

Technical brochure

Thermostatic expansion valves **TUA/TUAE**



Contents

	Page
Introduction.....	3
Features.....	3
Standard range.....	3
Technical data.....	4
MOP valves.....	4
Identification.....	4
Ordering.....	5
Capacity	
R22.....	7
R134A.....	9
R404A/ R507.....	10
R407C.....	12
R410A.....	14
Design/Function.....	15
Dimensions and weight.....	15

Technical data

Max. bulb temperature	100°C
Max. valve body temp. short-lived peak	120°C, 150°C
Permissible working pressure (excl. R410A)	PS = 34 bar
Max. test pressure (excl. R410A)	p' = 37.5 bar
Max. working pressure, R410A	PS = 45.5 bar
Max. test pressure, R410A	p' = 50 bar

Biflow drift

With flow in the opposite direction, the rated capacity is reduced by up to 15%. TUA/E with orifice 0 and 9, all TUA and valves with MOP charges cannot be used for biflow operation.

MOP valves

When MOP valves are used, to avoid charge migration the bulb temperature must always be lower than the thermostatic element temperature.

MOP-points

Refrigerant	Range N	Range NM	Range B
	-40 → +10°C	-40 → -5°C	-60 → -25°C
	MOP point for evaporating temperature t_e and evaporating pressure p_e ¹⁾		
	$t_e = +15°C/+60°F$	$t_e = 0°C/+32°F$	$t_e = -20°C/-4°F$
R22	$p_e = 100 \text{ psig}/6.9 \text{ bar}$	$p_e = 60 \text{ psig}/4.0 \text{ bar}$	$p_e = 20 \text{ psig}/1.5 \text{ bar}$
R134a	$p_e = 55 \text{ psig}/3.9 \text{ bar}$	$p_e = 30 \text{ psig}/1.9 \text{ bar}$	
R404A/R507	$p_e = 120 \text{ psig}/8.4 \text{ bar}$	$p_e = 75 \text{ psig}/5.0 \text{ bar}$	$p_e = 30 \text{ psig}/2.0 \text{ bar}$
R407C	$p_e = 95 \text{ psig}/6.6 \text{ bar}$	$p_e = 50 \text{ psig}/3.6 \text{ bar}$	$p_e = 20 \text{ psig}/1.4 \text{ bar}$
R410A	$p_e = 165 \text{ psig}/11.5 \text{ bar}$	$p_e = 100 \text{ psig}/7.0 \text{ bar}$	$p_e = 45 \text{ psig}/3.0 \text{ bar}$

¹⁾ p_e in bar gauge

Identification

Main valve data is given on the element (fig. 1), on the valve body (fig. 2) and on the bottom of the orifice assembly (fig. 3).

Example valve body

- TUAE = Type (E = external pressure equalisation)
- 068U2214** = Code number
- R134a = Refrigerant
- MOP 55 / +15°C = MOP-point in psig / °C
- 40 / +10°C = Evaporating temperature range in °C
- 40 / +50°F = Evaporating temperature range in °F
- PS 34 bar / MWP 500 psig = Max. working pressure in bar/psig
- 1004B = Date marking (week **10**, year **2004**, weekday **B** = Tuesday)
- in. = Normal flow direction
- in. = Connection in inches (mm = millimetres)

Example orifice assembly

- TU = Valve type
- 5 = Orifice number
- 068U1035** = Code no., orifice assembly incl. filter and gasket
- 1004 = Date marking (Week **10**, Year **2004**)

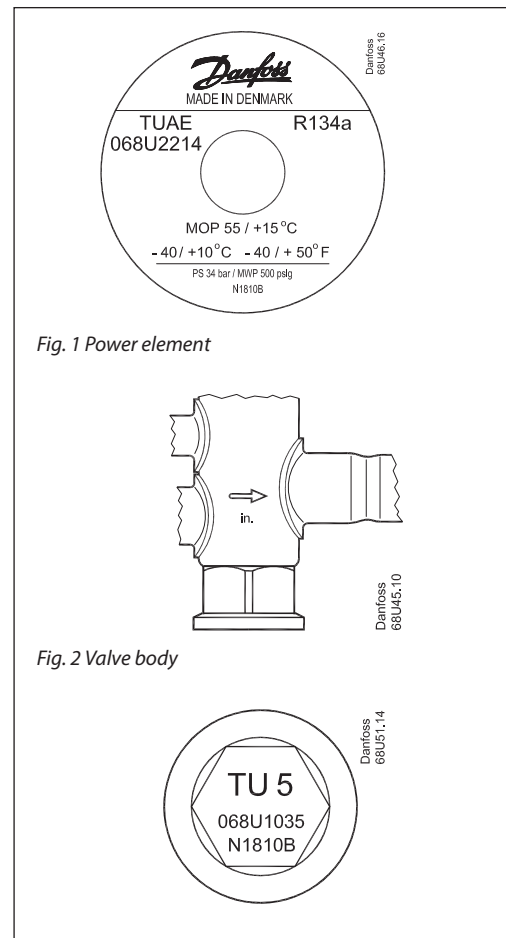


Fig. 1 Power element

Fig. 2 Valve body

Ordering, components with solder x solder connections
*Thermostatic element, without orifice
and filter, with bulb strap*
R22, R134a, R404A, R407C, R507, R410A

Refrigerant	Valve type	Pressure equalization ¹⁾	Capillary tube	Connections		Code no.				
				Inlet x outlet		Range N -40 → +10°C		Range NM -40 → -5°C	Range B -60 → -25°C	
				m	in.	mm	Without MOP	MOP +15 °C	MOP 0 °C	Without MOP
R22/R407C ¹⁾	TUA	Int.	1.5	1/4 x 1/2	6 x 12	068U2234				
	TUA	Int.	1.5			068U2230				
	TUA	Int.	1.5	3/8 x 1/2	6 x 12	068U2235				
	TUA	Int.	1.5		10 x 12	068U2231				
	TUAE	Ext. 1/4 in.	1.5	1/4 x 1/2	6 x 12	068U2236				
	TUAE	Ext. 6 mm	1.5							
	TUAE	Ext. 1/4 in.	1.5	3/8 x 1/2	6 x 12	068U2237	068U2245			
	TUAE	Ext. 6 mm	1.5		10 x 12	068U2233	068U2241			
R134a	TUA	Int.	1.5	1/4 x 1/2	6 x 12	068U2204	068U2212			
	TUA	Int.	1.5			068U2200	068U2208			
	TUA	Int.	1.5	3/8 x 1/2	6 x 12	068U2205	068U2213			
	TUA	Int.	1.5		10 x 12	068U2201				
	TUAE	Ext. 1/4 in.	1.5	1/4 x 1/2	6 x 12	068U2206	068U2214			
	TUAE	Ext. 6 mm	1.5			068U2202				
	TUAE	Ext. 1/4 in.	1.5	3/8 x 1/2	6 x 12	068U2207	068U2215			
	TUAE	Ext. 6 mm	1.5		10 x 12	068U2203	068U2211			
R404A ¹⁾ R507	TUA	Int.	1.5	1/4 x 1/2	6 x 12	068U2284	068U2292	068U2300	068U2308	068U2316
	TUA	Int.	1.5			068U2280		068U2296		068U2312
	TUA	Int.	1.5	3/8 x 1/2	6 x 12	068U2285	068U2293		068U2309	068U2317
	TUA	Int.	1.5		10 x 12	068U2281				
	TUAE	Ext. 1/4 in.	1.5	1/4 x 1/2	6 x 12	068U2286				068U2318
	TUAE	Ext. 6 mm	1.5			068U2282				
	TUAE	Ext. 1/4 in.	1.5	3/8 x 1/2	6 x 12	068U2287	068U2295	068U2303		068U2319
	TUAE	Ext. 6 mm	1.5		10 x 12	068U2283	068U2299	068U2299		068U2315
R407C	TUA	Int.	1.5	1/4 x 1/2	6 x 12	068U2324	068U2332			
	TUA	Int.	1.5			068U2320				
	TUA	Int.	1.5	3/8 x 1/2	6 x 12	068U2325	068U2333			
	TUA	Int.	1.5		10 x 12	068U2321				
	TUAE	Ext. 1/4 in.	1.5	1/4 x 1/2	6 x 12	068U2326				
	TUAE	Ext. 6 mm	1.5			068U2322	068U2330			
	TUAE	Ext. 1/4 in.	1.5	3/8 x 1/2	6 x 12	068U2327	068U2335			
	TUAE	Ext. 6 mm	1.5		10 x 12	068U2323	068U2331			
R410A	TUA	Int.	1.5	3/8 x 1/2		068U2414				
	TUAE	Ext. 1/4 in.	1.5	3/8 x 1/2		068U1714				
	TUAE	Ext. 6 mm	1.5		10 x 12	068U2780				

