MAKING MODERN LIVING POSSIBLE

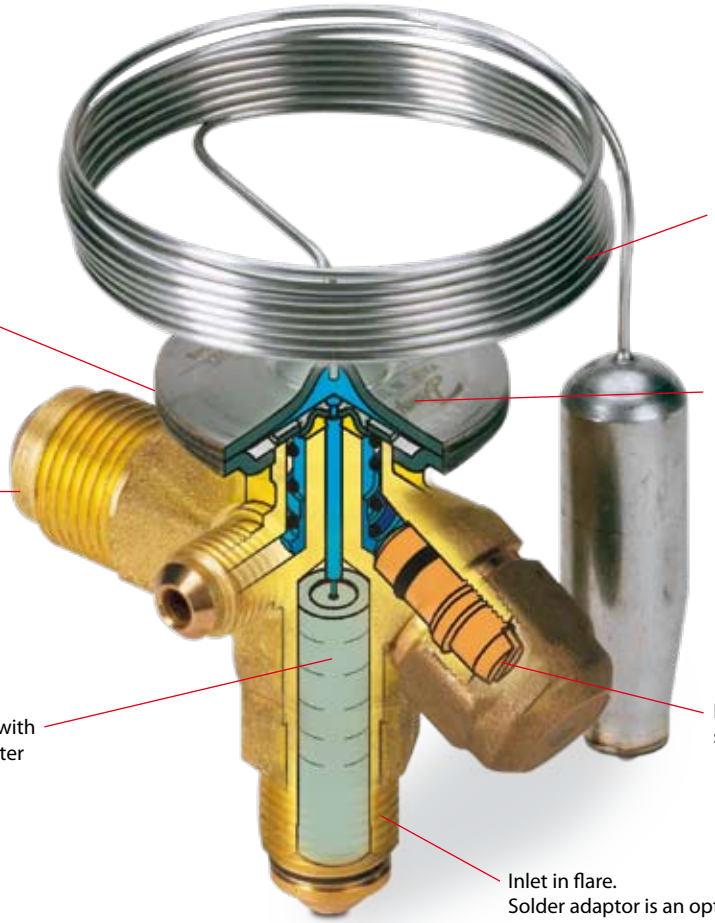
Thermostatic expansion valves
type T2 / TE2

REFRIGERATION &
AIR CONDITIONING DIVISION

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
· Traditional refrigeration · Heat pump systems · Air conditioning units · Liquid coolers · Ice cube machines · Transport refrigeration	· Large temperature range. Equally applicable to freezing, refrigeration and air conditioning applications. · Interchangeable orifice assembly · easy stocking · easy capacity matching · better service	· 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 × flare connection**

Refrigerant	Valve type	Pressure equalization Flare	Capillary tube	Connection		Code no. [1]					
				Inlet × 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. × in.	mm × mm	Without MOP	MOP +15°C	MOP 0°C	MOP −10°C	Without MOP	MOP −20°C
R22	TX 2	-	1.5	3/8 × 1/2	10 × 12	**068Z3206**	**068Z3208**	068Z3224	068Z3226	068Z3207	**068Z3228**
	TEX 2	¼ in.	1.5	3/8 × 1/2	10 × 12	**068Z3209**	**068Z3211**	068Z3225	068Z3227	068Z3210	**068Z3229**
R407C	TZ 2	-	1.5	3/8 × 1/2	10 × 12	**068Z3496**	068Z3516				
	TEZ 2	¼ in.	1.5	3/8 × 1/2	10 × 12	**068Z3501**	**068Z3517**				
R134a	TN 2	-	1.5	3/8 × 1/2	10 × 12	**068Z3346**	**068Z3347**	068Z3393	068Z3369		
	TEN 2	¼ in.	1.5	3/8 × 1/2	10 × 12	**068Z3348**	**068Z3349**	068Z3392	068Z3370		
R404A/R507	TS 2	-	1.5	3/8 × 1/2	10 × 12	**068Z3400**	**068Z3402**	**068Z3406**	**068Z3408**	**068Z3401**	**068Z3410**
	TES 2	¼ in.	1.5	3/8 × 1/2	10 × 12	**068Z3403**	**068Z3405**	**068Z3407**	**068Z3409**	**068Z3404**	**068Z3411**

Thermostatic element with: bulb strap, without: orifice, filter cone and nuts — **Flare × 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			Without MOP	MOP +15°C	MOP −10°C	Without MOP	MOP −20°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	¼ 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	¼ 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	¼ 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**
	TS 2	-	1.5	10 mm	12 mm	**068Z3435**	**068Z3423**	**068Z3436**	**068Z3425**	**068Z3427**
	TES 2	¼ 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 × 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°C for range N and t_e = −30°C for range B, condensing temperature t_c = +32°C, and refrigerant temperature ahead of valve t_l = +28°C.

