ENGINEERING TOMORROW

Data sheet

Solenoid valves
Type EVU for fluorinated refrigerants

EVU solenoid valves are designed to fit into compact refrigeration systems. Available in direct and pilot operated versions, they can be applied in liquid, suction, and hot gas lines with fluorinated refrigerants.
EVU solenoid valves can be used in many different refrigeration systems and are specially designed for:

- commercial refrigeration systems
- refrigeration appliances
- liquid coolers
- ice cube machines
- mobile refrigeration systems
- heat pump systems
- air conditioning units

EVU valves are available in straightway or angleway design. All valves are semi hermetically sealed and are not serviceable. The standard coil is available with 3-core cable connection, DIN plug and 0.25 US spade.
EVU valve bodies and coils are ordered separately in industrial pack.

Features

- Compact construction small dimensions, low weight for both valve and coil.
- Semi-hermetic construction. Metallic sealing between armature tube and valve body. Bimetal connections to the brass housing Benefits:
  – high strength of joints and high vibration resistance
  – maximum external tightness within the whole temperature and pressure operation range
- Bimetal connections simple, fast soldering without the need of wet cloth or refrigration pliers.
- Direct and servo operated mini piston compact solenoid valve.
- Universal application for
  – liquid, suction, and hot gas applications
  – reduced power consumption
- Simple and fast mounting of coil
  – clip-on/off
- Small encapsulated coils with long life time under extreme conditions.
- Refrigerants:
  R744, R22/R407C, R404A/R507, R410A, R134a, R407A, R23.
  For other refrigerants, please contact Danfoss.
- Large MOPD range – up to 36 bar.

Approvals

- UL Recognized Component (Canadian and US)
- PED (97/23/EC A3.P3)
- Low Voltage Directive (LVD) 2006/95/EC

Technical data

Refrigerants
R744, R22/R407C, R404A/R507, R410A, R134a, R407A, R23.
For other refrigerants, please contact Danfoss.

Temperature of medium
-40 – 221 °F

Ambient temperature
-40 – 140 °F

MOPD operating range
EVU 1: 0 psi up to 275 psi
EVU 2 – 8: 0.029 psi up to 522 psi

Humidity
0 – 100% R.H. (0-97% R.H. non-condensation condition if IP level is below IPX5).

Type	Opening differential pressure with standard coil Δp [psi]		Temperature of medium	Max. working pressure Ps	C_v – value [1]
	Min.	Max. (=MOPD) liquid [2]			
		8 W AC	[°F]	[psi]	[gal/min]
EVU 1	0.000	348 [3]	-40 – 221	1015	0.11
EVU 2	0.029	522	-40 – 221	1015	0.23
EVU 3	0.029	522	-40 – 221	1015	0.35
EVU 4	0.029	522	-40 – 221	1015	0.58
EVU 5	0.029	522	-40 – 221	1015	0.76
EVU 6	0.029	522	-40 – 221	1015	0.93
EVU 8	0.029	522	-40 – 221	1015	1.15

[1] C_v value is the water flow in [gal/min] at a pressure drop across valve Δp = 1 psi, ρ = 10 lbs/gal
[2] MOPD for media in gas form is approximately 14 psi greater
[3] For coil 208 – 240V, 60 Hz, MOPD is 250 psi

MOPD (Max. Opening Pressure Differential) is measured with highest media and ambient temperature and 15% below nominal voltage

[1] *Rated liquid and suction vapor capacity are based on:*
- Evaporating temperature t_e = 40 °F
- Liquid temperature ahead of valve t_l = 100 °F
- Pressure drop Δp across valve
  – with liquid Δp = 2 psi for R134a,
  Δp = 3 psi for R22/R407C, R404A and R507,
  – with suction vapor Δp = 1 psi

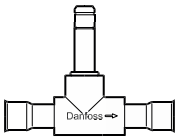
Type	Rated capacity [1] / [TR]											
	Liquid				Suction vapour				Hot gas			
	R22/ R407C	R134a	R404A/ R507	R410A	R22/ R407C	R134a	R404A/ R507	R410A	R22/ R407C	R134a	R404A/ R507	R410A
EVU 1	0.64	0.48	0.44	0.64	0.55	0.04	0.05	0.06	0.12	0.10	0.10	0.18
EVU 2	1.27	0.96	0.87	1.27	0.11	0.08	0.09	0.13	0.24	0.19	0.19	0.36
EVU 3	1.90	1.45	1.31	1.90	0.16	0.12	0.14	0.19	0.35	0.29	0.28	0.53
EVU 4	3.19	2.41	2.18	3.17	0.26	0.20	0.23	0.32	0.59	0.48	0.47	0.89
EVU 5	4.12	3.13	2.83	4.12	0.34	0.26	0.30	0.42	0.76	0.62	0.61	1.16
EVU 6	5.07	3.86	3.49	5.07	0.42	0.32	0.37	0.51	0.94	0.77	0.76	1.42
EVU 8	6.34	4.83	4.36	6.34	0.53	0.40	0.46	0.64	1.18	0.96	0.95	1.78