¹⁾ For R407C plants, please select valves from the dedicated R407C program

Ordering (continued)
Orifice assembly with filter and gasket. Range N: -40 → +10°C

Orifice no.	Rated capacity in kW ¹⁾						Rated capacity in tons (TR) ¹⁾						Code no.
	R22	R134a	R404A	R407C	R507	R410A	R22	R134a	R404A	R407C	R507	R410A	
0	0.60	0.47	0.47	0.63	0.45	-	0.17	0.13	0.13	0.18	0.13	-	068U1030
1	0.9	0.7	0.70	0.92	0.66	1.3	0.25	0.19	0.19	0.26	0.19	0.4	068U1031
2	1.3	1.0	1.0	1.4	1.0	2.1	0.36	0.28	0.28	0.38	0.27	0.6	068U1032
3	1.8	1.4	1.4	1.9	1.3	2.9	0.50	0.39	0.39	0.53	0.38	0.8	068U1033
4	2.6	2.1	2.1	2.8	2.0	4.5	0.75	0.59	0.60	0.80	0.57	1.3	068U1034
5	3.5	2.7	2.8	3.8	2.7	5.9	1.00	0.78	0.79	1.1	0.76	1.7	068U1035
6	5.3	4.1	4.2	5.7	4.0	9.0	1.5	1.2	1.2	1.6	1.1	2.5	068U1036
7	7.0	5.5	5.6	7.5	5.3	12.0	2.0	1.6	1.6	2.1	1.5	3.4	068U1037
8	11.0	8.2	8.4	11.0	8.0	18.0	3.0	2.3	2.4	3.2	2.3	5.0	068U1038
9	16.0	12.0	12.0	17.0	12.0	26.0	4.5	3.5	3.5	4.8	3.4	7.5	068U1039

Range B: -60 → -25°C

Orifice no.	Rated capacity in kW ¹⁾				Rated capacity in tons (TR) ¹⁾				Code no.
	R22	R404A	R407C	R507	R22	R404A	R407C	R507	
0	0.52	0.36	0.46	0.39	0.15	0.10	0.13	0.11	068U1030
1	0.68	0.50	0.58	0.53	0.19	0.14	0.16	0.15	068U1031
2	0.85	0.64	0.70	0.70	0.24	0.18	0.20	0.20	068U1032
3	1.2	0.89	1.0	1.0	0.34	0.25	0.28	0.28	068U1033
4	1.8	1.3	1.4	1.4	0.50	0.37	0.41	0.41	068U1034
5	2.3	1.8	1.9	1.9	0.66	0.50	0.55	0.55	068U1035
6	3.5	2.7	2.9	2.9	1.0	0.75	0.82	0.82	068U1036
7	4.7	3.5	3.9	3.9	1.3	1.0	1.1	1.1	068U1037
8	7.1	5.3	5.8	5.8	2.0	1.5	1.6	1.7	068U1038
9	10.4	7.8	8.5	8.6	2.9	2.2	2.4	2.4	068U1039

¹⁾ Rated capacity Q_{nom} is based on:
 Evaporating temperature
 $t_e = +5^\circ\text{C}$ for range N and -30°C for range B
 Condensing temperature
 $t_c = +32^\circ\text{C}$
 Refrigerant liquid temperature
 $t_l = +28^\circ\text{C}$
 Opening superheat OS = 4 K

Spare parts
Gasket (24 pcs.): 068U0015

 Note: to ensure tightness the orifice gasket *must* be exchanged each time the orifice assembly is unscrewed.

Filter (24 pcs.): 068U0016

Capacity

Capacity in kW for range $N = -40 \rightarrow +10^\circ\text{C}$ and opening superheat $OS = 4\text{ K}$

