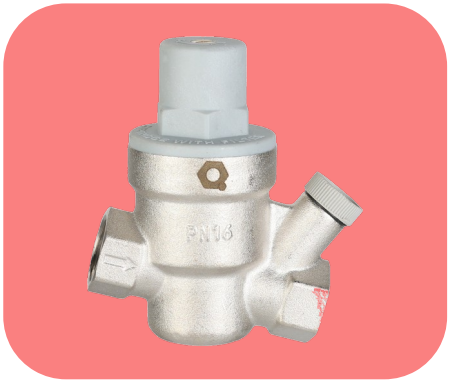
Diaphragm pressure reducing valve
PN16

ZQMSE200D15-20

zencQ

0038 / 10 / 26 EN




**PRODUCT DESCRIPTION**

The diaphragm pressure reducing valve is designed to reduce and automatically maintain the outlet water pressure in cold and hot water supply networks. The valve maintains an outlet pressure that does not exceed the set value.

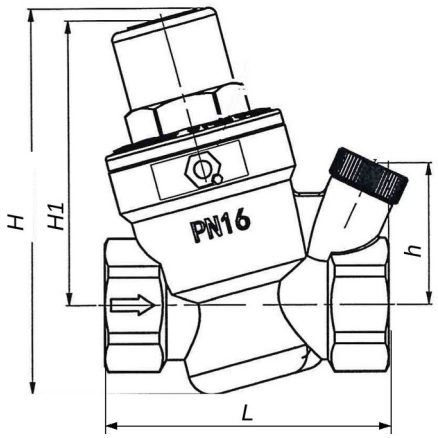
The main installation site is apartment water metering units.

The control unit is a cartridge with a built-in filter. The body has a 1/4" outlet for a pressure gauge, closed with a plug.

By its technical parameters, characteristics and purpose, the pressure reducing valve is not industrial pipeline fittings for use in various industries. It is intended for domestic water supply systems only.

| TECHNICAL PARAMETERS | |
|---|---|
| Maximum working medium temperature | 80 °C |
| Nominal operating pressure, PN | 16 bar |
| Outlet pressure setting range | 1–5.5 bar |
| Factory pressure setting | 3 bar |
| Flow rate at 2 m/s (calculated), 1/2" / 3/4" | 1.27 / 2.26 $m^3/h$ |
| Connection type | Threaded, female–female |
| Connection thread size | G 1/2" / G 3/4" |
| Threaded connection standard | ISO 228-1 |
| Pressure gauge outlet | 1/4", with plug |
| Working medium type | Water |
| Packaging: inner / outer box | 6 pcs / 36 pcs |

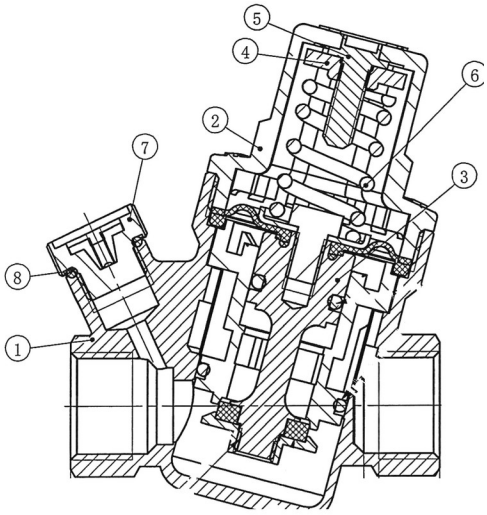
**DIMENSIONS (mm) AND WEIGHT (g)**




| Article | G | L | H | H1 | h | Weight |
|---|---|---|---|---|---|---|
| ZQMSE200D15 | 1/2" | 72 | 96.1 | 70.9 | 35.3 | 375 |
| ZQMSE200D20 | 3/4" | 72 | 96.1 | 70.9 | 35.3 | 385 |

G – connection thread per ISO 228-1 (female);
L – face-to-face length;
H – overall height;
H1 – from the pipe axis to the top of the cap;
h – from the pipe axis to the top of the pressure gauge outlet plug;
product weight – in grams.

| DESIGN AND MATERIALS | | |
|---|---|---|
| 1 | Body | Brass CW617N, matt nickel plating |
| 2 | Cap | Polyamide PA + 30 % glass fibre |
| 3 | Cartridge with diaphragm and filter | — |
| 4 | Adjusting nut | Brass CW617N |
| 5 | Adjusting screw | Brass CW617N |
| 6 | Spring | Stainless steel AISI 304 |
| 7 | 1/4" pressure gauge outlet plug | Polyamide PA + 30 % glass fibre |
| 8 | Plug O-ring 16×2 mm | EPDM elastomer |




**PRINCIPLE OF OPERATION**

1. The valve operates on the balance of two opposing forces. The spring (6) presses on the cartridge diaphragm (3) in the valve-opening direction; the outlet water pressure acts on the diaphragm in the closing direction (Fig. 1). The spring compression, and therefore the outlet pressure, is set by the adjusting screw (5).