Rated hot gas capacity is based on:
- Condensing temperature t_c = 100 °F
- Hot gas temperature t_h = 140 °F
- Pressure drop across valve Δp = 2 psi

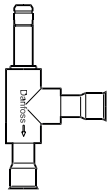
Metric conversions
- 1 psi = 0.07 bar
- $^5/_9$ (t_1 °F -32) = 12 °C
- 1 TR = 3.5 Kw
- 1 in = 25.4 mm
- 1 ft = 0.3 m
- 1 lb = 0.454 kg
- 1 oz = 28.35 gram
- US gal/min = 0.86 m^3/h

Ordering valve

EVU 1– 6



EVU 8

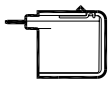


Normally closed NC

Type	Connection		Code no.
	[in.]	[mm]	
EVU 1	1/4	—	032F7005
	—	6	032F7004
EVU 2	—	6	032F5053
EVU 3	1/4	—	032F5024
	—	6	032F5025
	3/8	—	032F5026
	—	10	032F5027
EVU 4	—	10	032F5037
EVU 5	3/8	—	032F7000
	—	10	032F7001
	—	12	032F7003
EVU 6	3/8	—	032F5046
	—	10	032F5047
	1/2	—	032F5049
	—	12	032F5048
EVU 8	—	12	032F8009

The valve code numbers on above are with coil sealing O-ring. This should be removed for US-coils with the external frame.

Ordering Coils

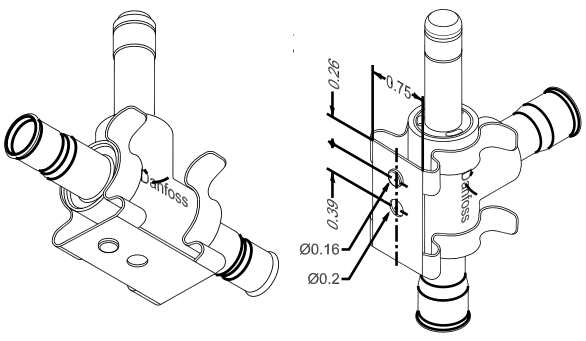


0,25 in.
US spade

Alternating current AC

Type	Voltage [V]	Frequency [Hz]	Power consumption	Code no. Industrial pack 40-off with US spade IP00	Code no. Single pack with US spade IP00
EVU 1, EVU 2, EVU 3, EVU 4, EVU 5, EVU 6, EVU 8	208 – 240	50 / 60	Holding: 8 W 16 VA Inrush: 32 VA	042N8230	042N4230
	110 – 120	50 / 60		042N8233	042N4233
	24	50 / 60		042N8236	042N4236

Accessories

Part	Description	Code no.
	Bracket for fixing of valve. Industrial pack	032F8036

Capacity
Liquid capacity

Type	Liquid capacity Q_o [TR] at pressure drop across valve Δp [bar]						
	1	2	3	4	5	6	7
							R22/R407C
EVU 1	0.34	0.52	0.64	0.73	0.82	0.85	0.97
EVU 2	0.68	1.03	1.27	1.46	1.63	1.79	1.93
EVU 3	1.02	1.55	1.90	2.19	2.45	2.69	2.90
EVU 4	1.69	2.59	3.17	3.66	4.09	4.48	4.84
EVU 5	2.20	3.36	4.12	4.75	5.31	5.83	6.29
EVU 6	2.71	4.14	5.07	5.85	6.54	7.17	7.74
EVU 8	3.39	5.18	6.34	7.31	8.18	8.96	9.68
							R134A
EVU 1	0.34	0.48	0.59	0.68	0.76	0.84	0.90
EVU 2	0.68	0.96	1.18	1.36	1.52	1.67	1.80
EVU 3	1.02	1.45	1.77	2.05	2.29	2.51	2.71
EVU 4	1.71	2.41	2.59	3.41	3.81	4.18	4.84
EVU 5	2.22	3.13	3.84	4.43	4.96	5.43	5.86
EVU 6	2.73	3.86	4.73	5.45	6.10	6.68	7.22
EVU 8	3.41	4.83	5.91	6.81	7.63	8.35	9.03
							R404A/507
EVU 1	0.25	0.36	0.44	0.51	0.57	0.62	0.67
EVU 2	0.50	0.71	0.87	1.01	1.13	1.23	1.33
EVU 3	0.76	1.07	1.31	1.51	1.69	1.85	2.00
EVU 4	1.26	1.78	2.18	2.52	2.81	3.09	3.33
EVU 5	1.64	2.31	2.83	3.27	3.66	4.01	4.33
EVU 6	2.02	2.85	3.49	4.03	4.50	4.94	5.33
EVU 8	2.53	3.56	4.36	5.04	5.63	6.18	6.66
							R410a
EVU 1	0.34	0.52	0.64	0.73	0.82	0.90	0.97
EVU 2	0.68	1.03	1.27	1.46	1.63	1.79	1.93
EVU 3	1.02	1.55	1.90	2.19	2.44	2.69	2.90
EVU 4	1.69	2.59	3.17	3.66	4.07	4.48	4.84
EVU 5	2.20	3.36	4.12	4.75	5.29	5.83	6.29
EVU 6	2.71	4.14	5.07	5.85	6.51	7.17	7.74
EVU 8	3.39	5.18	6.34	7.31	8.14	8.96	9.68

