

## VD215-VD232

### Small Linear Valve / PN25 DH Compact Valve

#### PRODUCT DATA



## GENERAL

Single-seated 2-way valves for modulating control of hot / chilled water in heating, ventilating, and air conditioning systems.

These valves are designed especially for flow control in hydraulic systems with high temperatures and pressures, such as district heating systems. It can also be used in combination with M31C150 (heating) actuators as well as with M41A15 (domestic hot water) actuators.

## FEATURES

- Pressure-balanced  $k_{vs}$  1.0...10 m<sup>3</sup>/hr
- Normally-closed valve
- Supplied with manual adjustment cap for start-up
- Small size
- Threaded and welding connection sets
- Bronze body, stainless steel trim
- Low seat leakage rate
- Metal-to-metal seating for long life span
- Easy mounting of direct-coupled electric actuators
- Approval per DIN 32730 (in preparation)

## SPECIFICATIONS

|                                |  |
|--------------------------------|--|
| <b>Action</b>                  | valve is closed by its spring  |
| <b>Nominal pressure rating</b> | PN25   |
| <b>Rangeability</b>            | 50:1   |
| <b>Leakage rate:</b>           | max. 0.05% of $k_{vs}$   |
| <b>Characteristic</b>          | split characteristic / linear - equal percentage                     |
| <b>Stroke</b>                  | 6.5 mm   |
| <b>Close-off pressure</b>      | 0...1600 kPa with 300 N actuator<br>0...2500 kPa with 400 N actuator |
| <b>Valve body</b>              |  |
| End connections                | external thread per ISO 228/1  |
| Material                       | red bronze (DIN 1705)  |
| <b>Trim</b>                    |  |
| Seat                           | stainless steel (W.-No. 1.4305)                                      |
| Plug                           | stainless steel (W.-No. 1.4305)                                      |
| Stem                           | stainless steel (W.-No. 1.4305)                                      |
| <b>Packing</b>                 | EPDM, O-ring   |
| <b>Medium</b>                  | water; glycol/water mixture<br>(max. 50% glycol per VDI 2035)        |
| <b>Medium temperature</b>      | 2...130 °C (briefly up to 150°C *)                                   |
| <b>Dimensions</b>              | See Fig. 2 on page 4   |

**Note! The valves are delivered without connections sets (have to be ordered separately).**

\*) Prolonged exposure of 150°C medium temperature will damage the actuator and valve

## SIZES AND FLOW CAPACITIES

| size | kvs (m <sup>3</sup> /h) | close-off pressure (kPa)<br>with 300 N actuator | close-off pressure (kPa)<br>with 400 N actuator | order number |
|------|-------------------------|---|---|--------------|
| DN15 | 0.25                    | 1600  | 2500  | VD215-0.25   |
| DN15 | 0.40                    | 1600  | 2500  | VD215-0.40   |
| DN15 | 0.63                    | 1600  | 2500  | VD215-0.63   |
| DN15 | 1.0                     | 1600  | 2500  | VD215-1.0    |
| DN15 | 1.6                     | 1600  | 2500  | VD215-1.6    |
| DN20 | 2.5                     | 1600  | 2500  | VD220-2.5    |
| DN20 | 4.0                     | 1600  | 2500  | VD220-4.0    |
| DN25 | 6.3                     | 1600  | 2500  | VD225-6.3    |
| DN32 | 10.0                    | 1600  | 2500  | VD232-10     |

