | 0.210 | 0.226 | 0.238 | 0.246 | 0.252 |
| | 60 | 45 | 0.099 | 0.138 | 0.191 | 0.228 | 0.256 | 0.279 | 0.297 | 0.311 | 0.322 |
| EVR 15 | 60 | 25 | 0.097 | 0.134 | 0.182 | 0.213 | 0.234 | 0.248 | 0.256 | 0.260 | 0.260 |
| | 60 | 35 | 0.114 | 0.159 | 0.218 | 0.258 | 0.288 | 0.310 | 0.326 | 0.337 | 0.344 |
| | 60 | 45 | 0.136 | 0.189 | 0.261 | 0.312 | 0.351 | 0.382 | 0.406 | 0.425 | 0.441 |
| EVR 20 | 60 | 25 | 0.186 | 0.258 | 0.350 | 0.409 | 0.450 | 0.477 | 0.493 | 0.499 | 0.499 |
| | 60 | 35 | 0.220 | 0.306 | 0.419 | 0.496 | 0.553 | 0.596 | 0.627 | 0.649 | 0.662 |
| | 60 | 45 | 0.261 | 0.364 | 0.503 | 0.600 | 0.675 | 0.734 | 0.781 | 0.818 | 0.847 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

## Capacity
## Hot gas
*(continued)*

**R290**

| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| EVR 2 | 60 | 25 | 0.004 | 0.005 | 0.007 | 0.008 | 0.008 | 0.008 | 0.008 | — | — |
| | 60 | 35 | 0.005 | 0.006 | 0.008 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 |
| | 60 | 45 | 0.005 | 0.007 | 0.010 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | 0.013 |
| EVR 3 | 60 | 25 | 0.007 | 0.009 | 0.012 | 0.013 | 0.013 | 0.013 | 0.013 | — | — |
| | 60 | 35 | 0.008 | 0.011 | 0.014 | 0.016 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 |
| | 60 | 45 | 0.009 | 0.013 | 0.017 | 0.020 | 0.021 | 0.022 | 0.023 | 0.023 | 0.023 |
| EVR 6 | 60 | 25 | 0.020 | 0.027 | 0.035 | 0.039 | 0.040 | 0.040 | 0.040 | — | — |
| | 60 | 35 | 0.023 | 0.032 | 0.042 | 0.048 | 0.051 | 0.052 | 0.052 | 0.052 | 0.052 |
| | 60 | 45 | 0.027 | 0.037 | 0.050 | 0.058 | 0.063 | 0.066 | 0.067 | 0.067 | 0.067 |
| EVR 10 | 60 | 25 | 0.047 | 0.064 | 0.083 | 0.092 | 0.094 | 0.094 | 0.094 | — | — |
| | 60 | 35 | 0.055 | 0.075 | 0.100 | 0.113 | 0.121 | 0.123 | 0.123 | 0.123 | 0.123 |
| | 60 | 45 | 0.064 | 0.088 | 0.119 | 0.138 | 0.150 | 0.157 | 0.160 | 0.160 | 0.160 |
| EVR 15 | 60 | 25 | 0.064 | 0.088 | 0.113 | 0.125 | 0.129 | 0.129 | 0.129 | — | — |
| | 60 | 35 | 0.075 | 0.103 | 0.136 | 0.155 | 0.165 | 0.168 | 0.168 | 0.168 | 0.168 |
| | 60 | 45 | 0.087 | 0.121 | 0.162 | 0.188 | 0.205 | 0.214 | 0.218 | 0.219 | 0.219 |
| EVR 20 | 60 | 25 | 0.124 | 0.168 | 0.218 | 0.241 | 0.247 | 0.247 | 0.247 | — | — |
| | 60 | 35 | 0.144 | 0.198 | 0.262 | 0.299 | 0.318 | 0.324 | 0.324 | 0.324 | 0.324 |
| | 60 | 45 | 0.168 | 0.232 | 0.312 | 0.362 | 0.394 | 0.412 | 0.420 | 0.420 | 0.420 |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

## Capacity
## Hot gas
*(continued)*

**R600**

| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| EVR 2 | 60 | 25 | 0.002 | 0.002 | — | — | — | — | — | — | — |
| | 60 | 35 | 0.002 | 0.003 | 0.003 | — | — | — | — | — | — |
| | 60 | 45 | 0.003 | 0.004 | 0.004 | 0.004 | — | — | — | — | — |
| EVR 3 | 60 | 25 | 0.003 | 0.004 | — | — | — | — | — | — | — |
| | 60 | 35 | 0.004 | 0.005 | 0.005 | — | — | — | — | — | — |
| | 60 | 45 | 0.005 | 0.006 | 0.007 | 0.007 | — | — | — | — | — |
| EVR 6 | 60 | 25 | 0.010 | 0.011 | — | — | — | — | — | — | — |
| | 60 | 35 | 0.012 | 0.015 | 0.015 | — | — | — | — | — | — |
| | 60 | 45 | 0.014 | 0.018 | 0.020 | 0.020 | — | — | — | — | — |
| EVR 10 | 60 | 25 | 0.023 | 0.026 | — | — | — | — | — | — | — |
| | 60 | 35 | 0.029 | 0.035 | 0.036 | — | — | — | — | — | — |
| | 60 | 45 | 0.034 | 0.044 | 0.048 | 0.048 | — | — | — | — | — |
| EVR 15 | 60 | 25 | 0.032 | 0.036 | — | — | — | — | — | — | — |
| | 60 | 35 | 0.039 | 0.048 | 0.049 | — | — | — | — | — | — |
| | 60 | 45 | 0.047 | 0.060 | 0.066 | 0.066 | — | — | — | — | — |
| EVR 20 | 60 | 25 | 0.061 | 0.069 | — | — | — | — | — | — | — |
| | 60 | 35 | 0.075 | 0.092 | 0.095 | — | — | — | — | — | — |
| | 60 | 45 | 0.090 | 0.116 | 0.127 | 0.127 | — | — | — | — | — |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

## Capacity
## Hot gas
*(continued)*

**R600a**

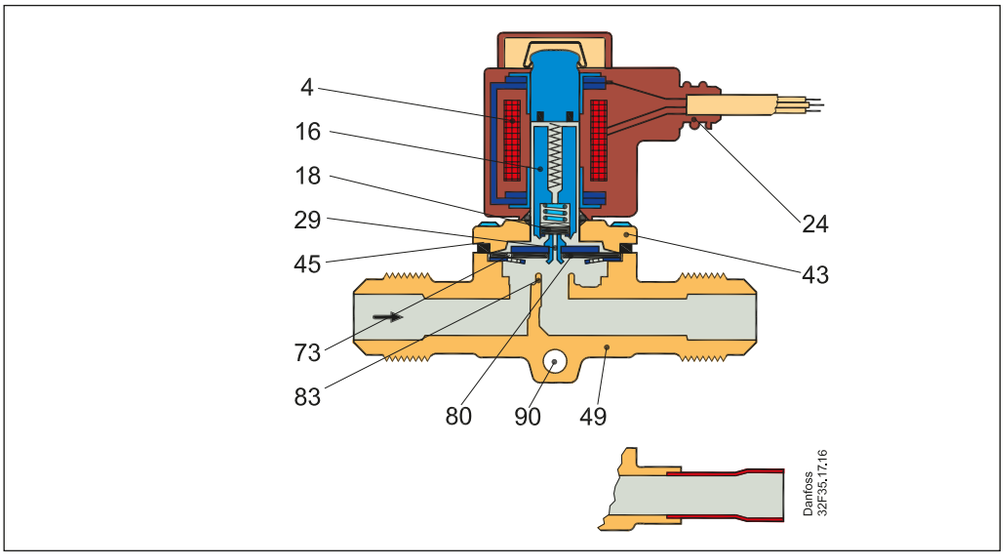
| Type | Hot gas temperature $t_h$ [°C] | Condensing temperature $t_c$ [°C] | Hot gas capacity $G_h$ [kg/s] at pressure drop across valve Δp [bar] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| EVR 2 | 60 | 25 | 0.002 | 0.003 | 0.003 | — | — | — | — | — | — |
| | 60 | 35 | 0.003 | 0.004 | 0.004 | 0.004 | — | — | — | — | — |
| | 60 | 45 | 0.004 | 0.005 | 0.006 | 0.006 | 0.006 | — | — | — | — |
| EVR 3 | 60 | 25 | 0.004 | 0.005 | 0.005 | — | — | — | — | — | — |
| | 60 | 35 | 0.005 | 0.007 | 0.007 | 0.007 | — | — | — | — | — |
| | 60 | 45 | 0.006 | 0.008 | 0.010 | 0.010 | 0.010 | — | — | — | — |
| EVR 6 | 60 | 25 | 0.012 | 0.015 | 0.016 | — | — | — | — | — | — |
| | 60 | 35 | 0.015 | 0.019 | 0.022 | 0.022 | — | — | — | — | — |
| | 60 | 45 | 0.018 | 0.023 | 0.028 | 0.029 | 0.029 | — | — | — | — |
| EVR 10 | 60 | 25 | 0.030 | 0.037 | 0.038 | — | — | — | — | — | — |
| | 60 | 35 | 0.036 | 0.046 | 0.052 | 0.052 | — | — | — | — | — |
| | 60 | 45 | 0.042 | 0.056 | 0.067 | 0.068 | 0.068 | — | — | — | — |
| EVR 15 | 60 | 25 | 0.041 | 0.050 | 0.053 | — | — | — | — | — | — |
| | 60 | 35 | 0.049 | 0.063 | 0.071 | 0.071 | — | — | — | — | — |
| | 60 | 45 | 0.058 | 0.076 | 0.092 | 0.093 | 0.093 | — | — | — | — |
| EVR 20 | 60 | 25 | 0.078 | 0.097 | 0.101 | — | — | — | — | — | — |
| | 60 | 35 | 0.094 | 0.121 | 0.136 | 0.136 | — | — | — | — | — |
| | 60 | 45 | 0.111 | 0.147 | 0.177 | 0.179 | 0.179 | — | — | — | — |

