



## ZTV/ZTR

Externally threaded 2- and 3-way zone valves

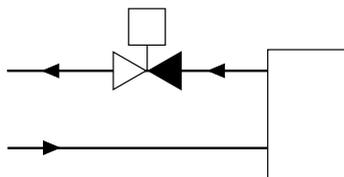
Valves used for control of hot and cold water in climate, heating and ventilation systems. They can also control glycol-mixed water in for example liquid connected recovery systems. Intended to be used together with the RVAZ4 actuators.

- ✓ Size DN15...DN25
- ✓ Kvs value 0.25...7.0
- ✓ Media temperature 1...110°C
- ✓ Pressure rating PN16
- ✓ Rangeability better than 50:1
- ✓ No leakage

### Function

#### 2-way valve

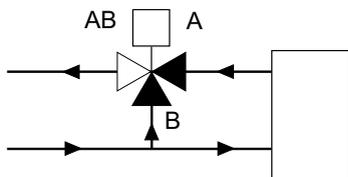
The valve is open when the stem is in its lowest position and closed when the stem is in its upmost position.



2-way valve

#### 3-way valve

The 3-way valve is closed between port A and port AB (the ports opposite to one another) when the stem is in its highest position. In this position, the valve is also open between the bottom port B and the common supply port AB. When the stem is in its lowest position, the 3-way valve is completely open between port A and port AB and consequently closed between the bottom port B and the common port AB.



3-way valve

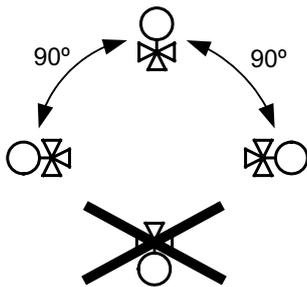
### No leakage in closed position

The valve has O-ring sealing between plug and seat, which makes it completely tight in closed position. This makes the valve very energy-efficient.

## Installation

The 3-way valve is of a mixing type and must therefore be mounted in the mixing point.

- Before installation of the control valve, ensure that the pipe is clean. Make sure that pipe scale, metal chips, welding slag and other foreign materials are removed.
- For maximum efficiency and minimum wear, install the valve in a vertical position with the stem pointing upward. If the valve is mounted with the actuator on the side, more wear is caused to the valve packing box. The valve should never be mounted at an angle of more than 90°. At high media temperatures, the valve is to be mounted with the spindle to the side in order to minimise heating of the valve actuator.



- Install the valve according to the fluid direction arrow shown on the valve.
- Make sure there is ample space above the valve to facilitate easy removal of the valve actuator.
- Fit a strainer/filter upstream of the valve to prolong the equipment's life span.
- A water quality according to VDI 2035 is recommended.

## Technical data

|                             |  |
|-----------------------------|--|
| <b>Application</b>          | Heating systems, cooling systems, fan-coil units, ventilation systems  |
| <b>Pressure rating</b>      | PN16   |
| <b>Connection, actuator</b> | M30 x 1.5  |
| <b>Connection</b>           | BSP externally threaded according to ISO 228/1   |
| <b>Flow characteristics</b> | Equal percentage   |
| <b>Max. leakage</b>         | 0 % of the kvs value   |
| <b>Media</b>                | Hot water, cold water, glycol-mixed water (max. 30 % glycol)   |
| <b>Media temperature</b>    | 1...110 °C (the valve has a max. temperature of 140°C, the RVAZ4 actuators have a max. temperature of 110°C) |
| <b>Rangeability</b>         | 50:1   |
| <b>Stroke</b>               | 5.5 mm   |

## Material

|                     |                        |
|---------------------|------------------------|
| <b>Body</b>         | Brass CW614N           |
| <b>Seat</b>         | Brass CW614N           |
| <b>Plug</b>         | Brass CW614N           |
| <b>Stem</b>         | Stainless steel 1.4305 |
| <b>Seat packing</b> | EPDM                   |
| <b>O-rings</b>      | EPDM                   |

## 2-way valves

| Article    | Nominal diameter | Connection | Kvs  | Max. diff. pressure | Actuator |
|------------|------------------|------------|------|---------------------|----------|
| ZTV15-0,25 | DN15             | G1/2"      | 0.25 | 350 kPa             | RVAZ4    |
| ZTV15-0,4  | DN15             | G1/2"      | 0.4  | 350 kPa             | RVAZ4    |
| ZTV15-0,6  | DN15             | G1/2"      | 0.6  | 350 kPa             | RVAZ4    |
| ZTV15-1,0  | DN15             | G1/2"      | 1.0  | 350 kPa             | RVAZ4    |
| ZTV15-1,6  | DN15             | G1/2"      | 1.6  | 350 kPa             | RVAZ4    |
| ZTV20-2,0  | DN20             | G3/4"      | 2.0  | 250 kPa             | RVAZ4    |
| ZTV20-2,5  | DN20             | G3/4"      | 2.5  | 250 kPa             | RVAZ4    |
| ZTV20-4,0  | DN20             | G3/4"      | 4.0  | 150 kPa             | RVAZ4    |
| ZTV20-6,0  | DN20             | G3/4"      | 6.0  | 150 kPa             | RVAZ4    |
| ZTV25-7,0  | DN25             | G1"        | 7.0  | 70 kPa              | RVAZ4    |

