



Stainless steel - the strong solution

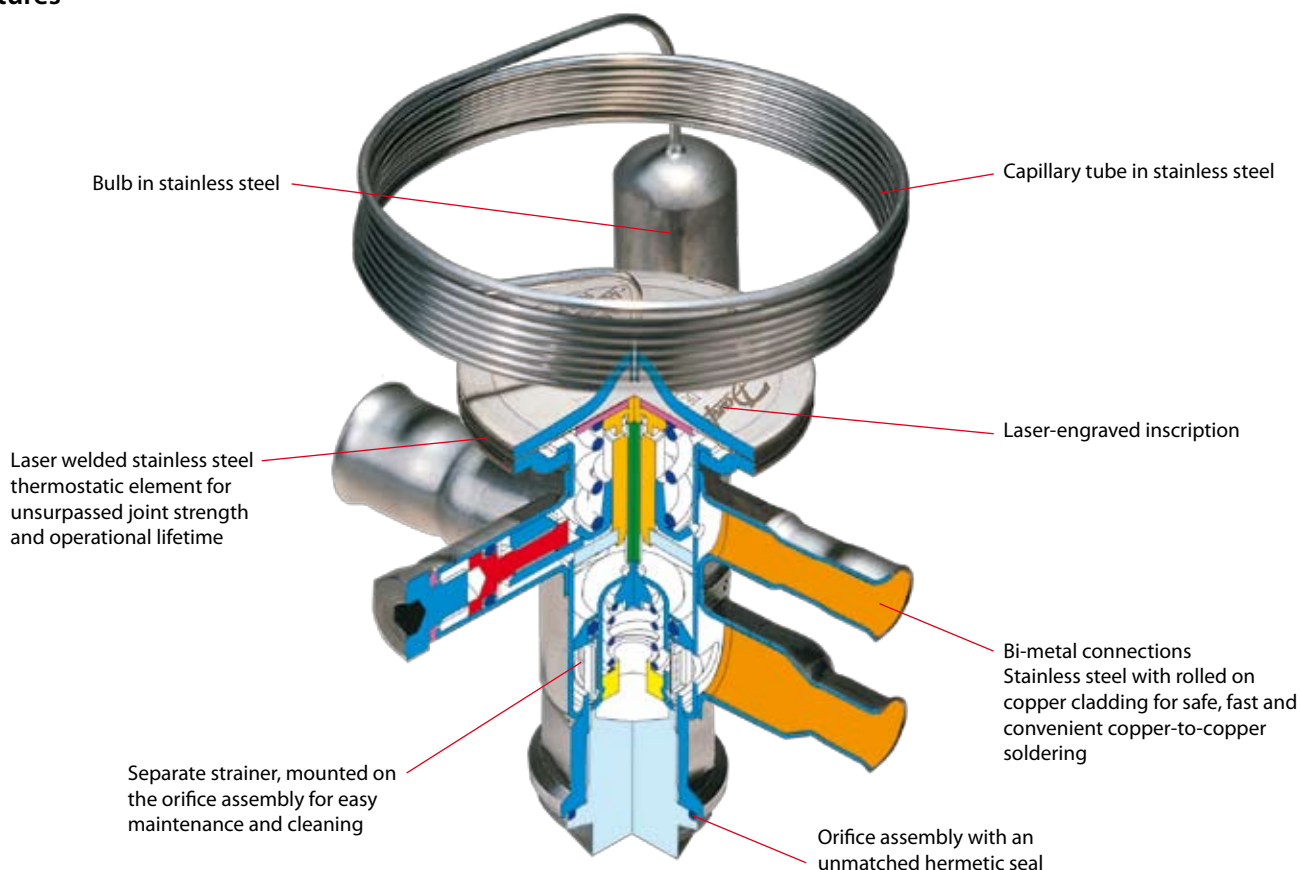
TU and TC thermostatic expansion valves



TU / TC: superior by design and function

The function of a thermostatic expansion valve is determined by three fundamental pressures: the bulb pressure, the evaporating pressure and the spring pressure. When the expansion valve regulates, balance is created between bulb pressure on one side of the diaphragm and evaporating pressure plus spring force on the other side. The spring is used to set superheat.

Features



Applications	Advantages	Facts
- Traditional refrigeration - Heat pump systems - Air conditioning units - Liquid coolers - Ice cube machines - Transport refrigeration	- The use of stainless steel makes the valves light and strong. - Bi-metal connections for safe, fast and convenient soldering. - Stainless steel capillary tube for superior strength and ductility. - Allen key superheat setting screw is convenient and space-saving compared to the standard screwdriver adjustment used in most conventional valves.	- Can be supplied with MOP (Max. Operating Pressure) Protects the compressor motor against excessive evaporating pressure during normal operation. - Valves for special temperature ranges can be supplied. - Only 4 K opening superheat. - Bi-flow function.