An increase in hot gas temperature $t_h$ of 10 K, based on $t_h = t_c$ 25 °C, reduces valve capacity approx. 2% and vice versa.

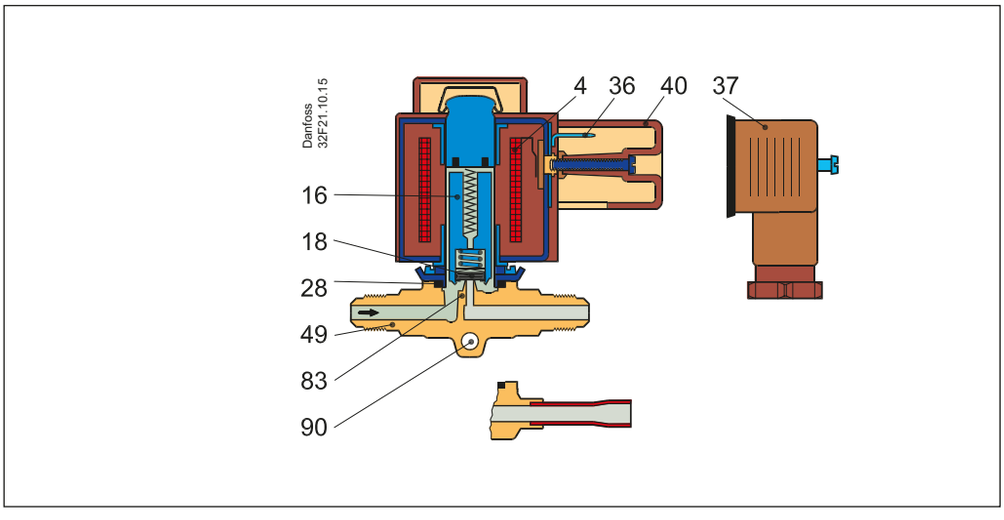
A change in evaporating temperature $t_e$ changes valve capacity; see correction factor table below.

## Design

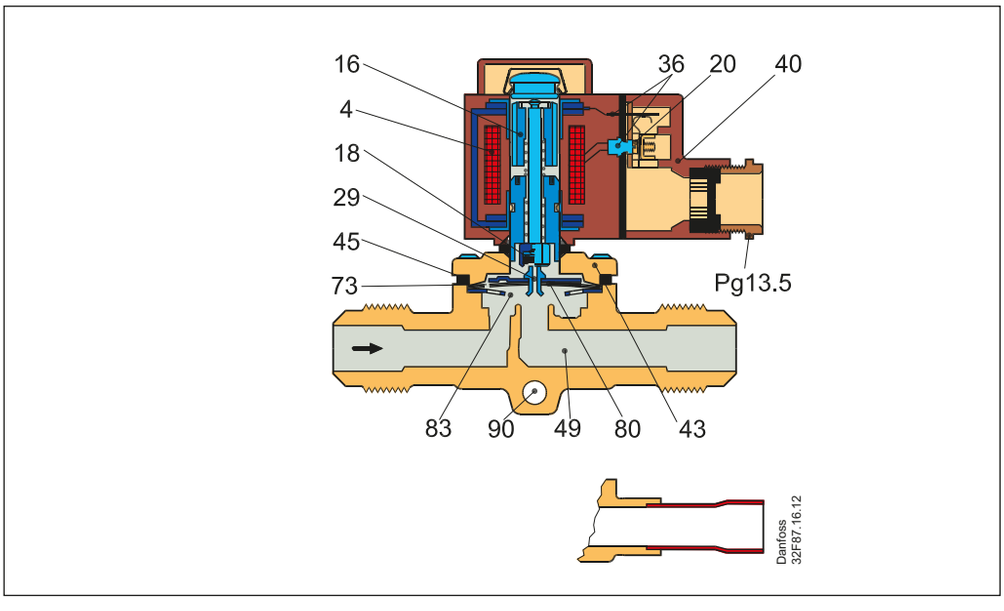
*EVR 10 NC*




*EVR 2 NC*




*EVR 10 NO*

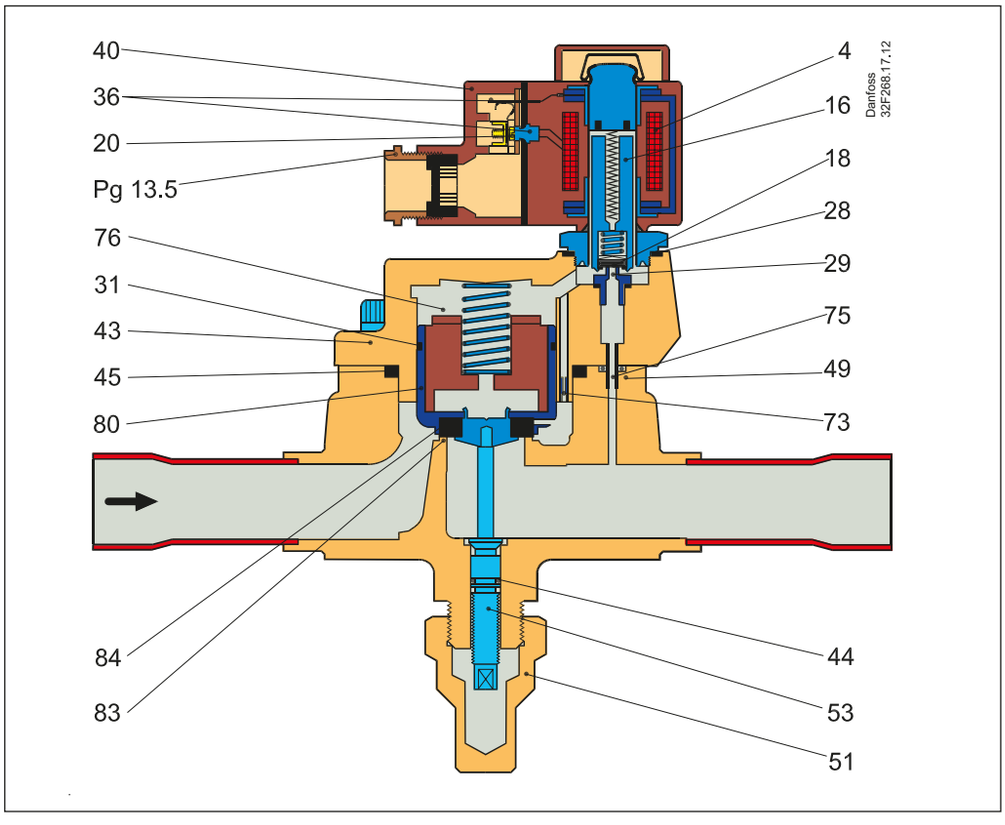



4. Coil
16. Armature
18. Valve plate/ Pilot valve plate
20. Earth terminal
24. Connection for flexible steel hose
28. Gasket
29. Pilot orifice
30. O-ring
36. DIN plug
37. DIN socket (to DIN 43650)
40. Protective cap/ Terminal box
43. Valve cover
44. O-ring
45. Valve cover gasket
49. Valve body
73. Equalization hole
80. Diaphragm/Servo piston
83. Valve seat
90. Mounting hole