R22

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature +10°C										Evaporating temperature 0°C							
TU	0	0.42	0.53	0.60	0.65	0.68	0.70	0.71	0.72	0.40	0.50	0.56	0.60	0.63	0.65	0.67	0.67
	1	0.61	0.79	0.89	1.0	1.0	1.0	1.1	1.1	0.55	0.71	0.80	0.86	0.91	0.93	0.95	0.96
	2	0.9	1.2	1.3	1.5	1.6	1.6	1.7	1.7	0.73	1.0	1.1	1.2	1.3	1.3	1.4	1.4
	3	1.2	1.6	1.8	2.0	2.1	2.2	2.3	2.3	1.0	1.3	1.5	1.7	1.8	1.8	1.9	1.9
	4	1.8	2.4	2.8	3.1	3.2	3.4	3.5	3.5	1.5	2.0	2.3	2.5	2.7	2.8	2.8	2.8
	5	2.4	3.2	3.7	4.1	4.3	4.5	4.6	4.7	2.0	2.7	3.1	3.4	3.5	3.7	3.8	3.8
	6	3.7	4.9	5.6	6.1	6.5	6.7	6.9	7.1	3.1	4.0	4.6	5.0	5.3	5.5	5.7	5.8
	7	4.9	6.5	7.5	8.2	8.6	9.0	9.2	9.4	4.1	5.4	6.2	6.7	7.1	7.4	7.6	7.7
	8	7.3	9.6	11.2	12.2	12.9	13.4	13.7	13.9	6.1	8.0	9.2	10.1	10.6	11.0	11.3	11.5
9	10.9	14.5	16.7	18.2	19.3	20.0	20.5	20.9	9.1	12.1	13.8	15.0	15.9	16.4	16.8	17.1	
Evaporating temperature -10°C										Evaporating temperature -20°C							
TU	0	0.36	0.46	0.51	0.55	0.57	0.59	0.60	0.61	0.40	0.45	0.48	0.50	0.52	0.53	0.53	
	1	0.47	0.62	0.70	0.75	0.79	0.81	0.82	0.83	0.51	0.57	0.62	0.65	0.67	0.68	0.69	
	2	0.60	0.78	0.89	1.0	1.0	1.1	1.1	1.1	0.61	0.70	0.76	0.79	0.82	0.84	0.85	
	3	0.8	1.1	1.3	1.4	1.4	1.5	1.5	1.5	0.9	1.0	1.1	1.1	1.2	1.2	1.2	
	4	1.2	1.6	1.9	2.0	2.1	2.2	2.2	2.3	1.3	1.5	1.6	1.6	1.7	1.7	1.8	
	5	1.7	2.2	2.5	2.7	2.8	2.9	3.0	3.0	1.7	1.9	2.1	2.2	2.3	2.3	2.3	
	6	2.5	3.2	3.7	4.0	4.3	4.4	4.5	4.6	2.5	2.9	3.1	3.3	3.4	3.5	3.5	
	7	3.3	4.3	5.0	5.4	5.7	5.9	6.0	6.1	3.4	3.9	4.2	4.4	4.5	4.6	4.7	
	8	5.0	6.5	7.5	8.1	8.5	8.8	9.0	9.1	5.1	5.8	6.3	6.6	6.8	7.0	7.1	
9	7.4	9.7	11.1	12.0	12.6	13.1	13.3	13.5	7.6	8.6	9.3	9.7	10.1	10.3	10.4		
Evaporating temperature -30°C										Evaporating temperature -40°C							
TU	0		0.34	0.38	0.40	0.42	0.44	0.44	0.45		0.31	0.33	0.34	0.35	0.36	0.36	
	1		0.39	0.45	0.48	0.51	0.52	0.53	0.54		0.33	0.36	0.38	0.39	0.39	0.40	
	2		0.47	0.53	0.57	0.60	0.62	0.63	0.63		0.39	0.42	0.44	0.45	0.46	0.46	
	3		0.66	0.74	0.80	0.84	0.87	0.88	0.89		0.55	0.59	0.61	0.63	0.64	0.65	
	4		1.0	1.1	1.2	1.2	1.3	1.3	1.3		0.80	0.86	0.90	0.92	0.94	0.95	
	5		1.3	1.5	1.6	1.7	1.7	1.7	1.8		1.1	1.2	1.2	1.2	1.3	1.3	
	6		1.9	2.2	2.4	2.5	2.5	2.6	2.6		1.6	1.7	1.8	1.8	1.9	1.9	
	7		2.6	2.9	3.2	3.3	3.4	3.5	3.5		2.1	2.3	2.4	2.5	2.5	2.5	
	8		3.9	4.4	4.8	5.0	5.1	5.2	5.3		3.2	3.5	3.6	3.7	3.8	3.8	
9		5.7	6.5	7.0	7.3	7.5	7.7	7.7		4.7	5.1	5.3	5.5	5.5	5.6		

Correction for subcooling Δt_{sub}
 The evaporator capacity used must be corrected if subcooling deviates from 4 K.
 The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:
 Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.06	1.11	1.15	1.2	1.25	1.3	1.35	1.39	1.44

Selection example

Refrigerant = R22
 Evaporating temperature $t_e = -10^\circ\text{C}$
 Pressure drop in valve $\Delta p = 10$ bar
 Subcooling $\Delta t_{sub} = 15$ K
 Evaporator capacity = 3 kW
 Correction value (table) = 1.11
 The corrected evaporator capacity thus becomes 3 divided by 1.11 = 2.7 kW

Since the expansion valve capacity must be equal to or slightly more than the corrected evaporator capacity of 2.7 kW, a TUB/TUBE with orifice 5 and a table capacity of 2.8 kW would be a suitable choice.

Capacity (continued)

Capacity in kW for range $B = -60 \rightarrow -25^\circ\text{C}$ and opening superheat $OS = 4\text{ K}$

R22

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature -25°C										Evaporating temperature -30°C							
TU	0	0.36	0.45	0.50	0.54	0.56	0.58	0.59	0.59	0.33	0.42	0.46	0.49	0.52	0.53	0.54	0.54
	1	0.48	0.62	0.69	0.74	0.77	0.79	0.81	0.81	0.42	0.54	0.61	0.66	0.68	0.70	0.71	0.72
	2	0.61	0.79	0.89	0.96	1.01	1.04	1.06	1.07	0.52	0.67	0.75	0.81	0.85	0.88	0.89	0.90
	3	0.85	1.10	1.25	1.34	1.41	1.45	1.48	1.50	0.73	0.93	1.1	1.1	1.2	1.2	1.3	1.3
	4	1.3	1.6	1.9	2.0	2.1	2.1	2.2	2.2	1.1	1.4	1.6	1.7	1.8	1.8	1.8	1.9
	5	1.7	2.2	2.5	2.7	2.8	2.9	2.9	3.0	1.4	1.9	2.1	2.2	2.4	2.4	2.5	2.5
	6	2.5	3.3	3.7	4.0	4.2	4.3	4.4	4.5	2.1	2.8	3.1	3.4	3.5	3.6	3.7	3.7
	7	3.4	4.4	5.0	5.4	5.6	5.8	5.9	6.0	2.9	3.7	4.2	4.5	4.7	4.9	4.9	5.0
	8	5.1	6.6	7.5	8.0	8.4	8.7	8.9	8.9	4.3	5.6	6.3	6.8	7.1	7.3	7.4	7.5
9	7.6	9.7	11.0	11.9	12.4	12.8	13.1	13.2	6.4	8.2	9.3	10.0	10.4	10.7	10.9	11.0	
Evaporating temperature -40°C										Evaporating temperature -50°C							
TU	0	0.27	0.34	0.37	0.40	0.42	0.43	0.43	0.44	0.20	0.25	0.28	0.30	0.31	0.32	0.33	0.33
	1	0.31	0.39	0.44	0.47	0.50	0.51	0.52	0.52	0.21	0.27	0.30	0.32	0.34	0.35	0.35	0.35
	2	0.36	0.46	0.52	0.56	0.59	0.60	0.61	0.62	0.25	0.31	0.35	0.38	0.39	0.40	0.41	0.41
	3	0.51	0.65	0.73	0.79	0.82	0.85	0.86	0.87	0.35	0.44	0.50	0.53	0.55	0.57	0.58	0.58
	4	0.75	0.96	1.1	1.2	1.2	1.2	1.3	1.3	0.51	0.65	0.72	0.77	0.81	0.83	0.84	0.85
	5	1.0	1.3	1.4	1.6	1.6	1.7	1.7	1.7	0.68	0.87	0.97	1.0	1.1	1.1	1.1	1.1
	6	1.5	1.9	2.2	2.3	2.4	2.5	2.5	2.6	1.0	1.3	1.4	1.5	1.6	1.7	1.7	1.7
	7	2.0	2.6	2.9	3.1	3.2	3.3	3.4	3.4	1.4	1.7	1.9	2.1	2.2	2.2	2.3	2.3
	8	3.0	3.9	4.4	4.7	4.9	5.0	5.1	5.2	2.1	2.6	2.9	3.1	3.3	3.4	3.4	3.4
9	4.5	5.7	6.4	6.8	7.1	7.3	7.5	7.5	3.0	3.8	4.3	4.6	4.8	4.9	5.0	5.0	
Evaporating temperature -60°C																	
TU	0	0.14	0.17	0.19	0.21	0.21	0.22	0.22	0.22								
	1	0.14	0.18	0.20	0.22	0.22	0.23	0.23	0.23								
	2	0.16	0.21	0.23	0.25	0.26	0.26	0.27	0.27								
	3	0.23	0.29	0.33	0.35	0.36	0.37	0.38	0.38								
	4	0.34	0.43	0.48	0.51	0.53	0.54	0.55	0.55								
	5	0.45	0.57	0.64	0.68	0.71	0.73	0.74	0.74								
	6	0.67	0.85	0.95	1.01	1.05	1.08	1.09	1.10								
	7	0.91	1.1	1.3	1.4	1.4	1.5	1.5	1.5								
	8	1.4	1.7	1.9	2.1	2.1	2.2	2.2	2.2								
9	2.0	2.5	2.8	3.0	3.1	3.2	3.2	3.2									

