



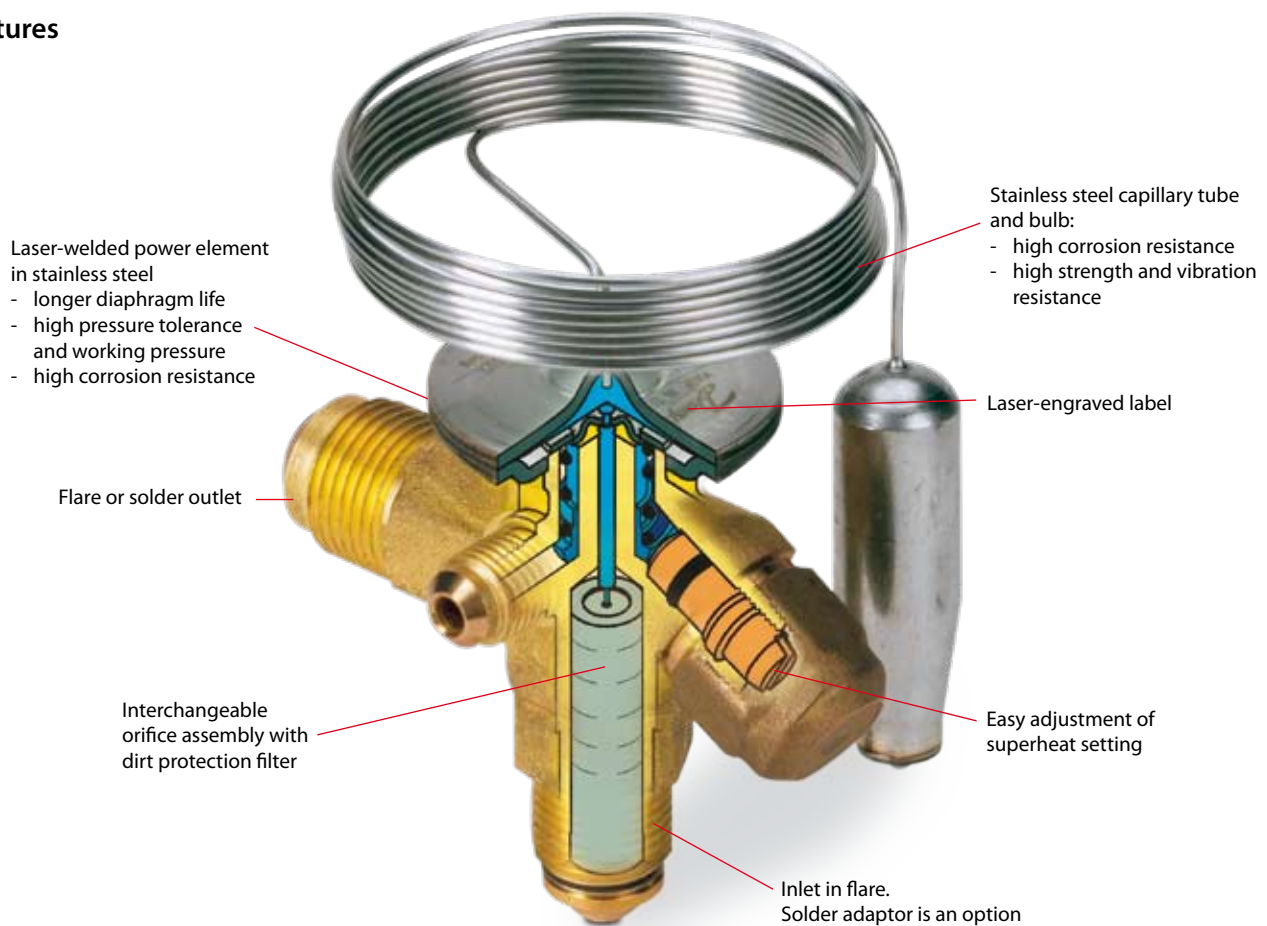
Thermostatic expansion valves type T2 / TE2



T2 / TE2: reliable and easy to use

Thermostatic expansion valves regulate the injection of liquid refrigerant into evaporators. Injection is controlled by the refrigerant superheat. Therefore the valves are especially suitable for liquid injection in "dry" evaporators where the superheat at the evaporator outlet is proportional to the evaporator load.

