

Data sheet

# Solenoid Valve Type EVUL



EVUL solenoid valves are designed to fit into compact refrigeration systems. Available in pilot operated versions they can be applied in liquid, suction, and hot gas lines.

EVUL 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

**Features**

- Compact and light weight.
- Fully hermetic construction in stainless steel.
- Laser welded bimetal connections.
- High vibration resistance
- Excellent leak integrity
- Bimetal connections for fast soldering.
- No need of wet cloth / heat sink by soldering.
- Servo operated mini piston, sturdy and compact solenoid valve.
- Universal application for – liquid, suction, and hot gas applications.
- Minimum power consumption.
- Simple and fast mounting of coil.
- Encapsulated coils provide long life time even under extreme conditions.
- High MOPD capacity – up to 36 bar / 522 psi.
- Build in filter in the inlet.

**Approvals**

Underwriter laboratories PED (97/23/EC A3.P3)  
 Low Voltage Directive (LVD) 2006/95/EC  
 Refrigerants: R744, R22/R407C, R404A/R507, R410A, R134a and R407A.  
 For other refrigerants, please contact Danfoss.

**Technical data**

Max. working pressure PS/MWP: 90 bar / 1305 psi  
 Temperature of media: -40 °C – 105 °C / -40 °F – 221 °F  
 Ambient temperature: -40 °C – 60 °C / -40 °F – 140 °F  
 MOPD operating range: EVUL 1 – 8: 0.002 - 36 bar / 0.029 - 522 psi  
 MOPD is measured with highest media and ambient temperature and 15% below nominal voltage.  
 MOPD (Max. Opening Pressure Differential) for media in gas form is approximately 0.97 bar greater.  
 $K_v$  value is the water flow in m<sup>3</sup>/hour at a pressure drop across valve  $\Delta p = 1$  bar,  $\rho = 1000$  Kg/m<sup>3</sup>.  
 $C_v$  value is the water flow in [gal/min] at a pressure drop across valve  $\Delta p = 1$  psi,  $\rho = 10$  lbs/gal

**Liquid - Rated capacity [Kw]**

**SI units**

Type	R22	R407C	R134a	R404A/R507	R407A	R410A	$K_v$ value [m <sup>3</sup> /hour]
EVUL 1	2.15	2.01	1.65	1.38	1.85	2.02	0.10
EVUL 2	4.29	4.02	3.31	2.76	3.70	4.04	0.20
EVUL 3	6.44	6.03	4.96	4.14	5.55	6.06	0.30
EVUL 4	10.74	10.05	8.27	6.91	9.25	10.10	0.50
EVUL 5	13.96	13.06	10.75	8.98	12.02	13.13	0.65
EVUL 6	16.10	15.07	12.40	10.36	13.87	15.15	0.75
EVUL 8	19.32	18.09	14.88	12.43	16.65	18.18	0.90

**Suction vapor - Rated capacity [Kw]**

**SI units**

Type	R22	R407C	R134a	R404A/R507	R407A	R410A	$K_v$ value [m <sup>3</sup> /hour]
EVUL 1	0.17	0.16	0.13	0.14	0.16	0.21	0.10
EVUL 2	0.34	0.32	0.26	0.29	0.31	0.41	0.20
EVUL 3	0.51	0.48	0.38	0.43	0.47	0.62	0.30
EVUL 4	0.86	0.79	0.64	0.71	0.78	1.04	0.50
EVUL 5	1.11	1.03	0.83	0.93	1.01	1.35	0.65
EVUL 6	1.28	1.19	0.96	1.07	1.17	1.56	0.75
EVUL 8	1.54	1.43	1.15	1.29	1.40	1.87	0.90

**Hot gas - Rated capacity [Kw]**

**SI units**

Type	R22	R407C	R134a	R404A/R507	R407A	R410A	$K_v$ value [m <sup>3</sup> /hour]
EVUL 1	0.40	0.42	0.32	0.34	0.41	0.49	0.10
EVUL 2	0.80	0.85	0.64	0.67	0.82	0.98	0.20
EVUL 3	1.20	1.27	0.96	1.01	1.22	1.46	0.30
EVUL 4	2.00	2.11	1.60	1.69	2.04	2.44	0.50
EVUL 5	2.61	2.75	2.08	2.19	2.65	3.17	0.65
EVUL 6	3.01	3.17	2.40	2.53	3.06	3.66	0.75
EVUL 8	3.61	3.80	2.88	3.03	3.67	4.39	0.90

Rated liquid and suction capacity is based on evaporating temperature  $t_e = -10$  °C, liquid temperature ahead of the valve  $t_l = 25$  °C, pressure drop in valve  $\Delta p = 0.15$  bar.

Rated hot gas capacity is based on condensing temperature  $t_c = 40$  °C, pressure drop across valve  $\Delta p = 0.8$  bar, hot gas temperature  $t_h = 65$  °C and subcooling of refrigerant  $\Delta t_{sub} = 4$  K.

Technical data  
(continued)

Liquid - Rated capacity <sup>1)</sup>[TR]

US units

Type	R22	R407C	R134a	R404A/R507	R407A	R410A	C <sub>v</sub> -value [gal/min]
EVUL 1	0.62	0.58	0.47	0.39	0.53	0.57	0.12
EVUL 2	1.23	1.15	0.93	0.79	1.06	1.15	0.23
EVUL 3	1.85	1.73	1.40	1.18	1.59	1.72	0.35
EVUL 4	3.08	2.88	2.33	1.97	2.65	2.87	0.58
EVUL 5	4.00	3.74	3.02	2.57	3.44	3.73	0.75
EVUL 6	4.62	4.32	3.49	2.96	3.97	4.31	0.87
EVUL 8	5.54	5.18	4.19	3.55	4.77	5.17	1.04

Suction vapor - Rated capacity <sup>1)</sup>[TR]

US units

Type	R22	R407C	R134a	R404A/R507	R407A	R410A	C <sub>v</sub> -value [gal/min]
EVUL 1	0.05	0.05	0.04	0.04	0.05	0.06	0.12
EVUL 2	0.10	0.10	0.08	0.09	0.09	0.12	0.23
EVUL 3	0.15	0.14	0.12	0.13	0.14	0.19	0.35
EVUL 4	0.26	0.24	0.20	0.22	0.24	0.31	0.58
EVUL 5	0.34	0.31	0.25	0.28	0.31	0.40	0.75
EVUL 6	0.39	0.36	0.29	0.32	0.35	0.47	0.87
EVUL 8	0.46	0.43	0.35	0.39	0.42	0.56	1.04

Hot gas - Rated capacity <sup>1)</sup>[TR]

US units

Type	Rated capacity <sup>1)</sup> [TR]						C <sub>v</sub> -value [gal/min]
	Hot gas						
	R22	R407C	R134a	R404A/R507	R407A	R410A	
EVUL 1	0.09	0.10	0.07	0.08	0.09	0.11	0.12
EVUL 2	0.19	0.19	0.15	0.15	0.18	0.22	0.23
EVUL 3	0.28	0.29	0.22	0.23	0.28	0.33	0.35
EVUL 4	0.46	0.48	0.37	0.38	0.46	0.54	0.58
EVUL 5	0.60	0.62	0.48	0.49	0.60	0.70	0.75
EVUL 6	0.70	0.72	0.56	0.57	0.69	0.81	0.87
EVUL 8	0.83	0.86	0.67	0.68	0.83	0.98	1.04

<sup>1)</sup> Rated liquid and suction vapor capacity are based on:

Evaporating temperature  $t_e = 40\text{ }^\circ\text{F}$   
 Liquid temperature ahead of valve  $t_l = 100\text{ }^\circ\text{F}$   
 Pressure drop  $\Delta p$  across valve

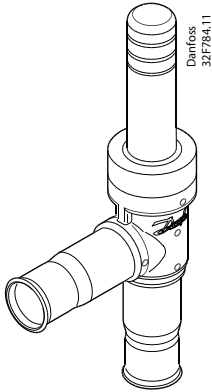
– with liquid:  $\Delta p = 2\text{ psi}$  for R134a  
 $\Delta p = 3\text{ psi}$  for R22, R404A and R507 – with suction vapor:  $\Delta p = 1\text{ psi}$

Rated hot gas capacity is based on:

Condensing temperature:  $t_c = 100\text{ }^\circ\text{F}$   
 Hot gas temperature:  $t_h = 140\text{ }^\circ\text{F}$   
 Pressure drop across valve:  $\Delta p = 2\text{ psi}$

Ordering Valve

Normally closed (NC)

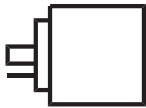


Valve Type	[in.]		[mm]	
	Connections	Code no.	Connections	Code no.
EVUL 1	1/4	032F8200	6 mm	032F8227
EVUL 2	1/4	032F8201	6 mm	032F8228
EVUL 3	1/4	032F8202	6 mm	032F8229
	3/8	032F8203	10 mm	032F8230
EVUL 4	1/4	032F8204	6 mm	032F8231
	3/8	032F8205	10 mm	032F8232
	1/2	032F8206	12 mm	032F8233
EVUL 5	3/8	032F8207	10 mm	032F8234
	1/2	032F8208	12 mm	032F8235
EVUL 6	3/8	032F8209	10 mm	032F8236
	1/2	032F8210	12 mm	032F8237
EVUL 8	1/2	032F8211	12 mm	032F8238

Ordering Coils

Alternating current a.c.

DIN spade connection



Type	Voltage	Frequency	Code no.		Power consumption
	[V]	[Hz]	Industrial pack with DIN plug <sup>1)</sup> IP65	single pack	
EVUL	24	50 / 60	—	042N7608	Holding: 6 W 12 VA In rush: 26 VA
	230		—	042N7601	
	240		—	042N7602	

<sup>1)</sup> The three pins on the coil can be fitted with spade tabs, 6.3 mm wide (to DIN 46247). The two current carrying pins can also be fitted with spade tabs, 4.8. mm wide. Max. lead cross section: 1.5 mm<sup>2</sup>.

