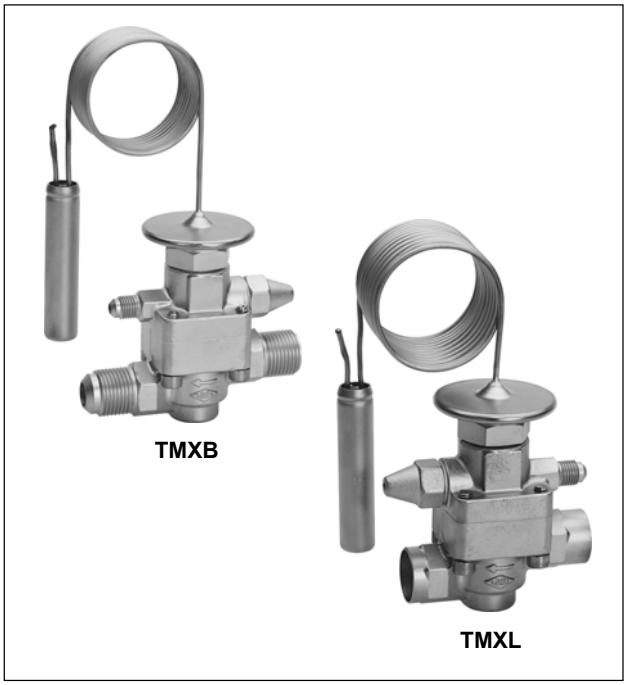
Series TMX

THERMOSTATIC EXPANSION VALVES
INTERCHANGEABLE ORIFICE CARTRIDGE, BALANCED PORT

PRODUCT DATA



Application

Thermostatic expansion valves series TMX are used in general refrigeration and for original equipment.

Plants with one or more refrigerant circuits such as refrigerated cabinets, deep freezing plants, milk cooling units, water chillers, air conditioning systems, cold stores and heat pumps. For plants with single and multiple injections, with high or low flow resistance, for all kind of distributors.

Materials

Body	brass
Thermal head	stainless steel
Base	brass

Features

- **TMXL: TMX and solder base, two-way construction or angle construction**
- **TMXB: TMX and flare base, two way construction**
- **Damped gas charge with pressure limiting MOP**
- **Liquid charge**
- **Adjustable superheat setting**
- **Solder connections or flare connections**
- **External pressure equalisation is integrated in the valve body**
- **Extreme durable due to stainless steel head and stainless steel diaphragm welded using protective gas**
- **Balanced port construction**
- **Interchangeable orifice cartridges**
- **Refrigerants: R22, R23, R124, R134a, R227, R236fa, R401A, R404A, R407C, R410A, R422D, R507A, R508B, ISC89, R407F Further refrigerants and MOP on request**.

Specification

Nominal capacity range	17.0 to 75.1 kW R22
Evaporating temperature range	see table on page 2
Maximum pressure PS	see table on page 2
Maximum test pressure PF	see table on page 2
Max. ambient temperature	100 °C
Max. bulb temperature	gas charge: 140 °C liquid charge: 70 °C
Static superheat	approx. 3.5 K
Length of capillary tube	2 m
Bulb diameter	16 mm

Thermal Charges and Temperature Ranges

1. Gas charge with pressure limiting MOP

Refri-gerant	Evaporation temperature range	MOP	PS (bar(a))	PF (bar(a))
Commercial refrigerants				
R22	+15 °C to -45 °C	MOP +15 °C	36	39.6
	+10 °C to -45 °C	MOP +10 °C	36	39.6
	±0 °C to -45 °C	MOP ±0 °C	29	31.9
	-10 °C to -45 °C	MOP -10 °C	29	31.9
	-18 °C to -45 °C	MOP -18 °C	29	31.9
R134a	+25 °C to -40 °C	MOP +25 °C	34	37.4
	+20 °C to -40 °C	MOP +20 °C	34	37.4
	+15 °C to -40 °C	MOP +15 °C	34	37.4
	+10 °C to -40 °C	MOP +10 °C	34	37.4
	±0 °C to -40 °C	MOP ±0 °C	29	31.9
R401A	+10 °C to -40 °C	MOP +10 °C	34	37.4
R404A	+10 °C to -50 °C	MOP +10 °C	36	39.6
	±0 °C to -50 °C	MOP ±0 °C	36	39.6
	-10 °C to -50 °C	MOP -10 °C	34	37.4
	-18 °C to -50 °C	MOP -18 °C	34	37.4
	-30 °C to -50 °C	MOP -30 °C	29	31.9
R407C	+15 °C to -30 °C	MOP +15 °C	36	39.6
	+10 °C to -30 °C	MOP +10 °C	36	39.6
	±0 °C to -30 °C	MOP ±0 °C	29	31.9
R410A	+15 °C to -50 °C	MOP +15 °C	40	44.0
	-10 °C to -50 °C	MOP -10 °C	29	31.9
	-15 °C to -50 °C	MOP -15 °C	29	31.9
	-20 °C to -50 °C	MOP -20 °C	29	31.9
R422D	+15 °C to -45 °C	MOP +15 °C	36	39.6
	-18 °C to -45 °C	MOP -18 °C	29	31.9
R507A	+10 °C to -50 °C	MOP +10 °C	36	39.6
	±0 °C to -50 °C	MOP ±0 °C	36	39.6
	-18 °C to -50 °C	MOP -18 °C	34	37.4
R407F	+10 °C to -45 °C	MOP +10 °C	36	39.6
	-18 °C to -45 °C	MOP -18 °C	29	31.9

