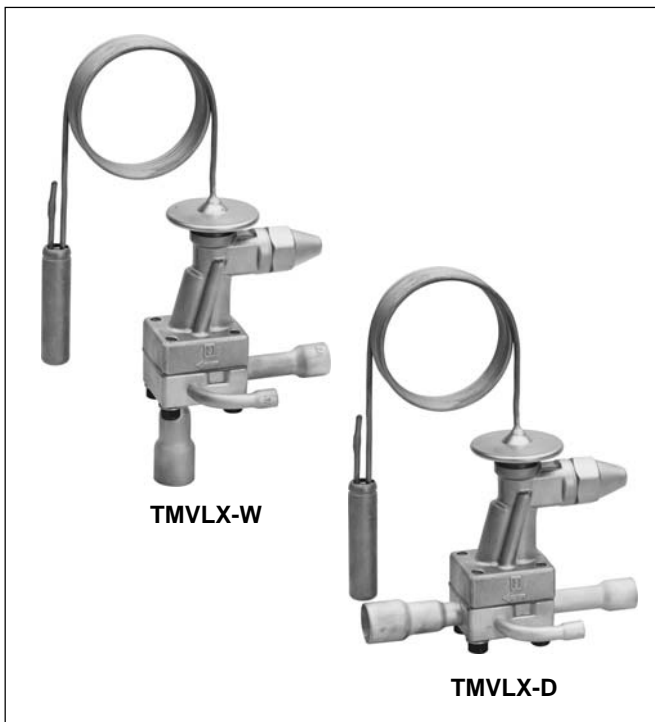


Series TMVL

THERMOSTATIC EXPANSION VALVES INTERCHANGEABLE ORIFICE CARTRIDGE, SEPARATE SOLDER BASE

PRODUCT DATA



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
R404A, R507, R402A, R407B, R502
R22, R407C, R407A
R124
R227
Further refrigerants on request.

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 |

Specification

| | |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Nominal capacity range | 0.5 to 21.5 kW R22 (small orifice graduation for optimal control behaviour, interchangeable orifice cartridges) |
| Evaporating temp. range | see table on page 2 |
| Maximum pressure PS | 29 bar |
| Maximum test pressure | 32 bar |
| 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 |
|---------------------------------|-------------------------------|
| R134a, R401A, R12 | +15 °C to -30 °C |
| R22, R407C, R407A | +15 °C to -45 °C |
| R404A, R507, R402A, R407B, R502 | ±0 °C to -50 °C |

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 |
|---------------------------------|-------------------------------|--------------|
| R134a, R401A, R12 | +5 °C to -30 °C | MOP A +15 °C |
| | -10 °C to -30 °C | MOP A ±0 °C |
| R22, R407C, R407A | +5 °C to -45 °C | MOP A +15 °C |
| | -10 °C to -45 °C | MOP A ±0 °C |
| | -27 °C to -45 °C | MOP A -18 °C |
| R404A, R507, R402A, R407B, R502 | -10 °C to -50 °C | MOP A ±0 °C |
| | -20 °C to -50 °C | MOP A -10 °C |
| | -27 °C to -50 °C | MOP A -18 °C |