Correction for subcooling Δt_{sub}
 The evaporator capacity used must be corrected if subcooling deviates from 4 K.
 The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:
 Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.06	1.11	1.15	1.2	1.25	1.3	1.35	1.39	1.44

Capacity (continued)

 Capacity in kW for range $N = -40 \rightarrow +10^\circ\text{C}$ and opening superheat $OS = 4\text{ K}$
R134a

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature $+10^\circ\text{C}$										Evaporating temperature 0°C							
TU	0	0.38	0.46	0.50	0.53	0.54	0.54			0.35	0.42	0.46	0.48	0.49	0.49		
	1	0.57	0.69	0.76	0.79	0.81	0.81			0.50	0.61	0.66	0.69	0.70	0.71		
	2	0.82	1.1	1.2	1.2	1.3	1.3			0.66	0.84	0.93	0.98	1.0	1.0		
	3	1.1	1.4	1.6	1.7	1.8	1.8			0.92	1.2	1.3	1.4	1.4	1.4		
	4	1.7	2.2	2.5	2.6	2.7	2.7			1.4	1.8	1.9	2.0	2.1	2.1		
	5	2.3	2.9	3.3	3.5	3.6	3.6			1.8	2.3	2.6	2.7	2.8	2.8		
	6	3.4	4.4	4.9	5.2	5.4	5.5			2.8	3.5	3.9	4.1	4.2	4.3		
	7	4.6	5.9	6.6	7.0	7.2	7.2			3.7	4.7	5.2	5.5	5.6	5.7		
	8	6.8	8.7	9.8	10.3	10.6	10.8			5.5	7.0	7.8	8.2	8.4	8.5		
9	10.2	13.1	14.6	15.5	15.9	16.0			8.3	10.4	11.5	12.2	12.4	12.5			
Evaporating temperature -10°C										Evaporating temperature -20°C							
TU	0	0.31	0.37	0.40	0.42	0.43	0.43			0.31	0.34	0.35	0.35	0.35			
	1	0.41	0.51	0.55	0.58	0.58	0.58			0.39	0.43	0.44	0.45	0.45			
	2	0.51	0.64	0.70	0.74	0.75	0.76			0.47	0.51	0.53	0.54	0.54			
	3	0.71	0.89	0.98	1.0	1.1	1.1			0.65	0.72	0.75	0.76	0.76			
	4	1.1	1.3	1.5	1.5	1.6	1.6			0.96	1.05	1.10	1.12	1.1			
	5	1.4	1.8	2.0	2.1	2.1	2.1			1.3	1.4	1.5	1.5	1.5			
	6	2.1	2.7	2.9	3.1	3.1	3.2			1.9	2.1	2.2	2.2	2.2			
	7	2.8	3.5	3.9	4.1	4.2	4.2			2.6	2.8	3.0	3.0	3.0			
	8	4.3	5.3	5.9	6.2	6.3	6.3			3.9	4.3	4.4	4.5	4.5			
9	6.3	7.9	8.7	9.1	9.3	9.3			5.7	6.2	6.5	6.6	6.6				
Evaporating temperature -30°C										Evaporating temperature -40°C							
TU	0		0.25	0.27	0.28	0.28				0.18	0.19	0.20	0.20	0.20			
	1		0.28	0.30	0.32	0.32	0.32			0.19	0.21	0.21	0.21	0.21			
	2		0.32	0.35	0.37	0.37	0.37			0.22	0.24	0.25	0.25	0.25			
	3		0.46	0.50	0.52	0.53	0.52			0.31	0.34	0.35	0.35	0.35			
	4		0.67	0.73	0.76	0.77	0.76			0.45	0.49	0.50	0.51	0.51			
	5		0.90	0.98	1.02	1.03	1.0			0.61	0.66	0.68	0.68	0.68			
	6		1.3	1.5	1.5	1.5	1.5			0.90	0.97	1.0	1.0	1.0			
	7		1.8	2.0	2.0	2.1	2.1			1.2	1.3	1.4	1.4	1.4			
	8		2.7	3.0	3.1	3.1	3.1			1.8	2.0	2.1	2.1	2.1			
9		4.0	4.3	4.5	4.5	4.5			2.7	2.9	3.0	3.0	3.0				

Correction for subcooling Δt_{sub}

The evaporator capacity used must be corrected if subcooling deviates from 4 K.

The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:

Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.08	1.13	1.19	1.25	1.31	1.37	1.42	1.48	1.54

Capacity (continued)

 Capacity in kW for range $N = -40 \rightarrow +10^\circ\text{C}$ and opening superheat $OS = 4\text{ K}$
R404A/R507

