

COMPONENTS

for Commercial Refrigeration and Air Conditioning



TC Series Thermostatic Expansion Valve



TC series thermostatic expansion valve are used to adjust refrigerant supply volume in the evaporator by sensing the superheat degree of evaporator outlet through thermal bulb and external (internal) balance tube.

FEATURES

- ◆ Nominal Capacity (R410A): 3.5~23TR/12~79kW
- ◆ Adjustable superheat degree design
- ◆ Power head uses continuous laser welding, which has high welding strength and long diaphragm life
- ◆ Available MOP function
- ◆ Rare hysteresis and good adjustment performance
- ◆ Balanced port design for bidirectional throttling
- ◆ Standard capillary tube length: 1.5m.

OPERATION CONDITIONS

- ◆ Applicable refrigerants: R410A, R22, R134a, R404A, R507, R290 and R407C, etc.
- ◆ Maximum working pressure: 4.6MPa
- ◆ Medium temperature: -40°C~+70°C
- ◆ Maximum thermal bulb temperature: 100°C
- ◆ Maximum valve body temperature: 110°C
- ◆ Static state superheat degree adjustment change: 0K~8K
- ◆ Static state superheat degree setting: 4K
- ◆ Ambient temperature: -30°C~+55°C
- ◆ Relative humidity: below 95%

NOMINAL CAPACITY (Operation condition: Condensing temperature: 38°C; evaporating temperature: 4.4°C; refrigerant temperature of valve head: 37°C; superheating degree: 4K.)

Series	Valve Port Number	R410A		R22		R134a		R404A/R507		R407C		R32		R290	
		kW	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW	TR
TC	3.5	12	3.5	10	3	6	1.5	7	2	9	2.5	18	5	10	3
	4.5	16	4.5	14	4	8	2.5	9	2.5	13	3.5	24	7	14	4
	6.5	24	6.5	20	6	12	3.5	14	4	19	5	35	10	19	5
	9	32	9	27	7.5	17	4.5	18	5	25	7	47	13	25	7
	11	37	11	32	9	20	5.5	21	6	30	8.5	54	15	32	9
	13	45	13	38	11	24	7	26	7.5	36	10	68	19	36	10
	15	54	15	43	12	29	8	31	9	42	12	81	23	44	12
	19	68	19	54	15	37	10	39	11	53	15	102	29	54	15
	23	79	23	63	18	44	12	45	13	62	18	120	34	63	18

MOP Options

Ref.	N : -40~+10°C	K: -25~+10°C
	No MOP	MOP15°C
R410A	No MOP	11.4 bar
R22/R407C	No MOP	6.9 bar
R134a	No MOP	3.8bar
R404A/R507	No MOP	8.3 bar
R407C	No MOP	6.6bar

PRODUCT SELECTION R410A (N: -40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		[kW]	[TR]	Inlet x Outlet [inch]	Balance Tube [inch]	
TCEL3.5	3.5	12	3.5	1/2×5/8	1/4	TC4400800296
TCEL4.5	4.5	16	4.5	1/2×5/8	1/4	TC4400800297
TCEL6.5	6.5	24	6.5	5/8×7/8	1/4	TC4400800300
TCEL9	9	32	9	5/8×7/8	1/4	TC4400800301
TCEL11	11	37	11	5/8×7/8	1/4	TC4400800327
TCEL13	13	45	13	5/8×7/8	1/4	TC4400800302
TCEL15	15	54	15	5/8×7/8	1/4	TC4400800305
TCEL19	19	68	19	7/8×1-1/8	1/4	TC4400800308
TCEL23	23	79	23	7/8×1-1/8	1/4	TC4400800309

PRODUCT SELECTION R22/R407C (N: -40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		[kW]	[TR]	Inlet x Outlet [inch]	Balance Tube [inch]	
TCEX3	3.5	10	3	1/2×5/8	1/4	TC4400800166
TCEX4	4.5	14	4	1/2×5/8	1/4	TC4400800167
TCEX6	6.5	20	6	5/8×7/8	1/4	TC4400800170
TCEX7.5	9	27	7.5	5/8×7/8	1/4	TC4400800171
TCEX9	11	32	9	5/8×7/8	1/4	TC4400800345
TCEX11	13	38	11	5/8×7/8	1/4	TC4400800172
TCBEX12	15	43	12	5/8×7/8	1/4	TC4400800175
TCBEX15	19	54	15	7/8×1-1/8	1/4	TC4400800179
TCBEX18	23	63	18	7/8×1-1/8	1/4	TC4400800180

PRODUCT SELECTION R134a (N:-40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		【kW】	【TR】	Inlet x Outlet 【inch】	Balance Tube 【inch】	
TCEN1.5	3.5	6	1.5	1/2×5/8	1/4	TC4400800201
TCEN2.5	4.5	8	2.5	1/2×5/8	1/4	TC4400800202
TCEN3.5	6.5	12	3.5	5/8×7/8	1/4	TC4400800205
TCEN4.5	9	17	4.5	5/8×7/8	1/4	TC4400800206
TCEN5.5	11	20	5.5	5/8×7/8	1/4	TC4400800347
TCEN7	13	24	7	5/8×7/8	1/4	TC4400800207
TCBEN8	15	29	8	5/8×7/8	1/4	TC4400800210
TCBEN10	19	37	10	7/8×1-1/8	1/4	TC4400800213
TCBEN12	23	44	12	7/8×1-1/8	1/4	TC4400800214