Further refrigerants and MOP on request

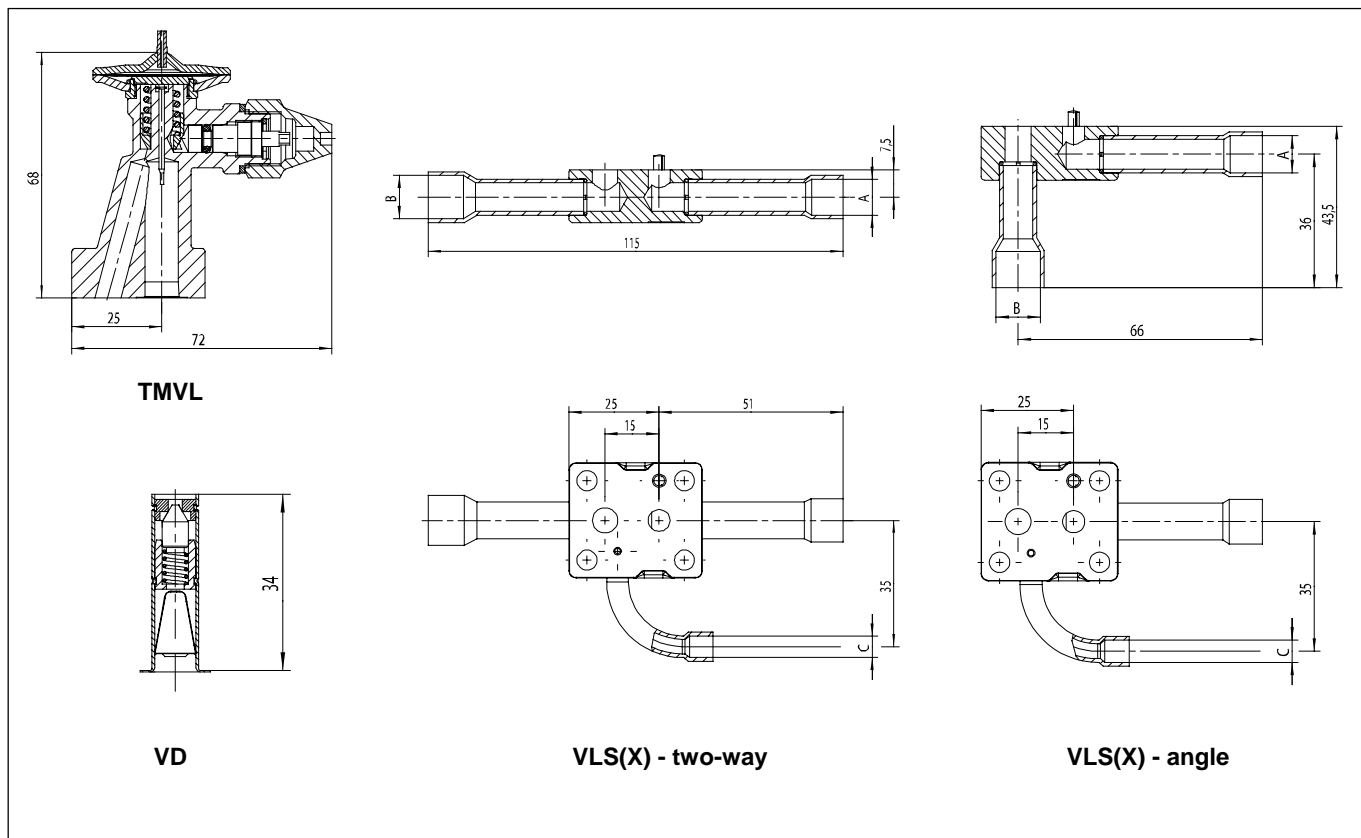
Capacities

| Type | Orifice size | Nominal capacity (kW)* | | | Weight (kg) |
|------|--------------|------------------------|-----------|------------|--------------|
| | | R134a | R22 R407C | R404A R507 | |
| TMVL | 0.3 | 0.34 | 0.50 | 0.37 | approx. 0.43 |
| | 0.5 | 0.65 | 1.0 | 0.70 | |
| | 0.7 | 0.90 | 1.3 | 1.0 | |
| | 1.0 | 1.3 | 1.9 | 1.5 | |
| | 1.5 | 2.1 | 3.1 | 2.3 | |
| | 2.0 | 2.7 | 3.9 | 2.9 | |
| | 2.5 | 3.8 | 5.6 | 4.2 | |
| | 3.0 | 6.2 | 8.9 | 6.7 | |
| | 3.5 | 8.2 | 11.7 | 8.8 | |
| | 4.5 | 11.1 | 16.3 | 12.3 | |
| | 4.75 | 15.0 | 21.5 | 16.2 | |

* Capacities are based on $t_o = -10\text{ °C}$, $t_c = +25\text{ °C}$ 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) | |
| 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 | - | |
| 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 | |
| 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.

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