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature +10°C										Evaporating temperature 0°C							
TU	0	0.32	0.40	0.44	0.46	0.46	0.46	0.45	0.44	0.31	0.39	0.42	0.44	0.44	0.44	0.43	0.42
	1	0.47	0.60	0.68	0.69	0.70	0.70	0.68	0.66	0.44	0.56	0.61	0.64	0.64	0.64	0.63	0.61
	2	0.70	0.91	1.0	1.1	1.1	1.1	1.1	1.1	0.60	0.77	0.87	0.92	0.94	0.94	0.93	0.90
	3	0.96	1.2	1.4	1.5	1.5	1.5	1.5	1.5	0.83	1.1	1.2	1.3	1.3	1.5	1.3	1.3
	4	1.5	1.9	2.1	2.3	2.3	2.3	2.3	2.2	1.3	1.6	1.8	1.9	2.0	2.0	1.9	1.9
	5	2.0	2.5	2.8	3.0	3.1	3.1	3.1	3.0	1.7	2.2	2.4	2.6	2.6	2.6	2.6	2.5
	6	2.9	3.8	4.3	4.5	4.7	4.7	4.6	4.5	2.5	3.2	3.6	3.8	3.9	3.9	3.9	3.8
	7	3.9	5.1	5.7	6.0	6.2	6.2	6.1	6.0	3.4	4.3	4.8	5.1	5.2	5.3	5.2	5.0
	8	5.8	7.5	8.4	9.0	9.2	9.2	9.1	8.9	5.0	6.5	7.2	7.6	7.8	7.8	7.7	7.5
9	8.8	11.3	12.7	13.5	13.8	13.9	13.7	13.39	7.5	9.6	10.8	11.4	11.7	11.7	11.5	11.2	
Evaporating temperature -10°C										Evaporating temperature -20°C							
TU	0	0.29	0.36	0.39	0.40	0.41	0.41	0.40	0.39	0.32	0.35	0.36	0.36	0.36	0.35	0.34	
	1	0.39	0.50	0.54	0.57	0.57	0.57	0.56	0.54	0.41	0.46	0.48	0.48	0.48	0.47	0.45	
	2	0.50	0.64	0.71	0.75	0.76	0.76	0.75	0.73	0.51	0.56	0.59	0.60	0.60	0.59	0.57	
	3	0.70	0.89	0.99	1.0	1.1	1.1	1.1	1.0	0.71	0.79	0.83	0.84	0.84	0.82	0.80	
	4	1.0	1.3	1.5	1.6	1.6	1.6	1.6	1.5	1.1	1.2	1.2	1.2	1.2	1.2	1.2	
	5	1.4	1.8	2.0	2.1	2.1	2.1	2.1	2.0	1.4	1.6	1.6	1.7	1.7	1.6	1.6	
	6	2.1	2.7	3.0	3.1	3.2	3.2	3.1	3.1	2.1	2.3	2.4	2.5	2.5	2.4	2.4	
	7	2.8	3.6	4.0	4.2	4.3	4.3	4.2	4.1	2.8	3.1	3.3	3.3	3.3	3.3	3.2	
	8	4.2	5.3	5.9	6.3	6.4	6.4	6.3	6.1	4.3	4.7	4.9	5.0	5.0	4.9	4.8	
9	6.2	7.9	8.8	9.3	9.5	9.5	9.3	9.0	6.3	6.9	7.3	7.4	7.4	7.2	7.0		
Evaporating temperature -30°C										Evaporating temperature -40°C							
TU	0			0.3	0.31	0.31	0.31	0.3	0.29			0.24	0.25	0.25	0.25	0.24	0.23
	1			0.36	0.38	0.38	0.38	0.37	0.36			0.27	0.28	0.28	0.28	0.27	0.26
	2			0.43	0.45	0.45	0.45	0.44	0.43			0.32	0.33	0.33	0.33	0.32	0.31
	3			0.60	0.63	0.64	0.63	0.62	0.60			0.45	0.46	0.47	0.46	0.45	0.43
	4			0.89	0.93	0.94	0.93	0.91	0.88			0.65	0.68	0.68	0.67	0.66	0.63
	5			1.2	1.2	1.3	1.2	1.2	1.2			0.88	0.91	0.91	0.90	0.88	0.85
	6			1.8	1.9	1.9	1.9	1.8	1.8			1.3	1.4	1.4	1.3	1.3	1.3
	7			2.4	2.5	2.5	2.5	2.4	2.4			1.8	1.8	1.8	1.8	1.8	1.7
	8			3.6	3.7	3.8	3.8	3.7	3.6			2.6	2.7	2.8	2.7	2.7	2.6
9			5.3	5.5	5.5	5.5	5.4	5.2			3.9	4.0	4.0	4.0	3.9	3.7	

Correction for subcooling Δt_{sub}

The evaporator capacity used must be corrected if subcooling deviates from 4 K.

The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:

Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.1	1.2	1.29	1.37	1.46	1.54	1.63	1.7	1.78

Capacity (continued)

Capacity in kW for range B = -60 → -25°C and opening superheat OS = 4 K

R404A/R507

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature -25°C										Evaporating temperature -30°C							
TU	0	0.30	0.36	0.39	0.40	0.40	0.40	0.39	0.38	0.28	0.33	0.36	0.37	0.37	0.37	0.36	0.35
	1	0.41	0.51	0.55	0.56	0.57	0.56	0.55	0.53	0.36	0.45	0.49	0.51	0.51	0.50	0.48	0.47
	2	0.53	0.66	0.73	0.76	0.77	0.77	0.75	0.73	0.45	0.57	0.62	0.65	0.65	0.65	0.64	0.61
	3	0.74	0.92	1.01	1.06	1.07	1.07	1.04	1.01	0.64	0.79	0.87	0.91	0.91	0.91	0.89	0.86
	4	1.1	1.4	1.5	1.6	1.6	1.6	1.6	1.5	1.0	1.2	1.3	1.3	1.4	1.3	1.3	1.3
	5	1.5	1.8	2.0	2.1	2.1	2.1	2.1	2.0	1.3	1.6	1.7	1.8	1.8	1.8	1.8	1.7
	6	2.2	2.8	3.0	3.2	3.2	3.2	3.1	3.0	1.9	2.4	2.6	2.7	2.7	2.7	2.6	2.6
	7	2.9	3.7	4.1	4.2	4.3	4.3	4.2	4.0	2.5	3.2	3.5	3.6	3.6	3.6	3.5	3.4
	8	4.4	5.5	6.1	6.3	6.4	6.4	6.3	6.1	3.8	4.7	5.2	5.4	5.5	5.4	5.3	5.1
	9	6.5	8.2	9.0	9.4	9.5	9.4	9.2	8.9	5.6	7.0	7.7	8.0	8.1	8.0	7.8	7.5
Evaporating temperature -40°C										Evaporating temperature -50°C							
TU	0		0.28	0.30	0.30	0.31	0.30	0.29	0.28		0.22	0.23	0.24	0.24	0.23	0.22	0.21
	1		0.34	0.37	0.38	0.38	0.38	0.37	0.35		0.24	0.25	0.26	0.26	0.26	0.25	0.24
	2		0.40	0.44	0.45	0.46	0.45	0.44	0.42		0.27	0.30	0.31	0.31	0.30	0.29	0.28
	3		0.57	0.62	0.64	0.64	0.63	0.62	0.59		0.39	0.42	0.43	0.43	0.42	0.41	0.39
	4		0.83	0.91	0.94	0.94	0.93	0.91	0.87		0.57	0.61	0.63	0.63	0.62	0.60	0.57
	5		1.1	1.2	1.3	1.3	1.3	1.2	1.2		0.76	0.82	0.84	0.84	0.83	0.81	0.77
	6		1.7	1.8	1.9	1.9	1.9	1.8	1.8		1.1	1.2	1.3	1.3	1.2	1.2	1.2
	7		2.2	2.4	2.5	2.5	2.5	2.4	2.4		1.5	1.6	1.7	1.7	1.7	1.6	1.5
	8		3.4	3.7	3.8	3.8	3.8	3.7	3.5		2.3	2.5	2.6	2.6	2.5	2.4	2.3
	9		4.9	5.4	5.6	5.6	5.5	5.4	5.2		3.3	3.6	3.7	3.7	3.7	3.5	3.4
Evaporating temperature -60°C																	
TU	0			0.16	0.16	0.16	0.16	0.15	0.15								
	1			0.17	0.17	0.17	0.17	0.16	0.15								
	2			0.19	0.20	0.20	0.19	0.19	0.18								
	3			0.27	0.28	0.28	0.27	0.26	0.25								
	4			0.40	0.41	0.41	0.40	0.38	0.36								
	5			0.53	0.55	0.55	0.53	0.51	0.49								
	6			0.79	0.81	0.81	0.79	0.76	0.73								
	7			1.1	1.1	1.1	1.1	1.0	1.0								
	8			1.6	1.7	1.7	1.6	1.6	1.5								
	9			2.3	2.4	2.4	2.3	2.3	2.1								