If DIN plug is used (DIN 43650) the leads must be connected in the socket. The socket is fitted with a Pg 11 screwed entry for 6 – 12 mm.

Alternating current a.c.

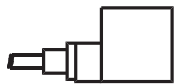
Cable connection



Type	Voltage	Frequency	Code no.		Power consumption
	[V]	[Hz]	Industrial pack with 1 m cable IP67	single pack	
EVUL	115	50 / 60	—	042N7662	Holding: 6 W 12 VA In rush: 26 VA
	230		042N8651	042N7651	
	240		042N8652	—	

Direct current d.c.

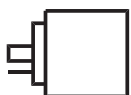
Cable connection



Type	Voltage	Code no.		Power consumption
	[V]	Industrial pack with 1 m cable IP67	single pack	
EVUL	12	042N8696	042N7696	14 W
	24	042N8697	042N7697	

Direct current d.c.

DIN spade connection



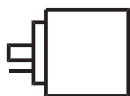
Type	Voltage	Code no.		Power consumption
	[V]	Industrial pack with DIN spade IP00	single pack	
EVUL	12	042N8686	—	14 W
	24	042N8687	042N7687	

\* DC coils with 0.25 in. US spade can be supplied on request.

**Ordering Coils**

(continued)

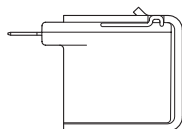
0.25 in. US spade connection



*Alternating current a.c.*

Type	Voltage	Frequency	Code no.		Power consumption
	[V]		Industrial pack with US DIN spade IP00	single pack	
EVUL	208 – 240	50 / 60	042N8201	—	Holding: 7 W 14 VA In rush: 28 VA
	24		042N8203	—	

0.25 in. US spade connections



*Alternating current a.c.*

Valve Type	Voltage	Frequency	Code no.		Power consumption
	[V]		Industrial pack 40-off	Single pack	
EVUL	208 – 240	50/60	042N8230	042N4230	Holding: 8 W / 16 VA In rush: 32 VA
	110 – 120		042N8233	042N4233	
	24		042N8236		

**Accessories**

Part	Description	Code no.
	DIN plug	042N0156
	O-ring for sealing the coil. Industrial pack (50 pcs.) <b>NB:</b> <b>Valve body supplied with O-ring</b>	032F6115

Capacity

Liquid capacity  $Q_e$  [kW]

SI Units

Type	$K_v$	Pressure drop across valve $\Delta p$ [bar]				
		0.1	0.2	0.3	0.4	0.5

**R22**

EVUL 1	0.10	1.6	2.3	2.9	3.3	3.7
EVUL 2	0.20	3.3	4.7	5.7	6.6	7.4
EVUL 3	0.30	4.9	7.0	8.6	9.9	11.0
EVUL 4	0.50	8.2	11.6	14.3	16.5	18.4
EVUL 5	0.65	10.7	15.1	18.5	21.4	23.9
EVUL 6	0.75	12.3	17.5	21.4	24.7	27.6
EVUL 8	0.90	14.8	20.9	25.7	29.6	33.1

**R134a**

EVUL 1	0.10	1.52	2.15	2.63	3.04	3.40
EVUL 2	0.20	3.04	4.30	5.27	6.08	6.80
EVUL 3	0.30	4.56	6.45	7.90	9.12	10.20
EVUL 4	0.50	7.60	10.75	13.17	15.20	17.00
EVUL 5	0.65	9.88	13.98	17.12	19.76	22.10
EVUL 6	0.75	11.40	16.13	19.75	22.81	25.50
EVUL 8	0.90	13.68	19.35	23.70	27.37	30.60

**R404A/R507**

EVUL 1	0.10	1.1	1.6	1.9	2.2	2.5
EVUL 2	0.20	2.2	3.1	3.9	4.5	5.0
EVUL 3	0.30	3.3	4.7	5.8	6.7	7.5
EVUL 4	0.50	5.6	7.9	9.6	11.1	12.4
EVUL 5	0.65	7.2	10.2	12.5	14.5	16.2
EVUL 6	0.75	8.3	11.8	14.5	16.7	18.7
EVUL 8	0.90	10.0	14.2	17.3	20.0	22.4

**R407C**

EVUL 1	0.10	1.6	2.2	2.7	3.1	3.5
EVUL 2	0.20	3.1	4.4	5.4	6.3	7.0
EVUL 3	0.30	4.7	6.7	8.1	9.4	10.5
EVUL 4	0.50	7.8	11.1	13.6	15.7	17.5
EVUL 5	0.65	10.2	14.4	17.6	20.4	22.8
EVUL 6	0.75	11.8	16.6	20.4	23.5	26.3
EVUL 8	0.90	14.1	20.0	24.4	28.2	31.5

**R410A**

EVUL 1	0.10	1.6	2.3	2.8	3.2	3.6
EVUL 2	0.20	3.2	4.6	5.6	6.4	7.2
EVUL 3	0.30	4.8	6.8	8.4	9.7	10.8
EVUL 4	0.50	8.1	11.4	14.0	16.1	18.0
EVUL 5	0.65	10.5	14.8	18.1	20.9	23.4
EVUL 6	0.75	12.1	17.1	20.9	24.2	27.0
EVUL 8	0.90	14.5	20.5	25.1	29.0	32.4

Capacities are based on:  
Liquid temperature:  $t_l = 25^\circ\text{C}$  ahead of valve,

Evaporating temperature:  $t_e = -10^\circ\text{C}$ ,  
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 for liquid temperature  $t_l$

$t_l$ [°C]	-10	0	10	15	20	25	30	35	40	45	50
R22/R407C	0.76	0.82	0.88	0.92	0.96	1.00	1.05	1.10	1.16	1.22	1.30
R134a	0.73	0.79	0.86	0.90	0.95	1.00	1.06	1.12	1.19	1.27	1.37
R404A/507	0.65	0.72	0.81	0.86	0.93	1.00	1.09	1.20	1.33	1.51	1.74
R410A	0.73	0.79	0.86	0.90	0.95	1.00	1.06	1.14	1.23	1.33	1.47

Capacity

Suction vapour capacity  $Q_e$  [kW]

Type	$K_v$	Pressure drop $\Delta p$ [bar]	Evaporating temperature $t_e$ [°C]					
			-40	-30	-20	-10	0	10
EVUL 1	0.10	0.1	0.091	0.118	0.149	0.183	0.222	0.264
		0.15	0.108	0.142	0.180	0.222	0.270	0.322
		0.2	0.121	0.160	0.205	0.254	0.310	0.370
EVUL 2	0.20	0.1	0.183	0.236	0.297	0.366	0.443	0.528
		0.15	0.216	0.284	0.360	0.445	0.539	0.644
		0.2	0.241	0.321	0.410	0.509	0.619	0.741
EVUL 3	0.30	0.1	0.274	0.355	0.446	0.549	0.665	0.792
		0.15	0.324	0.426	0.539	0.667	0.809	0.966
		0.2	0.362	0.481	0.615	0.763	0.929	1.111
EVUL 4	0.50	0.1	0.456	0.591	0.744	0.916	1.108	1.321
		0.15	0.541	0.709	0.899	1.112	1.348	1.611
		0.2	0.603	0.802	1.025	1.272	1.548	1.852
EVUL 5	0.65	0.1	0.593	0.768	0.967	1.190	1.440	1.717
		0.15	0.703	0.922	1.169	1.445	1.753	2.094
		0.2	0.784	1.043	1.332	1.654	2.012	2.407
EVUL 6	0.75	0.1	0.684	0.887	1.116	1.373	1.661	1.981
		0.15	0.811	1.064	1.349	1.667	2.023	2.416
		0.2	0.904	1.204	1.537	1.909	2.321	2.778
EVUL 8	0.90	0.1	0.821	1.064	1.339	1.648	1.994	2.377
		0.15	0.973	1.277	1.618	2.001	2.427	2.899
		0.2	1.085	1.444	1.844	2.290	2.786	3.333

Correction factors

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  $\Delta p$  in valve.

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.

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 for liquid temperature  $t_l$

$t_l$ [°C]	10	15	20	25	30	35	40	45	50
R22	0.90	0.93	0.96	1.00	1.04	1.08	1.13	1.18	1.24

**Capacity**  
(continued)

Suction vapour capacity  $Q_e$  [kW]

SI Units R134a

Type	$K_v$	Pressure drop $\Delta p$ [bar]	Evaporating temperature $t_e$ [°C]					
			-40	-30	-20	-10	0	10
EVUL 1	0.10	0.1	0.056	0.078	0.104	0.134	0.169	0.208
		0.15	0.062	0.091	0.124	0.162	0.204	0.253
		0.2	0.065	0.100	0.139	0.183	0.233	0.290
EVUL 2	0.20	0.1	0.111	0.156	0.208	0.268	0.338	0.417
		0.15	0.125	0.182	0.248	0.323	0.409	0.507
		0.2	0.130	0.201	0.278	0.366	0.467	0.580
EVUL 3	0.30	0.1	0.167	0.234	0.312	0.402	0.506	0.625
		0.15	0.187	0.274	0.372	0.485	0.613	0.760
		0.2	0.196	0.301	0.417	0.550	0.700	0.871
EVUL 4	0.50	0.1	0.278	0.390	0.520	0.671	0.844	1.042
		0.15	0.312	0.456	0.620	0.808	1.022	1.267
		0.2	0.326	0.501	0.696	0.916	1.167	1.451
EVUL 5	0.65	0.1	0.361	0.507	0.676	0.872	1.097	1.355
		0.15	0.405	0.593	0.806	1.050	1.329	1.646
		0.2	0.424	0.652	0.905	1.191	1.517	1.886
EVUL 6	0.75	0.1	0.416	0.585	0.780	1.006	1.266	1.563
		0.15	0.468	0.684	0.930	1.211	1.533	1.900
		0.2	0.489	0.752	1.044	1.374	1.750	2.176
EVUL 8	0.90	0.1	0.500	0.702	0.936	1.207	1.519	1.876
		0.15	0.561	0.821	1.116	1.454	1.840	2.280
		0.2	0.587	0.902	1.252	1.649	2.100	2.612

**Correction factors**

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  $\Delta p$  in valve.