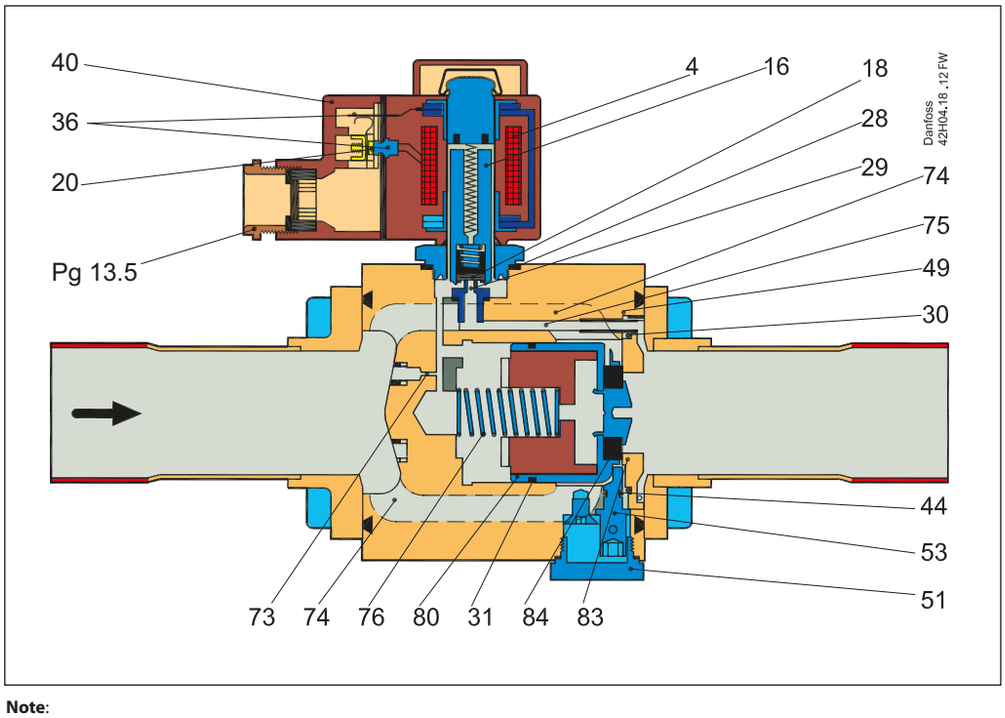
**Note**:
The drawings are only representative.

**Design**
*(continued)*

*EVR 25 (NC)*




*EVR 32 and EVR 40 (NC)*




4. Coil
16. Armature
18. Valve plate / Pilot valve plate
20. Earth terminal
28. Gasket
29. Pilot orifice
30. O-ring
31. Piston ring
36. DIN plug
37. DIN socket (to DIN 43650)
40. Protective cap / Terminal box
43. Valve cover
44. O-ring
45. Valve cover gasket
49. Valve body
51. Threaded plug
53. Manual operation spindle
73. Equalization hole
74. Main channel
75. Pilot channel
76. Compression spring
80. Diaphragm / Servo piston
83. Valve seat
84. Main valve plate

**Note**:
The drawings are only representative.

## Function

EVR solenoid valves are designed on two different principles:

1. Direct operation
2. Servo operation

**1. Direct operation**
EVR 2 – EVR 3 are direct operated. The valves open directly for full flow when the armature (16) moves up into the magnetic field of the coil.

This means that the valves operate with a min differential pressure of 0 bar.

The valve plate (18) is fitted directly on the armature (16).

Inlet pressure acts from above on the armature and the valve plate. Thus, inlet pressure and spring force act to close the valve when the coil is currentless.

**2. Servo operation**
EVR 6 – EVR 22 are servo operated with a "floating" diaphragm (80). The pilot orifice (29) of stainless steel is placed in the centre of the diaphragm. The pilot valve plate (18) is fitted directly to the armature (16). When the coil is currentless, the main orifice and pilot orifice are closed. The pilot orifice and main orifice are held closed by the armature spring force and the differential pressure between inlet and outlet sides.

When current is applied to the coil the armature is drawn up into the magnetic field and opens the pilot orifice. This relieves the pressure above the diaphragm, i.e. the space above the diaphragm becomes connected to the outlet side of the valve.

The differential pressure between inlet and outlet sides then presses the diaphragm away from the main orifice and opens it for full flow. Therefore a certain minimum differential pressure is necessary to open the valve and keep it open. For EVR 6 – EVR 22 valves this differential pressure is 0.05 bar.

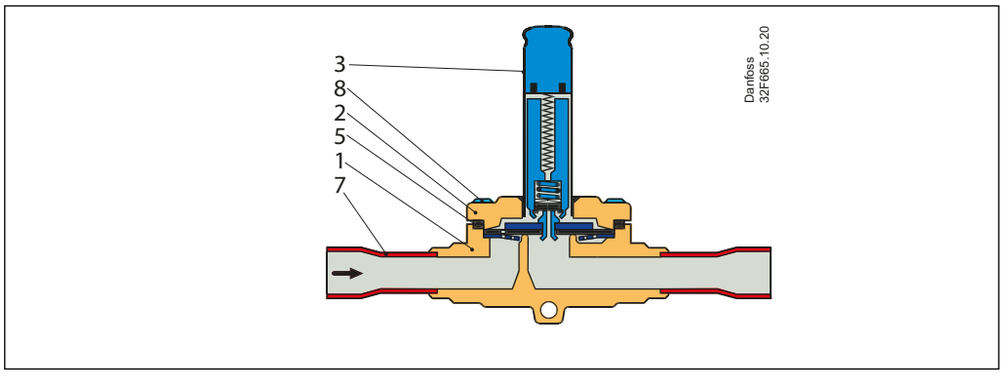
When current is switched off, the pilot orifice closes. Via the equalization holes (73) in the diaphragm, the pressure above the diaphragm then rises to the same value as the inlet pressure and the diaphragm closes the main orifice.

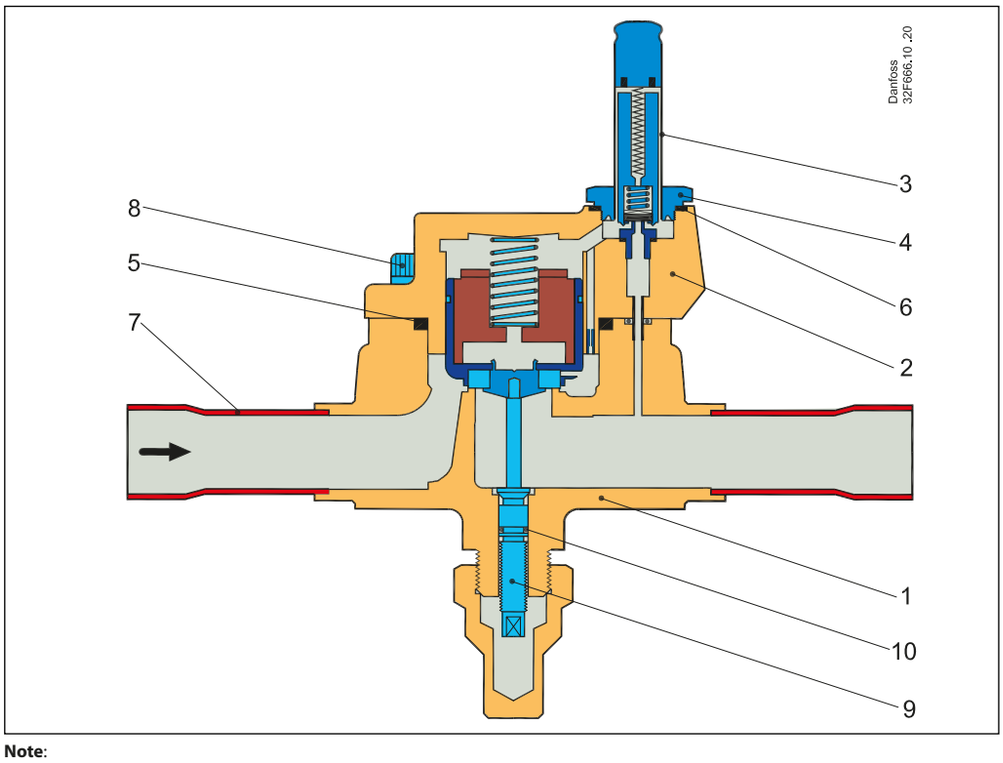
EVR 25, EVR 32 and EVR 40 are servo operated piston valves. The valves are closed with currentless coil. The servo piston (80) with main valve plate (84) closes against the valve seat (83) by means of the differential pressure between inlet and outlet side of the valve and the force of the compression spring (76). When current to the coil is switched on, the pilot orifice (29) opens. This relieves the pressure on the piston spring side of the valve. The differential pressure will then open the valve. The minimum differential pressure needed for full opening of the valves is 0.2 bar. EVR (NO) has the opposite function to EVR (NC), i.e. it is open with de-energised coil.