Capacities are based on:
- liquid temperature t_l = 100 °F
- evaporating temperature t_e = 40 °F
- superheat temperature (t_e + 10 °F) = 50 °F

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Correction factors
When liquid temperature t_l ahead of the expansion valve is other than 100°F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

Correction factors for liquid temperature t_l

t_l [°F]	80	90	100	110	120
Factor	1.10	1.05	1.00	0.95	0.90

Capacity
Suction vapour capacity

Type	Pressure drop Δp [psi]	Suction vapour capacity Q_e [TR] at evaporating temperature t_e [°F]							
		-40	-20	0	10	20	30	40	50
									R22/R407C
EVU 1	1.00	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.08
	2.00	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.08
	3.00	0.03	0.05	0.06	0.07	0.07	0.08	0.09	0.10
EVU 2	1.00	0.04	0.05	0.07	0.08	0.09	0.09	0.11	0.12
	2.00	0.05	0.07	0.09	0.11	0.12	0.13	0.15	0.16
	3.00	0.06	0.09	0.11	0.13	0.14	0.16	0.18	0.20
EVU 3	1.00	0.06	0.08	0.10	0.12	0.13	0.14	0.16	0.17
	2.00	0.08	0.11	0.14	0.16	0.18	0.20	0.22	0.25
	3.00	0.09	0.13	0.17	0.19	0.22	0.25	0.27	0.30
EVU 4	1.00	0.10	0.14	0.17	0.19	0.21	0.24	0.26	0.29
	2.00	0.13	0.18	0.23	0.27	0.30	0.34	0.37	0.41
	3.00	0.16	0.22	0.28	0.32	0.36	0.41	0.45	0.50
EVU 5	1.00	0.13	0.18	0.22	0.25	0.28	0.31	0.34	0.37
	2.00	0.17	0.24	0.30	0.35	0.39	0.44	0.48	0.53
	3.00	0.20	0.28	0.37	0.41	0.47	0.54	0.59	0.65
EVU 6	1.00	0.16	0.22	0.27	0.31	0.34	0.38	0.42	0.46
	2.00	0.21	0.29	0.37	0.44	0.48	0.54	0.59	0.65
	3.00	0.25	0.35	0.45	0.51	0.57	0.66	0.73	0.80
EVU 8	1.00	0.20	0.28	0.34	0.39	0.43	0.48	0.53	0.58
	2.00	0.26	0.36	0.46	0.55	0.60	0.68	0.74	0.81
	3.00	0.31	0.44	0.56	0.64	0.71	0.83	0.91	1.00

The table values refer to evaporator capacity and are given as a function of evaporating temperature t_e and pressure drop Δp across the valve.
Capacities are based on liquid temperature
t_l = 100 °F ahead of the expansion valve and superheat t_s = 7 °F.
For each additional 10 °F of superheat, the table capacities must be reduced by 2%.

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Correction factors
When liquid temperature t_l ahead of the expansion valve is other than 100 °F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

Correction factors for liquid temperature t_l

t_l [°F]	80	90	100	110	120
Factor	1.10	1.05	1.00	0.95	0.90

Capacity
Suction vapour capacity
(continued)

The table values refer to evaporator capacity and are given as a function of evaporating temperature t_e and pressure drop Δp across the valve.
Capacities are based on liquid temperature t_l = 100 °F ahead of the expansion valve and superheat t_s = 7 °F.
For each additional 10 °F of superheat, the table capacities must be reduced by 2%.