Features



Applications	Advantages	Facts
<ul style="list-style-type: none"> · Traditional refrigeration · Heat pump systems · Air conditioning units · Liquid coolers · Ice cube machines · Transport refrigeration 	<ul style="list-style-type: none"> · Large temperature range. Equally applicable to freezing, refrigeration and air conditioning applications. · Interchangeable orifice assembly <ul style="list-style-type: none"> · easy stocking · easy capacity matching · better service 	<ul style="list-style-type: none"> · Can be supplied with MOP (Max. Operating Pressure) Protects the compressor motor against excessive evaporating pressure during normal operation. · Rated capacities from 0.5 to 15.5 kW for R22. · Valves for special temperature ranges can be supplied. · Flare / solder adaptor can be supplied.

Technical data and ordering

Thermostatic element with: bulb strap, without: orifice, filter cone and nuts

Flare x flare connection

Refrigerant	Valve type	Pressure equalization Flare	Capillary tube	Connection		Code no. ¹⁾					
				Inlet x outlet		Range N -40 to +10°C		Range NM -40 to -5°C	Range NL -40 to -15°C	Range B -60 to -25°C	
				m	in. x in.	mm x mm	Without MOP	MOP +15°C	MOP 0°C	MOP -10°C	Without MOP
R22	TX 2	-	1.5	3/8 x 1/2	10 x 12	068Z3206	068Z3208	068Z3224	068Z3226	068Z3207	068Z3228
	TEX 2	1/4 in.	1.5	3/8 x 1/2	10 x 12	068Z3209	068Z3211	068Z3225	068Z3227	068Z3210	068Z3229
R407C	TZ 2	-	1.5	3/8 x 1/2	10 x 12	068Z3496	068Z3516				
	TEZ 2	1/4 in.	1.5	3/8 x 1/2	10 x 12	068Z3501	068Z3517				
R134a	TN 2	-	1.5	3/8 x 1/2	10 x 12	068Z3346	068Z3347	068Z3393	068Z3369		
	TEN 2	1/4 in.	1.5	3/8 x 1/2	10 x 12	068Z3348	068Z3349	068Z3392	068Z3370		
R404A/R507	TS 2	-	1.5	3/8 x 1/2	10 x 12	068Z3400	068Z3402	068Z3406	068Z3408	068Z3401	068Z3410
	TES 2	1/4 in.	1.5	3/8 x 1/2	10 x 12	068Z3403	068Z3405	068Z3407	068Z3409	068Z3404	068Z3411

Thermostatic element with: bulb strap, without: orifice, filter cone and nuts

Flare x solder connection

Refrigerant	Valve type	Pressure equalization Solder	Capillary tube	Connection		Code no. ¹⁾					
				Inlet Flare	Outlet ODF solder	Range N -40 to +10°C		Range NL -40 to -15°C	Range B -60 to -25°C		
						m	3/8 in.	1/2 in.	Without MOP	MOP +15°C	MOP -10°C
R22	TX 2	-	1.5	3/8 in.	1/2 in.	068Z3281	068Z3287			068Z3357	068Z3319
	TX 2	-	1.5	10 mm	12 mm	068Z3302	068Z3308	068Z3366		068Z3361	068Z3276
	TEX 2	1/4 in.	1.5	3/8 in.	1/2 in.	068Z3284	068Z3290			068Z3359	068Z3220
	TEX 2	6 mm.	1.5	10 mm	12 mm	068Z3305	068Z3311	068Z3367		068Z3363	068Z3277
R407C	TZ 2	-	1.5	3/8 in.	1/2 in.		068Z3329				
	TZ 2	-	1.5	10 mm	12 mm	068Z3502	068Z3514				
	TEZ 2	1/4 in.	1.5	3/8 in.	1/2 in.	068Z3446	068Z3447				
	TEZ 2	6 mm.	1.5	10 mm	12 mm	068Z3503	068Z3515				
R134a	TN 2	-	1.5	3/8 in.	1/2 in.	068Z3383	068Z3387				
	TN 2	-	1.5	10 mm	12 mm	068Z3384	068Z3388				
	TEN 2	1/4 in.	1.5	3/8 in.	1/2 in.	068Z3385	068Z3389				
	TEN 2	6 mm.	1.5	10 mm	12 mm	068Z3386	068Z3390				
R404A/R507	TS 2	-	1.5	3/8 in.	1/2 in.	068Z3414	068Z3416	068Z3429	068Z3418	068Z3420	068Z3422
	TS 2	-	1.5	10 mm	12 mm	068Z3435	068Z3423	068Z3436	068Z3425	068Z3427	
	TES 2	1/4 in.	1.5	3/8 in.	1/2 in.	068Z3415	068Z3417	068Z3430	068Z3419	068Z3421	
	TES 2	6 mm.	1.5	10 mm	12 mm	068Z3422	068Z3424	068Z3437	068Z3426	068Z3428	

