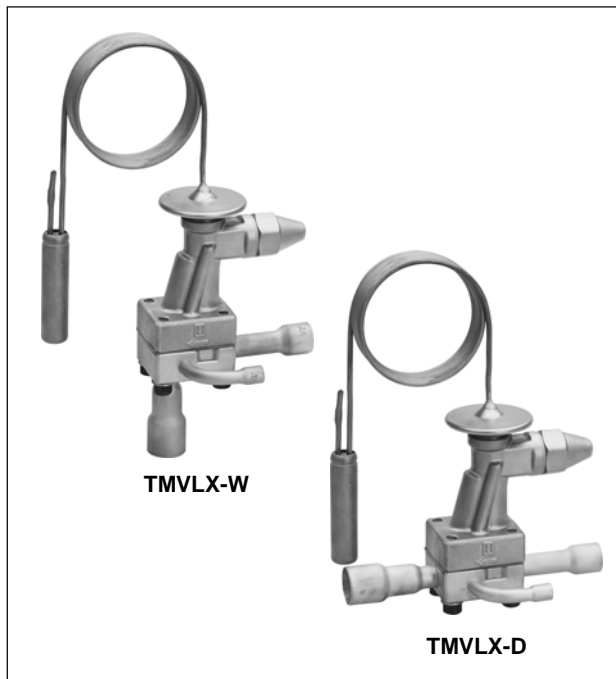


Series TMVL

THERMOSTATIC EXPANSION VALVES INTERCHANGEABLE ORIFICE CARTRIDGE, SEPARATE SOLDER BASE

PRODUCT DATA



Application

Thermostatic expansion valves series TMVL are used in general refrigeration and for original equipment. Plants with one or more refrigerant circuits such as refrigerated cabinets even with cramped mounting conditions, ice and cream machines, milk cooling systems, cold stores, air conditioning systems and heat pumps.

Materials

Body	brass
Thermal head	stainless steel
Connection tubes	copper

Features

- Only one valve body necessary for internal and external pressure equalisation. Connection for pressure coupler is integrated in the solder base.
- TMVL: Valve body and solder base with internal pressure equalisation; for single injection in installations with one or more cooling circuits.
- TMVLX: Valve body and solder base with external pressure equalisation; for optimal evaporation effectiveness in all applications. Obligatory for multiple injection by liquid distributors.
- Combi adsorber charge
 - The same valve can be used for different refrigerants (see table on page 2)
 - Controller charge is high sensitive and responsive thus lowest possible level of superheat can be achieved
 - Charge is not sensitive to effects of temperature on the capillary tube and valve head
 - Damping characteristic results in stable control behaviour
- Suitable for systems with hot gas defrosting
- Adjustable superheat setting
- Solder connections
- Solder base available in two-way construction and in angle construction
- Extreme durable due to stainless steel head and stainless steel diaphragm welded using protective gas
- Interchangeable orifice cartridges
- Refrigerants: R134a, R401A, R12, R22, R407C, R407A, R422D, R404A, R507A, R402A, R407B, R502, R124, R227, R410A, R448A, R449A, R407A, R407F, R455A
Further refrigerants on request.

Specification

Nominal capacity range	0.52 to 22.4 kW R22 (small orifice graduation for optimal control behaviour, interchangeable orifice cartridges)
Evaporating temp. 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	140 °C
Static superheat	approx. 3 K
Length of capillary tube	1.5 m
Bulb diameter	12 mm

Thermal Charges and Temperature Ranges

1. Adsorber charge

Refrigerant	Evaporation temperature range	PS (bar(a))	PF (bar(a))
R134a, R401A, R12	+15 °C to -30 °C	34	37.4
R22, R407C, R407A, R422D	+15 °C to -45 °C	36	39.6
R404A, R507A, R402A, R407B, R502	±0 °C to -50 °C	36	39.6
	+15 °C to -30 °C	36	39.6
R124	+20 °C to -30 °C	29	31.9
R227	+20 °C to -30 °C	29	31.9
R407C	+15 °C to -30 °C	36	39.6
R410A	+15 °C to -20 °C	40	44
R448A, R449A, R407A, R407F, R455A	±0 °C to -45 °C	36	39.6

Further refrigerants on request.

Thermal systems with adsorber charge are completely insensitive to effects of temperature on the capillary tube and valve head. It reacts only according to the temperature of the bulb.

Thus, Honeywell TMVL valves with combi adsorber charge work absolutely reliable, even in icy condition or while defrosting using hot gas.