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Type	Pressure drop Δp [psi]	Suction vapour capacity Q_e [TR] at evaporating temperature t_e [°F]							
		-40	-20	0	10	20	30	40	50
									R134a
EVU 1	1.00	0.01	0.02	0.03	0.03	0.03	0.04	0.04	0.05
	2.00	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.07
	3.00	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08
EVU 2	1.00	0.02	0.03	0.05	0.06	0.06	0.07	0.08	0.09
	2.00	0.03	0.05	0.07	0.08	0.09	0.10	0.11	0.13
	3.00	0.03	0.05	0.08	0.09	0.10	0.12	0.13	0.16
EVU 3	1.00	0.04	0.05	0.07	0.08	0.10	0.11	0.12	0.14
	2.00	0.05	0.07	0.10	0.11	0.13	0.15	0.17	0.19
	3.00	0.05	0.08	0.12	0.14	0.16	0.18	0.20	0.23
EVU 4	1.00	0.06	0.09	0.12	0.14	0.16	0.18	0.20	0.23
	2.00	0.08	0.12	0.16	0.19	0.22	0.25	0.29	0.32
	3.00	0.09	0.13	0.19	0.23	0.26	0.30	0.34	0.39
EVU 5	1.00	0.08	0.11	0.16	0.18	0.21	0.23	0.26	0.29
	2.00	0.10	0.15	0.21	0.24	0.28	0.33	0.37	0.42
	3.00	0.11	0.17	0.25	0.29	0.34	0.39	0.44	0.51
EVU 6	1.00	0.10	0.14	0.20	0.22	0.25	0.29	0.32	0.36
	2.00	0.13	0.19	0.26	0.30	0.35	0.41	0.46	0.51
	3.00	0.14	0.21	0.31	0.36	0.41	0.48	0.54	0.63
EVU 8	1.00	0.13	0.18	0.25	0.28	0.31	0.36	0.40	0.45
	2.00	0.16	0.24	0.33	0.38	0.44	0.51	0.58	0.64
	3.00	0.18	0.26	0.39	0.45	0.51	0.60	0.68	0.79

Correction factors
When liquid temperature t_l ahead of the expansion valve is other than 100 °F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

Correction factors for liquid temperature t_l

t_l [°F]	80	90	100	110	120
Factor	1.10	1.05	1.00	0.95	0.90

Capacity
Suction vapour capacity
(continued)

Type	Pressure drop Δp [psi]	Suction vapour capacity Q_e [TR] at evaporating temperature t_e [°F]							
		-40	-20	0	10	20	30	40	50
									R404A/507
EVU 1	1.00	0.02	0.02	0.03	0.04	0.04	0.04	0.05	0.05
	2.00	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08
	3.00	0.03	0.04	0.05	0.06	0.07	0.07	0.08	0.09
EVU 2	1.00	0.03	0.04	0.06	0.07	0.07	0.08	0.09	0.10
	2.00	0.04	0.06	0.08	0.09	0.10	0.12	0.13	0.15
	3.00	0.05	0.07	0.10	0.11	0.13	0.14	0.16	0.18
EVU 3	1.00	0.05	0.07	0.09	0.10	0.11	0.12	0.14	0.16
	2.00	0.06	0.09	0.12	0.14	0.16	0.18	0.20	0.22
	3.00	0.08	0.11	0.14	0.16	0.19	0.22	0.24	0.27
EVU 4	1.00	0.08	0.11	0.14	0.17	0.18	0.21	0.23	0.26
	2.00	0.11	0.15	0.20	0.23	0.26	0.29	0.33	0.37
	3.00	0.13	0.18	0.24	0.27	0.32	0.36	0.40	0.45
EVU 5	1.00	0.10	0.14	0.19	0.22	0.24	0.27	0.30	0.34
	2.00	0.14	0.19	0.27	0.30	0.34	0.38	0.43	0.48
	3.00	0.16	0.23	0.31	0.36	0.41	0.47	0.52	0.58
EVU 6	1.00	0.13	0.17	0.23	0.27	0.29	0.33	0.37	0.41
	2.00	0.17	0.24	0.33	0.37	0.42	0.47	0.52	0.59
	3.00	0.20	0.28	0.38	0.44	0.51	0.58	0.64	0.72
EVU 8	1.00	0.16	0.21	0.29	0.34	0.36	0.41	0.46	0.51
	2.00	0.21	0.30	0.41	0.46	0.53	0.59	0.65	0.74
	3.00	0.25	0.35	0.48	0.55	0.64	0.73	0.80	0.90

The table values refer to evaporator capacity and are given as a function of evaporating temperature t_e and pressure drop Δp across the valve.
Capacities are based on liquid temperature
t_l = 100 °F ahead of the expansion valve and superheat t_s = 7 °F.
For each additional 10 °F of superheat, the table capacities must be reduced by 2%.

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Correction factors
When liquid temperature t_l ahead of the expansion valve is other than 100 °F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

Correction factors for liquid temperature t_l

t_l [°F]	80	90	100	110	120
Factor	1.10	1.05	1.00	0.95	0.90

Capacity
Suction vapour capacity
(continued)