Correction for subcooling Δt_{sub}
 The evaporator capacity used must be corrected if subcooling deviates from 4 K. The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:
 Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.1	1.2	1.29	1.37	1.46	1.54	1.63	1.7	1.78

Capacity (continued)

Capacity in kW for range $N = -40 \rightarrow +10^\circ\text{C}$ and opening superheat $OS = 4\text{ K}$

R407C

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature +10°C																	
TU	0	0.43	0.54	0.60	0.64	0.67	0.68	0.68	0.68	0.41	0.51	0.56	0.60	0.62	0.63	0.63	0.63
	1	0.63	0.81	0.90	0.96	0.99	1.01	1.02	1.01	0.56	0.73	0.81	0.86	0.89	0.90	0.91	0.90
	2	0.90	1.2	1.4	1.5	1.5	1.6	1.6	1.6	0.8	1.0	1.1	1.2	1.2	1.3	1.3	1.3
	3	1.2	1.6	1.9	2.0	2.1	2.2	2.2	2.2	1.0	1.4	1.5	1.7	1.7	1.8	1.8	1.8
	4	1.9	2.5	2.8	3.1	3.2	3.3	3.3	3.3	1.6	2.1	2.3	2.5	2.6	2.7	2.7	2.7
	5	2.5	3.3	3.8	4.1	4.2	4.4	4.4	4.4	2.1	2.7	3.1	3.3	3.5	3.5	3.6	3.6
	6	3.8	5.0	5.7	6.1	6.4	6.6	6.7	6.7	3.1	4.1	4.6	5.0	5.2	5.3	5.4	5.4
	7	5.0	6.6	7.6	8.2	8.6	8.8	8.9	8.9	4.2	5.4	6.2	6.7	6.9	7.1	7.2	7.2
	8	7.5	9.9	11.2	12.2	12.7	13.0	13.2	13.2	6.3	8.2	9.3	9.9	10.4	10.6	10.7	10.7
9	11.3	14.8	16.9	18.2	19.0	19.5	19.7	19.7	9.3	12.2	13.8	14.8	15.4	15.8	15.9	15.9	
Evaporating temperature 0°C																	
Evaporating temperature -10°C																	
TU	0	0.37	0.46	0.51	0.54	0.55	0.56	0.57	0.56	0.33	0.40	0.44	0.47	0.48	0.49	0.49	0.49
	1	0.48	0.62	0.70	0.74	0.76	0.77	0.77	0.77	0.39	0.50	0.56	0.60	0.62	0.63	0.63	0.63
	2	0.60	0.78	0.88	0.94	0.98	1.00	1.01	1.01	0.47	0.60	0.68	0.72	0.75	0.76	0.77	0.76
	3	0.84	1.1	1.2	1.3	1.4	1.4	1.4	1.4	0.66	0.84	0.95	1.0	1.1	1.1	1.1	1.1
	4	1.3	1.6	1.8	2.0	2.0	2.1	2.1	2.1	0.98	1.3	1.4	1.5	1.6	1.6	1.6	1.6
	5	1.7	2.2	2.4	2.6	2.7	2.8	2.8	2.8	1.3	1.7	1.9	2.0	2.1	2.1	2.1	2.1
	6	2.5	3.2	3.7	3.9	4.1	4.2	4.2	4.2	1.9	2.5	2.8	3.0	3.1	3.2	3.2	3.2
	7	3.4	4.3	4.9	5.2	5.5	5.6	5.6	5.6	2.6	3.3	3.7	4.0	4.1	4.2	4.2	4.2
	8	5.0	6.5	7.4	7.9	8.2	8.4	8.4	8.4	3.9	5.0	5.7	6.0	6.2	6.4	6.4	6.4
9	7.5	9.6	10.9	11.6	12.1	12.3	12.4	12.4	5.8	7.4	8.3	8.9	9.2	9.3	9.4	9.3	
Evaporating temperature -20°C																	
Evaporating temperature -30°C																	
TU	0		0.26	0.29	0.31	0.32	0.32	0.32	0.31			0.29	0.31	0.32	0.32	0.32	0.31
	1		0.38	0.43	0.45	0.47	0.48	0.48	0.47			0.31	0.33	0.34	0.34	0.35	0.34
	2		0.45	0.50	0.53	0.55	0.56	0.56	0.56			0.36	0.38	0.40	0.40	0.40	0.40
	3		0.63	0.71	0.75	0.78	0.79	0.79	0.79			0.51	0.54	0.56	0.56	0.56	0.56
	4		0.93	1.0	1.1	1.1	1.2	1.2	1.2			0.75	0.79	0.81	0.82	0.82	0.82
	5		1.3	1.4	1.5	1.5	1.6	1.6	1.5			1.0	1.1	1.1	1.1	1.1	1.1
	6		1.9	2.1	2.2	2.3	2.3	2.3	2.3			1.5	1.6	1.6	1.6	1.6	1.6
	7		2.5	2.8	3.0	3.1	3.1	3.1	3.1			2.0	2.1	2.2	2.2	2.2	2.2
	8		3.8	4.2	4.5	4.6	4.7	4.7	4.7			3.0	3.2	3.3	3.3	3.3	3.3
9		5.5	6.2	6.5	6.7	6.8	6.9	6.8			4.4	4.7	4.8	4.9	4.9	4.8	

Correction for subcooling Δt_{sub}
 The evaporator capacity used must be corrected if subcooling deviates from 4 K.
 The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:
 Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.08	1.14	1.21	1.27	1.33	1.39	1.45	1.51	1.57

Capacity (continued)