Orifice assembly

Orifice no.	Range N: -40 to +10°C								Range B: -60 to -25°C				Code no. ¹⁾	
	Rated capacity in tons (TR)				Rated capacity in kW				Rated capacity in tons (TR)		Rated capacity in kW		Flare x Flare version ²⁾	Solder adaptor version ²⁾
	R22	R407C	R134a	R404A R507	R22	R407C	R134a	R404A R507	R22	R404A R507	R22	R404A R507		
0X	0.15	0.16	0.11	0.11	0.50	0.50	0.40	0.38	0.15	0.11	0.50	0.38	068-2002	068-2089
00	0.30	0.30	0.25	0.21	1.0	1.1	0.90	0.70	0.20	0.21	0.70	0.70	068-2003	068-2090
01	0.70	0.80	0.50	0.45	2.5	2.7	1.8	1.6	0.30	0.45	1.0	1.6	068-2010	068-2091
02	1.0	1.1	0.80	0.60	3.5	3.8	2.6	2.1	0.60	0.60	2.1	2.1	068-2015	068-2092
03	1.5	1.6	1.3	1.2	5.2	5.6	4.6	4.2	0.80	1.0	2.8	3.5	068-2006	068-2093
04	2.3	2.5	1.9	1.7	8.0	8.6	6.7	6.0	1.2	1.4	4.2	4.9	068-2007	068-2094
05	3.0	3.2	2.5	2.2	10.5	11.3	8.6	7.7	1.5	1.7	5.2	6.0	068-2008	068-2095
06	4.5	4.9	3.0	2.6	15.5	16.7	10.5	9.1	2.0	1.9	7.0	6.6	068-2009	068-2096

The rated capacity is based on: Evaporating temperature $t_e = +5^\circ\text{C}$ for range N and $t_e = -30^\circ\text{C}$ for range B, condensing temperature $t_c = +32^\circ\text{C}$, and refrigerant temperature ahead of valve $t_1 = +28^\circ\text{C}$.

Solder adaptor without orifice assembly

Connection - ODF solder	Code no. ¹⁾
1/4 in.	068-2062
6 mm	068-2063
6 mm	068-4101²⁾
3/8 in.	068-2060
10 mm	068-2061
10 mm	068-4100²⁾

¹⁾ Code numbers in bold are normally on stock and a shorter delivery time can therefore be expected.

²⁾ Including filter.

Filter

Filter type	Code no. ¹⁾
For flare connection	068-0003
For solder adaptor	068-0015

The adaptor is for use with thermostatic expansion valves T2 and TE2. When the adaptor is fitted correctly it meets the sealing requirements of DIN 8964.

The flare orifice in T2 and TE2 can be used with a solder adaptor when the orifice filter is replaced with a specific filter intended for solder adaptors. Only in this way the sealing requirements of DIN 8964 can be fulfilled. Solder adaptors for filter driers (FSA) must not be used in the T2 inlet.