Type	Pressure drop Δp [psi]	Suction vapour capacity Q_e [TR] at evaporating temperature t_e [°F]							
		-40	-20	0	10	20	30	40	50
									R410A
EVU 1	1.00	0,03	0.04	0.05	0.05	0.06	0.06	0.07	0.08
	2.00	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11
	3.00	0.05	0.06	0.08	0.08	0.10	0.11	0.12	0.13
EVU 2	1.00	0.05	0.07	0.09	0.10	0.11	0.12	0.13	0.15
	2.00	0.07	0.10	0.12	0.14	0.16	0.17	0.19	0.21
	3.00	0.09	0.12	0.15	0.16	0.19	0.21	0.23	0.25
EVU 3	1.00	0.08	0.11	0.13	0.15	0.17	0.18	0.19	0.22
	2.00	0.11	0.15	0.18	0.21	0.23	0.26	0.28	0.31
	3.00	0.13	0.17	0.22	0.25	0.28	0.31	0.34	0.38
EVU 4	1.00	0.14	0.18	0.22	0.25	0.28	0.30	0.32	0.36
	2.00	0.18	0.24	0.31	0.35	0.39	0.43	0.47	0.52
	3.00	0.22	0.29	0.37	0.41	0.47	0.52	0.56	0.63
EVU 5	1.00	0.18	0.23	0.29	0.32	0.36	0.39	0.42	0.47
	2.00	0.24	0.31	0.40	0.46	0.51	0.55	0.60	0.67
	3.00	0.29	0.38	0.48	0.54	0.60	0.68	0.73	0.82
EVU 6	1.00	0.22	0.29	0.36	0.40	0.45	0.48	0.51	0.58
	2.00	0.30	0.39	0.49	0.56	0.62	0.68	0.74	0.82
	3.00	0.35	0.46	0.59	0.66	0.74	0.84	0.90	1.01
EVU 8	1.00	0.28	0.36	0.45	0.50	0.56	0.60	0.64	0.73
	2.00	0.38	0.49	0.61	0.70	0.78	0.85	0.93	1.03
	3.00	0.44	0.58	0.74	0,83	0.93	1.05	1.13	1.26

The table values refer to evaporator capacity and are given as a function of evaporating temperature t_e and pressure drop Δp across the valve.
Capacities are based on liquid temperature t_l = 100 °F ahead of the expansion valve and superheat t_s = 7 °F.
For each additional 10 °F of superheat, the table capacities must be reduced by 2%.

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Correction factors
When liquid temperature t_l ahead of the expansion valve is other than 100 °F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

Correction factors for liquid temperature t_l

t_l [°F]	80	90	100	110	120
Factor	1.10	1.05	1.00	0.95	0.90

Capacity
Hot gas capacity

Type	Pressure drop across valve Δp [psi]	Hot gas capacity Q_h [TR] Evaporating temp. t_e = 40 °F, hot gas temp. $t_h = t_c + 40$ °F, subcooling Δt_u = 10 °F											
		Condensing temp. t_c [°F]											
		R22/R407C			R134a			R404A/R 507			R410A		
		70	100	140	70	100	140	70	100	140	70	100	140
EVU 1	2	0,11	0,12	0,13	0.09	0.10	0.10	0.09	0.10	0.09	0.17	0.18	0.17
	5	0.17	0.19	0.20	0.14	0.16	0.16	0.15	0.15	0.15	0.27	0.29	0.27
	10	0.24	0.27	0.29	0.19	0.22	0.23	0.20	0.22	0.21	0.36	0.38	0.38
	15	0.29	0.32	0.36	0.24	0.26	0.29	0.25	0.26	0.26	0.45	0.48	0.48
	20	0.33	0.37	0.40	0.28	0.31	0.32	0.28	0.30	0.29	0.52	0.55	0.54
	25	0.37	0.41	0.44	0.31	0.34	0.36	0.32	0.33	0.32	0.58	0.62	0.60
EVU 2	2	0.21	0.24	0.25	0.17	0.19	0.20	0.18	0.19	0.18	0.34	0.36	0.34
	5	0.34	0.38	0.40	0.28	0.31	0.32	0.29	0.30	0.29	0.54	0.57	0.54
	10	0.47	0.54	0.57	0.38	0.43	0.46	0.40	0.43	0.42	0.72	0.76	0.75
	15	0.57	0.63	0.71	0.47	0.52	0.57	0.49	0.51	0.51	0.90	0.96	0.96
	20	0.66	0.73	0.79	0.55	0.61	0.64	0.56	0.59	0.57	1.03	1.10	1.07
	25	0.73	0.82	0.88	0.61	0.68	0.72	0.63	0.66	0.64	1.16	1.23	1.19
EVU 3	2	0.32	0.35	0.38	0.26	0.29	0.30	0.27	0.28	0.27	0.50	0.53	0.51
	5	0.51	0.56	0.60	0.42	0.46	0.48	0.43	0.45	0.44	0.81	0.85	0.81
	10	0.71	0.81	0.86	0.58	0.64	0.69	0.60	0.65	0.62	1.08	1.14	1.12
	15	0.86	0.95	1.06	0.71	0.79	0.85	0.73	0.77	0.77	1.36	1.44	1.44
	20	0.99	1.10	1.19	0.82	0.91	0.96	0.84	0.88	0.86	1.55	1.64	1.61
	25	1.10	1.22	1.32	0.92	1.02	1.08	0.95	0.99	0.96	1.74	1.85	1.79
EVU 4	2	0.53	0.59	0.63	0.44	0.48	0.50	0.45	0.47	0.46	0.84	0.89	0.85
	5	0.85	0.94	1.00	0.70	0.77	0.80	0.72	0.75	0.73	1.35	1.42	1.36
	10	1.18	1.35	1.43	0.96	1.07	1.15	1.00	1.08	1.04	1.80	1.91	1.87
	15	1.43	1.59	1.77	1.18	1.31	1.42	1.22	1.28	1.28	2.26	2.40	2.39
	20	1.64	1.83	1.98	1.37	1.52	1.60	1.41	1.47	1.43	2.58	2.74	2.69
	25	1.83	2.04	2.21	1.53	1.70	1.80	1.58	1.65	1.60	2.89	3.08	2.98