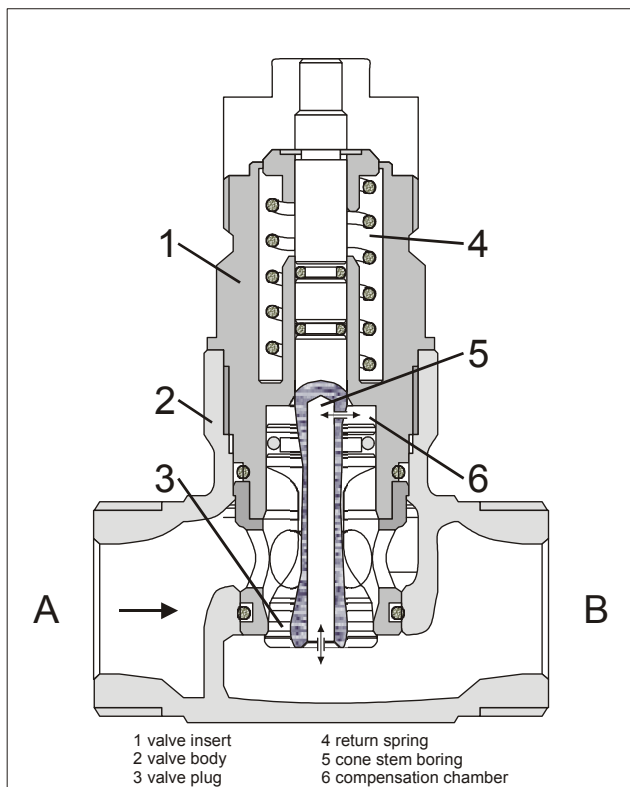
## ACTUATORS

Ouman-actuators

| Number  | data sheet | control signal | auxiliary switches | manual adjustment | stem force (N) | power failure position |
|---------|------------|----------------|--------------------|-------------------|----------------|------------------------|
| M31C150 | M31C150    | 24 Vac         | -                  | integrated        | 300            | -                      |
| M41A15  | M41A15     | 0...10 V       | -                  | integrated        | 400            | -                      |

Other actuators:

| OS no.      | data sheet    | control signal | auxiliary switches | manual adjustment | stem force (N) | power failure position |
|-------------|---------------|----------------|--------------------|-------------------|----------------|------------------------|
| M7410C1015  | EN0B-0096GE02 | 24 Vac         | -                  | valve cap         | 300            | -                      |
| M6410C2031  | EN0B-0096GE02 | 24 Vac         | -                  | integrated        | 300            | -                      |
| M6410C4037  | EN0B-0096GE02 | 24 Vac         | 2                  | integrated        | 300            | -                      |
| M6410L2031  | EN0B-0096GE02 | 230 Vac        | -                  | integrated        | 300            | -                      |
| M6410L4037  | EN0B-0096GE02 | 230 Vac        | 2                  | integrated        | 300            | -                      |
| M7410E1028  | EN0B-0097GE02 | 0/2...10 V     | -                  | valve cap         | 300            | -                      |
| M7410E2034  | EN0B-0097GE02 | 0/2...10 V     | -                  | integrated        | 300            | -                      |
| M7410E4030  | EN0B-0097GE02 | 0/2...10 V     | 2                  | integrated        | 300            | -                      |
| ML6435B1008 | EN0B-0259GE51 | 24 Vac         | -                  | valve cap         | 400            | stem retract           |
| ML6435B1016 | EN0B-0259GE51 | 230 Vac        | -                  | valve cap         | 400            | stem retract           |
| ML7430E1005 | EN0B-0260GE51 | 0/2...10 V     | -                  | integrated        | 400            | -                      |
| ML7435E1004 | EN0B-0260GE51 | 0/2...10 V     | -                  | valve cap         | 400            | stem retract           |



**Fig. 1. VD225**  
(cross-sectional drawing)

## OPERATION

VD-valves are available in four sizes; DN15, DN20, DN25 and DN32.

A built-in return spring (4) produces the closing force on the port A to port B. The valve is supplied with a screwed-on valve cap for manual operation and for protection of the system. This allows the system to be filled and set up for the initial heating / cooling during the building construction phase without the use of a controller or actuator.

The medium flows through the valve from port A to port B, in the direction of the arrow mark on the valve body.

The flow rate is limited by the setting of the valve plug (3), which is positioned either using the manually adjustable valve cap or by an actuator. Maximum stroke means maximum flow rate.

In order to be able to close precisely against high pressure differences, the valve compensates pressure differences by means of a cone stem boring (5) connecting to a compensation chamber (6).

Some specific actuators automatically retract the stem in the event of a power failure in order to close the valve and stop the flow of medium (refer to section "Actuators" on page 2).

## INSTALLATION

When installing the valve, ensure that the flow direction corresponds with the arrow direction on the valve body (see Installation Instructions VD215-VD232).

- The valve must not be mounted with the stem pointing below the horizontal.
- The valve should be installed stress-free. External threaded or welding connection sets are available (refer to section "Accessories" on page 5).
- The installation of a strainer is strongly recommended; in district heating systems, it is obligatory.
- Make sure that water hammers are avoided.
- For pressure test, the valve (with actuator) must be open.
- The adjustment cap must be removed from the valve only when an actuator is fitted.
- The water must not contain more than 50% glycol according to VDI 2035 requirements.