Solder adaptor without orifice assembly

Connection - ODF solder	Code no. [1]
1/4 in.	**068-2062**
6 mm	**068-2063**
6 mm	**068-4101** [2]
3/8 in.	**068-2060**
10 mm	**068-2061**
10 mm	**068-4100** [2]

[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 / 0X	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 / 0X	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 / 0X	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 / 0X	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

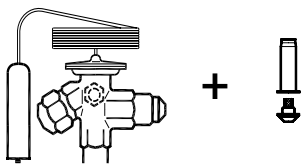
Refrigerant	Subcooling [K]										
	2	**4**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**
R22	0.98	1	1.06	1.11	1.15	1.20	1.25	1.30	1.35	1.39	1.44
R134a	0.98	1	1.08	1.13	1.19	1.25	1.31	1.37	1.42	1.48	1.54
R404A/R507	0.96	1	1.10	1.20	1.29	1.37	1.46	1.54	1.63	1.70	1.78
R407C	0.97	1	1.08	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 kW
t_e = 0°C
t_c = 55°C
Δt_{sub} = 25 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

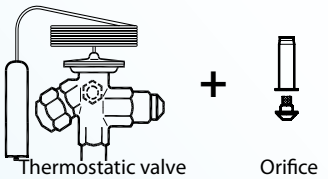
The complete Danfoss program of thermostatic expansion valves:

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)

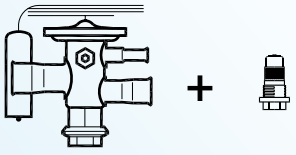
[1] Interchangeable orifice.
[2] Fixed orifice.

Thermostatic expansion valves parts program:

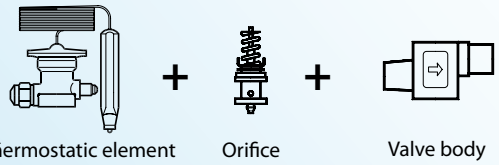
T 2 and TE 2



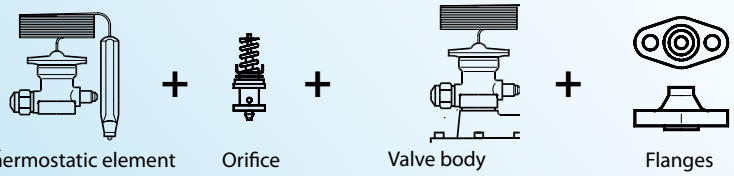
TUA/TUAE and TCAE



TE 5 - TE 55



PHT

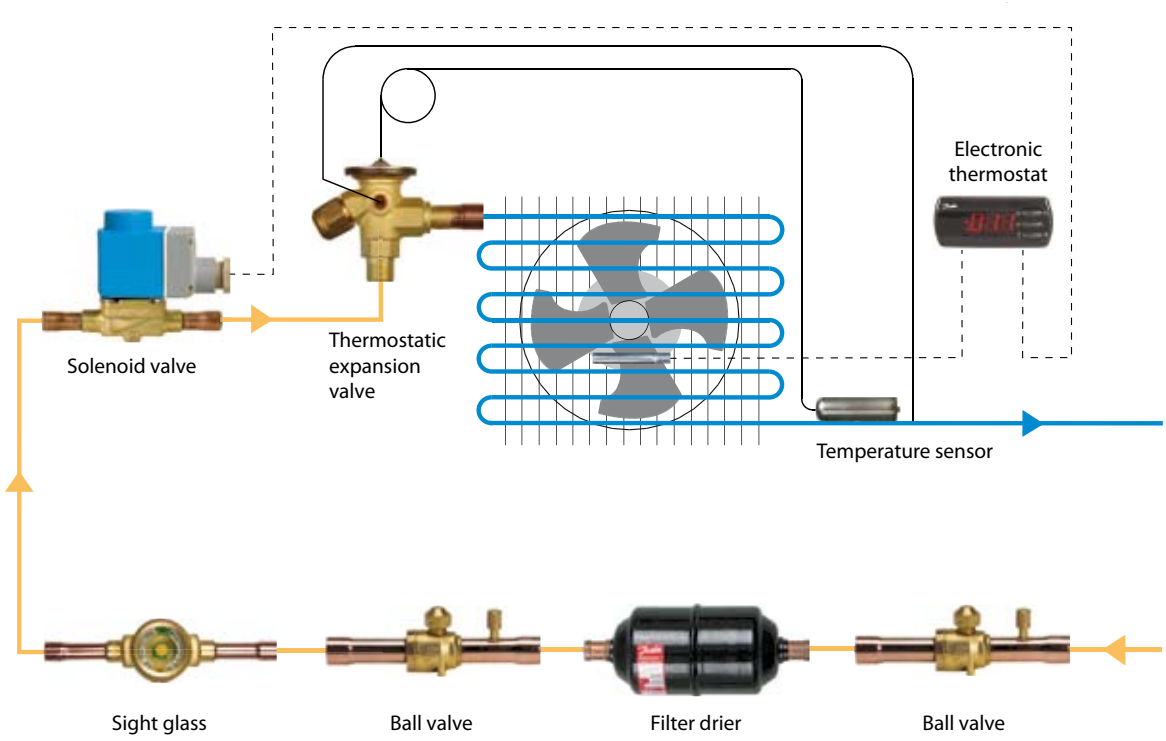


Quality in everything we do

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

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