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.

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 for liquid temperature  $t_l$

$t_l$ [°C]	10	15	20	25	30	35	40	45	50
R134a	0.88	0.92	0.96	1.00	1.05	1.10	1.16	1.23	1.31



**Capacity**  
(continued)

Suction vapour capacity  $Q_e$  [kW]

SI Units R404A/R507

Type	$K_v$	Pressure drop $\Delta p$ [bar]	Evaporating temperature $t_e$ [°C]					
			-40	-30	-20	-10	0	10
EVUL 1	0.10	0.1	0.075	0.099	0.127	0.159	0.196	0.239
		0.15	0.089	0.119	0.154	0.194	0.239	0.291
		0.2	0.100	0.135	0.176	0.222	0.275	0.335
EVUL 2	0.20	0.1	0.150	0.198	0.254	0.319	0.393	0.477
		0.15	0.179	0.239	0.308	0.388	0.479	0.583
		0.2	0.201	0.271	0.352	0.444	0.550	0.670
EVUL 3	0.30	0.1	0.225	0.297	0.381	0.478	0.589	0.716
		0.15	0.268	0.358	0.462	0.581	0.718	0.874
		0.2	0.301	0.406	0.527	0.666	0.825	1.005
EVUL 4	0.50	0.1	0.375	0.495	0.635	0.797	0.982	1.194
		0.15	0.447	0.596	0.769	0.969	1.197	1.457
		0.2	0.502	0.677	0.879	1.110	1.375	1.676
EVUL 5	0.65	0.1	0.488	0.644	0.826	1.036	1.277	1.552
		0.15	0.582	0.775	1.000	1.260	1.556	1.893
		0.2	0.653	0.880	1.142	1.444	1.788	2.178
EVUL 6	0.75	0.1	0.563	0.743	0.953	1.195	1.474	1.790
		0.15	0.671	0.895	1.154	1.453	1.796	2.185
		0.2	0.754	1.016	1.318	1.666	2.063	2.514
EVUL 8	0.90	0.1	0.675	0.891	1.143	1.434	1.768	2.148
		0.15	0.805	1.074	1.385	1.744	2.155	2.622
		0.2	0.904	1.219	1.582	1.999	2.475	3.016

**Correction factors**

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  $\Delta p$  in valve.

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.

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 for liquid temperature  $t_l$

$t_l$ [°C]	10	15	20	25	30	35	40	45	50
R404A/R507	0.84	0.89	0.94	1.00	1.07	1.16	1.26	1.40	1.57

**Capacity**  
(continued)

Suction vapour capacity  $Q_e$  [kW]

SI Units R407C

Type	$K_v$	Pressure drop $\Delta p$ [bar]	Evaporating temperature $t_e$ [°C]					
			-40	-30	-20	-10	0	10
EVUL 1	0.10	0.1	0.077	0.104	0.134	0.170	0.210	0.255
		0.15	0.090	0.124	0.162	0.206	0.255	0.311
		0.2	0.100	0.139	0.184	0.235	0.293	0.357
EVUL 2	0.20	0.1	0.154	0.207	0.269	0.339	0.419	0.510
		0.15	0.181	0.248	0.324	0.411	0.510	0.622
		0.2	0.199	0.279	0.368	0.470	0.585	0.715
EVUL 3	0.30	0.1	0.231	0.311	0.403	0.509	0.629	0.765
		0.15	0.271	0.372	0.486	0.617	0.765	0.933
		0.2	0.299	0.418	0.553	0.705	0.878	1.072
EVUL 4	0.50	0.1	0.386	0.518	0.672	0.848	1.048	1.275
		0.15	0.452	0.619	0.810	1.028	1.275	1.555
		0.2	0.499	0.697	0.921	1.175	1.463	1.787
EVUL 5	0.65	0.1	0.501	0.674	0.873	1.102	1.363	1.658
		0.15	0.588	0.805	1.053	1.336	1.658	2.021
		0.2	0.648	0.906	1.197	1.528	1.901	2.323
EVUL 6	0.75	0.1	0.579	0.778	1.008	1.272	1.573	1.913
		0.15	0.679	0.929	1.215	1.542	1.913	2.332
		0.2	0.748	1.045	1.381	1.763	2.194	2.680
EVUL 8	0.90	0.1	0.694	0.933	1.209	1.526	1.887	2.296
		0.15	0.814	1.115	1.458	1.850	2.296	2.798
		0.2	0.897	1.254	1.658	2.115	2.633	3.216

**Correction factors**

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  $\Delta p$  in valve.

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.

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 for liquid temperature  $t_l$

$t_l$ [°C]	10	15	20	25	30	35	40	45	50
R407C	0.90	0.93	0.96	1.00	1.04	1.08	1.13	1.18	1.24

**Capacity**  
(continued)

Suction vapour capacity  $Q_e$  [kW]

SI Units R410A

Type	$K_v$	Pressure drop $\Delta p$ [bar]	Evaporating temperature $t_e$ [°C]					
			-40	-30	-20	-10	0	10
EVUL 1	0.10	0.1	0.117	0.150	0.187	0.229	0.276	0.329
		0.15	0.141	0.182	0.228	0.279	0.337	0.402
		0.2	0.160	0.207	0.261	0.321	0.388	0.463
EVUL 2	0.20	0.1	0.235	0.300	0.375	0.459	0.553	0.657
		0.15	0.282	0.363	0.455	0.559	0.674	0.803
		0.2	0.320	0.415	0.522	0.642	0.776	0.925
EVUL 3	0.30	0.1	0.352	0.450	0.562	0.688	0.829	0.986
		0.15	0.423	0.545	0.683	0.838	1.012	1.205
		0.2	0.480	0.622	0.783	0.963	1.164	1.388
EVUL 4	0.50	0.1	0.587	0.750	0.936	1.146	1.382	1.644
		0.15	0.706	0.909	1.138	1.397	1.686	2.008
		0.2	0.799	1.037	1.305	1.605	1.940	2.313
EVUL 5	0.65	0.1	0.763	0.976	1.217	1.490	1.796	2.137
		0.15	0.917	1.181	1.480	1.816	2.192	2.610
		0.2	1.039	1.348	1.696	2.086	2.522	3.007
EVUL 6	0.75	0.1	0.880	1.126	1.405	1.720	2.072	2.465
		0.15	1.059	1.363	1.708	2.096	2.529	3.012
		0.2	1.199	1.555	1.957	2.407	2.910	3.469
EVUL 8	0.90	0.1	1.056	1.351	1.686	2.064	2.487	2.958
		0.15	1.270	1.635	2.049	2.515	3.035	3.614
		0.2	1.439	1.866	2.348	2.889	3.492	4.163

**Correction factors**

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  $\Delta p$  in valve.

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.

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 for liquid temperature  $t_l$

$t_l$ [°C]	10	15	20	25	30	35	40	45	50
R410A	0.89	0.92	0.96	1.00	1.05	1.11	1.18	1.26	1.37

Capacity

Hot gas capacity  $Q_h$  [kW]

SI Units R22

Type	$K_v$	Pressure drop across valve $\Delta p$ [bar]	<sup>1)</sup> Condensing temp. $t_c$ [°C]				
			20	30	40	50	60
EVUL 1	0.10	0.1	0.29	0.31	0.33	0.34	0.34
		0.2	0.41	0.44	0.46	0.48	0.48
		0.4	0.57	0.61	0.65	0.67	0.68
		0.8	0.79	0.85	0.90	0.94	0.95
		1.6	1.05	1.15	1.23	1.29	1.32
EVUL 2	0.20	0.1	0.58	0.62	0.65	0.68	0.69
		0.2	0.82	0.88	0.92	0.95	0.97
		0.4	1.14	1.23	1.29	1.34	1.36
		0.8	1.57	1.70	1.80	1.87	1.91
		1.6	2.10	2.30	2.46	2.58	2.65
EVUL 3	0.30	0.1	0.88	0.93	0.98	1.01	1.03
		0.2	1.23	1.31	1.38	1.43	1.45
		0.4	1.72	1.84	1.94	2.01	2.04
		0.8	2.36	2.55	2.70	2.81	2.86
		1.6	3.14	3.45	3.70	3.88	3.97
EVUL 4	0.50	0.1	1.46	1.56	1.63	1.69	1.71
		0.2	2.05	2.19	2.30	2.38	2.42
		0.4	2.86	3.07	3.23	3.35	3.40
		0.8	3.94	4.25	4.50	4.68	4.77
		1.6	5.24	5.75	6.16	6.46	6.62
EVUL 5	0.65	0.1	1.90	2.02	2.12	2.19	2.23
		0.2	2.67	2.85	2.99	3.09	3.14
		0.4	3.72	3.99	4.20	4.35	4.43
		0.8	5.12	5.52	5.85	6.08	6.20
		1.6	6.81	7.48	8.01	8.40	8.61
EVUL 6	0.75	0.1	2.19	2.33	2.45	2.53	2.57
		0.2	3.08	3.28	3.45	3.57	3.63
		0.4	4.29	4.60	4.85	5.02	5.11
		0.8	5.90	6.37	6.75	7.02	7.16
		1.6	7.86	8.63	9.24	9.69	9.94
EVUL 8	0.90	0.1	2.63	2.80	2.94	3.04	3.08
		0.2	3.69	3.94	4.14	4.29	4.35
		0.4	5.15	5.52	5.82	6.03	6.13
		0.8	7.08	7.65	8.10	8.42	8.59
		1.6	9.43	10.35	11.09	11.63	11.92

<sup>1)</sup> Bubble point

Evaporating temp.  $t_e = -10$  °C

Hot gas temp.  $t_h = t_c + 25$  K

Subcooling  $\Delta t_{sub} = 4$  K

Correction factors

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.