## MAINTENANCE

In case of leakage or heavy soiling of the valve, the complete valve insert (1) can be replaced (see section "Spare Parts" on page 6).

## DIMENSIONS

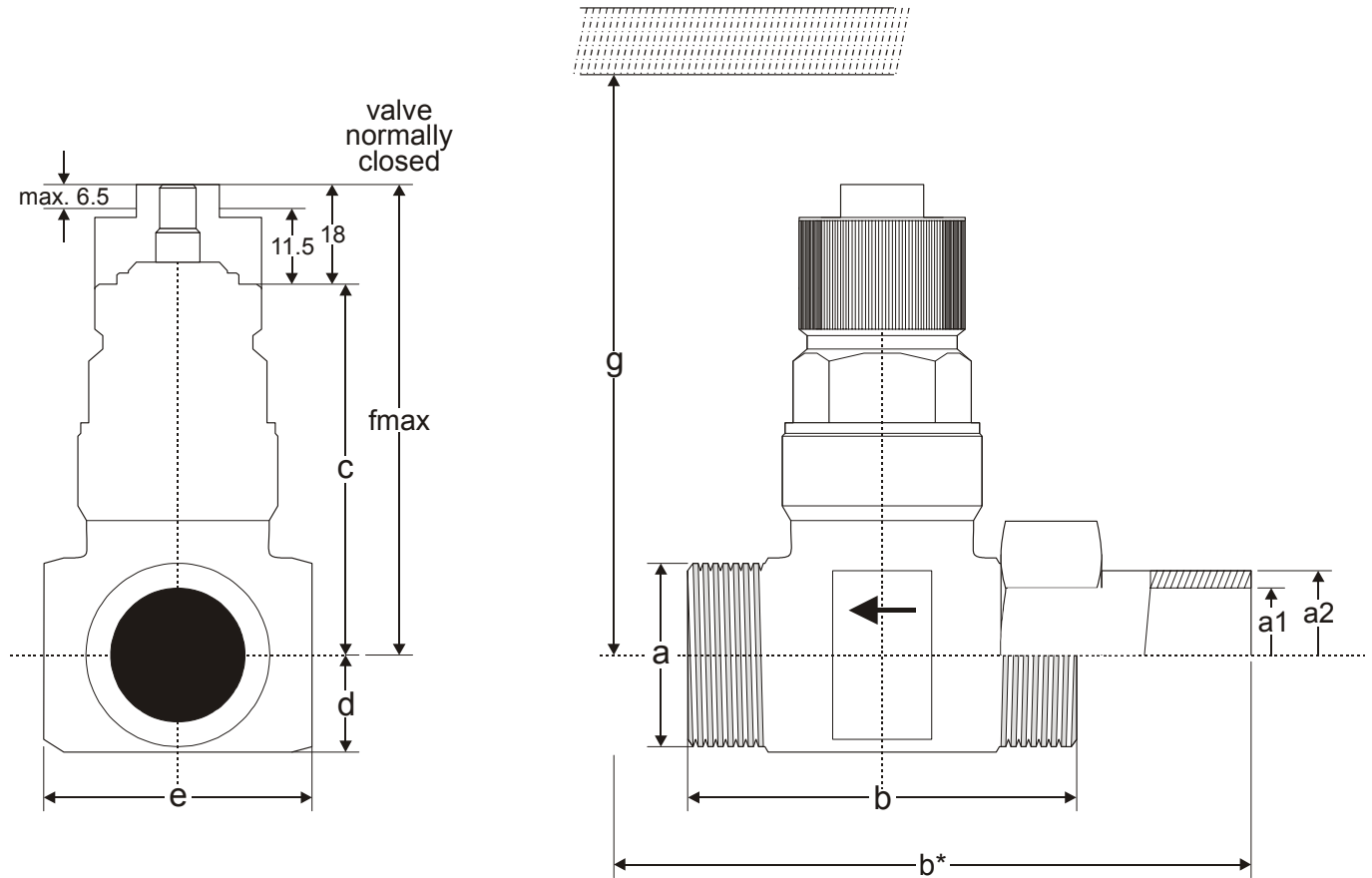


Fig. 2. Dimensions (mm)