Technical data and ordering: TUA / TUAЕ

Thermostatic element, without orifice and filter, with bulb strap ¹⁾

R22, R134a, R404A/R507, R407C, R410A

Refrigerant	Type	Pressure equalization	Connections Inlet × outlet		Code no. ²⁾				
					Range N -40 to +10°C		Range NM -40 to -5°C	Range B -60 to -25°C	
			in.	mm	Without MOP	MOP +15°C	MOP 0°C	Without MOP	MOP -20°C
R22	TUA	Int.	1/4 × 1/2		068U2234	068U2242			
	TUA	Int.		6 × 12	068U2230	068U2238			
	TUA	Int.	3/8 × 1/2		068U2235	068U2243			
	TUA	Int.		10 × 12	068U2231	068U2239			
	TUAЕ	Ext. 1/4 in.	1/4 × 1/2		068U2236	068U2244			
	TUAЕ	Ext. 6 mm		6 × 12	068U2232	068U2240			
	TUAЕ	Ext. 1/4 in.	3/8 × 1/2		068U2237	068U2245			
	TUAЕ	Ext. 6 mm		10 × 12	068U2233	068U2241			
R134a	TUA	Int.	1/4 × 1/2		068U2204	068U2212			
	TUA	Int.		6 × 12	068U2200	068U2208			
	TUA	Int.	3/8 × 1/2		068U2205	068U2213			
	TUA	Int.		10 × 12	068U2201	068U2209			
	TUAЕ	Ext. 1/4 in.	1/4 × 1/2		068U2206	068U2214			
	TUAЕ	Ext. 6 mm		6 × 12	068U2202	068U2210			
	TUAЕ	Ext. 1/4 in.	3/8 × 1/2		068U2207	068U2215			
	TUAЕ	Ext. 6 mm		10 × 12	068U2203	068U2211			
R404A/R507	TUA	Int.	1/4 × 1/2		068U2284	068U2292	068U2300	068U2308	068U2316
	TUA	Int.		6 × 12	068U2280	068U2288	068U2296	068U2304	068U2312
	TUA	Int.	3/8 × 1/2		068U2285	068U2293	068U2301	068U2309	068U2317
	TUA	Int.		10 × 12	068U2281	068U2289	068U2297	068U2305	068U2313
	TUAЕ	Ext. 1/4 in.	1/4 × 1/2		068U2286	068U2294	068U2302	068U2310	068U2318
	TUAЕ	Ext. 6 mm		6 × 12	068U2282	068U2290	068U2298	068U2306	068U2314
	TUAЕ	Ext. 1/4 in.	3/8 × 1/2		068U2287	068U2295	068U2303	068U2311	068U2319
	TUAЕ	Ext. 6 mm		10 × 12	068U2283	068U2291	068U2299	068U2307	068U2315
R407C	TUA	Int.	1/4 × 1/2		068U2324	068U2332			
	TUA	Int.		6 × 12	068U2320	068U2328			
	TUA	Int.	3/8 × 1/2		068U2325	068U2333			
	TUA	Int.		10 × 12	068U2321	068U2329			
	TUAЕ	Ext. 1/4 in.	1/4 × 1/2		068U2326	068U2334			
	TUAЕ	Ext. 6 mm		6 × 12	068U2322	068U2330			
	TUAЕ	Ext. 1/4 in.	3/8 × 1/2		068U2327	068U2335			
	TUAЕ	Ext. 6 mm		10 × 12	068U2323	068U2331			
R410A	TUA		3/8 × 1/2		068U2414				
	TUAЕ		3/8 × 1/2		068U1714				
	TUAЕ			10 × 12	068U2780				068U2450

Orifice assembly with filter and gasket

Orifice no.	Range N: -40 to +10°C										Range B: -60 to -25°C						Code no. ²⁾
	Rated capacity in kW ³⁾					Rated capacity in tons (TR)					Rated capacity in kW ³⁾			Rated capacity in tons (TR)			
	R22	R134a	R404A R507	R407C	R410A	R22	R134a	R404A R507	R407C	R410A	R22	R404A R507	R407C	R22	R404A R507	R407C	
0	0.60	0.47	0.45	0.63	-	0.17	0.13	0.13	0.18	-	0.52	0.36	0.46	0.15	0.10	0.13	068U1030
1	0.9	0.7	0.66	0.92	1.3	0.25	0.19	0.19	0.26	0.4	0.68	0.50	0.58	0.19	0.14	0.16	068U1031
2	1.3	1.0	1.0	1.4	2.1	0.36	0.28	0.27	0.38	0.6	0.85	0.64	0.70	0.24	0.18	0.20	068U1032
3	1.8	1.4	1.3	1.9	2.9	0.50	0.39	0.38	0.53	0.8	1.2	0.89	1.0	0.34	0.25	0.28	068U1033
4	2.6	2.1	2.0	2.8	4.5	0.75	0.59	0.57	0.80	1.3	1.8	1.3	1.4	0.50	0.37	0.41	068U1034
5	3.5	2.7	2.7	3.8	5.9	1.00	0.78	0.76	1.1	1.7	2.3	1.8	1.9	0.66	0.50	0.55	068U1035
6	5.3	4.1	4.0	5.7	9.0	1.5	1.2	1.1	1.6	2.5	3.5	2.7	2.9	1.0	0.75	0.82	068U1036
7	7.0	5.5	5.3	7.5	12.0	2.0	1.6	1.5	2.1	3.4	4.7	3.5	3.9	1.3	1.0	1.1	068U1037
8	11.0	8.2	8.0	11.0	18.0	3.0	2.3	2.3	3.2	5.0	7.1	5.3	5.8	2.0	1.5	1.6	068U1038
9	16.0	12.0	12.0	17.0	26.0	4.5	3.5	3.5	4.8	7.5	10.4	7.8	8.5	2.9	2.2	2.4	068U1039