EVR (NO) is available with servo operation only.

## Material specifications

*EVR 2 – EVR 25*



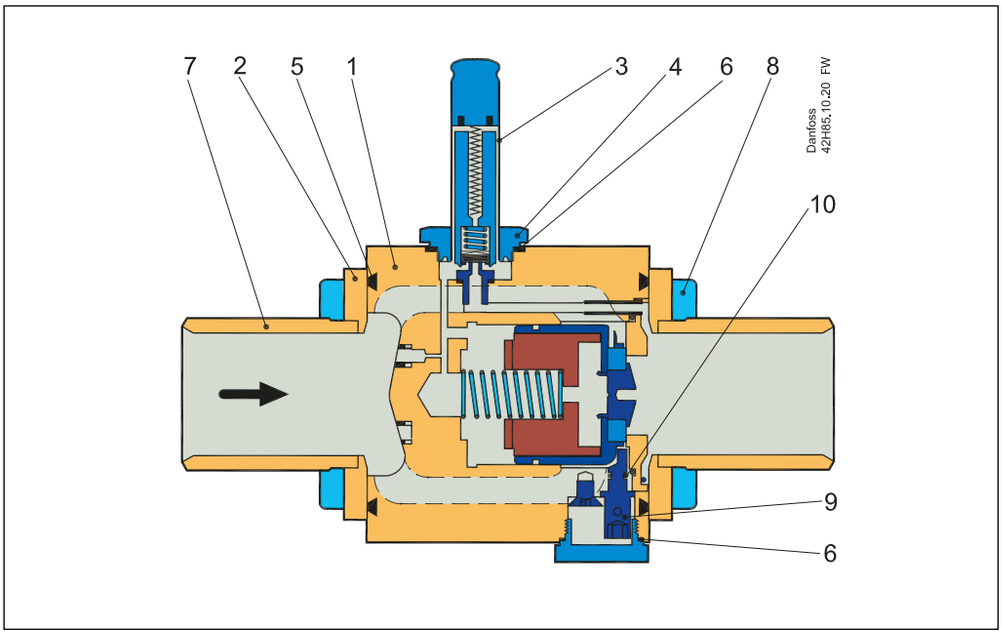




**Note**:
The drawings are only representative.

| No. | Description | Solenoid valves type | Material | Analysis | Mat.no. | W.no. | Standard | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | DIN | EN |
| 1 | **Valve body** | **EVR 2 – 25** | Brass | CuZn40Pb2 | CW617N | 2.0402 | 17672-1 | 12165 |
| 2 | **Cover** | **EVR 2 – 6** | Stainless steel | X5 CrNi18-10 | — | 1.4301 | — | 10088 |
| | | **EVR 10 – 22** | Brass | CuZn40Pb2 | CW617N | 2.0402 | 17672-1 | 12165 |
| | | **EVR 25** | Cast iron | EN-GJS-400-18-LT | EN-JS1025 | — | — | 1563 |
| 3 | **Armature tube** | **EVR 2 – 25** | Stainless steel | X2 CrNi19-11 | — | 1.4306 | — | 10088 |
| 4 | **Armature tube nut** | **EVR 25** | Stainless steel | X8 CrNiS 18-9 | — | 1.4305 | — | 10088 |
| 5 | **Gasket** | **EVR 2 – 25** | Rubber | Cr | — | — | — | — |
| 6 | **Gasket** | **EVR 25** | Al. gasket | Al 99.5 | — | 3.0255 | — | 10210 |
| 7 | **Solder tube** | **EVR 25** | Copper | SF-Cu | CW024A | 2.0090 | 1787 | 12449 |
| 8 | **Screws** | **EVR 2 – 25** | Stainless steel | A2-70 | — | — | 3506 | — |
| 9 | **Spindle for man. operat.** | **EVR 25** | Stainless steel | X8 CrNiS 18-9 | — | 1.4305 | — | 10088 |
| 10 | **Gasket** | **EVR 25** | Rubber | Cr | — | — | — | — |

## Material specifications
*(continued)*

*EVR 32 – EVR 40*



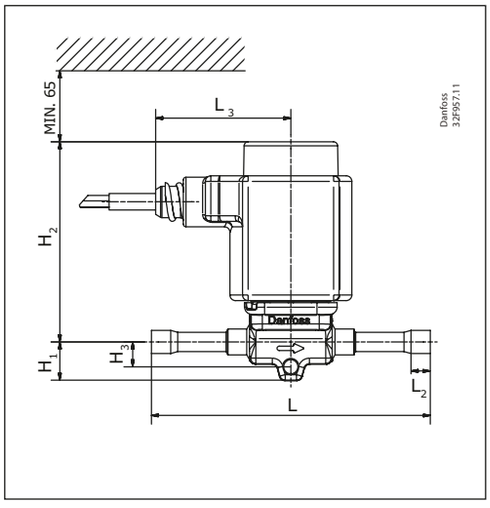

**Note**:
The drawing is only representative.

| No. | Description | Solenoid valves type | Material | Analysis | Mat.no. | W.no. | Standard | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | DIN | EN |
| 1 | **Valve body** | **EVR 32 / EVR 40** | Cast Iron | EN-GJS-400-18-LT | EN-JS1025 | — | — | 1563 |
| 2 | **Cover** | **EVR 32 / EVR 40** | Brass | CuZn40Pb2 | CW617N | 2.0402 | — | 12165 |
| 3 | **Armature tube** | **EVR 32 / EVR 40** | Stainless steel | X2 CrNi19-11 | — | 1.4306 | — | 10088 |
| 4 | **Armature tube nut** | **EVR 32 / EVR 40** | Stainless steel | X8 CrNiS 18-9 | — | 1.4305 | — | 10088 |
| 5 | **Gasket** | **EVR 32 / EVR 40** | Rubber | Cr | — | — | — | — |
| 6 | **Gasket** | **EVR 32 / EVR 40** | Al. gasket | Al 99.5 | — | 3.0255 | — | 10210 |
| 7 | **Solder tube** | **EVR 32 / EVR 40** | Copper | SF.Cu | CW024A | 2.0090 | 1787 | 12449 |
| 8 | **Screws** | **EVR 32 / EVR 40** | Stainless steel | A2-70 | — | — | 3506 | — |
| 9 | **Spindle for. man. operation** | **EVR 32 / EVR 40** | Stainless steel | X8 CrNiS 18-9 | — | 1.4305 | — | 10088 |