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

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

Correction factors for evaporating temperature  $t_e$

$t_e$ [°C]	-40	-30	-20	-10	0	10
R22	0.92	0.95	0.98	1.00	1.02	1.04

**Capacity**  
*(continued)*

 Hot gas capacity  $Q_h$  [kW]

SI Units R134a

Type	$K_v$	Pressure drop across valve $\Delta p$ [bar]	<sup>1)</sup> Condensing temp. $t_c$ [°C]				
			20	30	40	50	60
EVUL 1	0.10	0.1	0.23	0.25	0.26	0.26	0.26
		0.2	0.32	0.34	0.36	0.37	0.37
		0.4	0.45	0.48	0.50	0.52	0.51
		0.8	0.60	0.65	0.69	0.71	0.72
		1.6	0.76	0.85	0.93	0.97	0.98
EVUL 2	0.20	0.1	0.46	0.49	0.51	0.52	0.52
		0.2	0.65	0.69	0.72	0.74	0.73
		0.4	0.89	0.96	1.01	1.03	1.03
		0.8	1.20	1.31	1.38	1.43	1.43
		1.6	1.51	1.71	1.85	1.94	1.96
EVUL 3	0.30	0.1	0.69	0.74	0.77	0.78	0.78
		0.2	0.97	1.03	1.08	1.10	1.10
		0.4	1.34	1.44	1.51	1.55	1.54
		0.8	1.80	1.96	2.08	2.14	2.15
		1.6	2.27	2.56	2.78	2.91	2.95
EVUL 4	0.50	0.1	1.16	1.23	1.28	1.31	1.30
		0.2	1.62	1.72	1.80	1.84	1.83
		0.4	2.23	2.40	2.51	2.58	2.57
		0.8	3.00	3.27	3.46	3.57	3.58
		1.6	3.78	4.27	4.63	4.85	4.91
EVUL 5	0.65	0.1	1.50	1.60	1.67	1.70	1.69
		0.2	2.10	2.24	2.34	2.39	2.38
		0.4	2.90	3.12	3.27	3.35	3.34
		0.8	3.90	4.25	4.50	4.64	4.66
		1.6	4.91	5.55	6.01	6.30	6.38
EVUL 6	0.75	0.1	1.74	1.84	1.92	1.96	1.95
		0.2	2.43	2.59	2.70	2.76	2.75
		0.4	3.35	3.59	3.77	3.86	3.86
		0.8	4.50	4.90	5.19	5.36	5.37
		1.6	5.67	6.40	6.94	7.27	7.37
EVUL 8	0.90	0.1	2.08	2.21	2.31	2.35	2.34
		0.2	2.91	3.10	3.24	3.31	3.30
		0.4	4.02	4.31	4.52	4.64	4.63
		0.8	5.40	5.88	6.23	6.43	6.45
		1.6	6.80	7.69	8.33	8.72	8.84

<sup>1)</sup> Bubble point

 Evaporating temp.  $t_e = -10$  °C

 Hot gas temp.  $t_h = t_c + 25$  K

 Subcooling  $\Delta t_{sub} = 4$  K

**Correction factors**

 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.

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

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

 Correction factors for evaporating temperature  $t_e$ 

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

**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [kW]

Type	$K_v$	Pressure drop across valve $\Delta p$ [bar]	<sup>1)</sup> Condensing temp. $t_c$ [°C]				
			20	30	40	50	60
EVUL 1	0.10	0.1	0.26	0.27	0.27	0.26	0.23
		0.2	0.37	0.38	0.38	0.36	0.32
		0.4	0.52	0.53	0.53	0.51	0.46
		0.8	0.72	0.74	0.74	0.71	0.64
		1.6	0.96	1.01	1.02	0.98	0.89
EVUL 2	0.20	0.1	0.53	0.54	0.53	0.51	0.46
		0.2	0.74	0.76	0.75	0.72	0.65
		0.4	1.04	1.06	1.06	1.02	0.91
		0.8	1.43	1.48	1.48	1.42	1.28
		1.6	1.93	2.01	2.03	1.97	1.79
EVUL 3	0.30	0.1	0.79	0.81	0.80	0.77	0.69
		0.2	1.11	1.14	1.13	1.08	0.97
		0.4	1.56	1.59	1.59	1.52	1.37
		0.8	2.15	2.22	2.22	2.13	1.93
		1.6	2.89	3.02	3.05	2.95	2.68
EVUL 4	0.50	0.1	1.32	1.35	1.34	1.28	1.15
		0.2	1.85	1.90	1.88	1.80	1.62
		0.4	2.59	2.66	2.65	2.54	2.29
		0.8	3.58	3.69	3.69	3.55	3.21
		1.6	4.81	5.03	5.08	4.92	4.47
EVUL 5	0.65	0.1	1.71	1.75	1.74	1.66	1.49
		0.2	2.41	2.46	2.45	2.34	2.11
		0.4	3.37	3.45	3.44	3.30	2.97
		0.8	4.66	4.80	4.80	4.62	4.17
		1.6	6.26	6.54	6.61	6.40	5.81
EVUL 6	0.75	0.1	1.98	2.02	2.00	1.92	1.72
		0.2	2.78	2.84	2.83	2.70	2.43
		0.4	3.89	3.99	3.97	3.81	3.43
		0.8	5.37	5.54	5.54	5.33	4.81
		1.6	7.22	7.55	7.62	7.38	6.70
EVUL 8	0.90	0.1	2.37	2.42	2.41	2.30	2.07
		0.2	3.34	3.41	3.39	3.25	2.92
		0.4	4.67	4.78	4.76	4.57	4.12
		0.8	6.45	6.65	6.65	6.40	5.78
		1.6	8.67	9.06	9.15	8.86	8.04

<sup>1)</sup> Bubble point

Evaporating temp.  $t_e = -10$  °C

Hot gas temp.  $t_h = t_c + 25$  K

Subcooling  $\Delta t_{sub} = 4$  K

**Correction factors**

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.

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

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

Correction factors for evaporating temperature  $t_e$

$t_e$ [°C]	-40	-30	-20	-10	0	10
R404A/R507	0.85	0.90	0.95	1.00	1.05	1.09

**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [kW]

SI Units R407C

Type	$K_v$	Pressure drop across valve $\Delta p$ [bar]	<sup>1)</sup> Condensing temp. $t_c$ [°C]				
			20	30	40	50	60
EVUL 1	0.10	0.1	0.31	0.33	0.34	0.34	0.34
		0.2	0.44	0.46	0.48	0.49	0.48
		0.4	0.62	0.65	0.67	0.68	0.67
		0.8	0.85	0.90	0.94	0.96	0.94
		1.6	1.14	1.23	1.29	1.32	1.31
EVUL 2	0.20	0.1	0.63	0.66	0.68	0.69	0.68
		0.2	0.88	0.93	0.96	0.97	0.95
		0.4	1.23	1.30	1.35	1.37	1.34
		0.8	1.70	1.81	1.88	1.91	1.89
		1.6	2.28	2.46	2.59	2.65	2.62
EVUL 3	0.30	0.1	0.94	0.99	1.02	1.03	1.01
		0.2	1.32	1.39	1.44	1.46	1.43
		0.4	1.85	1.95	2.02	2.05	2.02
		0.8	2.55	2.71	2.82	2.87	2.83
		1.6	3.42	3.69	3.88	3.97	3.94
EVUL 4	0.50	0.1	1.57	1.65	1.70	1.72	1.69
		0.2	2.20	2.32	2.40	2.43	2.39
		0.4	3.08	3.25	3.37	3.41	3.36
		0.8	4.25	4.52	4.70	4.78	4.72
		1.6	5.70	6.15	6.46	6.62	6.56
EVUL 5	0.65	0.1	2.04	2.14	2.21	2.24	2.20
		0.2	2.87	3.02	3.12	3.15	3.10
		0.4	4.00	4.23	4.38	4.44	4.37
		0.8	5.52	5.88	6.11	6.21	6.13
		1.6	7.41	8.00	8.40	8.60	8.53
EVUL 6	0.75	0.1	2.35	2.47	2.55	2.58	2.53
		0.2	3.31	3.48	3.60	3.64	3.58
		0.4	4.62	4.88	5.06	5.12	5.04
		0.8	6.37	6.78	7.05	7.17	7.07
		1.6	8.55	9.23	9.70	9.92	9.84
EVUL 8	0.90	0.1	2.82	2.97	3.06	3.10	3.04
		0.2	3.97	4.18	4.32	4.37	4.29
		0.4	5.54	5.86	6.07	6.14	6.05
		0.8	7.65	8.13	8.46	8.60	8.49
		1.6	10.26	11.07	11.64	11.91	11.81

<sup>1)</sup> Bubble point

Evaporating temp.  $t_e = -10$  °C  
 Hot gas temp.  $t_h = t_c + 25$  K  
 Subcooling  $\Delta t_{sub} = 4$  K

**Correction factors**

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.