Capacity in kW for range B = -60 → -25°C and opening superheat OS = 4 K

R407C

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		2	4	6	8	10	12	14	16	2	4	6	8	10	12	14	16
Evaporating temperature -25°C										Evaporating temperature -30°C							
TU	0	0.34	0.42	0.46	0.49	0.50	0.51	0.51	0.50	0.31	0.38	0.42	0.44	0.45	0.46	0.46	0.46
	1	0.43	0.54	0.61	0.65	0.66	0.67	0.67	0.67	0.37	0.47	0.52	0.56	0.57	0.58	0.59	0.58
	2	0.52	0.67	0.75	0.79	0.82	0.83	0.84	0.83	0.45	0.56	0.63	0.67	0.69	0.70	0.70	0.70
	3	0.73	0.93	1.0	1.1	1.2	1.2	1.2	1.2	0.62	0.79	0.88	0.94	0.97	0.98	0.98	0.98
	4	1.1	1.4	1.5	1.6	1.7	1.7	1.7	1.7	0.92	1.2	1.3	1.4	1.4	1.4	1.5	1.4
	5	1.5	1.8	2.1	2.2	2.3	2.3	2.3	2.3	1.2	1.6	1.7	1.8	1.9	1.9	1.9	1.9
	6	2.2	2.8	3.1	3.3	3.4	3.5	3.5	3.5	1.8	2.3	2.6	2.8	2.9	2.9	2.9	2.9
	7	2.9	3.7	4.1	4.4	4.5	4.6	4.6	4.6	2.5	3.1	3.5	3.7	3.8	3.9	3.9	3.9
	8	4.4	5.6	6.2	6.6	6.8	7.0	7.0	7.0	3.7	4.7	5.3	5.6	5.8	5.8	5.9	5.8
9	6.5	8.2	9.2	9.7	10.1	10.2	10.3	10.2	5.5	6.9	7.7	8.2	8.4	8.6	8.6	8.5	
Evaporating temperature -40°C										Evaporating temperature -50°C							
TU	0	0.24	0.30	0.33	0.35	0.36	0.36	0.36	0.36	0.17	0.22	0.24	0.25	0.26	0.26	0.26	0.26
	1	0.27	0.34	0.37	0.39	0.41	0.41	0.41	0.41	0.18	0.23	0.25	0.27	0.27	0.28	0.28	0.27
	2	0.31	0.39	0.44	0.46	0.47	0.48	0.48	0.48	0.21	0.27	0.29	0.31	0.32	0.32	0.32	0.32
	3	0.44	0.55	0.61	0.65	0.67	0.68	0.68	0.67	0.30	0.37	0.41	0.44	0.45	0.45	0.45	0.45
	4	0.65	0.81	0.90	0.95	0.98	0.99	0.99	0.98	0.44	0.55	0.60	0.63	0.65	0.66	0.66	0.65
	5	0.86	1.1	1.2	1.3	1.3	1.3	1.3	1.3	0.59	0.73	0.81	0.85	0.88	0.88	0.88	0.87
	6	1.3	1.6	1.8	1.9	2.0	2.0	2.0	2.0	0.87	1.1	1.2	1.3	1.3	1.3	1.3	1.3
	7	1.7	2.2	2.4	2.5	2.6	2.7	2.7	2.6	1.2	1.5	1.6	1.7	1.7	1.8	1.8	1.7
	8	2.6	3.3	3.6	3.9	4.0	4.0	4.0	4.0	1.8	2.2	2.4	2.6	2.6	2.7	2.7	2.6
9	3.8	4.8	5.3	5.6	5.8	5.8	5.8	5.8	2.6	3.2	3.5	3.7	3.8	3.9	3.9	3.8	
Evaporating temperature -60°C																	
TU	0	0.12	0.15	0.16	0.18	0.17	0.17	0.17	0.17								
	1	0.12	0.15	0.17	0.18	0.18	0.18	0.18	0.18								
	2	0.14	0.17	0.19	0.20	0.21	0.21	0.21	0.21								
	3	0.20	0.25	0.27	0.29	0.29	0.29	0.29	0.29								
	4	0.29	0.36	0.39	0.41	0.42	0.43	0.42	0.42								
	5	0.39	0.48	0.53	0.56	0.57	0.57	0.57	0.56								
	6	0.58	0.71	0.79	0.83	0.85	0.85	0.85	0.83								
	7	0.78	0.96	1.1	1.1	1.1	1.1	1.1	1.1								
	8	1.2	1.5	1.6	1.7	1.7	1.7	1.7	1.7								
9	1.7	2.1	2.3	2.4	2.5	2.5	2.5	2.5									

Correction for subcooling Δt_{sub}

The evaporator capacity used must be corrected if subcooling deviates from 4 K.

The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.08	1.14	1.21	1.27	1.33	1.39	1.45	1.51	1.57

Note:

Insufficient subcooling can produce flash gas.

Capacity (continued)

Capacity in kW for range $N = -40 \rightarrow +10^\circ\text{C}$ and opening superheat $OS = 4\text{ K}$

R410A

Valve type	Orifice no.	Pressure drop across valve Δp bar								Pressure drop across valve Δp bar							
		3	6	9	12	15	18	21	24	3	6	9	12	15	18	21	24
Evaporating temperature +10°C										Evaporating temperature 0°C							
TU	0	0.56	0.72	0.80	0.85	0.87	0.88	0.87	0.85	0.56	0.70	0.78	0.83	0.85	0.86	0.85	0.84
	1	0.89	1.13	1.26	1.30	1.37	1.38	1.36	1.33	0.84	1.06	1.18	1.24	1.29	1.30	1.29	1.27
	2	1.45	1.90	2.2	2.3	2.4	2.5	2.4	2.4	1.25	1.64	1.86	1.99	2.1	2.1	2.1	2.1
	3	1.98	2.6	3.0	3.2	3.3	3.3	3.3	3.3	1.72	2.3	2.6	2.7	2.9	2.9	2.9	2.9
	4	3.1	4.1	4.6	4.9	5.1	5.2	5.1	5.0	2.6	3.5	3.9	4.2	4.3	4.4	4.4	4.3
	5	4.1	5.3	6.1	6.5	6.7	6.8	6.8	6.7	3.5	4.6	5.2	5.6	5.8	5.9	5.8	5.8
	6	6.2	8.1	9.2	9.9	10.3	10.5	10.4	10.2	5.3	6.9	7.9	8.4	8.7	8.9	8.9	8.8
	7	8.2	10.7	12.7	13.1	13.6	13.8	13.8	13.5	7.0	9.2	10.4	11.1	11.6	11.8	11.8	11.6
	8	12.1	15.8	18.0	19.3	20.0	20.3	20.2	19.9	10.4	13.7	15.5	16.6	17.2	17.5	17.5	17.2
9	18.3	24.0	27.2	29.1	30.2	30.6	30.5	29.9	15.7	20.5	23.3	24.9	25.8	26.2	26.2	25.7	
Evaporating temperature -10°C										Evaporating temperature -20°C							
TU	0	0.53	0.67	0.74	0.78	0.80	0.81	0.81	0.79	0.60	0.67	0.70	0.72	0.73	0.73	0.72	
	1	0.76	0.96	1.07	1.13	1.16	1.17	1.17	1.15	0.83	0.92	0.97	1.00	1.01	1.00	0.99	
	2	1.04	1.35	1.52	1.63	1.69	1.72	1.72	1.70	1.06	1.20	1.28	1.32	1.34	1.34	1.33	
	3	1.44	1.86	2.1	2.3	2.3	2.4	2.4	2.4	1.48	1.67	1.78	1.84	1.87	1.87	1.85	
	4	2.2	2.8	3.2	3.4	3.5	3.6	3.6	3.5	2.2	2.5	2.7	2.7	2.8	2.8	2.8	
	5	2.9	3.7	4.2	4.5	4.7	4.8	4.8	4.8	3.0	3.3	3.5	3.7	3.7	3.7	3.7	
	6	4.3	5.6	6.4	6.8	7.1	7.2	7.2	7.1	4.4	5.0	5.3	5.5	5.6	5.6	5.5	
	7	5.8	7.5	8.5	9.1	9.4	9.6	9.6	9.5	5.9	6.6	7.1	7.4	7.5	7.5	7.4	
	8	8.6	11.2	12.7	13.6	14.1	14.3	14.3	14.1	8.9	10.0	10.7	11.0	11.2	11.2	11.1	
9	12.9	16.8	19.0	20.3	21.0	21.3	21.3	21.0	13.2	14.8	15.8	16.4	16.6	16.6	16.4		
Evaporating temperature -30°C										Evaporating temperature -40°C							
TU	0		0.52	0.58	0.61	0.63	0.63	0.63	0.62			0.48	0.50	0.52	0.52	0.52	0.51
	1		0.66	0.74	0.79	0.82	0.82	0.82	0.81			0.56	0.59	0.61	0.62	0.62	0.61
	2		0.81	0.90	0.96	1.00	1.01	1.01	1.00			0.66	0.70	0.72	0.73	0.73	0.72
	3		1.13	1.27	1.35	1.40	1.41	1.41	1.40			0.93	0.98	1.02	1.03	1.03	1.01
	4		1.67	1.87	2.0	2.1	2.1	2.1	2.1			1.36	1.45	1.49	1.51	1.50	1.48
	5		2.2	2.5	2.7	2.8	2.8	2.8	2.8			1.82	1.9	2.0	2.0	2.0	2.0
	6		3.3	3.7	4.0	4.1	4.2	4.2	4.1			2.7	2.9	3.0	3.0	3.0	3.0
	7		4.5	5.0	5.4	5.5	5.6	5.6	5.5			3.6	3.9	4.0	4.0	4.0	4.0
	8		6.7	7.6	8.0	8.3	8.4	8.4	8.3			5.5	5.8	6.0	6.1	6.1	6.0
9		9.9	11.1	11.8	12.2	12.4	12.4	12.2			8.1	8.6	8.8	8.9	8.9	8.8	