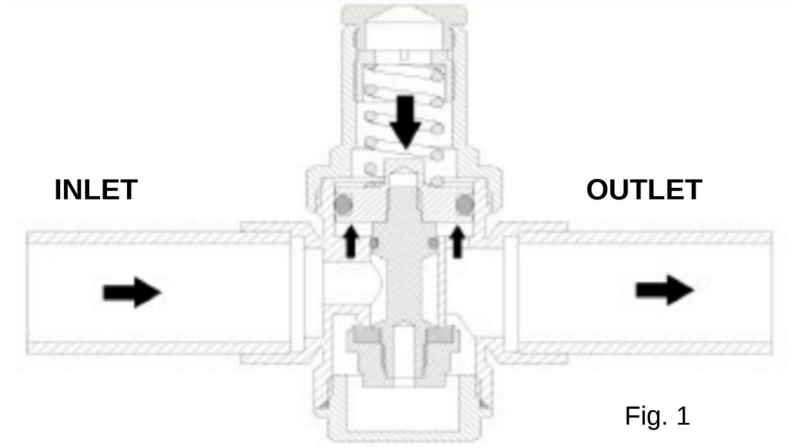
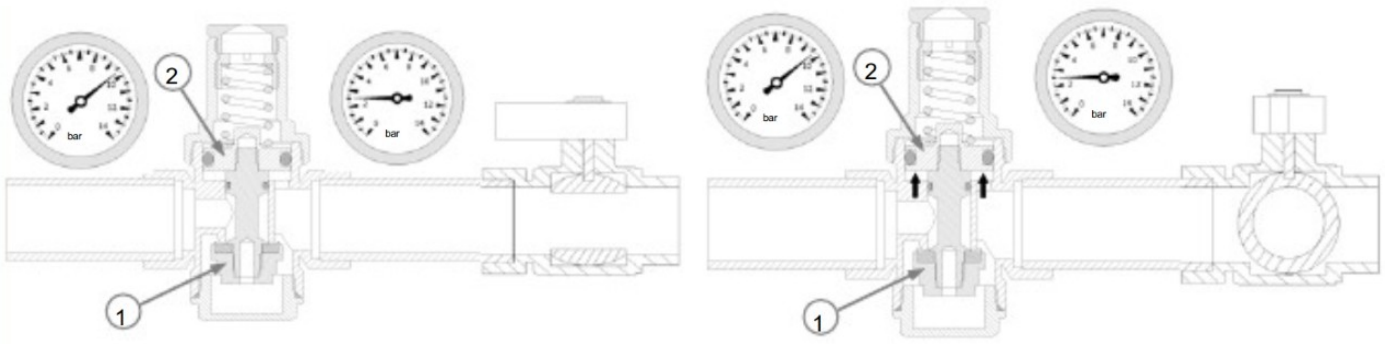