¹⁾ Capillary tube length 1.5 m.

²⁾ Code numbers in bold are normally on stock and a shorter delivery time can therefore be expected.

³⁾ The rated capacity is based on: Evaporating temperature t_e = +5°C for range N and t_e = -30°C for range B, condensing temperature t_c = +32°C, refrigerant temperature ahead of valve t_i = +28°C, and opening superheat OS = 4 K.

Technical data and ordering: TCAE

Thermostatic element, without orifice and filter, with bulb strap ⁴⁾

R22, R134a, R404A/R507, R407C, R410A

Refrigerant	Type	Pressure equalization	Connection Inlet × outlet		Code no.				
					Range N −40 to +10°C		Range NM −40 to −5°C	Range B −60 to −25°C	
			in.	mm	Without MOP	With MOP	MOP 0°C	Without MOP	With MOP
R22	TCAE	ext.	$\frac{3}{8} \times \frac{5}{8}$		068U4280	068U4282	068U4288		
	TCAE	$\frac{1}{4}$ in.	$\frac{1}{2} \times \frac{5}{8}$		068U4281	068U4283	068U4289		
	TCAE	ext.		10 × 16	068U4284	068U4286	068U4290		
	TCAE	6 mm		12 × 16	068U4285	068U4287	068U4291		
R134a	TCAE	ext.	$\frac{3}{8} \times \frac{5}{8}$		068U4292	068U4294	068U4300		
	TCAE	$\frac{1}{4}$ in.	$\frac{1}{2} \times \frac{5}{8}$		068U4293	068U4295	068U4301		
	TCAE	ext.		10 × 16	068U4296	068U4298	068U4302		
	TCAE	6 mm		12 × 16	068U4297	068U4299	068U4303		
R404A/R507	TCAE	ext.	$\frac{3}{8} \times \frac{5}{8}$		068U4304	068U4306	068U4312	068U4316	068U4318
	TCAE	$\frac{1}{4}$ in.	$\frac{1}{2} \times \frac{5}{8}$		068U4305	068U4307	068U4313	068U4317	068U4319
	TCAE	ext.		10 × 16	068U4308	068U4310	068U4314	068U4320	068U4322
	TCAE	6 mm		12 × 16	068U4309	068U4311	068U4315	068U4321	068U4323
R407C	TCAE	ext.	$\frac{3}{8} \times \frac{5}{8}$		068U4324	068U4326	068U4332		
	TCAE	$\frac{1}{4}$ in.	$\frac{1}{2} \times \frac{5}{8}$		068U4325	068U4327	068U4333		
	TCAE	ext.		10 × 16	068U4328	068U4330	068U4334		
	TCAE	$\frac{1}{4}$ in.		12 × 16	068U4329	068U4331	068U4335		
R410A	TCAE	ext.	$\frac{3}{8} \times \frac{5}{8}$		068U4336	068U4338	068U4344		
	TCAE	$\frac{1}{4}$ in.	$\frac{1}{2} \times \frac{5}{8}$		068U4337	068U4339	068U4345		
	TCAE	ext.		10 × 16	068U4340	068U4342	068U4346		
	TCAE	6 mm		12 × 16	068U4341	068U4343	068U4347		

Orifice assembly with filter and gasket

Orifice no.	Range N: −40 to +10°C										Code no.	
	Rated capacity in kW ⁵⁾					Rated capacity in tons (TR)						
	R22	R134a	R404A R507	R407C	R410A	R22	R134a	R404A R507	R407C	R410A	Without bleed	With 15% bleed
01	17.5	12.0	13.5	19.0	23.0	5.0	3.5	3.8	5.4	6.5	068U4100	068U4097
02	21.0	14.5	16.0	23.0	27.5	6.0	4.1	4.5	6.5	7.8	068U4101	068U4098
03 ⁶⁾	26.5	18.0	20.0	28.5	34.0	7.5	5.2	5.7	8.1	9.8	068U4102	068U4099

⁴⁾ Capillary tube length 1.5 m.