The table values refer to hot gas capacity and are given as a function of condensing temperature t_c and pressure drop Δp across the valve. Capacities are based on a hot gas temperature superheated 40 °F above condensing temperature ($t_h = t_c + 40$ °F). For each additional 10 °F of superheat above 40 °F, the table capacities must be reduced by 1%.

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Correction factors
When the valve is used in a hot gas defrost circuit, evaporator temperature affects the capacity. When the evaporator temperature differs from 40 °F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

Correction factors for t_h and t_e

t_l [°F]	-40	-20	0	20	40	50
Factor	1.18	1.14	1.09	1.04	1	0.97

Capacity
Hot gas capacity

Type	Pressure drop across valve Δp [psi]	Hot gas capacity Q_h [TR] Evaporating temp. t_e = 40 °F, hot gas temp. $t_h = t_c + 40$ °F, subcooling Δt_u = 10 °F											
		Condensing temp. t_c [°F]											
		R22/R407C			R134a			R404A/R 507			R410A		
		70	100	140	70	100	140	70	100	140	70	100	140
EVU 5	2	0.69	0.76	0.82	0.57	0.62	0.65	0.59	0.61	0.59	1.09	1.16	1.11
	5	1.11	1.22	1.31	0.91	1.00	1.04	0.94	0.98	0.94	1.75	1.84	1.76
	10	1.53	1.75	1.86	1.25	1.39	1.49	1.29	1.41	1.35	2.35	2.48	2.44
	15	1.86	2.06	2.30	1.53	1.70	1.85	1.59	1.66	1.67	2.94	3.12	3.11
	20	2.14	2.38	2.57	1.78	1.97	2.08	1.83	1.91	1.86	3.35	3.56	3.49
	25	2.38	2.65	2.87	1.99	2.21	2.34	2.06	2.15	2.08	3.76	4.01	3.88
EVU 6	2	0.85	0.94	1.01	0.70	0.77	0.80	0.72	0.76	0.73	1.35	1.42	1.37
	5	1.36	1.50	1.61	1.12	1.23	1.28	1.16	1.21	1.16	2.16	2.27	2.17
	10	1.88	2.15	2.29	1.54	1.71	1.84	1.59	1.73	1.66	2.89	3.05	3.00
	15	2.29	2.54	2.84	1.89	2.10	2.28	1.96	2.04	2.05	3.62	3.83	3.83
	20	2.63	2.93	3.16	2.19	2.43	2.56	2.25	2.35	2.29	4.12	4.38	4.30
	25	2.93	3.27	3.53	2.45	2.72	2.88	2.53	2.65	2.56	4.63	4.93	4.77
EVU 8	2	1.06	1.18	1.26	0.88	0.96	1.00	0.90	0.95	0.91	1.69	1.78	1.71
	5	1.70	1.88	2.01	1.40	1.54	1.60	1.45	1.51	1.45	2.70	2.84	2.71
	10	2.35	2.69	2.86	1.93	2.14	2.30	1.99	2.16	2.08	3.61	3.81	3.75
	15	2.86	3.18	3.55	2.36	2.63	2.85	2.45	2.55	2.56	4.53	4.79	4.79
	20	3.29	3.66	3.95	2.74	3.04	3.20	2.81	2.94	2.86	5.15	5.48	5.38
	25	3.66	4.09	4.41	3.06	3.40	3.60	3.16	3.68	3.20	5.79	6.16	5.96

The table values refer to hot gas capacity and are given as a function of condensing temperature t_c and pressure drop Δp across the valve. Capacities are based on a hot gas temperature superheated 40 °F above condensing temperature ($t_h = t_c + 40$ °F). For each additional 10 °F of superheat above 40 °F, the table capacities must be reduced by 1%.

Metric conversions
1 psi = 0.07 bar
$^5/_9$ (t_1 °F - 32) = t_2 °C
1 TR = 3.5 kW

Correction factors
When the valve is used in a hot gas defrost circuit, evaporator temperature affects the capacity. When the evaporator temperature differs from 40 °F, adjust the table capacities by multiplying them by the appropriate correction factor found in the following table.