Capacities

Valve type/ Orifice	Cond. temp. ³⁾ [°C]	R22					R134a					R404A/R507					R407C				
		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
T2 / OX	25	0.49	0.51	0.55	0.54	0.51	0.35	0.40	0.41	0.41	0.40	0.33	0.35	0.37	0.42	0.41	0.59	0.59	0.59	0.58	0.55
T2 / 00		0.95	1.00	1.1	1.1	1.1	0.61	0.73	0.75	0.77	0.77	0.61	0.66	0.70	0.85	0.88	1.2	1.2	1.3	1.3	1.2
T2 / 01		1.6	1.7	2.4	2.7	2.7	0.88	1.3	1.5	1.6	1.6	0.96	1.1	1.2	1.8	2.1	2.5	2.7	2.9	3.1	3.2
T2 / 02		2.2	2.5	3.5	3.9	3.9	1.2	1.9	2.0	2.1	2.2	1.3	1.5	1.7	2.6	3.0	3.7	4.0	4.3	4.5	4.6
T2 / 03		3.9	4.3	6.2	6.9	7.0	2.2	3.3	3.6	3.8	4.0	2.4	2.7	3.1	4.7	5.4	6.6	7.1	7.6	8.1	8.3
T2 / 04		5.7	6.4	9.1	10.2	10.5	3.2	4.8	5.2	5.6	5.9	3.5	4.0	4.6	7.0	8.0	9.8	10.6	11.4	12.0	12.5
T2 / 05		7.3	8.0	11.6	13.0	13.3	4.0	6.1	6.6	7.1	7.5	4.5	5.1	5.8	8.9	10.2	12.4	13.4	14.4	15.2	15.7
T2 / 06	8.9	9.8	14.1	15.9	16.3	4.9	7.5	8.2	8.7	9.1	5.5	6.2	7.1	10.8	12.4	15.1	16.4	17.6	18.6	19.2	
T2 / OX	35	0.53	0.55	0.60	0.61	0.60	0.37	0.44	0.45	0.45	0.46	0.32	0.34	0.36	0.42	0.43	0.61	0.62	0.63	0.63	0.62
T2 / 00		1.0	1.1	1.2	1.3	1.3	0.64	0.79	0.83	0.86	0.88	0.59	0.64	0.69	0.86	0.92	1.3	1.3	1.3	1.4	1.4
T2 / 01		1.7	1.8	2.6	3.0	3.2	0.93	1.4	1.6	1.7	1.9	0.92	1.1	1.2	1.8	2.2	2.7	2.9	3.1	3.3	3.5
T2 / 02		2.3	2.6	3.8	4.4	4.7	1.3	2.0	2.2	2.4	2.6	1.2	1.4	1.7	2.7	3.2	3.9	4.3	4.6	5.0	5.3
T2 / 03		4.1	4.6	6.8	7.9	8.4	2.3	3.6	4.0	4.4	4.7	2.2	2.6	3.0	4.8	5.7	7.0	7.6	8.3	8.9	9.4
T2 / 04		6.1	6.8	10.1	11.8	12.5	3.4	5.3	5.8	6.4	6.9	3.3	3.9	4.5	7.1	8.5	10.3	11.3	12.3	13.3	14.2
T2 / 05		7.7	8.6	12.8	14.9	15.8	4.2	6.7	7.4	8.1	8.8	4.3	4.9	5.6	9.0	10.7	13.0	14.3	15.6	16.7	17.8