Further refrigerants and MOP on request.

Refri-gerant	Evaporation temperature range	MOP	PS (bar(a))	PF (bar(a))
Deep freeze refrigerants				
R23	-40 °C to -80 °C	MOP -40 °C	29	31.9
	-55 °C to -80 °C	MOP -55 °C	29	31.9
R410A	-40 °C to -70 °C	MOP -40 °C	29	31.9
R508B	-55 °C to -100 °C	MOP -55 °C	29	31.9
Isceon 89	-40 °C to -70 °C	MOP -40 °C	29	31.9

Further refrigerants and MOP on request.

MOP valves protect the compressor by limiting the increase of suction pressure.

The MOP value should be chosen for the max. permissible suction pressure of the compressor or min. 5 K higher than the required evaporating temperature of the system.

For orders without any MOP indication a valve with MOP + 10 °C will be delivered.

With gas charged valves and MOP it is under all operating conditions necessary that the bulb is always colder than the capillary tube and the thermal head!

With the Resideo TMX series the thermal head is heated advantageously by the liquid refrigerant. The warm thermal head is on the safe side at any time.

2. Liquid charge

Refrigerant	Evaporation temperature range
R22	+30 °C to -45 °C
R124	+50 °C to -10 °C
R134a	+20 °C to -40 °C
R227	+40 °C to -10 °C
R236fa	+30 °C to -10 °C
R404A	+10 °C to -50 °C
R407C	+30 °C to -30 °C

Further refrigerants on request.

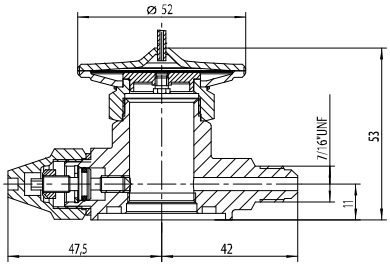
Capacities

Type	Orifice size	Nominal capacitiy (kW)*										
		R22	R134a	R404A	R407C	R407F	R410A	R422D	R507A	R124	R227	R236fa
	4.5	17.0	11.8	12.0	16.4	18.5	20.3	11.3	12.1	9.4	6.6	6.0
TMXL	4.75	22.4	15.9	15.8	21.6	24.3	26.8	15.3	15.9	12.4	8.7	8.0
	5	29.1	20.0	20.5	28.0	31.6	34.8	19.8	20.7	16.1	11.3	10.3
and	6	42.4	27.6	29.8	40.8	46.0	50.8	28.9	30.1	23.5	16.4	15.1
	7	54.5	35.3	38.3	52.5	59.1	65.3	37.1	38.7	30.2	21.1	19.4
TMXB	8	64.1	43.3	45.1	61.8	69.6	76.9	43.7	45.6	35.6	24.9	22.8
	10	75.1	51.0	52.8	72.3	81.5	90.0	51.2	53.3	41.7	29.1	26.7

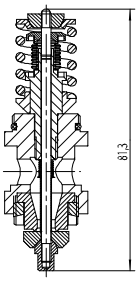
* Capacities are based on t_0 = +4 °C, t_c = +38 °C and 1 K subcooled liquid refrigerant entering the valve.
For refrigerant R124, R227 and 236fa: Capacities are based on t_0 = +10 °C, t_c = +50 °C and 1 K subcooled liquid refrigerant entering the valve.
For other operating conditions see capacity charts in Resideo catalogue or consult the Resideo software.