⁵⁾ The rated capacity is based on: Evaporating temperature $t_e = +5^\circ\text{C}$, condensing temperature $t_c = +32^\circ\text{C}$, refrigerant temperature ahead of valve $t_i = +28^\circ\text{C}$, and opening superheat OS = 4 K.

⁶⁾ TCAE with orifice no. 3 cannot be used for biflow operation.



TUA / TUAE and TCAE Thermostatic expansion valves

Capacities

		R22					R134a					R404A/R507					R407C				
Valve type / Orifice	Cond. temp. ⁷⁾ [°C]	Capacity in [kW]					Capacity in [kW]					Capacity in [kW]					Capacity in [kW]				
		Evaporating temp. [°C]					Evaporating temp. [°C]					Evaporating temp. [°C]					Evaporating temp. [°C]				
		-35	-30	-10	0	5	-30	-10	-5	0	5	-40	-35	-30	-10	0	-10	-5	0	5	10
TU / 00	25	0.38	0.41	0.53	0.55	0.54	0.27	0.38	0.40	0.41	0.42	0.25	0.28	0.31	0.40	0.43	0.54	0.58	0.61	0.61	0.58
TU / 01		0.44	0.50	0.72	0.79	0.79	0.31	0.52	0.57	0.60	0.62	0.28	0.33	0.38	0.56	0.62	0.75	0.80	0.85	0.88	0.89
TU / 02		0.51	0.59	0.94	1.1	1.1	0.35	0.67	0.75	0.83	0.89	0.33	0.4	0.5	0.7	0.9	0.96	1.1	1.2	1.3	1.3
TU / 03		0.73	0.84	1.3	1.5	1.5	0.49	0.94	1.0	1.1	1.2	0.5	0.5	0.6	1.1	1.2	1.3	1.5	1.6	1.7	1.8
TU / 04		1.1	1.2	1.9	2.2	2.3	0.72	1.4	1.6	1.7	1.8	0.7	0.8	0.9	1.6	1.8	2.0	2.2	2.4	2.6	2.8
TU / 05		1.4	1.6	2.6	3.0	3.1	0.99	1.9	2.1	2.3	2.4	0.9	1.1	1.3	2.1	2.5	2.7	3.0	3.2	3.5	3.7
TU / 06		2.1	2.4	3.9	4.5	4.7	1.4	2.8	3.1	3.5	3.7	1.4	1.6	1.9	3.1	3.7	4.0	4.4	4.9	5.3	5.6
TU / 07		2.8	3.2	5.2	6.0	6.3	1.9	3.7	4.2	4.6	4.9	1.8	2.1	2.5	4.2	4.9	5.3	5.9	6.5	7.0	7.4
TU / 08		4.2	4.9	7.8	9.0	9.3	2.9	5.6	6.3	6.9	7.3	2.8	3.3	3.8	6.3	7.3	8.0	8.9	9.7	10.5	11.0
TU / 09		6.2	7.1	11.6	13.4	14.0	4.3	8.2	9.3	10.2	10.9	4.0	4.8	5.6	9.3	11.0	11.8	13.2	14.5	15.6	16.5
TC / 01	35	9.7	10.9	14.9	15.7	15.6	5.9	8.9	9.5	9.9	10.1	5.8	6.6	7.4	10.4	11.3	14.7	15.6	16.2	16.7	16.7
TC / 02		11.5	12.9	17.7	18.9	18.8	7.2	11.1	11.9	12.5	12.7	7.2	8.2	9.3	13.2	14.3	18.5	19.6	20.5	21.0	21.0
TC / 03		14.9	16.6	22.4	23.6	23.4	9.6	14.5	15.5	16.1	16.3	9.6	10.9	12.2	16.9	18.2	23.8	25.1	26.1	26.6	26.4
TU / 00		0.40	0.44	0.57	0.61	0.62	0.28	0.41	0.44	0.46	0.47	0.24	0.27	0.30	0.40	0.44	0.56	0.61	0.64	0.66	0.65
TU / 01		0.46	0.53	0.78	0.88	0.91	0.32	0.56	0.62	0.66	0.70	0.26	0.32	0.37	0.57	0.64	0.77	0.84	0.90	0.94	0.98
TU / 02		0.53	0.62	1.0	1.2	1.3	0.37	0.72	0.83	0.94	1.0	0.3	0.4	0.4	0.8	0.9	1.0	1.1	1.3	1.4	1.5
TU / 03		0.75	0.88	1.4	1.7	1.8	0.52	1.0	1.2	1.3	1.4	0.4	0.5	0.6	1.1	1.3	1.4	1.6	1.8	1.9	2.1
TU / 04		1.1	1.3	2.1	2.6	2.8	0.76	1.5	1.7	1.9	2.1	0.6	0.8	0.9	1.6	1.9	2.1	2.4	2.6	2.9	3.1
TU / 05		1.5	1.7	2.8	3.4	3.7	1.0	2.0	2.3	2.6	2.9	0.9	1.0	1.2	2.1	2.6	2.8	3.1	3.5	3.8	4.2
TU / 06		2.2	2.6	4.2	5.1	5.5	1.5	3.0	3.5	3.9	4.3	1.3	1.5	1.8	3.2	3.9	4.2	4.7	5.2	5.8	6.3
TU / 07	45	2.9	3.4	5.7	6.9	7.4	2.1	4.0	4.6	5.2	5.8	1.7	2.1	2.4	4.3	5.2	5.6	6.3	7.0	7.7	8.4
TU / 08		4.4	5.1	8.5	10.2	11.0	3.1	6.1	6.9	7.8	8.5	2.6	3.1	3.7	6.3	7.7	8.4	9.4	10.5	11.5	12.4
TU / 09		6.5	7.5	12.6	15.3	16.4	4.5	8.9	10.2	11.5	12.8	3.7	4.5	5.3	9.4	11.6	12.4	13.9	15.5	17.1	18.6