T2 / 06	9.5	10.5	15.6	18.2	19.3	5.2	8.2	9.1	9.9	10.7	5.2	6.0	6.9	11.0	13.1	15.9	17.4	19.0	20	22	
T2 / OX	45	0.55	0.57	0.64	0.65	0.64	0.38	0.45	0.47	0.48	0.49	0.29	0.31	0.33	0.40	0.42	0.62	0.63	0.64	0.64	0.64
T2 / 00		1.0	1.1	1.3	1.4	1.4	0.65	0.82	0.86	0.90	0.94	0.55	0.60	0.64	0.83	0.90	1.3	1.3	1.3	1.4	1.4
T2 / 01		1.7	1.9	2.8	3.2	3.4	0.96	1.5	1.7	1.8	2.0	0.85	0.98	1.1	1.8	2.1	2.7	2.9	3.2	3.4	3.7
T2 / 02		2.4	2.7	4.0	4.8	5.1	1.3	2.1	2.4	2.6	2.8	1.1	1.3	1.5	2.6	3.2	3.9	4.3	4.7	5.2	5.6
T2 / 03		4.3	4.8	7.2	8.5	9.2	2.3	3.8	4.2	4.7	5.1	1.9	2.3	2.7	4.6	5.7	7.0	7.7	8.5	9.2	9.9
T2 / 04		6.3	7.1	10.7	12.7	13.7	3.4	5.6	6.2	6.9	7.6	3.0	3.5	4.1	6.9	8.4	10.4	11.5	12.6	13.8	14.9
T2 / 05		8.0	9.0	13.6	16.1	17.3	4.3	7.0	7.8	8.7	9.6	3.8	4.4	5.2	8.7	10.6	13.2	14.5	15.9	17.3	18.7
T2 / 06	9.8	11.0	16.6	19.6	21	5.3	8.6	9.6	10.7	11.7	4.7	5.5	6.4	10.6	12.9	16.0	17.7	19.4	21	23	
T2 / OX	55	0.56	0.58	0.65	0.67	0.67	0.38	0.45	0.47	0.49	0.50	0.26	0.28	0.30	0.37	0.39	0.60	0.61	0.62	0.63	0.63
T2 / 00		1.1	1.1	1.3	1.4	1.4	0.63	0.81	0.86	0.90	0.95	0.48	0.53	0.57	0.75	0.82	1.2	1.2	1.3	1.3	1.3
T2 / 01		1.7	1.9	2.8	3.3	3.6	0.95	1.5	1.7	1.9	2.0	0.74	0.86	1.0	1.7	2.0	2.6	2.9	3.1	3.4	3.6
T2 / 02		2.3	2.6	4.1	5.0	5.4	1.2	2.1	2.4	2.7	2.9	0.82	1.0	1.3	2.4	2.9	3.8	4.2	4.7	5.1	5.6
T2 / 03		4.3	4.8	7.4	8.9	9.6	2.2	3.8	4.3	4.8	5.3	1.5	1.8	2.2	4.2	5.3	6.8	7.5	8.3	9.1	9.9
T2 / 04		6.4	7.2	11.0	13.3	14.4	3.4	5.7	6.4	7.2	7.9	2.4	2.9	3.5	6.3	7.8	10.1	11.3	12.4	13.7	14.9
T2 / 05		8.1	9.1	14.0	16.7	18.1	4.2	7.0	8.0	9.0	10.0	3.0	3.7	4.4	7.9	9.9	12.8	14.2	15.7	17.2	18.7
T2 / 06	9.9	11.1	17.0	20	22	5.2	8.7	9.8	11.0	12.1	3.8	4.6	5.4	9.7	12.1	15.6	17.3	19.1	21	23	