Correction for subcooling Δt_{sub}

The evaporator capacity used must be corrected if subcooling deviates from 4 K.

The corrected capacity can be obtained by dividing the evaporator capacity by the correction factor given below.

Note:

Insufficient subcooling can produce flash gas.

Correction factor for subcooling Δt_{sub}

Δt_{sub}	4 K	10 K	15 K	20 K	25 K	30 K	35 K	40 K	45 K	50 K
Correction factor	1.00	1.08	1.15	1.21	1.27	1.33	1.39	1.45	1.50	1.56

Design/Function

1. Bulb with capillary tube
2. Thermostatic element with diaphragm
3. Setting spindle for adjustment of static superheat SS
4. Orifice assembly
5. Filter

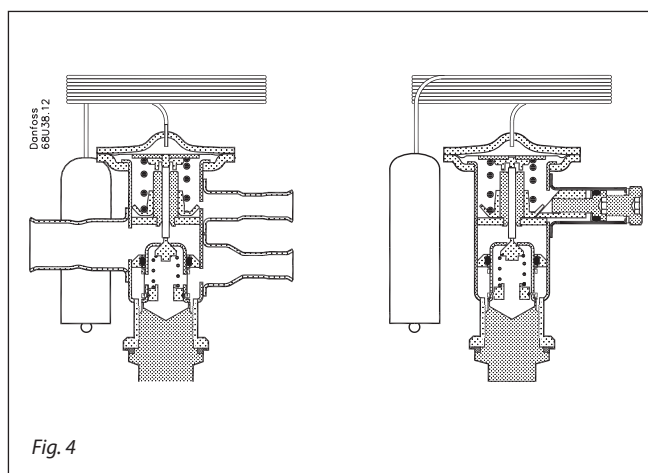


Fig. 4

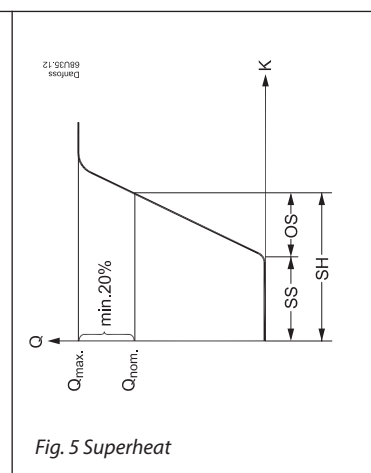


Fig. 5 Superheat

Superheat

See fig. 5

SS = static superheat

OS = opening superheat

SH = SS + OS = total superheat

Q_{nom} = rated capacity

Q_{max} = maximum capacity

Static superheat SS can be adjusted with setting spindle 3, see fig. 4.

The standard superheat setting SS is 5 K for valves without MOP and 4 K for valves with MOP (except R507).

The opening superheat OS is 4 K from when opening begins to where the valve gives its rated capacity Q_{nom} .

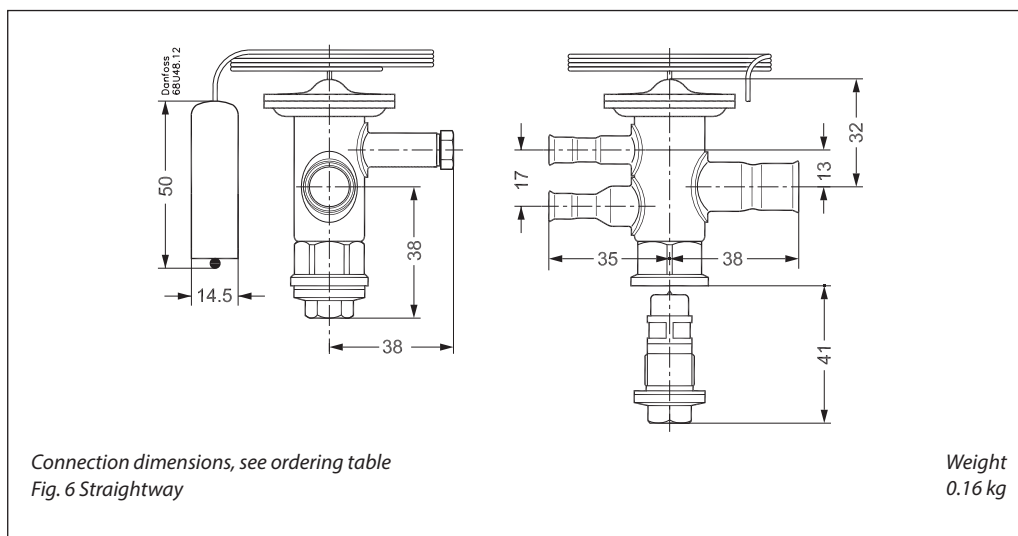
Example

Static superheat SS = 5 K

Opening superheat OS = 4 K

Total superheat SH = 5 + 4 = 9 K

Dimensions and weight



Connection dimensions, see ordering table
Fig. 6 Straightway

Weight
0.16 kg