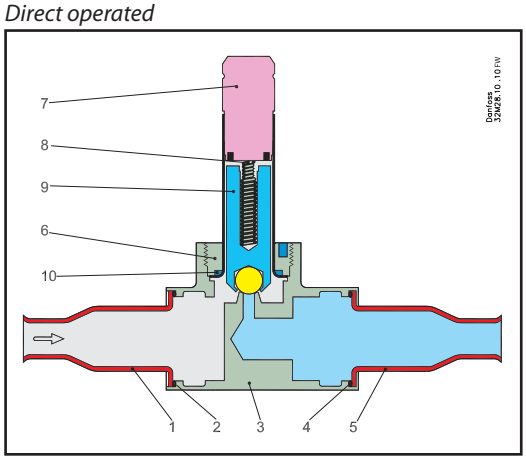
Correction factors for t_h and t_e

t_l [°F]	-40	-20	0	20	40	50
Factor	1.18	1.14	1.09	1.04	1	0.97

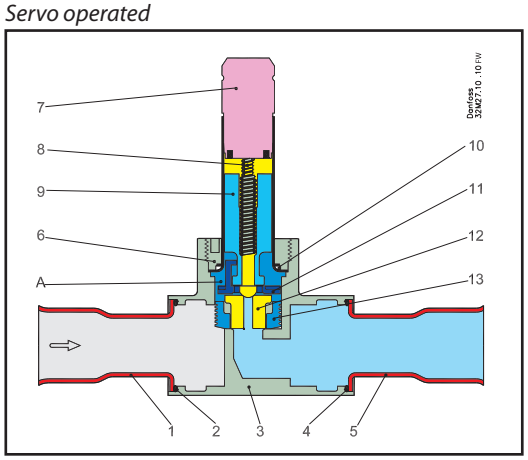
Design / Function

1. Solder connection
5. Solder connection
2. Solder ring
4. Solder ring
3. Valve housing
6. Union nut
7. Armature tube
8. Return spring
9. Armature
10. Support ring
11. Pilot plate (servo)
12. Seat plate (servo)
13. Piston (servo)

Direct operated



Servo operated



Direct operated
EVU 1 is direct operated. The valve opens directly for full flow when the armature (9) moves up into the magnetic field of the coil.

This means that the valve can operate a 0 bar differential pressure. Thus, inlet pressure and spring force act to close the valve when the coil is currentless.

Servo operated
EVU 2 - 8 are servo operated piston solenoid valves. The servo piston principle results in a fast operating and compact valve that is able to open against a high differential pressure. The valve closes rather soft, because the pilot system does not fully close before the main orifice has closed. This minimizes liquid hammer.

When the coil is currentless, the main orifice, seat plate (12) and pilot orifice (on the pilot plate (11)) 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 (9) is drawn up into the magnetic field and thus lifts the pilot plate (11) and opens for the pilot orifice so that the de-energising of the servo chamber (A) starts and the pressure is relieved to the level of the outlet side. As the inlet pressure that acts on the bottom of the piston (13) now is higher than the pressure in the servo chamber (A), the piston is moved upwards and lifts both the pilot plate (11) and the seat plate (12). When the seat plate is lifted, the main orifice opens for full flow.

Therefore a minimum differential pressure of 0.02 bar is necessary to open the valve and keep it open.

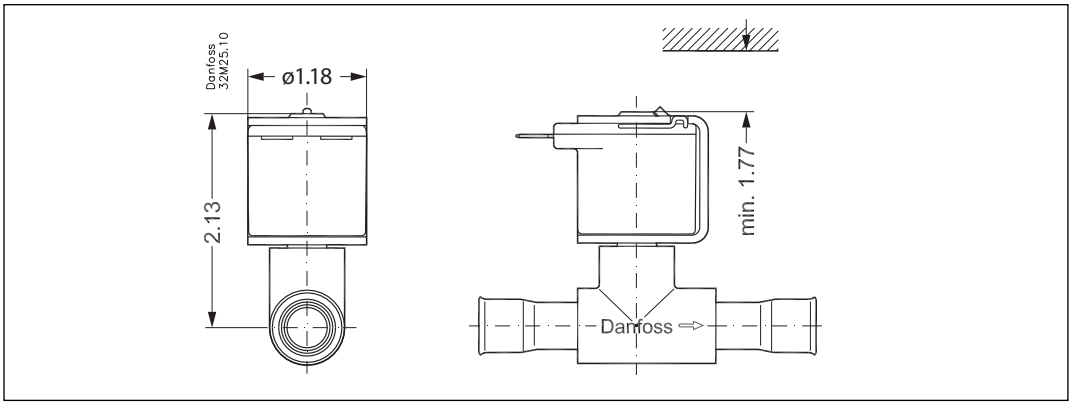
When the current to the coil is switched off, the spring (8) forces the armature (9) down towards the pilot plate (11). The pressure in the servo chamber (A) increases and the piston will no longer be able to hold the seat plate (12) in lifted position, by which the main orifice closes. The armature (9) continues its downwards movement until the pilot orifice on the pilot plate (11) is fully closed.