³⁾ Condensing temperature at bubble point.

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

When the subcooling ≠ 4 K then:

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

Example:

Refrigerant = R407C

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

$t_c = 0^\circ\text{C}$

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

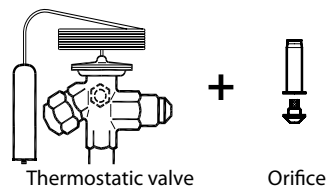
$\Delta t_{sub} = 25 \text{ K}$

Selection:

1. T2, Orifice 04 = 12.4 kW x 1.27 = 15.75 kW → Valve too large

Right selection:

2. 10 kW / 1.27 = 7.9 kW → T2, Orifice 03



Thermostatic valve

Orifice

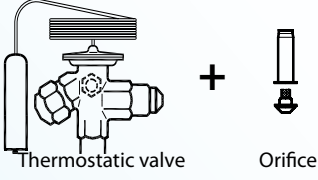
The complete Danfoss program of thermostatic expansion valves:

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.

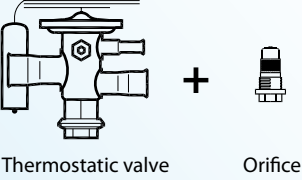
Thermostatic expansion valves parts program:

T 2 and TE 2



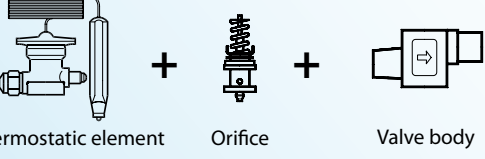
Thermostatic valve + Orifice

TUA/TUAE and TCAE



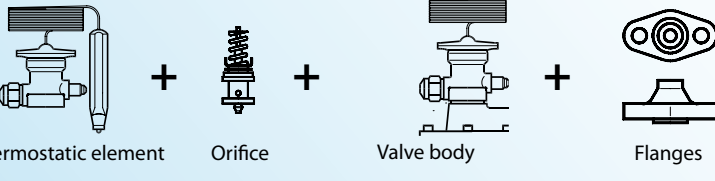
Thermostatic valve + Orifice

TE 5 - TE 55




Thermostatic element + Orifice + Valve body

PHT



Thermostatic element + Orifice + Valve body + Flanges

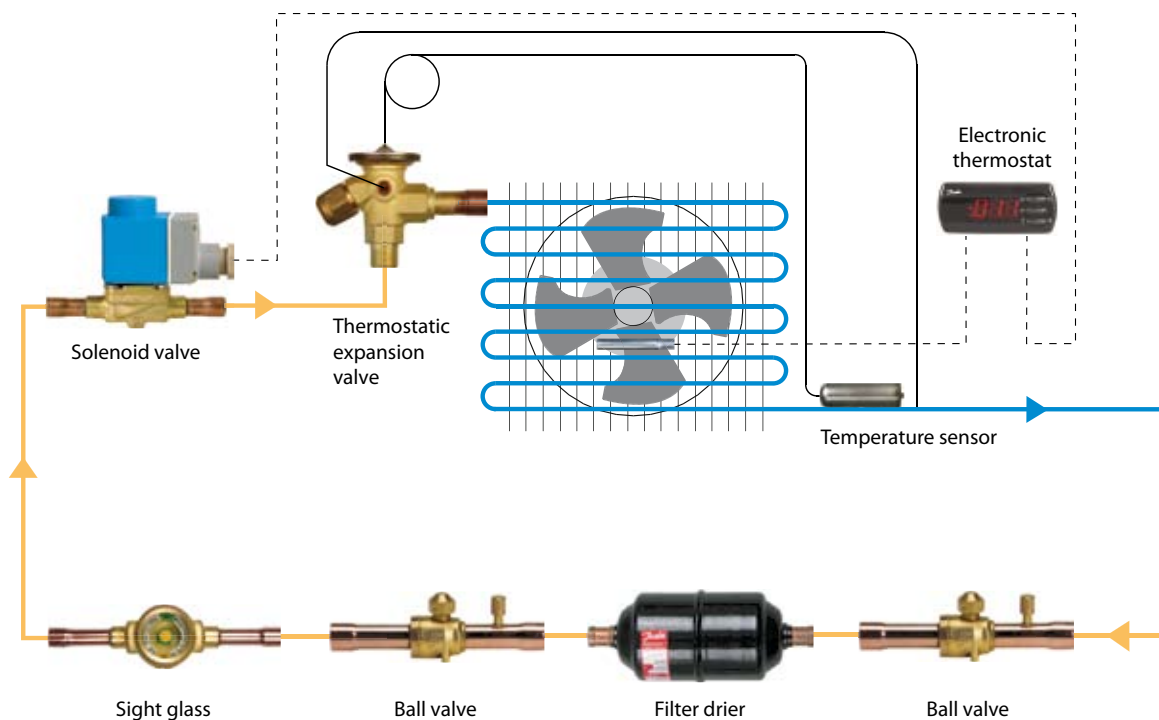


Quality in everything we do

T2 / TE2 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 fulfill your needs.

Related products



The Danfoss expansion valve program

Thermostatic exp. valves in stainless steel for smaller plants	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