Dimensions and Weights

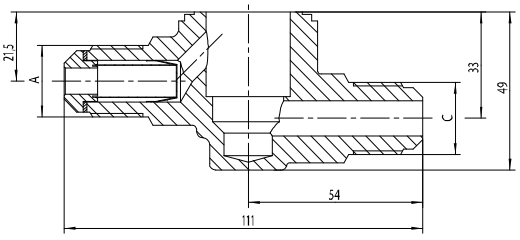
Type	Connections			Weight (kg)
	Inlet (A) + (B)	Outlet (C) + (D)	Pressure equaliser	
TMX	-	-	7/16" UNF	approx. 0.60
XD	-	-	-	approx. 0.14
XLS two-way construction	12 + 16 mm ODF	16 + 22 mm ODF	-	approx. 0.41
	1/2" + 5/8" ODF	5/8" + 7/8" ODF	-	
XLS angle construction	12 + 16 mm ODF	16 + 22 mm ODF	-	approx. 0.32
	1/2" + 5/8" ODF	5/8" + 7/8" ODF	-	
XBS two-way construction	7/8" UNF	7/8" UNF	-	approx. 0.49

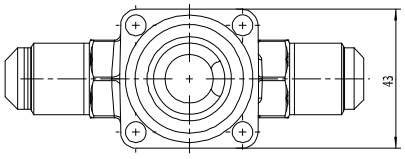


TMX

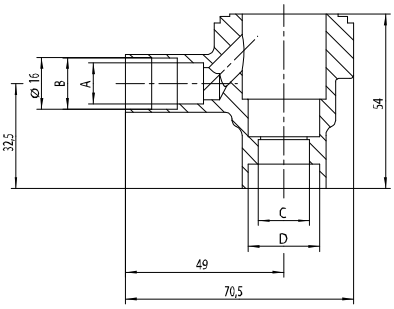


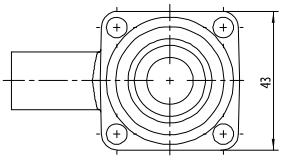
XD



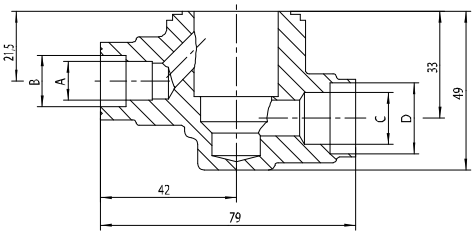


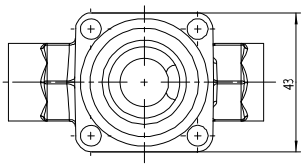
XBS - two-way





XLS - angle





XLS - two-way

Type Code / Order Information (Part Programme)

1. Valve body

	TMX		R134a		MOP +10 °C
Series					
Refrigerant					
Pressure limiting MOP () = without MOP					

2. Solder / Flare base

	XLS		16 mm x 22 mm		W
Series XLS = solder connection XBS = flare connection					
Connection size					
D = two-way construction W = angle construction					

3. Orifice cartridge

	XD		10
Series			
Orifice size			

Installation

- The valves may be installed in any position.
- The external pressure equaliser line should be 6 mm or 1/4” in diameter and is to be connected downstream of the remote bulb. An overbow is recommended in order to prevent the ingress of oil into the equaliser line.
- The bulb should preferably be positioned on the upper half of a horizontal suction line but never after a liquid trap. As a general rule, bulbs of expansion valves should be insulated to prevent them being affected by the ambient temperature.
- Do not bend or squeeze the bulb when tightening the bulb clamp
- Never quench the base with water after soldering, this may cause cracks and distort the sealing surfaces.
- The screws fixing the valve body to the solder base must be tightened in diagonal sequence (torque 16+1 Nm).
- Constructive modifications at the valve are not allowed.

Superheat Adjustment

In general the Resideo valves should be installed with the factory setting for the used refrigerant unaltered.

This superheat adjustment is calibrated for lowest superheating and optimum evaporator utilisation. However, should it be necessary to adjust the superheat, turn the adjusting spindle as follows:

Turning clockwise	=	reduced refrigerant mass flow, increase of superheat
Turning counterclockwise	=	increased refrigerant mass flow, decrease of superheat

One turn of adjusting spindle alters superheat setting by approx. 0.3 bar. Increase of superheat setting results in a lower MOP-value and vice versa.

resideo

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