TC / 01		10.3	11.5	16.3	17.9	18.3	6.2	9.7	10.5	11.2	11.7	5.4	6.3	7.2	10.6	11.9	15.4	16.5	17.4	18.2	18.8
TC / 02		12.2	13.7	19.5	21.5	22.1	7.7	12.2	13.2	14.1	14.8	6.9	7.9	9.1	13.4	15.1	19.4	20.9	22.1	23.1	23.8
TC / 03		15.9	17.8	24.7	26.9	27.5	10.2	15.9	17.1	18.2	19.0	9.3	10.6	12.0	17.3	19.2	25.1	26.8	28.2	29.3	29.9
TU / 00		0.40	0.45	0.60	0.65	0.67	0.28	0.43	0.46	0.48	0.51	0.21	0.24	0.27	0.38	0.43	0.56	0.61	0.65	0.67	0.68
TU / 01		0.47	0.54	0.82	0.94	0.98	0.32	0.58	0.64	0.70	0.75	0.23	0.28	0.34	0.54	0.6	0.77	0.84	0.91	0.96	1.0
TU / 02		0.54	0.63	1.1	1.3	1.5	0.37	0.75	0.87	0.99	1.1	0.3	0.3	0.4	0.7	0.9	1.0	1.2	1.3	1.4	1.6
TU / 03		0.75	0.89	1.5	1.8	2.0	0.52	1.1	1.2	1.4	1.5	0.4	0.4	0.5	1.0	1.3	1.4	1.6	1.8	2.0	2.2
TU / 04	55	1.1	1.3	2.2	2.8	3.0	0.77	1.6	1.8	2.1	2.3	0.5	0.7	0.8	1.5	1.9	2.1	2.4	2.7	3.0	3.3
TU / 05		1.5	1.7	3.0	3.7	4.0	1.0	2.1	2.4	2.8	3.1	0.7	0.9	1.1	2.0	2.6	2.8	3.2	3.6	4.0	4.4
TU / 06		2.2	2.6	4.5	5.5	6.1	1.5	3.1	3.6	4.1	4.7	1.1	1.4	1.7	3.0	3.8	4.2	4.8	5.4	6.0	6.6
TU / 07		3.0	3.5	6.0	7.4	8.1	2.1	4.2	4.9	5.5	6.2	1.5	1.8	2.2	4.1	5.1	5.6	6.4	7.2	8.0	8.9
TU / 08		4.5	5.3	9.0	11.1	12.1	3.1	6.3	7.3	8.3	9.3	2.3	2.8	3.3	6.1	7.6	8.4	9.6	10.7	11.9	13.1
TU / 09		6.6	7.7	13.3	16.5	18.0	4.5	9.3	10.8	12.3	13.8	3.1	3.9	4.8	9.0	11.4	12.4	14.1	15.9	17.8	19.6
TC / 01		10.5	11.9	17.2	19.3	20.1	6.3	10.1	11.1	11.9	12.7	4.8	5.7	6.6	10.2	11.7	15.6	16.8	17.9	18.9	19.8
TC / 02		12.6	14.2	20.7	23.3	24.3	7.9	12.8	14.0	15.2	16.2	6.2	7.2	8.4	12.9	14.9	19.8	21.4	22.8	24.1	25.2
TC / 03		16.6	18.7	26.4	29.3	30.3	10.6	16.8	18.2	19.6	20.7	8.5	9.9	11.3	16.8	19.0	25.8	27.6	29.3	30.7	31.7
TU / 00		0.41	0.45	0.62	0.68	0.70	0.27	0.43	0.46	0.49	0.52	0.17	0.20	0.24	0.35	0.39	0.54	0.59	0.63	0.66	0.67
TU / 01	55	0.47	0.54	0.84	0.98	1.0	0.31	0.58	0.65	0.71	0.77	0.18	0.23	0.28	0.48	0.6	0.75	0.82	0.89	0.95	1.0
TU / 02		0.53	0.63	1.1	1.4	1.6	0.37	0.75	0.87	1.0	1.2	0.20	0.3	0.3	0.7	0.9	1.00	1.1	1.3	1.5	1.6
TU / 03		0.73	0.88	1.6	1.9	2.1	0.50	1.1	1.3	1.4	1.6	0.2	0.3	0.4	0.9	1.2	1.4	1.6	1.8	2.0	2.2
TU / 04		1.1	1.3	2.3	2.9	3.2	0.75	1.6	1.8	2.1	2.4	0.4	0.5	0.6	1.4	1.8	2.1	2.4	2.7	3.0	3.3
TU / 05		1.5	1.7	3.1	3.8	4.3	0.96	2.1	2.4	2.8	3.2	0.5	0.7	0.9	1.8	2.4	2.7	3.1	3.6	4.0	4.5
TU / 06		2.2	2.6	4.7	5.8	6.4	1.4	3.2	3.7	4.3	4.9	0.9	1.1	1.4	2.8	3.6	4.2	4.8	5.4	6.1	6.8
TU / 07		2.9	3.5	6.2	7.7	8.5	2.0	4.2	4.9	5.7	6.4	1.1	1.5	1.8	3.7	4.8	5.4	6.2	7.1	8.0	9.0
TU / 08		4.4	5.2	9.2	11.5	12.7	3.0	6.3	7.4	8.5	9.6	1.8	2.2	2.8	5.5	7.1	8.2	9.4	10.7	12.0	13.3
TU / 09		6.5	7.7	13.7	17.2	19.0	4.3	9.3	10.9	12.5	14.3	2.2	3.0	3.8	8.1	10.5	12.1	13.9	15.8	17.8	19.9
TC / 01		10.6	12.1	17.8	20.2	21.2	6.2	10.3	11.3	12.3	13.2	3.8	4.7	5.6	9.3	10.9	15.3	16.6	17.9	19.0	20.1
TC / 02		12.8	14.5	21.6	24.5	25.8	7.9	13.1	14.4	15.7	16.8	5.1	6.1	7.3	11.9	14.0	19.6	21.3	22.9	24.3	25.6
TC / 03		17.1	19.3	27.6	30.9	32.2	10.7	17.2	18.8	20.3	21.7	7.2	8.6	10.0	15.6	17.9	25.8	27.8	29.6	31.1	32.4