2. Adsorber charge with pressure limiting performance MOP

Refrigerant	Evaporation temperature range	MOP	PS (bar(a))	PF (bar(a))
R134a, R401A, R12	+5 °C to -30 °C	MOP A +15 °C	34	37.4
	-10 °C to -30 °C	MOP A ±0 °C	29	31.9
R22, R407C, R407A, R422D	+5 °C to -45 °C	MOP A +15 °C	36	39.6
	-10 °C to -45 °C	MOP A ±0 °C	29	31.9
	-27 °C to -45 °C	MOP A -18 °C	29	31.9
R404A, R507A, R402A, R407B, R502	-10 °C to -50 °C	MOP A ±0 °C	36	39.6
	-20 °C to -50 °C	MOP A -10 °C	34	37.4
R448A, R449A, R407A, R407F, R455A	-27 °C to -50 °C	MOP A -18 °C	34	37.4
	-27 °C to -45 °C	MOP A -18 °C	36	39.6

Further refrigerants and MOP on request

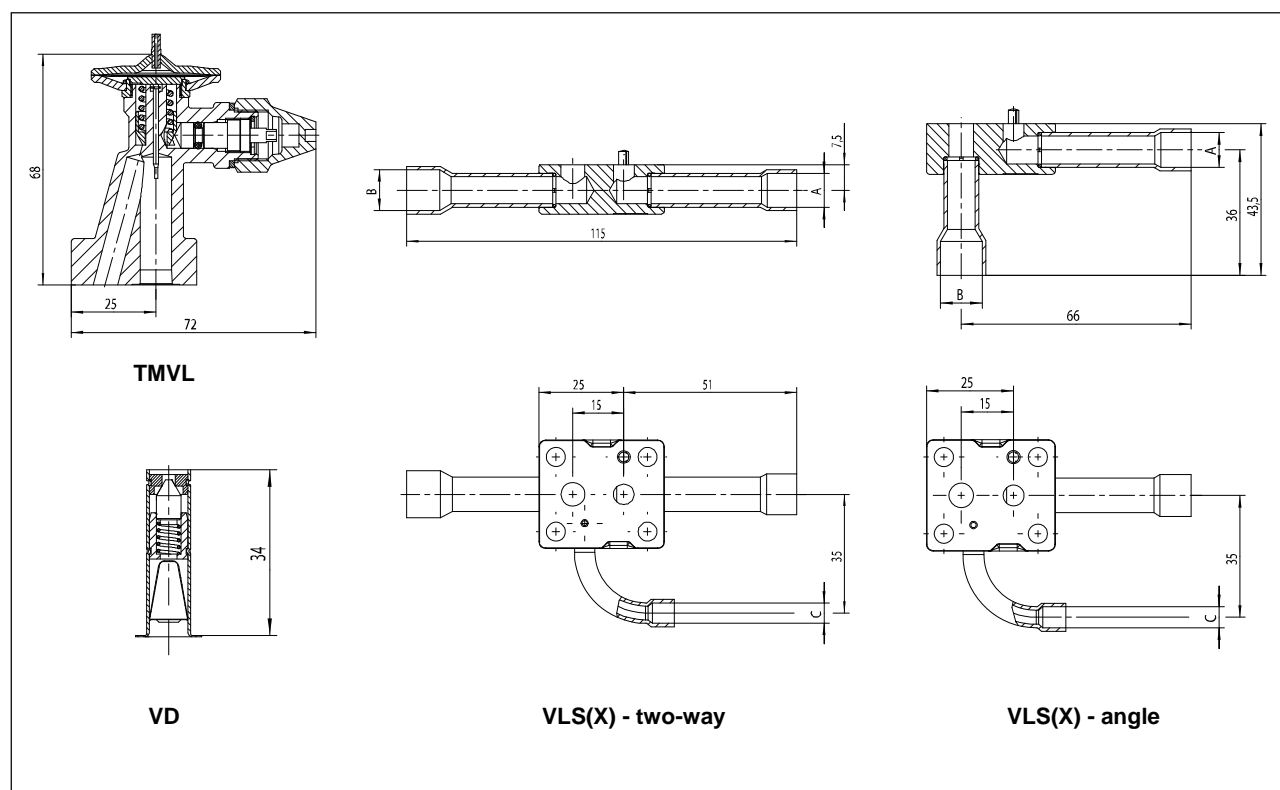
Capacities

Type	Orifice size	Nominal capacity (kW)*										
		R448A	R449A	R407A	R407F	R455A	R134a	R22	R407C	R404A	R507A	R410A
TMV TMVX TMVBL TMVXBL	0.3	0.51	0.50	0.50	0.56	0.47	0.36	0.52	0.50	0.36	0.36	0.62
	0.5	0.96	0.95	0.96	1.07	0.90	0.69	0.99	0.95	0.68	0.69	1.2
	0.7	1.36	1.34	1.36	1.52	1.27	1.0	1.4	1.3	0.97	0.98	1.6
	1.0	1.95	1.91	1.94	2.17	1.82	1.4	2.0	1.9	1.4	1.4	2.4
	1.5	3.12	3.06	3.11	3.47	2.91	2.2	3.2	3.1	2.2	2.3	3.8
	2.0	3.89	3.82	3.88	4.34	3.63	2.9	4.0	3.9	2.8	2.9	4.8
	2.5	5.65	5.54	5.63	6.29	5.27	4.0	5.8	5.6	4.1	4.1	6.9
	3.0	9.06	8.89	9.02	10.09	8.44	6.6	9.3	8.9	6.5	6.6	11.1
	3.5	11.88	11.66	11.84	13.24	11.08	8.7	12.2	11.7	8.6	8.7	14.6
	4.5	16.55	16.25	16.50	18.45	15.43	11.8	17.0	16.4	12.0	12.1	20.3
4.75	21.81	21.41	21.74	24.30	20.34	15.9	22.4	21.6	15.8	15.9	26.8	

* Capacities are based on $t_0 = +4$ °C, $t_c = +38$ °C and 1 K subcooled liquid refrigerant entering the valve. For other operating conditions see capacity charts in Honeywell catalogue or consult the Honeywell software.

Dimensions and Weights

Type	Connections			Weight (kg)
	Inlet (A)	Outlet (B)	Pressure equaliser (C)	
TMVL	-	-	-	approx. 0.43
VLS angle construction	6 mm ODF	10 mm ODF	-	approx. 0.16
	1/4" ODF	3/8" ODF	-	
	10 mm ODF	12 mm ODF	-	
	3/8" ODF	1/2" ODF	-	
	12 mm ODF	16 mm ODF	-	
	1/2" ODF	5/8" ODF	-	
VLSX angle construction	6 mm ODF	10 mm ODF	6 mm ODF	approx. 0.17
	1/4" ODF	3/8" ODF	1/4" ODF	
	10 mm ODF	12 mm ODF	6 mm ODF	
	3/8" ODF	1/2" ODF	1/4" ODF	
	12 mm ODF	16 mm ODF	6 mm ODF	