PRODUCT SELECTION R404A/R507 (N:-40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		【kW】	【TR】	Inlet x Outlet 【inch】	Balance Tube 【inch】	
TCES2	3.5	7	2	1/2×5/8	1/4	TC4400800233
TCES2.5	4.5	9	2.5	1/2×5/8	1/4	TC4400800234
TCES4	6.5	14	4	5/8×7/8	1/4	TC4400800237
TCES5	9	18	5	5/8×7/8	1/4	TC4400800239
TCES6	11	21	6	5/8×7/8	1/4	TC4400800349
TCES7.5	13	26	7.5	5/8×7/8	1/4	TC4400800240
TCBES9	15	31	9	5/8×7/8	1/4	TC4400800243
TCBES11	19	39	11	7/8×1-1/8	1/4	TC4400800246
TCBES13	23	45	13	7/8×1-1/8	1/4	TC4400800247

PRODUCT SELECTION R407 (N:-40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		【kW】	【TR】	Inlet x Outlet 【inch】	Balance Tube 【inch】	
TCEZ2.5	3.5	9	2.5	1/2×5/8	1/4	TC4400800265
TCEZ3.5	4.5	13	3.5	1/2×5/8	1/4	TC4400800266
TCEZ5	6.5	19	5	5/8×7/8	1/4	TC4400800269
TCEZ7	9	25	7	5/8×7/8	1/4	TC4400800270
TCEZ8.5	11	30	8.5	5/8×7/8	1/4	TC4400800351
TCEZ10	13	36	10	5/8×7/8	1/4	TC4400800271
TCBEZ12	15	42	12	5/8×7/8	1/4	TC4400800273
TCBEZ15	19	53	15	7/8×1-1/8	1/4	TC4400800276
TCBEZ18	23	62	18	7/8×1-1/8	1/4	TC4400800277

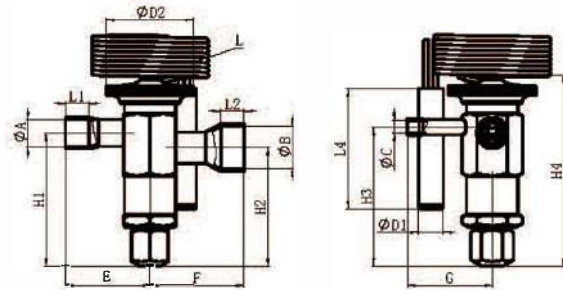
PRODUCT SELECTION R32 (N:-40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		【kW】	【TR】	Inlet x Outlet 【inch】	Balance Tube 【inch】	
TCEB5	3.5	18	5	1/2×5/8	1/4	TC4400800329
TCEB7	4.5	24	7	1/2×7/8	1/4	TC4400800330
TCEB10	6.5	35	10	5/8×7/8	1/4	TC4400800333
TCEB13	9	47	13	5/8×7/8	1/4	TC4400800335
TCEB15	11	54	15	5/8×7/8	1/4	TC4400800336
TCEB19	13	68	19	5/8×7/8	1/4	TC4400800337
TCBEB23	15	81	23	5/8×7/8	1/4	TC4400800339

PRODUCT SELECTION R290 (N:-40~+10°C)

Model	Valve Port Number	Nominal Capacity		Connection		Order Number
		【kW】	【TR】	Inlet x Outlet 【inch】	Balance Tube 【inch】	
TCEP5	6.5	19	5	5/8×7/8	1/4	TC4400800340
TCEP10	13	36	10	5/8×7/8	1/4	TC4400800341
TCBEP12	15	44	12	5/8×7/8	1/4	TC4400800342
TCBEP15	19	54	15	7/8×7/8	1/4	TC4400800343
TCBEP18	23	63	18	7/8×7/8	1/4	TC4400800344

DIMENSIONS



Series	φA×φB ODF Solder	L	E	F	G	H1	H2	H3	H4	L1	L2	L3	L4	D1	D2	C
TCE	1/2x5/8	1.5	43.5	43.5	44	68	60.5	71	97.5	12	12	6	62	12.7	45	6.4
	1/2x7/8	1.5	43.5	48.5	44	68	60.5	71	97.5	12	12	6	62	12.7	45	6.4
	5/8x7/8	1.5	43.5	48.5	44	68	60.5	71	97.5	12	12	6	62	12.7	45	6.4
TCBE	5/8x7/8	1.5	50.5	57.5	44	72.5	65	78.5	106	12	12	6	76	19	53	6.4
	7/8x1-1/8	1.5	57.5	60.5	44	72.5	65	78.5	106	12	16	6	76	19	53	6.4