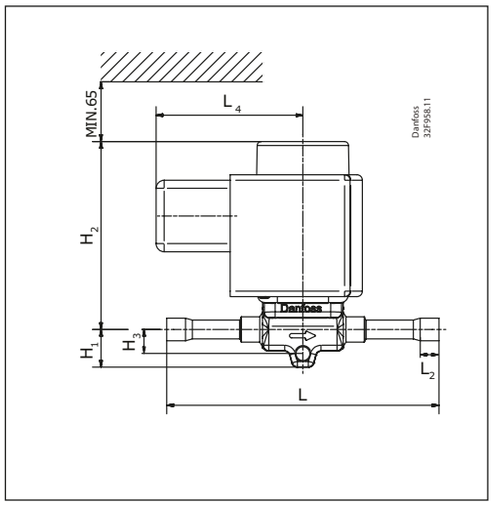
## Dimensions [mm] and weights [kg]

*EVR 2 – EVR 6 NC/NO, solder connection*

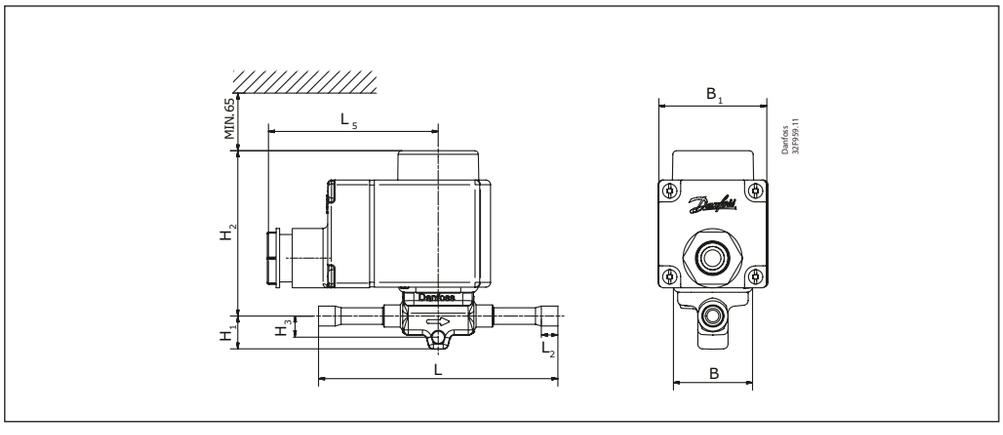
*With cable connection coil*




*With DIN plugs coil*




*With terminal box coil*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

**Note**:
The drawings are only representative.

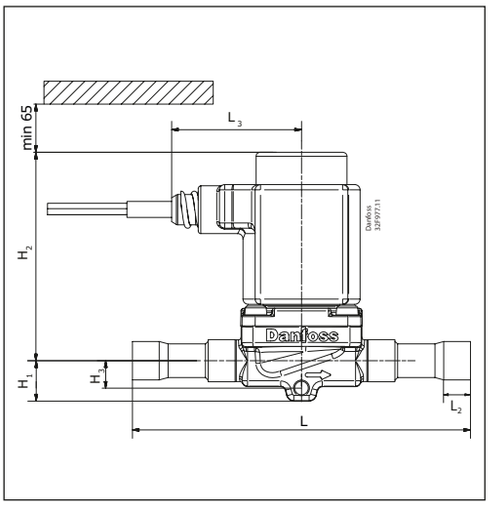
| Type | Connection Solder [in] | [mm] | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_2$ | $L_3$ | $L_4$ | $L_5$ max. 10 W | $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EVR 2** | 1/4 | 6 | 14 | 73 | 9 | — | 102 | 7 | 45 | 54 | 75 | 85 | 33 | 68 | 0.5 |
| **EVR 3** | 1/4 | 6 | 14 | 73 | 9 | — | 102 | 7 | 45 | 54 | 75 | 85 | 33 | 68 | 0.6 |
| | 3/8 | 10 | 14 | 73 | 9 | — | 117 | 9 | 45 | 54 | 75 | 85 | 33 | 68 | 0.6 |
| **EVR 6** | 3/8 | 10 | 14 | 78 | 10 | — | 111 | 9 | 45 | 54 | 75 | 85 | 33 | 68 | 0.6 |
| | 1/2 | 12 | 14 | 78 | 10 | — | 127 | 10 | 45 | 54 | 75 | 85 | 33 | 68 | 0.6 |

For 3D models, visit www.danfoss.com/products/categories/

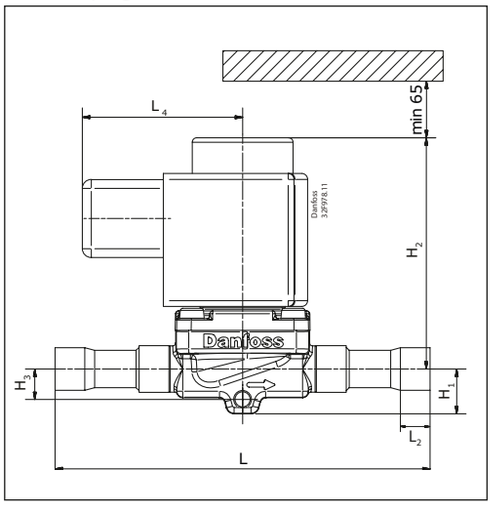
**Dimensions [mm] and weights [kg]**
*(continued)*

*EVR 10 NC/NO, solder connection*

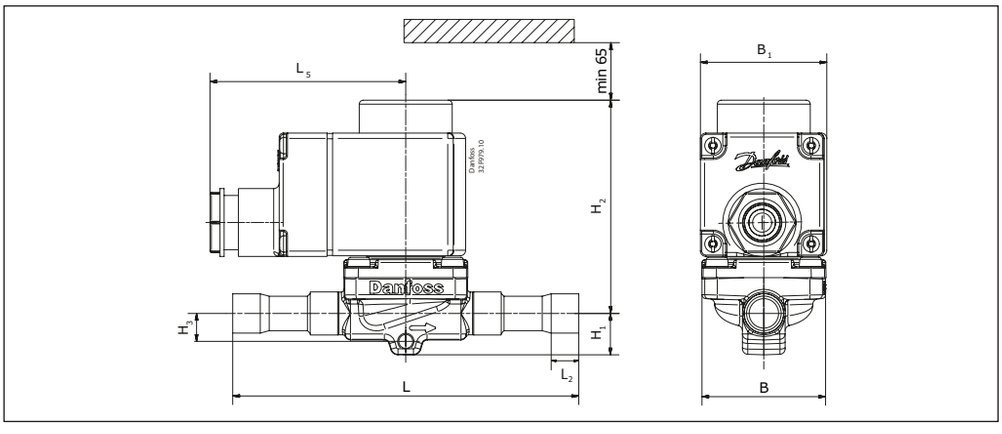
*With cable connection coil*




*With DIN plugs coil*




*With terminal box coil*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

**Note**:
The drawings are only representative.

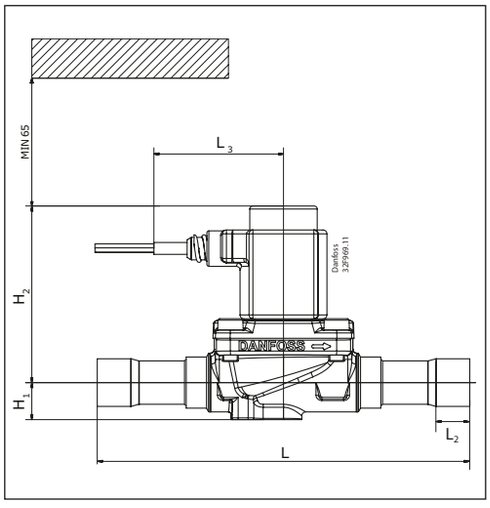
| Type | Connection Solder [in] | [mm] | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_2$ | $L_3$ | $L_4$ | $L_5$ max. 10 W | $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVR 10 | 1/2 | 12 | 16 | 79 | 11 | — | 127 | 10 | 45 | 54 | 75 | 85 | 46 | 68 | 0.7 |
| | 5/8 | 16 | 16 | 79 | 11 | — | 160 | 12 | 45 | 54 | 75 | 85 | 46 | 68 | 0.7 |