	1/2" ODF	5/8" ODF	1/4" ODF	
VLS two-way construction	10 mm ODF	12 mm ODF	-	approx. 0.16
	3/8" ODF	1/2" ODF	-	
	12 mm ODF	16 mm ODF	-	
	1/2" ODF	5/8" ODF	-	
VLSX two-way construction	10 mm ODF	12 mm ODF	6 mm ODF	approx. 0.17
	3/8" ODF	1/2" ODF	1/4" ODF	
	12 mm ODF	16 mm ODF	6 mm ODF	
	1/2" ODF	5/8" ODF	1/4" ODF	



Type Code / Order Information (Part Programme)

1. Valve body

	TMVL		R22	MOP A -18 °C
Series				
Refrigerant				
Adsorber charge with MOP () = without MOP				

2. Solder base

	VLS	X	10 mm x 12 mm	W
Series				
Pressure equalisation: X = external () = internal				
Solder connection ODF (inlet x outlet)				
D = two-way construction W = angle construction				

3. Orifice cartridge

	VD	0.5
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 overbowl 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
- The screws fixing the valve body to the solder base must be tightened in diagonal sequence (torque 12 Nm).
- Constructive modifications at the valve are not allowed.
- Never quench the solder base with water after soldering, this may cause cracks and distort the sealing surfaces.

Superheat Adjustment

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

At combi adsorber valves the label on the capillary tube indicates how to adjust the adjusting spindle (with arrow for direction), depending on the refrigerant used. This correction of the adjustment is essential to ensure that the control performance of the valve is correct. The refrigerant used must be marked on the label.

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. 0.55 bar. Increase of superheat setting results in a lower MOP-value and vice versa.

Honeywell

Automation and Control Solutions

Honeywell GmbH
 Hardhofweg
 74821 Mosbach/Germany
 Phone: +49 (0) 62 61 / 81-475
 Fax: +49 (0) 62 61 / 81-461
 E-Mail: cooling.mosbach@honeywell.com
www.honeywell-cooling.com

Manufactured for and on behalf of the
 Environment and Combustion Controls
 Division of Honeywell Technologies Sàrl,
 1180 Rolle, Z. A. La Pièce 16, Switzerland
 by its authorized representative Honeywell GmbH

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