⁷⁾ Condensing temperature at bubble point.

Capacities

R410A

Valve type / Orifice	Cond. temp. ⁷⁾ [°C]	Capacity in [kW]				
		Evaporating temp. [°C]				
		-10	-5	0	5	10
TU / 00	25	0.77	0.78	0.78	0.76	0.71
TU / 01		1.11	1.15	1.17	1.16	1.11
TU / 02		1.60	1.7	1.8	1.9	1.9
TU / 03		2.2	2.4	2.6	2.6	2.6
TU / 04		3.3	3.6	3.9	4.0	4.0
TU / 05		4.4	4.8	5.1	5.3	5.3
TU / 06		6.7	7.3	7.8	8.1	8.0
TU / 07		8.9	9.7	10.3	10.7	10.7
TU / 08		13.3	14.5	15.3	15.8	15.7
TU / 09		19.9	21.6	23.0	23.9	23.7
TC / 01	35	17.3	18.2	18.7	18.7	17.9
TC / 02		21.9	23.0	23.7	23.7	22.8
TC / 03		28.4	29.6	30.3	30.2	28.8
TU / 00		0.80	0.83	0.84	0.85	0.83
TU / 01		1.16	1.22	1.27	1.30	1.30
TU / 02		1.7	1.9	2.0	2.2	2.3
TU / 03		2.4	2.6	2.8	3.0	3.1
TU / 04		3.6	3.9	4.3	4.6	4.8
TU / 05		4.7	5.2	5.7	6.1	6.3
TU / 06		7.1	7.9	8.6	9.2	9.7
TU / 07		9.5	10.5	11.4	12.2	12.9
TU / 08		14.2	15.6	16.9	18.0	18.8
TU / 09		21.1	23.3	25.4	27.1	28.5
TC / 01	45	18.5	19.7	20.7	21.3	21.6
TC / 02		23.5	25.0	26.2	27.1	27.5
TC / 03		30.4	32.2	33.6	34.5	34.8
TU / 00		0.80	0.83	0.86	0.87	0.87
TU / 01		1.17	1.23	1.29	1.34	1.4
TU / 02		1.7	1.9	2.1	2.3	2.4
TU / 03		2.4	2.7	2.9	3.1	3.3
TU / 04		3.6	4.0	4.4	4.8	5.1
TU / 05		4.8	5.3	5.8	6.3	6.8
TU / 06		7.2	8.0	8.9	9.6	10.3
TU / 07		9.6	10.7	11.7	12.8	13.7
TU / 08		14.3	15.9	17.4	18.8	20.1
TU / 09		21.3	23.7	26.1	28.3	30.3
TC / 01	55	18.8	20.1	21.4	22.4	23.1
TC / 02		23.9	25.6	27.2	28.5	29.5
TC / 03		31.1	33.1	34.9	36.3	37.2
TU / 00		0.77	0.80	0.83	0.85	0.86
TU / 01		1.12	1.19	1.26	1.31	1.3
TU / 02		1.67	1.9	2.1	2.2	2.4
TU / 03		2.3	2.6	2.9	3.1	3.3
TU / 04		3.4	3.9	4.3	4.7	5.1
TU / 05		4.7	5.2	5.7	6.3	6.8
TU / 06		6.9	7.8	8.7	9.5	10.4
TU / 07		9.2	10.4	11.5	12.6	13.7
TU / 08		13.8	15.5	17.1	18.6	20.1
TU / 09		20.5	23.0	25.5	28.0	30.3
TC / 01	55	18.3	19.7	21.0	22.2	23.2
TC / 02		23.3	25.2	26.9	28.4	29.7
TC / 03		30.5	32.6	34.5	36.1	37.4