For 3D models, visit www.danfoss.com/products/categories/

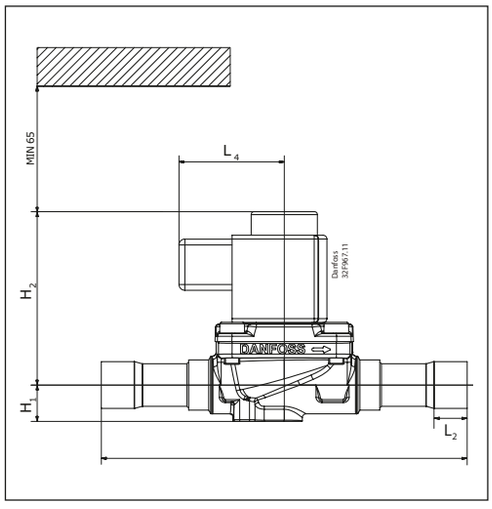
**Dimensions [mm] and weights [kg]**
*(continued)*

*EVR 15 – EVR 22 NC/NO, solder connection*

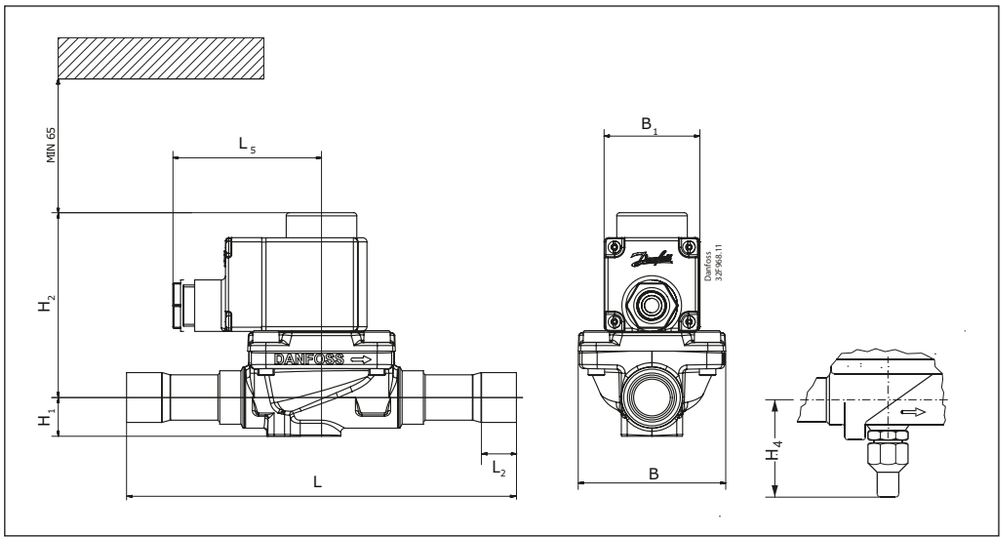
*With cable connection coil*




*With DIN plugs coil*




*With terminal box coil*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

**Note**:
The drawings are only representative.

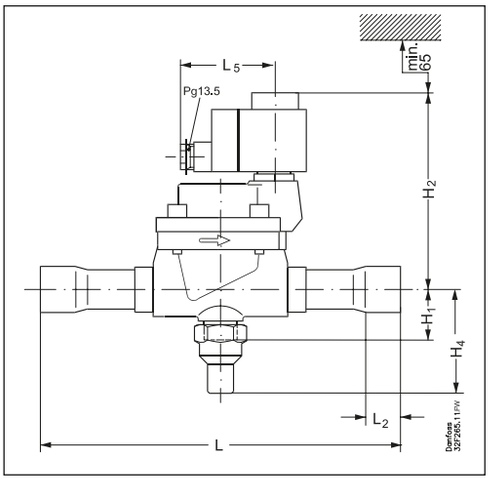
| Type | Connection Solder [in] | [mm] | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_2$ | $L_3$ | $L_4$ | $L_5$ max. 10 W | $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVR 15 | 5/8 | 16 | 19 | 86 | — | 49 | 176 | 12 | 45 | 54 | 75 | 85 | 56 | 68 | 1.0 |
| | 7/8 | 22 | 19 | 86 | — | — | 176 | 17 | 45 | 54 | 75 | 85 | 56 | 68 | 1.0 |
| EVR 20 | 7/8 | 22 | 20 | 90 | — | 53 | 191 | 17 | 45 | 54 | 75 | 85 | 72 | 68 | 1.5 |
| | 1 1/8 | 28 | 20 | 90 | — | — | 214 | 22 | 45 | 54 | 75 | 85 | 72 | 68 | 1.5 |
| EVR 22 | 1 3/8 | 35 | 20 | 90 | — | — | 291 | 25 | 45 | 54 | 75 | 85 | 72 | 68 | 1.5 |

For 3D models, visit www.danfoss.com/products/categories/

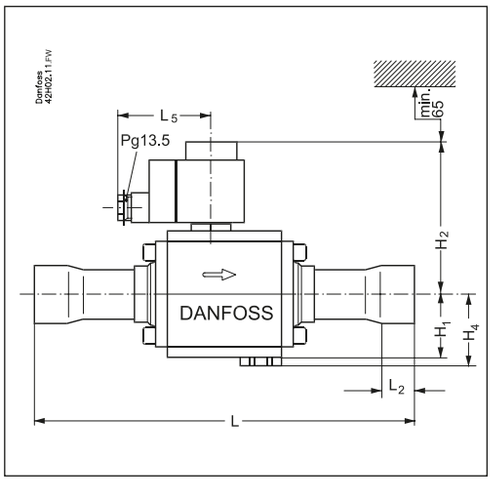
**Dimensions [mm] and weights [kg]**
*(continued)*

*EVR 25 NC, EVR 32 - EVR 40, solder connection*

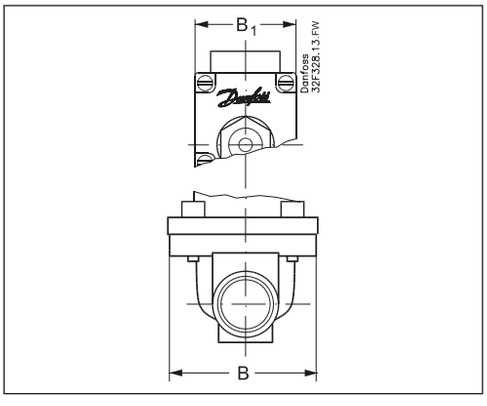
*EVR 25 with terminal box coil*



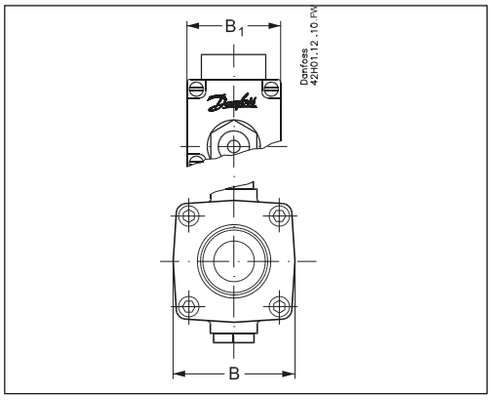

*EVR 32* - EVR 40 *terminal box*



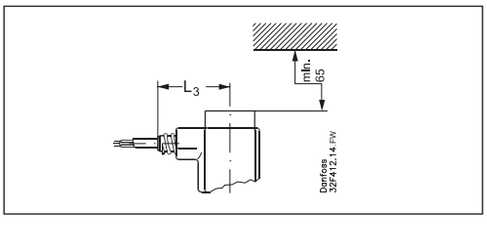

*EVR 25*



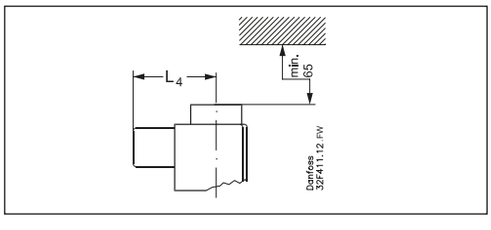

EVR 32 - EVR 40




*Coil with cable*




*Coil with DIN plugs*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

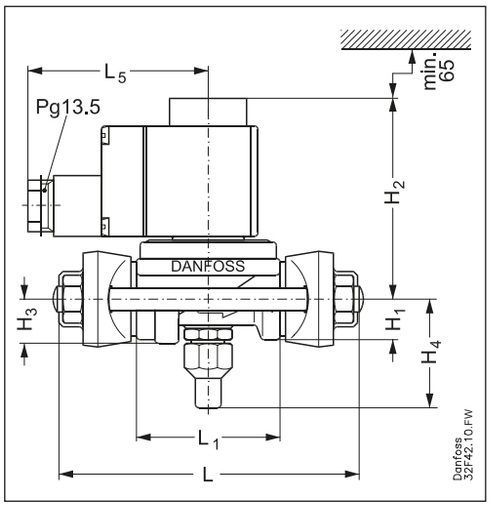
**Note**:
The drawings are only representative.