Material specifications

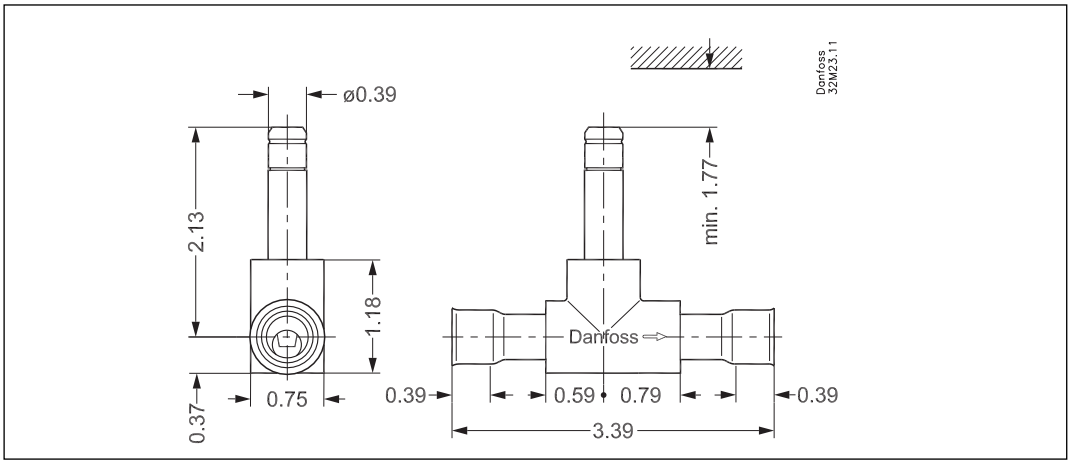
No.	Description	Material	Alloys	Mat. no.	Standard		
					W.no.	DIN	EN
1, 5	**Bi-metallic tube**	Stainless steel/Cu	—	—	—	—	—
2, 4	**Solder ring**	Silver	L-Ag 15P	CP102		1044	1044
3	**Valve body**	Brass	CuZn40Pb2	CW617N	2.0402	17672-1	12165
6	**Union nut**	Brass	CuZn39Pb2	CW612N	2.0380	17672-1	12164
7	**Armature tube**	Stainless steel	X6CrMoS17	—	1.4105	—	10088
8	**Spring**	Spring wire stainless	X10CrNi18-8	—	1.4310	—	10088
9	**Armature**	Stainless steel	X4CrMoS18	—	1.410SIL	—	10088
10	**Support ring**	Teflon	PTFE	—	—	—	—
11	**Pilot plate**	Thermoplast	PEEK	—	—	—	—
12	**Seat plate**	Teflon	PTFE	—	—	—	—
13	**Piston**	Brass	CuZn39Pb2	CW612N	2.0380	17672-1	12164

Dimensions [in.] and weights [lbs]

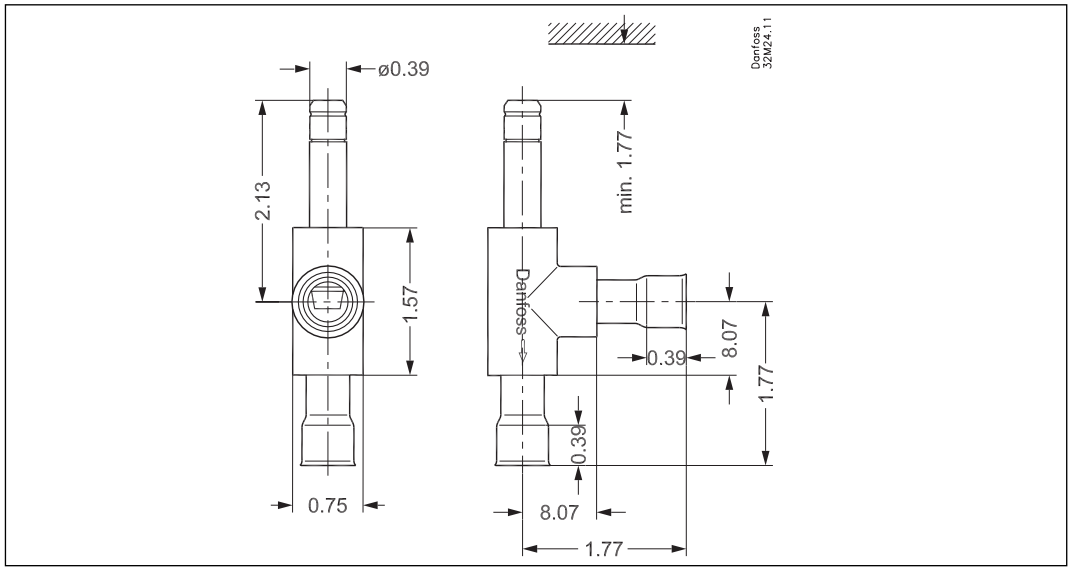
EVU 1, EVU 2, EVU 3, EVU 4, EVU 5, EVU 6 mounted with coil with 0.25 in. US spade



EVU 1, EVU 2, EVU 3, EVU 4, EVU 5, EVU 6



EVU 8



Net weight of coil:
8 W: approx. 0.22 lbs
Net weight of valve:
appox 0.22 lbs

Note:
The drawings are only representative.