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

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

Correction factors for evaporating temperature  $t_e$

$t_e$ [°C]	-40	-30	-20	-10	0	10
R407C	0.92	0.95	0.98	1.00	1.02	1.04

**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [kW]

Type	$K_v$	Pressure drop across valve $\Delta p$ [bar]	Condensing temp. $t_c$ [°C]				
			20	30	40	50	60
EVUL 1	0.10	0.1	0.37	0.39	0.40	0.40	0.39
		0.2	0.52	0.54	0.56	0.56	0.54
		0.4	0.73	0.76	0.79	0.79	0.77
		0.8	1.01	1.07	1.11	1.12	1.08
		1.6	1.38	1.47	1.54	1.56	1.51
EVUL 2	0.20	0.1	0.73	0.77	0.79	0.80	0.77
		0.2	1.03	1.09	1.12	1.13	1.09
		0.4	1.45	1.53	1.58	1.59	1.54
		0.8	2.02	2.14	2.21	2.23	2.16
		1.6	2.76	2.95	3.07	3.11	3.02
EVUL 3	0.30	0.1	1.10	1.16	1.19	1.20	1.16
		0.2	1.55	1.63	1.68	1.69	1.63
		0.4	2.18	2.29	2.37	2.38	2.30
		0.8	3.03	3.20	3.32	3.35	3.24
		1.6	4.14	4.42	4.61	4.67	4.54
EVUL 4	0.50	0.1	1.84	1.93	1.99	1.99	1.93
		0.2	2.59	2.72	2.80	2.82	2.72
		0.4	3.63	3.82	3.94	3.97	3.84
		0.8	5.05	5.34	5.53	5.58	5.40
		1.6	6.90	7.37	7.68	7.78	7.56
EVUL 5	0.65	0.1	2.39	2.51	2.58	2.59	2.50
		0.2	3.36	3.53	3.64	3.66	3.54
		0.4	4.72	4.97	5.13	5.16	4.99
		0.8	6.56	6.94	7.19	7.25	7.02
		1.6	8.97	9.58	9.98	10.11	9.83
EVUL 6	0.75	0.1	2.75	2.89	2.98	2.99	2.89
		0.2	3.88	4.08	4.20	4.22	4.08
		0.4	5.44	5.73	5.92	5.95	5.76
		0.8	7.57	8.01	8.29	8.36	8.10
		1.6	10.35	11.05	11.51	11.67	11.34
EVUL 8	0.90	0.1	3.31	3.47	3.57	3.59	3.47
		0.2	4.66	4.89	5.04	5.07	4.90
		0.4	6.53	6.88	7.10	7.14	6.91
		0.8	9.09	9.61	9.95	10.04	9.72
		1.6	12.42	13.26	13.82	14.00	13.61

<sup>1)</sup> Bubble point

Evaporating temp.  $t_e = -10$  °C

Hot gas temp.  $t_h = t_c + 25$  K

Subcooling  $\Delta t_{sub} = 4$  K

**Correction factors**

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.

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

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

Correction factors for evaporating temperature  $t_e$

$t_e$ [°C]	-40	-30	-20	-10	0	10
R410A	0.92	0.95	0.98	1.00	1.02	1.03



Capacity

Liquid capacity  $Q_e$  [TR]

US Units

Type	$C_v$	Pressure drop across valve $\Delta p$ [psi]						
		1	2	3	4	5	6	7

**R22**

EVUL 1	0.12	0.36	0.50	0.62	0.71	0.80	0.87	0.94
EVUL 2	0.23	0.71	1.01	1.23	1.42	1.59	1.74	1.88
EVUL 3	0.35	1.07	1.51	1.85	2.13	2.39	2.61	2.82
EVUL 4	0.58	1.78	2.51	3.08	3.56	3.98	4.36	4.70
EVUL 5	0.75	2.31	3.27	4.00	4.62	5.17	5.66	6.12
EVUL 6	0.87	2.67	3.77	4.62	5.33	5.96	6.53	7.06
EVUL 8	1.04	3.20	4.53	5.54	6.40	7.16	7.84	8.47

**R134a**

EVUL 1	0.12	0.33	0.47	0.57	0.66	0.74	0.81	0.87
EVUL 2	0.23	0.66	0.93	1.14	1.32	1.47	1.61	1.74
EVUL 3	0.35	0.99	1.40	1.71	1.97	2.21	2.42	2.61
EVUL 4	0.58	1.64	2.33	2.85	3.29	3.68	4.03	4.35
EVUL 5	0.75	2.14	3.02	3.70	4.27	4.78	5.24	5.66
EVUL 6	0.87	2.47	3.49	4.27	4.93	5.51	6.04	6.53
EVUL 8	1.04	2.96	4.19	5.13	5.92	6.62	7.25	7.83

**R404A/R507**

EVUL 1	0.12	0.2	0.3	0.4	0.5	0.5	0.6	0.6
EVUL 2	0.23	0.5	0.6	0.8	0.9	1.0	1.1	1.2
EVUL 3	0.35	0.7	1.0	1.2	1.4	1.5	1.7	1.8
EVUL 4	0.58	1.1	1.6	2.0	2.3	2.5	2.8	3.0
EVUL 5	0.75	1.5	2.1	2.6	3.0	3.3	3.6	3.9
EVUL 6	0.87	1.7	2.4	3.0	3.4	3.8	4.2	4.5
EVUL 8	1.04	2.1	2.9	3.6	4.1	4.6	5.0	5.4

**R407C**

EVUL 1	0.12	0.3	0.5	0.6	0.7	0.7	0.8	0.9
EVUL 2	0.23	0.7	0.9	1.2	1.3	1.5	1.6	1.8
EVUL 3	0.35	1.0	1.4	1.7	2.0	2.2	2.4	2.6
EVUL 4	0.58	1.7	2.4	2.9	3.3	3.7	4.1	4.4
EVUL 5	0.75	2.2	3.1	3.7	4.3	4.8	5.3	5.7
EVUL 6	0.87	2.5	3.5	4.3	5.0	5.6	6.1	6.6
EVUL 8	1.04	3.0	4.2	5.2	6.0	6.7	7.3	7.9

**R410A**

EVUL 1	0.12	0.3	0.5	0.6	0.7	0.7	0.8	0.9
EVUL 2	0.23	0.7	0.9	1.1	1.3	1.5	1.6	1.8
EVUL 3	0.35	1.0	1.4	1.7	2.0	2.2	2.4	2.6
EVUL 4	0.58	1.7	2.3	2.9	3.3	3.7	4.1	4.4
EVUL 5	0.75	2.2	3.0	3.7	4.3	4.8	5.3	5.7
EVUL 6	0.87	2.5	3.5	4.3	5.0	5.6	6.1	6.6
EVUL 8	1.04	3.0	4.2	5.2	6.0	6.7	7.3	7.9

Liquid temperature:  $t_l = 100\text{ }^\circ\text{F}$   
 Evaporating temperature:  $t_e = 40\text{ }^\circ\text{F}$   
 Superheat temperature:  $(t_e + 10\text{ }^\circ\text{F}) = 50\text{ }^\circ\text{F}$

**Correction factors**

When liquid temperature  $t_l$  ahead of the expansion valve is other than  $100\text{ }^\circ\text{F}$ , 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  $Q_e$  [TR]

US Units R22

Type	$C_v$	Pressure drop $\Delta p$ [psi]	Evaporating temperature $t_e$ [°F]							
			-40	-20	0	10	20	30	40	50
EVUL 1	0.12	1	0.020	0.026	0.033	0.038	0.042	0.047	0.052	0.057
		2	0.027	0.036	0.047	0.052	0.059	0.065	0.072	0.080
		3	0.031	0.043	0.056	0.063	0.071	0.079	0.088	0.097
EVUL 2	0.23	1	0.039	0.052	0.067	0.075	0.084	0.093	0.103	0.114
		2	0.053	0.072	0.093	0.105	0.117	0.131	0.145	0.160
		3	0.062	0.086	0.112	0.127	0.142	0.159	0.176	0.194
EVUL 3	0.35	1	0.059	0.078	0.100	0.113	0.126	0.140	0.155	0.170
		2	0.080	0.108	0.140	0.157	0.176	0.196	0.217	0.240
		3	0.093	0.129	0.168	0.190	0.214	0.238	0.264	0.292
EVUL 4	0.58	1	0.099	0.130	0.167	0.188	0.210	0.233	0.258	0.284
		2	0.133	0.180	0.233	0.262	0.294	0.327	0.362	0.399
		3	0.156	0.214	0.281	0.317	0.356	0.397	0.440	0.486
EVUL 5	0.75	1	0.128	0.170	0.218	0.244	0.273	0.303	0.335	0.369
		2	0.173	0.234	0.303	0.341	0.382	0.425	0.471	0.519
		3	0.202	0.279	0.365	0.412	0.463	0.516	0.572	0.632
EVUL 6	0.87	1	0.148	0.196	0.251	0.282	0.315	0.350	0.387	0.426
		2	0.200	0.270	0.350	0.394	0.441	0.490	0.543	0.599
		3	0.233	0.321	0.421	0.476	0.534	0.595	0.660	0.729
EVUL 8	1.04	1	0.177	0.235	0.301	0.338	0.378	0.420	0.464	0.511
		2	0.240	0.324	0.420	0.472	0.529	0.588	0.652	0.719
		3	0.280	0.386	0.505	0.571	0.641	0.714	0.793	0.875

Correction factors

The table values refer to evaporator capacity and are given as a function of evaporating temperature  $t_e$  and pressure drop  $\Delta p$  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%.

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

Correction factors for liquid temperature  $t_l$   
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.