## 3-way valves

| Article    | Nominal diameter | Connection | Kvs  | Max. diff. pressure | Actuator |
|------------|------------------|------------|------|---------------------|----------|
| ZTR15-0,25 | DN15             | G1/2"      | 0.25 | 350 kPa             | RVAZ4    |
| ZTR15-0,4  | DN15             | G1/2"      | 0.4  | 350 kPa             | RVAZ4    |
| ZTR15-0,6  | DN15             | G1/2"      | 0.6  | 350 kPa             | RVAZ4    |
| ZTR15-1,0  | DN15             | G1/2"      | 1.0  | 350 kPa             | RVAZ4    |
| ZTR15-1,6  | DN15             | G1/2"      | 1.6  | 350 kPa             | RVAZ4    |
| ZTR20-2,0  | DN20             | G3/4"      | 2.0  | 250 kPa             | RVAZ4    |
| ZTR20-2,5  | DN20             | G3/4"      | 2.5  | 250 kPa             | RVAZ4    |
| ZTR20-4,0  | DN20             | G3/4"      | 4.0  | 100 kPa             | RVAZ4    |
| ZTR20-6,0  | DN20             | G3/4"      | 6.0  | 100 kPa             | RVAZ4    |
| ZTR25-7,0  | DN25             | G1"        | 7.0  | 70 kPa              | RVAZ4    |

## Valve connections for copper tubing

| Article | Description   | Connection | Valve   |
|---------|---------------|------------|---|
| 1885136 | Nut and olive | 1/2", K12  | CTV10, ZTV15, ZTR15, VTTV15, VTTR15, VTTB   |
| 1886274 | Nut and olive | 3/4", K15  | CTV15, ZTV20 (kvs 2.0-2.5), ZTR (kvs 2.0-2.5), VTTV20 (kvs 2.5), VTTR20 (kvs 2.5), VTTB20 (kvs 2.5) |
| 1884709 | Nut and olive | 3/4", K18  | CTV15, ZTV20, ZTR20, VTTV20, VTTR20, VTTB20   |
| 1886282 | Nut and olive | 1", K22    | CTV20, ZTV25, ZTR25   |



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## Steel pipe connection for VTTV/VTTR/VTTB and ZTV/ZTR valves

| Article | Description     | Connection  | Valve                          |
|---------|-----------------|-------------|--------------------------------|
| OVC-Z15 | Pipe connection | 1/2" (DN15) | VTTV/VTTR/VTTB, ZTV/ZTR (DN15) |
| OVC-Z20 | Pipe connection | 3/4" (DN20) | VTTV/VTTR/VTTB, ZTV/ZTR (DN20) |
| OVC-Z25 | Pipe connection | 1" (DN25)   | ZTV/ZTR (DN25)                 |



OVC-Z...

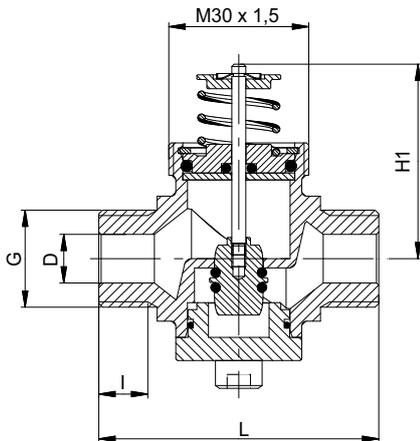
## Suitable valve actuators

| Article   | Supply voltage           | Control signal |
|-----------|--------------------------|----------------|
| RVAZ4-24  | 24 V AC ±15 %            | 3-point        |
| RVAZ4-24A | 24 V AC ±15 %            | 0...10 V DC    |
| RVAZ4-230 | 230 V AC ±15 %, 50/60 Hz | 3-point        |

## Dimensions

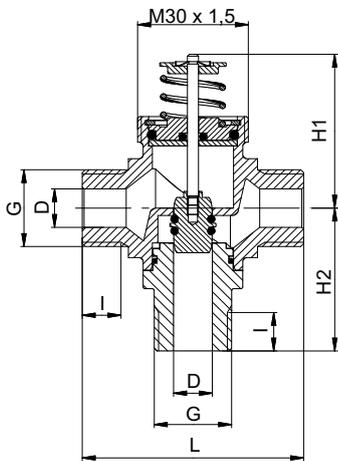
Measurements in mm unless otherwise specified.