| DN | a    | dimensions in mm |                     |      |                    |     |    |    |    |     |     |
|----|------|------------------|---------------------|------|--------------------|-----|----|----|----|-----|-----|
|    |      | b                | threaded connection |      | welding connection |     | c  | d  | e  | f   | g   |
|    |      |                  | b*                  | a2   | b*                 | a1  |    |    |    |     |     |
| 15 | G¾"  | 65               | 125                 | R½"  | 175                | 16Ø | 59 | 18 | 35 | 77  | 270 |
| 20 | G1"  | 70               | 138                 | R¾"  | 184                | 20Ø | 67 | 18 | 36 | 85  | 280 |
| 25 | G1½" | 75               | 154                 | R1"  | 180                | 27Ø | 69 | 23 | 46 | 87  | 280 |
| 32 | G1½" | 100              | 192                 | R1¼" | 264                | 32Ø | 89 | 25 | 57 | 107 | 300 |

## ACCESSORIES

### Connection Sets

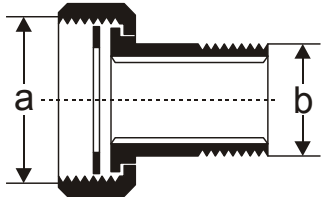


Fig. 3. External threaded connection

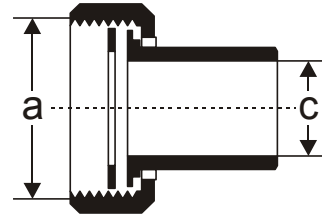
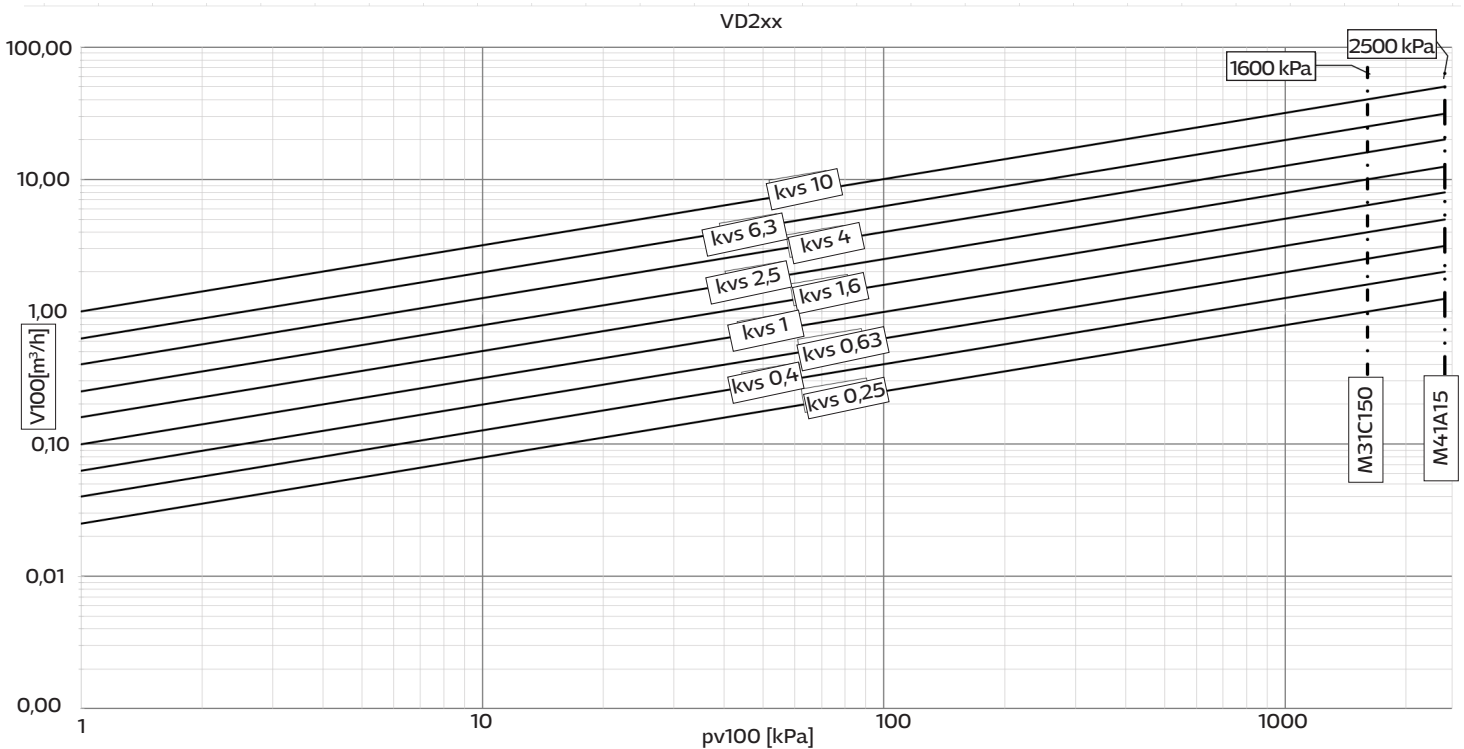