| Type | Connection Solder [in] | Connection Solder [mm] | $H_1$ | $H_2$ | $H_4$ | L | $L_2$ | Coil with cable connection $L_3$ | Coil with DIN connection $L_4$ | Coil with terminal box $L_5$ max. 10 W | Coil with terminal box $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVR 25 | 1 1/8 | 28 | 38 | 138 | 72 | 256 | 22 | 45 | 54 | 75 | 85 | 95 | 68 | 3.0 |
| | 1 3/8 | 35 | 38 | 138 | 72 | 281 | 25 | 45 | 54 | 75 | 85 | 95 | 68 | 3.3 |
| EVR 32 | 1 3/8 | 35 | 47 | 111 | 53 | 281 | 25 | 45 | 54 | 75 | 85 | 80 | 68 | 4.5 |
| | 1 5/8 | 42 | 47 | 111 | 53 | 281 | 29 | 45 | 54 | 75 | 85 | 80 | 68 | 4.6 |
| EVR 40 | 1 5/8 | 42 | 47 | 111 | 53 | 281 | 29 | 45 | 54 | 75 | 85 | 80 | 68 | 4.6 |
| | 2 1/8 | 54 | 47 | 111 | 53 | 281 | 34 | 45 | 54 | 75 | 85 | 80 | 68 | 4.6 |

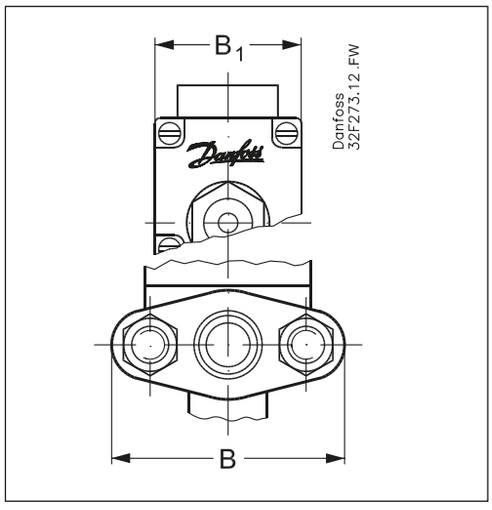
**Dimensions [mm] and weights [kg]**
*(continued)*

*EVR 15 NC, and EVR 20, flange connection*

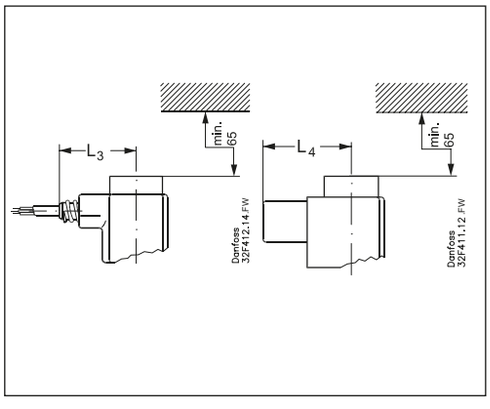
*With terminal box coil*




*Coil with cable*




*Coil with DIN plugs*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

*Weight of flange set*
For EVR 15: 0.6 kg
For EVR 20: 0.9 kg

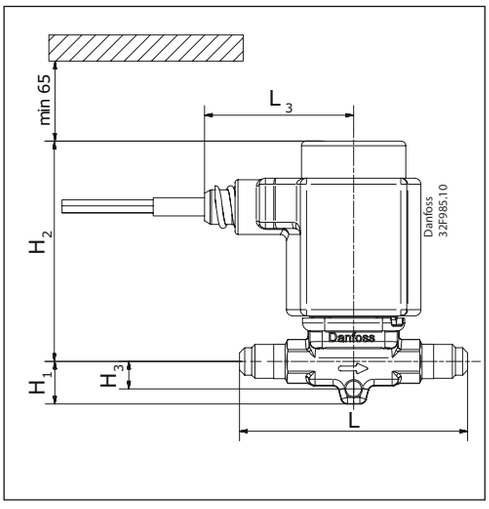
**Note**:
The drawings are only representative.

| Type | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_1$ | Coil with cable connection $L_3$ | Coil with DIN connection $L_4$ | Coil with terminal box $L_5$ max. | | B | $B_1$ max. | Net weight with coil excl. flanges |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 10 W | 12/20 W | | | |
| **EVR 15** | 19 | 86 | 19 | 49 | 125 | 68 | 45 | 54 | 75 | 85 | 80 | 68 | 1.2 |
| **EVR 20** | 20 | 90 | 21 | 53 | 155 | 85 | 45 | 54 | 75 | 85 | 96 | 68 | 1.7 |

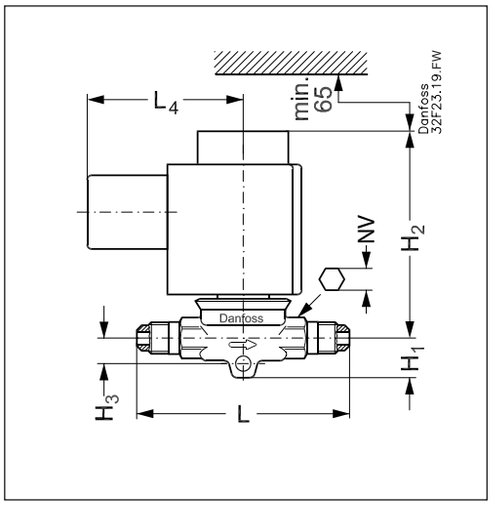
## Dimensions [mm] and weights [kg]

*EVR 2 - EVR 6 NC/NO, flare connection*

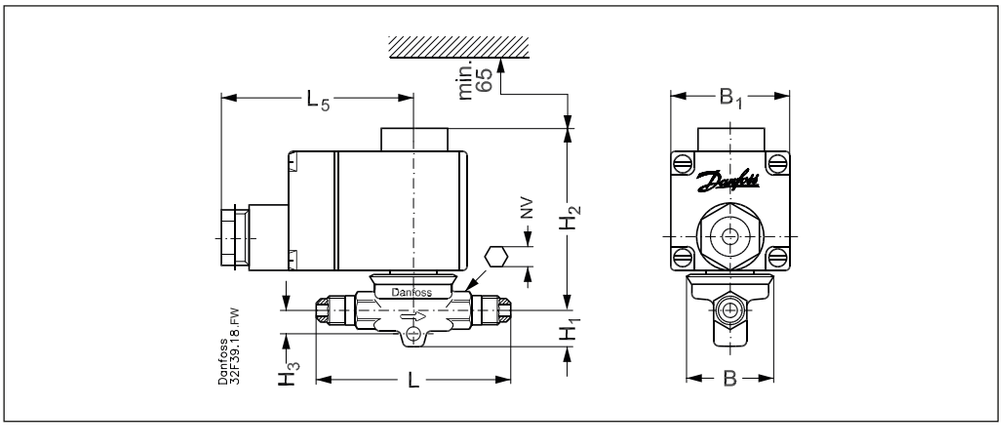
*With cable connection coil*




*With DIN plugs coil*




*With terminal box coil*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

**Note**:
The drawings are only representative.

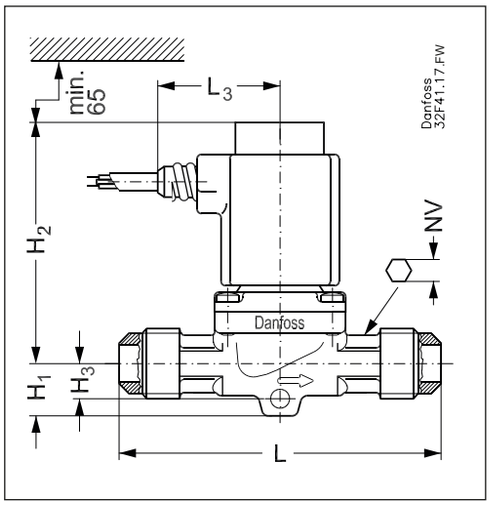
| Type | Connection Flare [in] | Connection Flare [mm] | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_3$ | $L_4$ | NV | $L_5$ max. 10 W | $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVR 2 | 1/4 | 6 | 14 | 73 | 9 | — | 75 | 45 | 54 | 13 | 75 | 85 | 33 | 68 | 0.5 |
| EVR 3 | 1/4 | 6 | 14 | 73 | 9 | — | 75 | 45 | 54 | 13 | 75 | 85 | 33 | 68 | 0.5 |
| | 3/8 | 10 | 14 | 73 | 9 | — | 75 | 45 | 54 | 13 | 75 | 85 | 33 | 68 | 0.5 |
| EVR 6 | 3/8 | 10 | 14 | 78 | 10 | — | 82 | 45 | 54 | 14 | 75 | 85 | 33 | 68 | 0.6 |
| | 1/2 | 12 | 14 | 78 | 10 | — | 88 | 45 | 54 | 14 | 75 | 85 | 33 | 68 | 0.6 |