When the subcooling ≠ 4 K then:

1. Table value x Factor = Plant capacity
2. Plant capacity / Factor = Table value

Example:

$$Q_{nom} = 10 \text{ kW}$$

$$t_e = -10^\circ\text{C}$$

$$t_c = 55^\circ\text{C}$$

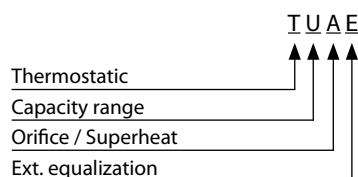
$$\Delta t_{sub} = 25 \text{ K}$$

Selection:

1. TC, Orifice 01 = 10.3 kW x 1.25 = 12.9 kW → Valve too large

Right selection:

2. 10 kW / 1.25 = 8 kW → TU, Orifice 09



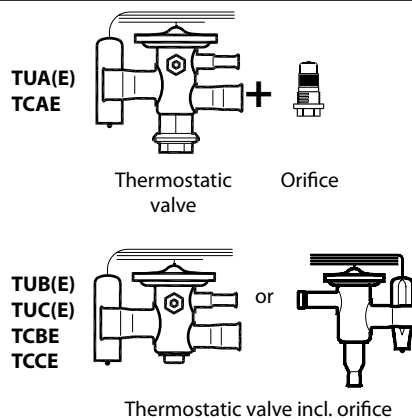
Orifice / Superheat		
	Exchangeable	Adjustable
A	Yes	YES
B	NO	YES
C	NO	NO

$$N = -40^\circ\text{C} \rightarrow +10^\circ\text{C}$$

$$NM = -40^\circ\text{C} \rightarrow -5^\circ\text{C with MOP}$$

$$NL = -40^\circ\text{C} \rightarrow -15^\circ\text{C with MOP}$$

$$B = -60^\circ\text{C} \rightarrow -25^\circ\text{C with MOP}$$



Valve types TUB(E)/TUC(E) and TCBE/TCCE can be replaced by TUA(E) and TCAE types

Correction factor

Refrigerant	Subcooling [K]										
	2	4	10	15	20	25	30	35	40	45	50
R22	0.98	1	1.06	1.11	1.15	1.20	1.25	1.30	1.35	1.39	1.44
R134a	0.98	1	1.08	1.13	1.19	1.25	1.31	1.37	1.42	1.48	1.54
R404A / R507	0.96	1	1.10	1.20	1.29	1.37	1.46	1.54	1.63	1.70	1.78
R407C	0.97	1	1.08	1.14	1.21	1.27	1.33	1.39	1.45	1.51	1.57
R410A	0.97	1	1.08	1.15	1.21	1.27	1.33	1.39	1.45	1.50	1.56

The complete Danfoss program of thermostatic expansion valves:

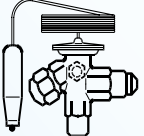
Type	Rated capacities in kW for range N					Connections
	R22	R134a	R404A / R507	R407C	R410A	
T 2 and TE 2 ¹⁾	0.5 - 15.5	0.4 - 10.5	0.38 - 9.1	0.5 - 16.7	-	Flare x flare and flare x solder Solder x solder (solder adaptor)
TUA and TUAE ¹⁾	0.6 - 16	0.45 - 12	0.45 - 12	0.63 - 17	1.3 - 26	Solder Bi-metal (stainless steel / copper)
TUB and TUBE ²⁾	0.9 - 16	0.7 - 12	0.7 - 12	0.92 - 17	1.3 - 26	Solder Bi-metal (stainless steel / copper)
TCAE ¹⁾ and TCBE ²⁾	17.5 - 26.5	12 - 18	13.5 - 20	19.0 - 28.5	23 - 34	Solder Bi-metal (stainless steel / copper)
TRE 10 - TRE 80 ²⁾	28 - 245	18 - 196	21 - 187	28 - 245	28 - 350	Solder Bi-metal (stainless steel / copper)
TE 5 - TE 55 ¹⁾	19.7 - 356	12.9 - 220	13 - 197	21.3 - 385	-	Flare / solder /solder flanges
PHT ¹⁾	105 - 1890	55 - 1083	99 - 1623	117 - 2020	-	Solder or weld flanges
TDE and TDEB ²⁾	10.5 - 140	5.7 - 79	8.4 - 109	10.5 - 140	-	Solder (copper)