**Capacity**  
(continued)

Suction vapour capacity  $Q_e$  [TR]

US Units R134a

Type	$C_v$	Pressure drop $\Delta p$ [psi]	Evaporating temperature $t_e$ [°F]							
			-40	-20	0	10	20	30	40	50
EVUL 1	0.12	1	0.012	0.017	0.023	0.027	0.031	0.035	0.039	0.044
		2	0.015	0.023	0.032	0.037	0.042	0.048	0.055	0.062
		3	0.016	0.026	0.038	0.044	0.051	0.058	0.066	0.075
EVUL 2	0.23	1	0.024	0.034	0.046	0.053	0.061	0.069	0.078	0.088
		2	0.030	0.045	0.063	0.074	0.085	0.096	0.109	0.123
		3	0.032	0.052	0.075	0.088	0.101	0.116	0.132	0.149
EVUL 3	0.35	1	0.036	0.051	0.070	0.080	0.092	0.104	0.117	0.132
		2	0.045	0.068	0.095	0.110	0.127	0.145	0.164	0.185
		3	0.048	0.078	0.113	0.132	0.152	0.174	0.198	0.224
EVUL 4	0.58	1	0.059	0.085	0.116	0.134	0.153	0.173	0.196	0.220
		2	0.075	0.114	0.159	0.184	0.211	0.241	0.273	0.308
		3	0.080	0.131	0.188	0.219	0.254	0.290	0.330	0.373
EVUL 5	0.75	1	0.077	0.111	0.151	0.174	0.198	0.225	0.254	0.286
		2	0.098	0.148	0.206	0.239	0.275	0.313	0.355	0.400
		3	0.104	0.170	0.244	0.285	0.330	0.378	0.429	0.484
EVUL 6	0.87	1	0.089	0.128	0.174	0.200	0.229	0.260	0.294	0.330
		2	0.113	0.170	0.238	0.276	0.317	0.362	0.410	0.461
		3	0.120	0.196	0.281	0.329	0.380	0.436	0.495	0.559
EVUL 8	1.04	1	0.107	0.153	0.209	0.240	0.275	0.312	0.352	0.396
		2	0.135	0.205	0.286	0.331	0.381	0.434	0.492	0.554
		3	0.144	0.235	0.338	0.395	0.456	0.523	0.594	0.671

**Correction factors**

The table values refer to evaporator capacity and are given as a function of evaporating temperature  $t_e$  and pressure drop  $\Delta p$  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%.

Correction factors for liquid temperature  $t_l$

Correction factors for liquid temperature  $t_l$   
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.

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

**Capacity**  
(continued)

Suction vapour capacity  $Q_e$  [TR]

US Units R404A/R507

Type	$C_v$	Pressure drop $\Delta p$ [psi]	Evaporating temperature $t_e$ [°F]							
			-40	-20	0	10	20	30	40	50
EVUL 1	0.12	1	0.015	0.020	0.026	0.030	0.034	0.038	0.043	0.048
		2	0.020	0.028	0.037	0.042	0.048	0.054	0.060	0.068
		3	0.023	0.033	0.045	0.051	0.058	0.065	0.074	0.082
EVUL 2	0.23	1	0.029	0.040	0.053	0.060	0.068	0.077	0.086	0.096
		2	0.040	0.055	0.074	0.084	0.096	0.108	0.121	0.135
		3	0.047	0.066	0.089	0.102	0.116	0.131	0.147	0.165
EVUL 3	0.35	1	0.044	0.060	0.079	0.090	0.102	0.115	0.129	0.144
		2	0.060	0.083	0.111	0.126	0.143	0.162	0.181	0.203
		3	0.070	0.099	0.134	0.153	0.174	0.196	0.221	0.247
EVUL 4	0.58	1	0.073	0.100	0.132	0.151	0.170	0.192	0.215	0.240
		2	0.100	0.138	0.184	0.211	0.239	0.269	0.302	0.338
		3	0.117	0.166	0.223	0.255	0.290	0.327	0.368	0.411
EVUL 5	0.75	1	0.095	0.130	0.172	0.196	0.222	0.249	0.280	0.312
		2	0.130	0.180	0.240	0.274	0.310	0.350	0.393	0.439
		3	0.153	0.215	0.290	0.332	0.377	0.426	0.478	0.535
EVUL 6	0.87	1	0.110	0.150	0.198	0.226	0.256	0.288	0.323	0.360
		2	0.149	0.207	0.277	0.316	0.358	0.404	0.453	0.506
		3	0.176	0.248	0.334	0.383	0.435	0.491	0.552	0.617
EVUL 8	1.04	1	0.132	0.180	0.238	0.271	0.307	0.345	0.387	0.432
		2	0.179	0.249	0.332	0.379	0.430	0.485	0.544	0.608
		3	0.211	0.298	0.401	0.459	0.522	0.589	0.662	0.741

**Correction factors**

The table values refer to evaporator capacity and are given as a function of evaporating temperature  $t_e$  and pressure drop  $\Delta p$  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%.

*Correction factors for liquid temperature  $t_l$*   
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**  
(continued)

Suction vapour capacity  $Q_e$  [TR]

US Units R407C

Type	$C_v$	Pressure drop $\Delta p$ [psi]	Evaporating temperature $t_e$ [°F]							
			-40	-20	0	10	20	30	40	50
EVUL 1	0.12	1	0.016	0.022	0.030	0.034	0.038	0.043	0.048	0.054
		2	0.022	0.031	0.041	0.047	0.053	0.060	0.067	0.075
		3	0.025	0.036	0.049	0.057	0.065	0.073	0.082	0.092
EVUL 2	0.23	1	0.032	0.045	0.059	0.067	0.076	0.086	0.096	0.107
		2	0.043	0.061	0.082	0.094	0.107	0.120	0.135	0.151
		3	0.050	0.072	0.099	0.113	0.129	0.146	0.164	0.183
EVUL 3	0.35	1	0.049	0.067	0.089	0.101	0.115	0.129	0.144	0.161
		2	0.065	0.092	0.123	0.141	0.160	0.180	0.202	0.226
		3	0.075	0.109	0.148	0.170	0.194	0.219	0.246	0.275
EVUL 4	0.58	1	0.081	0.112	0.148	0.169	0.191	0.215	0.240	0.268
		2	0.108	0.153	0.206	0.235	0.267	0.301	0.337	0.376
		3	0.124	0.181	0.247	0.283	0.323	0.365	0.410	0.458
EVUL 5	0.75	1	0.105	0.145	0.193	0.219	0.248	0.279	0.313	0.348
		2	0.141	0.199	0.267	0.305	0.347	0.391	0.438	0.489
		3	0.161	0.236	0.321	0.368	0.419	0.474	0.533	0.595
EVUL 6	0.87	1	0.122	0.168	0.222	0.253	0.286	0.322	0.361	0.402
		2	0.162	0.230	0.308	0.352	0.400	0.451	0.506	0.565
		3	0.186	0.272	0.370	0.425	0.484	0.547	0.615	0.687
EVUL 8	1.04	1	0.146	0.201	0.267	0.304	0.344	0.387	0.433	0.482
		2	0.195	0.275	0.370	0.423	0.480	0.541	0.607	0.678
		3	0.224	0.326	0.444	0.510	0.581	0.657	0.738	0.824

**Correction factors**

The table values refer to evaporator capacity and are given as a function of evaporating temperature  $t_e$  and pressure drop  $\Delta p$  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%.

*Correction factors for liquid temperature  $t_l$*   
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**  
(continued)

Suction vapour capacity  $Q_e$  [TR]

US Units R410A

Type	$C_v$	Pressure drop $\Delta p$ [psi]	Evaporating temperature $t_e$ [°F]							
			-40	-20	0	10	20	30	40	50
EVUL 1	0.12	1	0.024	0.032	0.041	0.046	0.051	0.056	0.062	0.068
		2	0.033	0.044	0.057	0.064	0.071	0.079	0.087	0.096
		3	0.040	0.054	0.069	0.078	0.087	0.096	0.107	0.118
EVUL 2	0.23	1	0.049	0.064	0.081	0.091	0.101	0.112	0.124	0.137
		2	0.067	0.089	0.114	0.128	0.143	0.158	0.175	0.193
		3	0.080	0.107	0.138	0.155	0.173	0.193	0.213	0.235
EVUL 3	0.35	1	0.073	0.096	0.122	0.137	0.152	0.169	0.186	0.205
		2	0.100	0.133	0.171	0.192	0.214	0.237	0.262	0.289
		3	0.120	0.161	0.207	0.233	0.260	0.289	0.320	0.353
EVUL 4	0.58	1	0.121	0.159	0.203	0.228	0.254	0.281	0.311	0.342
		2	0.167	0.222	0.285	0.319	0.356	0.396	0.437	0.482
		3	0.200	0.268	0.345	0.388	0.434	0.482	0.534	0.588
EVUL 5	0.75	1	0.158	0.207	0.264	0.296	0.330	0.366	0.404	0.444
		2	0.218	0.288	0.370	0.415	0.463	0.514	0.569	0.626
		3	0.260	0.348	0.449	0.505	0.564	0.627	0.694	0.764
EVUL 6	0.87	1	0.182	0.239	0.305	0.341	0.380	0.422	0.466	0.513
		2	0.251	0.333	0.427	0.479	0.535	0.594	0.656	0.723
		3	0.299	0.401	0.518	0.582	0.651	0.723	0.800	0.882
EVUL 8	1.04	1	0.218	0.287	0.366	0.410	0.456	0.506	0.559	0.615
		2	0.301	0.399	0.512	0.575	0.641	0.712	0.787	0.867
		3	0.359	0.482	0.622	0.699	0.781	0.868	0.960	1.058

**Correction factors**

The table values refer to evaporator capacity and are given as a function of evaporating temperature  $t_e$  and pressure drop  $\Delta p$  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%.