### 2-way valve



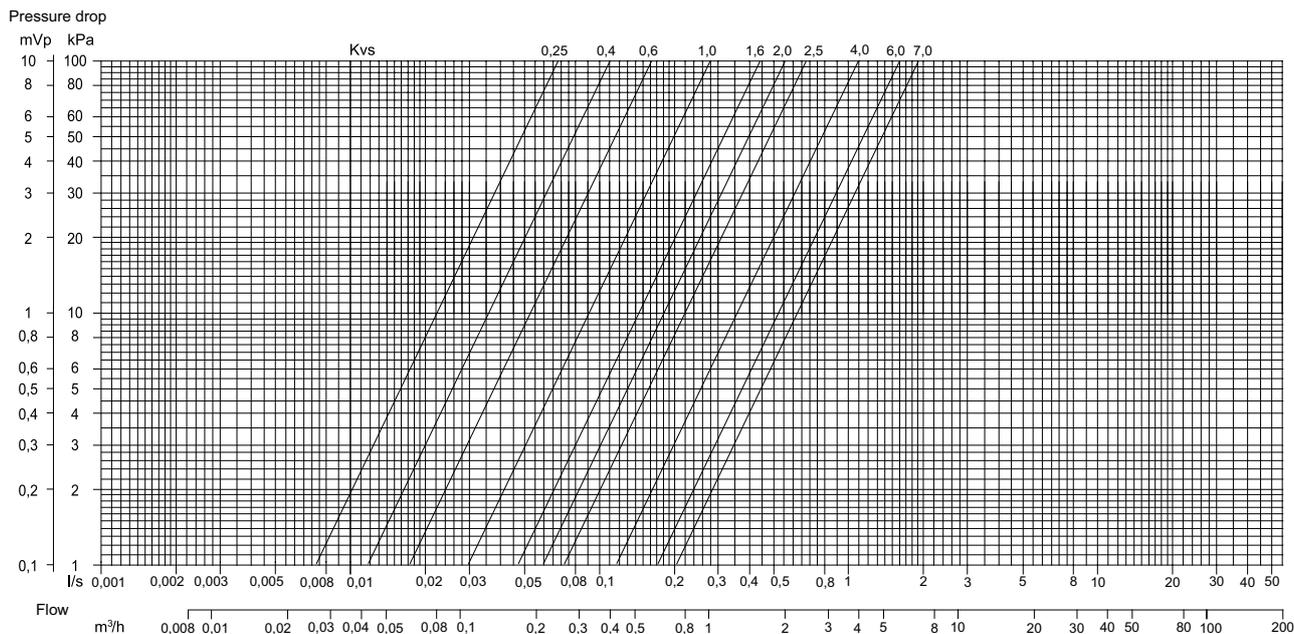
| Model      | Connection | G    | D(Ø) | I    | L  | H1 |
|------------|------------|------|------|------|----|----|
| ZTV15-0,25 | DN15       | 1/2" | 12   | 9    | 60 | 42 |
| ZTV15-0,4  | DN15       | 1/2" | 12   | 9    | 60 | 42 |
| ZTV15-0,6  | DN15       | 1/2" | 12   | 9    | 60 | 42 |
| ZTV15-1,0  | DN15       | 1/2" | 12   | 9    | 60 | 42 |
| ZTV15-1,6  | DN15       | 1/2" | 12   | 9    | 60 | 42 |
| ZTV20-2,0  | DN20       | 3/4" | 15   | 12,5 | 60 | 42 |
| ZTV20-2,5  | DN20       | 3/4" | 15   | 12,5 | 60 | 42 |
| ZTV20-4,0  | DN20       | 3/4" | 18   | 12,5 | 60 | 42 |
| ZTV20-6,0  | DN20       | 3/4" | 18   | 12,5 | 60 | 42 |
| ZTV25-7,0  | DN25       | 1"   | 22   | 14   | 82 | 47 |

### 3-way valve



| Model      | Connection | G    | D(Ø) | I    | L  | H1 | H2 |
|------------|------------|------|------|------|----|----|----|
| ZTR15-0,25 | DN15       | 1/2" | 12   | 9    | 60 | 42 | 40 |
| ZTR15-0,4  | DN15       | 1/2" | 12   | 9    | 60 | 42 | 40 |
| ZTR15-0,6  | DN15       | 1/2" | 12   | 9    | 60 | 42 | 40 |
| ZTR15-1,0  | DN15       | 1/2" | 12   | 9    | 60 | 42 | 40 |
| ZTR15-1,6  | DN15       | 1/2" | 12   | 9    | 60 | 42 | 40 |
| ZTR20-2,0  | DN20       | 3/4" | 15   | 12,5 | 60 | 42 | 50 |
| ZTR20-2,5  | DN20       | 3/4" | 15   | 12,5 | 60 | 42 | 50 |
| ZTR20-4,0  | DN20       | 3/4" | 18   | 12,5 | 60 | 42 | 50 |
| ZTR20-6,0  | DN20       | 3/4" | 18   | 12,5 | 60 | 42 | 50 |
| ZTR25-7,0  | DN25       | 1"   | 22   | 14   | 82 | 47 | 44 |

# Pressure drop diagram



## Example: calculation of kv value

If the pressure drop is 11 kPa (A) and the flow is 0.8 m³/h (B), the kv value is 2.5 (C). See the markings in the picture to the right.