For 3D models, visit www.danfoss.com/products/categories/

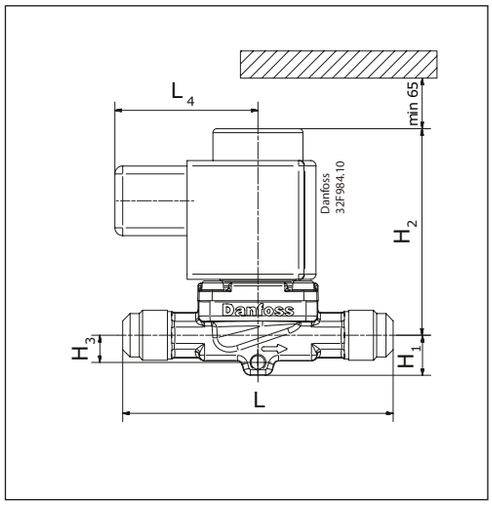
## Dimensions [mm] and weights [kg]

*EVR 10 NC, flare connection*

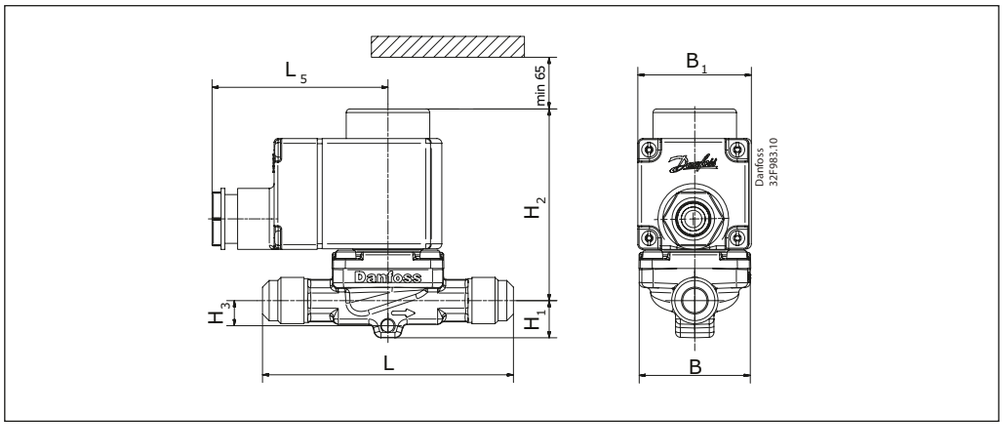
*With cable connection coil*




*With DIN plug coil*




*With terminal box coil*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

**Note**:
The drawings are only representative.

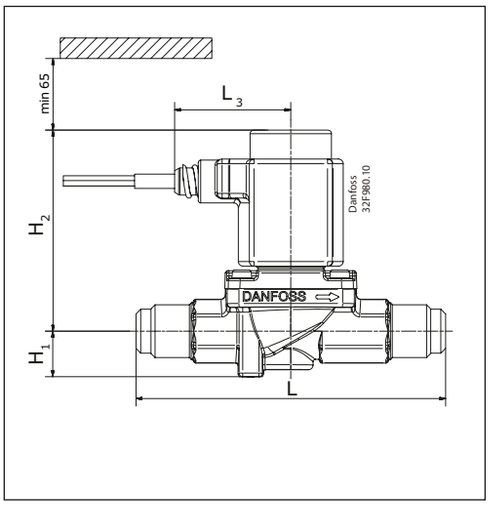
| Type | Connection Flare [in] | [mm] | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_3$ | $L_4$ | NV | $L_5$ max. 10 W | $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EVR 10 | 1/2 | 12 | 16 | 79 | 11 | — | 103 | 45 | 54 | 16 | 75 | 85 | 46 | 68 | 0.8 |
| | 5/8 | 16 | 16 | 79 | 11 | — | 110 | 45 | 54 | 16 | 75 | 85 | 46 | 68 | 0.8 |

For 3D models, visit www.danfoss.com/products/categories/

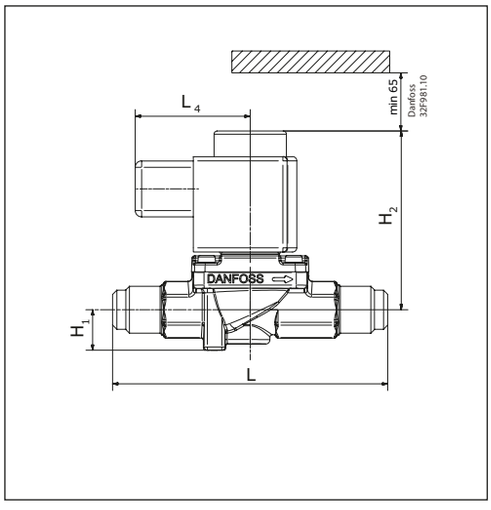
## Dimensions [mm] and weights [kg]

*EVR 15 NC, flare connection*

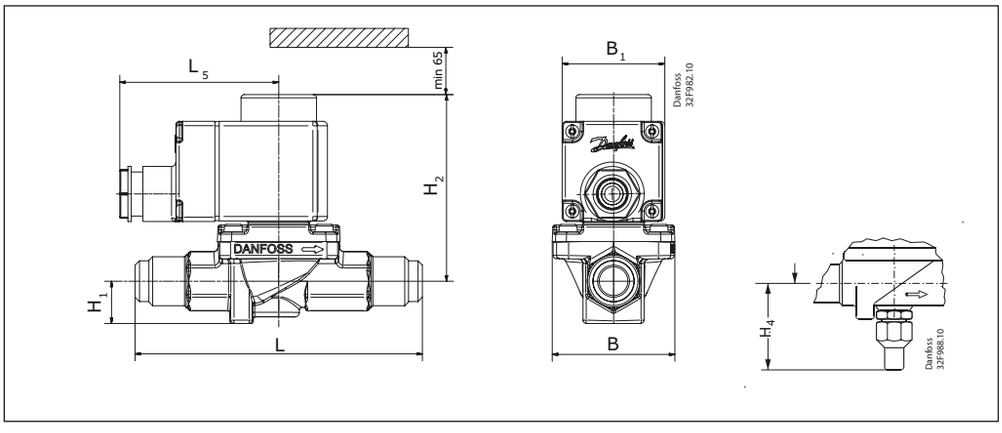
*With cable connection coil*




*With DIN plug coil*




*With terminal box coil*




*Net weight of coil*
10 W: approx. 0.3 kg
12 and 20 W: approx. 0.5 kg

**Note**:
The drawings are only representative.

| Type | Connection Flare [in] | [mm] | $H_1$ | $H_2$ | $H_3$ | $H_4$ | L | $L_3$ | $L_4$ | NV | $L_5$ max. 10 W | $L_5$ max. 12/20 W | B | $B_1$ max. | Net weight with coil |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EVR 15** | 5/8 | 16 | 19 | 86 | — | 49 | 131 | 45 | 54 | 24 | 75 | 85 | 56 | 68 | 1.0 |

For 3D models, visit www.danfoss.com/products/categories/