¹⁾ Interchangeable orifice.

²⁾ Fixed orifice.

Thermostatic expansion valves parts program:

T 2 and TE 2


+

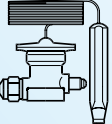

Thermostatic valve
Orifice

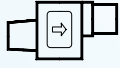
TUA/TUAE and TCAE


+


Thermostatic valve
Orifice

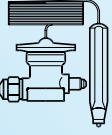
TE 5 - TE 55

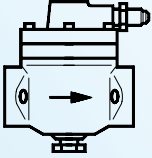

+

+


Thermostatic element
Orifice
Valve body

PHT


+

+

+


Thermostatic element
Orifice
Valve body
Flanges

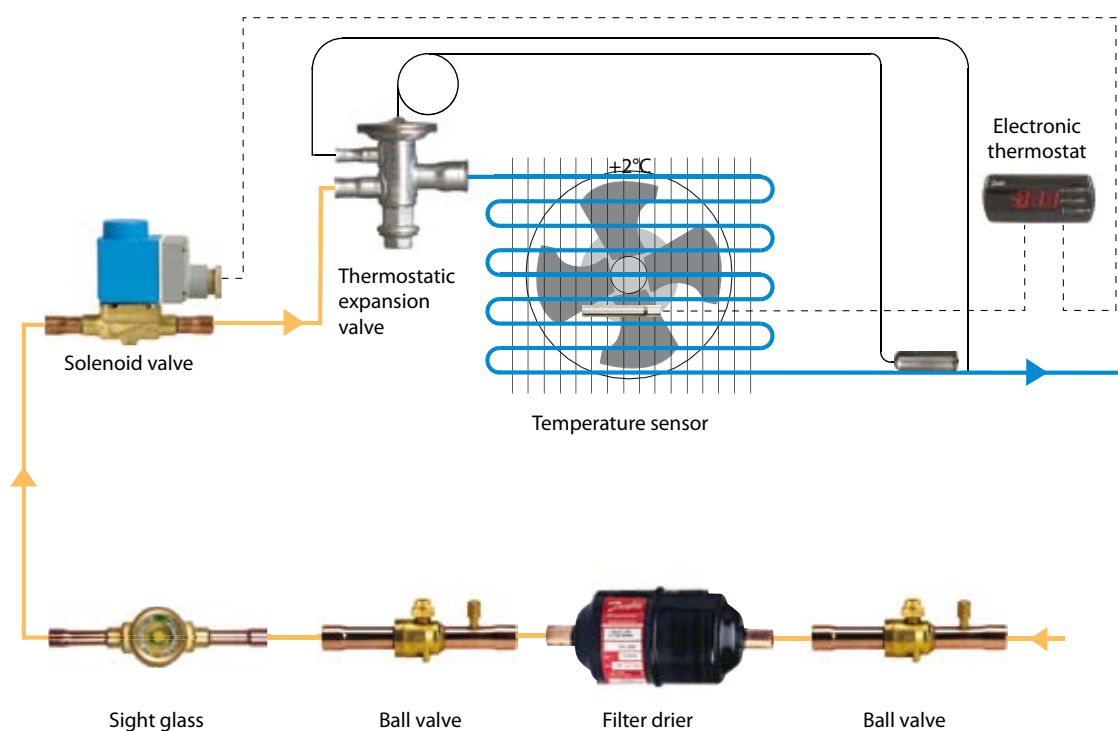


Quality in everything we do

TUA / TUAE and TCAE are part of the Danfoss thermostatic expansion valve program which covers a wide range of components used in refrigeration systems. Our production utilises state-of-the-art technology and every product is thoroughly tested in accordance with the most demanding standards.

If the component you are looking for is not mentioned in this leaflet or if you have special requirements, Danfoss partner wholesalers or our local Danfoss team can offer you help and guidance and will do their utmost to fulfil your needs.

Related products



The Danfoss expansion valve program

Thermostatic exp. valves with exchangeable orifice	Thermostatic exp. valves for smaller and medium sized plants	Electronically controlled exp. valves for smaller plants	Electronically controlled exp. valves for medium sized plants	Electronically controlled exp. valves for larger plants