Fig. 4. Welding connection

Two connection sets are necessary

| connection      | pipe size | DN | order no. | connection set | description  | a       | b       | c   |
|-----------------|-----------|----|-----------|----------------|--|---------|---------|-----|
| external thread | R1/2"     | 15 | L15UK     |                | threaded connection (consisting of 1 union nut, 1 tailpiece, and 1 gasket) | G3/4"   | R1/2"   | -   |
|                 | R3/4"     | 20 | L20UK     |                |  | G1"     | R3/4"   | -   |
|                 | R1"       | 25 | L25UK     |                |  | G1 1/4" | R1"     | -   |
|                 | R1 1/4"   | 32 | L32UK     |                |  | G1 1/2" | R1 1/4" | -   |
| welding         | 1/2"      | 15 | L15HI     |                | welding connection (consisting of 1 union nut, 1 tailpiece, and 1 gasket)  | G3/4"   | -       | 16Ø |
|                 | 3/4"      | 20 | L20HI     |                |  | G1"     | -       | 20Ø |
|                 | 1"        | 25 | L25HI     |                |  | G1 1/4" | -       | 27Ø |
|                 | 1 1/4"    | 32 | L32HI     |                |  | G1 1/2" | -       | 32Ø |

### Flow chart



pv100 = Differential pressure across the fully open valve at volume flow V100

V100 = Volume flow through the fully open valve

## SPARE PARTS

Table 1. Valve inserts

| $k_{vs}$ | order no. |
|----------|-----------|
| 0.25     | 0903809   |
| 0.40     | 0903810   |
| 0.63     | 0903811   |
| 1.0      | 0903812   |
| 1.6      | 0903813   |
| 2.5      | 0903814   |
| 4.0      | 0903815   |
| 6.3      | 0903816   |
| 10.0     | 0903817   |

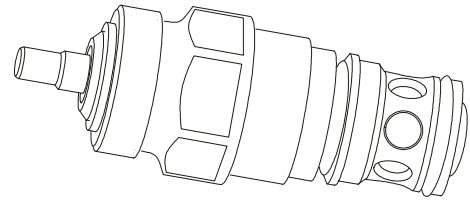


Fig. 5. Typical valve insert

Table 2. Adapter for replacing OUV5872B-valve with VD-valve

| valve type to be replaced | new valve model | $k_{vs}$ | order no. of valve adapter kit |
|---------------------------|-----------------|----------|--------------------------------|
| V5872B1003                | VD215-0.25      | 0.25     | AK15-15                        |
| V5872B1011                | VD215-0.40      | 0.40     | AK15-15                        |
| V5872B1029                | VD215-0.63      | 0.63     | AK15-15                        |
| V5872B1037                | VD215-1.0       | 1.0      | AK15-15                        |
| V5872B1045                | VD215-1.6       | 1.6      | AK15-15                        |
| V5872B1052                | VD220-2.5       | 2.5      | AK20-15                        |
| V5872B1060                | VD220-4.0       | 4.0      | AK20-25                        |
| V5872B1078                | VD225-6.3       | 6.3      | AK25-25                        |
| V5872B1086                | VD232-10        | 10.0     | n.a.                           |

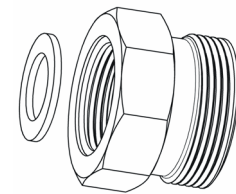


Fig. 6. Valve adapter

**NOTE:** The valve adapter kit contains all of the components required to replace one OUV5872B valve with the VD- valve



Fig. 7. VD-valve and AK-adapter