*Correction factors for liquid temperature  $t_l$*   
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  $Q_h$  [TR]

US Units R22

Type	$C_v$	Pressure drop across valve $\Delta p$ [bar]	Condensing temp. $t_c$ [°F]				
			70	90	100	120	140
EVUL 1	0.12	2	0.090	0.095	0.097	0.099	0.099
		5	0.140	0.149	0.152	0.156	0.156
		10	0.194	0.207	0.211	0.218	0.219
		15	0.231	0.248	0.255	0.264	0.266
		20	0.260	0.281	0.290	0.301	0.304
		25	0.283	0.308	0.318	0.332	0.336
EVUL 2	0.23	2	0.180	0.190	0.194	0.198	0.199
		5	0.281	0.297	0.304	0.312	0.312
		10	0.388	0.413	0.423	0.436	0.438
		15	0.463	0.497	0.510	0.527	0.531
		20	0.520	0.563	0.579	0.601	0.608
		25	0.566	0.617	0.637	0.664	0.673
EVUL 3	0.35	2	0.270	0.285	0.291	0.298	0.298
		5	0.421	0.446	0.456	0.467	0.468
		10	0.582	0.620	0.634	0.653	0.656
		15	0.694	0.745	0.765	0.791	0.797
		20	0.780	0.844	0.869	0.902	0.911
		25	0.848	0.925	0.955	0.996	1.009
EVUL 4	0.58	2	0.451	0.475	0.485	0.496	0.496
		5	0.702	0.744	0.759	0.779	0.781
		10	0.969	1.033	1.057	1.089	1.094
		15	1.157	1.242	1.275	1.318	1.328
		20	1.301	1.407	1.448	1.503	1.519
		25	1.414	1.542	1.592	1.659	1.682
EVUL 5	0.75	2	0.586	0.618	0.630	0.645	0.645
		5	0.913	0.967	0.987	1.013	1.015
		10	1.260	1.343	1.375	1.415	1.422
		15	1.504	1.615	1.657	1.713	1.726
		20	1.691	1.829	1.882	1.954	1.975
		25	1.838	2.005	2.069	2.157	2.187
EVUL 6	0.87	2	0.676	0.713	0.727	0.744	0.745
		5	1.054	1.116	1.139	1.169	1.171
		10	1.454	1.550	1.586	1.633	1.641
		15	1.736	1.863	1.912	1.976	1.992
		20	1.951	2.111	2.172	2.254	2.278
		25	2.121	2.314	2.388	2.489	2.523
EVUL 8	1.04	2	0.811	0.856	0.872	0.893	0.894
		5	1.264	1.339	1.367	1.402	1.405
		10	1.745	1.860	1.903	1.960	1.969
		15	2.083	2.236	2.294	2.372	2.390
		20	2.341	2.533	2.606	2.705	2.734
		25	2.545	2.776	2.865	2.987	3.028

Evaporating temp.  $t_e = 40$  °F  
 Hot gas temp.  $t_h = t_c + 40$  °F  
 Subcooling  $\Delta t_u = 10$  °F

Correction factors

The table values refer to hot gas capacity and are given as a function of condensing temperature  $t_c$  and pressure drop  $\Delta p$  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%.

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  $t_e$

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

**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [TR]

US Units R134a

Type	$C_v$	Pressure drop across valve $\Delta p$ [bar]	Condensing temp. $t_c$ [°F]				
			70	90	100	120	140
EVUL 1	0.12	2	0.073	0.077	0.079	0.080	0.079
		5	0.113	0.120	0.122	0.125	0.123
		10	0.153	0.165	0.169	0.173	0.172
		15	0.179	0.195	0.201	0.208	0.208
		20	0.196	0.218	0.226	0.236	0.236
		25	0.208	0.235	0.245	0.258	0.260
EVUL 2	0.23	2	0.146	0.155	0.157	0.160	0.158
		5	0.226	0.240	0.245	0.250	0.247
		10	0.306	0.329	0.338	0.347	0.344
		15	0.358	0.391	0.403	0.416	0.416
		20	0.393	0.436	0.452	0.471	0.473
		25	0.416	0.471	0.491	0.516	0.521
EVUL 3	0.35	2	0.220	0.232	0.236	0.240	0.236
		5	0.339	0.360	0.367	0.375	0.370
		10	0.459	0.494	0.506	0.520	0.516
		15	0.537	0.586	0.604	0.624	0.623
		20	0.589	0.655	0.678	0.707	0.709
		25	0.624	0.706	0.736	0.774	0.781
EVUL 4	0.58	2	0.366	0.386	0.393	0.399	0.394
		5	0.565	0.600	0.612	0.624	0.617
		10	0.765	0.823	0.844	0.866	0.861
		15	0.894	0.977	1.006	1.041	1.039
		20	0.982	1.091	1.130	1.178	1.182
		25	1.040	1.177	1.227	1.290	1.302
EVUL 5	0.75	2	0.476	0.502	0.511	0.519	0.512
		5	0.734	0.780	0.796	0.812	0.803
		10	0.994	1.071	1.097	1.126	1.119
		15	1.162	1.270	1.308	1.353	1.351
		20	1.277	1.418	1.469	1.531	1.537
		25	1.352	1.530	1.595	1.677	1.692
EVUL 6	0.87	2	0.549	0.579	0.590	0.599	0.591
		5	0.847	0.900	0.919	0.937	0.926
		10	1.147	1.235	1.266	1.300	1.291
		15	1.341	1.465	1.510	1.561	1.559
		20	1.473	1.636	1.695	1.767	1.773
		25	1.560	1.766	1.841	1.935	1.952
EVUL 8	1.04	2	0.659	0.695	0.708	0.719	0.709
		5	1.017	1.080	1.102	1.124	1.111
		10	1.377	1.482	1.519	1.560	1.549
		15	1.610	1.758	1.812	1.873	1.870
		20	1.768	1.964	2.034	2.120	2.128
		25	1.872	2.119	2.209	2.322	2.343

Evaporating temp.  $t_e = 40$  °F

Hot gas temp.  $t_h = t_c + 40$  °F

Subcooling  $\Delta t_u = 10$  °F

**Correction factors**

The table values refer to hot gas capacity and are given as a function of condensing temperature  $t_c$  and pressure drop  $\Delta p$  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%.

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  $t_e$

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



**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [TR]

US Units R404A

Type	$C_v$	Pressure drop across valve $\Delta p$ [bar]	Condensing temp. $t_c$ [°F]				
			70	90	100	120	140
EVUL 1	0.12	2	0.082	0.083	0.082	0.078	0.069
		5	0.128	0.129	0.128	0.122	0.109
		10	0.178	0.180	0.179	0.171	0.153
		15	0.213	0.217	0.216	0.207	0.186
		20	0.241	0.247	0.246	0.237	0.213
		25	0.263	0.271	0.271	0.262	0.236
EVUL 2	0.23	2	0.164	0.165	0.164	0.155	0.139
		5	0.257	0.259	0.257	0.244	0.218
		10	0.356	0.360	0.358	0.342	0.306
		15	0.426	0.434	0.432	0.414	0.372
		20	0.481	0.493	0.492	0.473	0.426
		25	0.525	0.542	0.542	0.523	0.472
EVUL 3	0.35	2	0.247	0.248	0.245	0.233	0.208
		5	0.385	0.388	0.385	0.366	0.327
		10	0.533	0.541	0.537	0.512	0.459
		15	0.639	0.652	0.648	0.621	0.558
		20	0.722	0.740	0.738	0.710	0.639
		25	0.788	0.814	0.814	0.785	0.708
EVUL 4	0.58	2	0.411	0.413	0.409	0.388	0.347
		5	0.642	0.647	0.641	0.610	0.546
		10	0.889	0.901	0.895	0.854	0.765
		15	1.065	1.086	1.081	1.035	0.930
		20	1.203	1.233	1.231	1.183	1.065
		25	1.313	1.356	1.356	1.308	1.181
EVUL 5	0.75	2	0.535	0.537	0.532	0.505	0.451
		5	0.835	0.841	0.834	0.793	0.709
		10	1.156	1.171	1.163	1.110	0.995
		15	1.385	1.412	1.405	1.346	1.209
		20	1.563	1.603	1.600	1.537	1.384
		25	1.707	1.763	1.763	1.700	1.535
EVUL 6	0.87	2	0.617	0.620	0.613	0.582	0.520
		5	0.963	0.971	0.962	0.915	0.818
		10	1.334	1.351	1.342	1.281	1.148
		15	1.598	1.629	1.621	1.553	1.395
		20	1.804	1.850	1.846	1.774	1.597
		25	1.970	2.034	2.034	1.962	1.771
EVUL 8	1.04	2	0.740	0.743	0.736	0.699	0.624
		5	1.156	1.165	1.154	1.098	0.982
		10	1.600	1.622	1.611	1.537	1.378
		15	1.918	1.955	1.945	1.863	1.674
		20	2.165	2.220	2.215	2.129	1.917
		25	2.364	2.441	2.441	2.354	2.125

Evaporating temp.  $t_e = 40$  °F  
 Hot gas temp.  $t_h = t_c + 40$  °F  
 Subcooling  $\Delta t_u = 10$  °F

**Correction factors**

The table values refer to hot gas capacity and are given as a function of condensing temperature  $t_c$  and pressure drop  $\Delta p$  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%.

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  $t_e$

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

**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [TR]

US Units R407C

Type	$C_v$	Pressure drop across valve $\Delta p$ [bar]	Condensing temp. $t_c$ [°F]				
			70	90	100	120	140
EVUL 1	0.12	2	0.097	0.100	0.101	0.101	0.098
		5	0.151	0.157	0.159	0.159	0.154
		10	0.209	0.219	0.221	0.222	0.216
		15	0.250	0.263	0.267	0.269	0.262
		20	0.282	0.299	0.304	0.308	0.300
		25	0.307	0.328	0.335	0.340	0.333
EVUL 2	0.23	2	0.193	0.201	0.202	0.202	0.195
		5	0.302	0.314	0.318	0.318	0.308
		10	0.418	0.437	0.443	0.445	0.431
		15	0.500	0.527	0.535	0.539	0.524
		20	0.564	0.598	0.608	0.615	0.600
		25	0.615	0.657	0.670	0.680	0.665
EVUL 3	0.35	2	0.290	0.301	0.304	0.303	0.293
		5	0.453	0.471	0.476	0.477	0.461
		10	0.626	0.656	0.664	0.667	0.647
		15	0.750	0.790	0.802	0.808	0.786
		20	0.845	0.897	0.912	0.923	0.900
		25	0.922	0.985	1.005	1.020	0.998
EVUL 4	0.58	2	0.483	0.501	0.506	0.506	0.489
		5	0.755	0.785	0.794	0.794	0.769
		10	1.044	1.093	1.107	1.111	1.078
		15	1.250	1.316	1.337	1.347	1.310
		20	1.409	1.494	1.521	1.538	1.500
		25	1.537	1.642	1.675	1.700	1.663
EVUL 5	0.75	2	0.628	0.652	0.658	0.657	0.635
		5	0.981	1.021	1.032	1.033	0.999
		10	1.357	1.421	1.439	1.445	1.402
		15	1.624	1.711	1.737	1.751	1.703
		20	1.832	1.943	1.977	1.999	1.950
		25	1.998	2.134	2.177	2.210	2.161
EVUL 6	0.87	2	0.725	0.752	0.759	0.758	0.733
		5	1.132	1.178	1.191	1.191	1.153
		10	1.566	1.639	1.660	1.667	1.618
		15	1.874	1.975	2.005	2.020	1.965
		20	2.113	2.241	2.281	2.307	2.250
		25	2.305	2.462	2.512	2.550	2.494
EVUL 8	1.04	2	0.870	0.903	0.911	0.910	0.880
		5	1.358	1.414	1.429	1.430	1.384
		10	1.879	1.967	1.993	2.001	1.941
		15	2.249	2.370	2.406	2.424	2.358
		20	2.536	2.690	2.737	2.768	2.700
		25	2.766	2.955	3.015	3.061	2.993

Evaporating temp.  $t_e = 40$  °F

Hot gas temp.  $t_h = t_c + 40$  °F

Subcooling  $\Delta t_u = 10$  °F

**Correction factors**

The table values refer to hot gas capacity and are given as a function of condensing temperature  $t_c$  and pressure drop  $\Delta p$  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%.

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  $t_e$

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

**Capacity**  
(continued)

Hot gas capacity  $Q_h$  [TR]

US Units R410A

Type	$C_v$	Pressure drop across valve $\Delta p$ [bar]	Condensing temp. $t_c$ [°F]				
			70	90	100	120	140
EVUL 1	0.12	2	0.111	0.114	0.115	0.114	0.108
		5	0.174	0.180	0.181	0.179	0.170
		10	0.242	0.251	0.253	0.251	0.239
		15	0.292	0.304	0.307	0.306	0.290
		20	0.332	0.347	0.351	0.350	0.333
		25	0.365	0.384	0.389	0.389	0.371
EVUL 2	0.23	2	0.222	0.229	0.230	0.228	0.215
		5	0.348	0.359	0.362	0.358	0.339
		10	0.484	0.503	0.507	0.503	0.477
		15	0.584	0.609	0.615	0.611	0.581
		20	0.664	0.695	0.703	0.701	0.667
		25	0.730	0.768	0.778	0.778	0.741
EVUL 3	0.35	2	0.333	0.343	0.345	0.341	0.323
		5	0.521	0.539	0.543	0.537	0.509
		10	0.726	0.754	0.760	0.754	0.716
		15	0.876	0.913	0.922	0.917	0.871
		20	0.996	1.042	1.054	1.051	1.000
		25	1.095	1.152	1.167	1.166	1.112
EVUL 4	0.58	2	0.555	0.572	0.575	0.569	0.538
		5	0.869	0.899	0.905	0.896	0.848
		10	1.211	1.257	1.267	1.257	1.193
		15	1.460	1.522	1.537	1.528	1.452
		20	1.659	1.737	1.757	1.752	1.667
		25	1.825	1.919	1.945	1.944	1.853
EVUL 5	0.75	2	0.721	0.744	0.748	0.740	0.700
		5	1.130	1.168	1.176	1.164	1.102
		10	1.574	1.634	1.647	1.634	1.550
		15	1.898	1.978	1.998	1.987	1.888
		20	2.157	2.258	2.284	2.277	2.168
		25	2.373	2.495	2.528	2.527	2.409
EVUL 6	0.87	2	0.832	0.858	0.863	0.853	0.807
		5	1.304	1.348	1.357	1.343	1.272
		10	1.816	1.885	1.901	1.886	1.789
		15	2.190	2.283	2.305	2.293	2.178
		20	2.489	2.606	2.636	2.628	2.501
		25	2.738	2.879	2.917	2.916	2.780
EVUL 8	1.04	2	0.998	1.030	1.036	1.024	0.969
		5	1.564	1.617	1.628	1.612	1.526
		10	2.179	2.262	2.281	2.263	2.147
		15	2.628	2.739	2.766	2.751	2.614
		20	2.987	3.127	3.163	3.153	3.001
		25	3.285	3.455	3.501	3.499	3.336

Evaporating temp.  $t_e = 40$  °F  
 Hot gas temp.  $t_h = t_c + 40$  °F  
 Subcooling  $\Delta t_u = 10$  °F

**Correction factors**

The table values refer to hot gas capacity and are given as a function of condensing temperature  $t_c$  and pressure drop  $\Delta p$  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

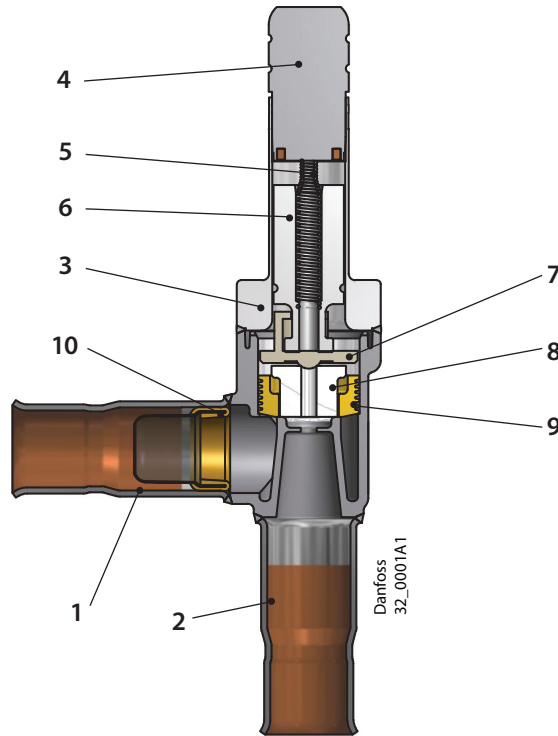
above 40 °F, the table capacities must be reduced by 1%.

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  $t_e$

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

Design / Function



- 1. Laser welded connection
- 2. Laser welded connection
- 3. Flange
- 4. Armature tube
- 5. Return spring
- 6. Armature
- 7. Pilot plate (servo)
- 8. Seat plate (servo)
- 9. Piston (servo)
- 10. Inlet filter

*Servo operated*

EVUL 1 – 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.

**⚠ Note:**

Danfoss recommends that a suitable filter or filter drier (max. size of 40 – 50 µm) is installed ahead of each solenoid valve to keep scale, solder material and other foreign dirt and particles out of the valve.

**⚠ Note:**

By using the valve for oil return application - please contact Danfoss.

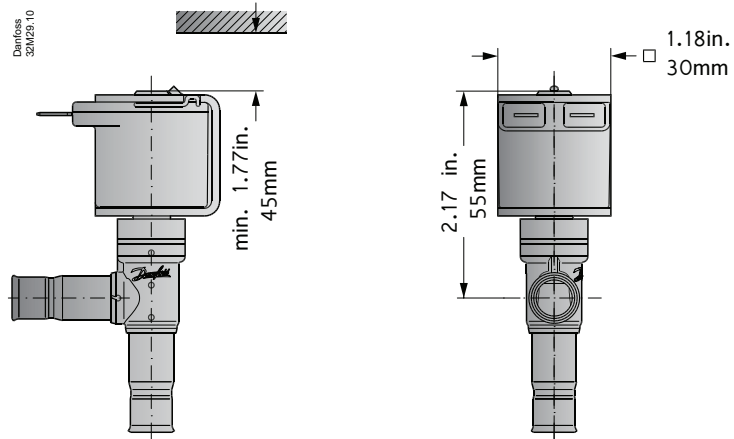
Material specifications

No.	Description	Material
1	Bi-metallic tube	Stainless steel / Cu
2	Bi-metallic tube	Stainless steel / Cu
4	Armature tube	Stainless steel
5	Spring	Spring wire stainless
6	Armature	Stainless steel

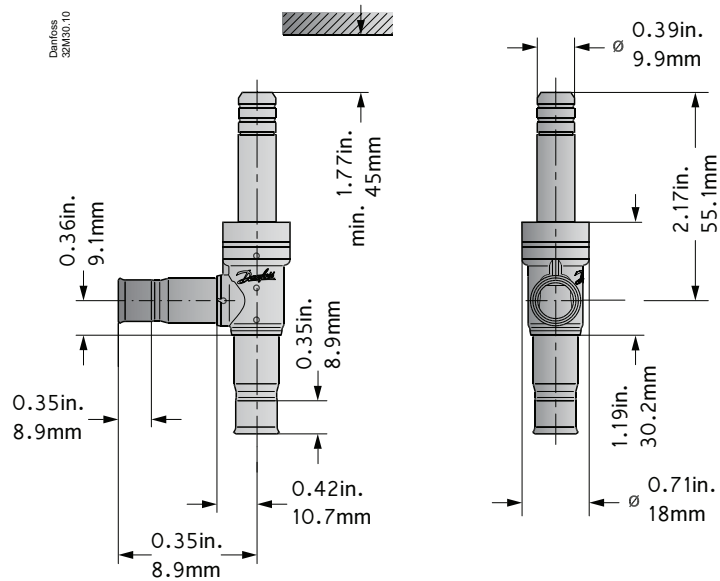
No.	Description	Material
7	Pilot plate	Thermoplast
8	Seat plate	Teflon
9	Piston	Brass
10	Inlet filter	Stainless steel/brass

Dimensions [in.]  
and weights [lbs]

EVUL 1 – 6 and EVUL 8 mounted with coil with 0.25 in. US spade



EVUL 1 – 6 and EVUL 8



Net weight of coil: approx. 0.10 Kg (0.22 lbs)  
Net weight of valve: approx. 0.05 Kg (0.11 lbs)

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