Fig. 1

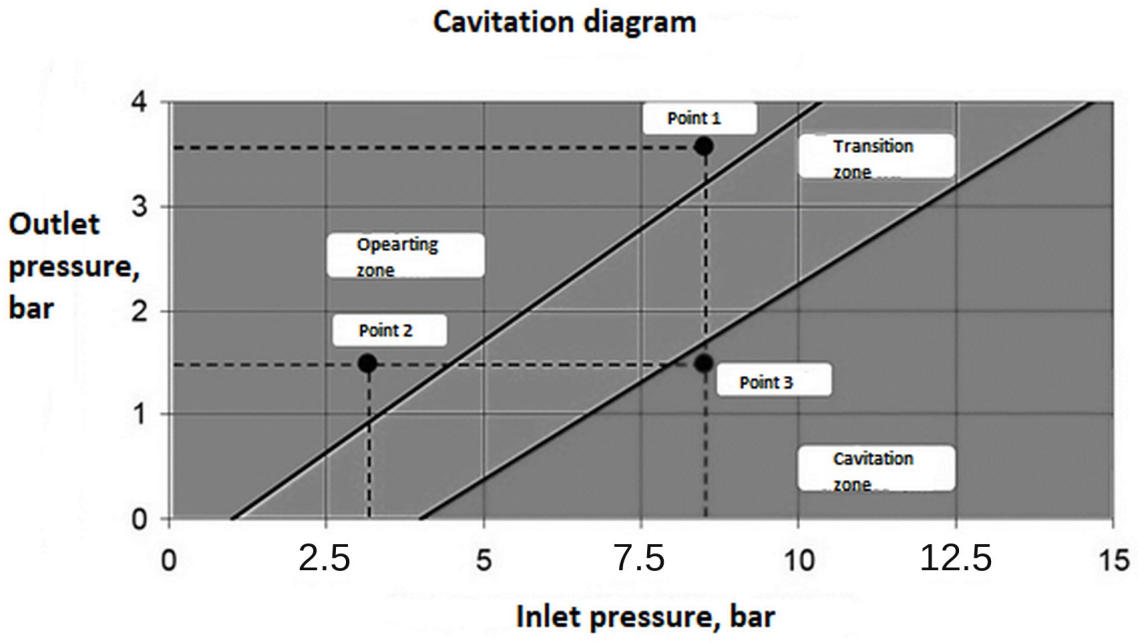
2. Operation during water draw-off. When a tap is opened, the valve (1) moves down, opening the passage for water. This happens because the spring force on the diaphragm (2) becomes dominant over the water pressure force under these conditions. As the flow rate increases, the pressure under the diaphragm decreases and the valve (1) opens wider. When several taps are opened, the outlet pressure drops (Δp) and the flow rate (Q) subsequently increases.




3. Operation without water draw-off. With the taps closed, the outlet pressure rises to the set value, after which the valve (1) closes.

**PRESSURE REDUCING VALVE SELECTION GUIDELINES**

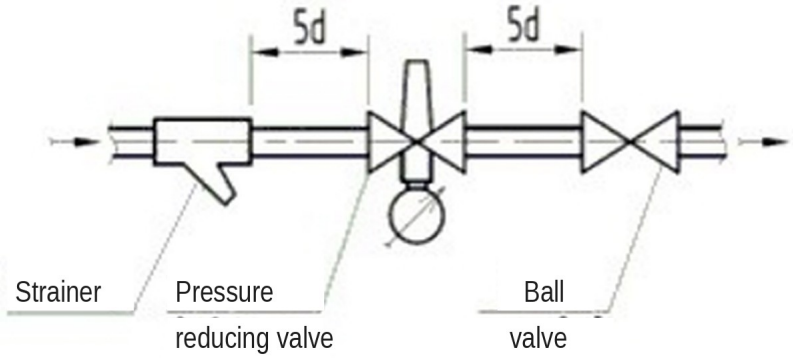
1. The following conditions must be met when determining the set pressure of the valve.
2. The fluid velocity in the building's water supply must not exceed 2 m/s (per DIN EN 1567) or 1.5 m/s (per SP 30.13330.2012). Violation of this condition may lead to the permissible noise level being exceeded.
3. The ratio of inlet to outlet pressure must fall within the working or transition zone of the cavitation chart.
4. If this condition is violated, the valve seat will suffer cavitation damage.
5. The pressure loss across the valve relative to the set pressure must not exceed 1.2 bar. Violation of this condition leads to increased valve seat wear.



**INSTALLATION REQUIREMENTS**

1. Install the pressure reducing valve only after the water supply system has been cleaned, flushed and bled of air.
2. Install the pressure reducing valve at the inlet of the water circuit to be protected. Install a check valve after the pressure reducing valve.
3. The pressure reducing valve can be installed in any position except upside down.
4. To protect the pressure reducing valve from water hammer, the use of water hammer arrestors is recommended.

5. Before installation, open all taps to flush the system and remove air from the pipes. Shut-off valves at the inlet and outlet of the valve are recommended to ease maintenance.
6. When installing, the flow direction must match the arrow on the body. The adjusting screw and the pressure gauge outlet must remain accessible.
7. When using winding material (PTFE tape, oakum, flax), make sure that excess material does not enter the inlet chamber of the valve. It may reach the valve seat and cause the valve to fail.
8. The pipe thread length must not exceed the length of the female thread of the valve (12 mm).
9. Connections are made on parallel pipe thread per GOST 6357 (ISO 228-1).
10. Make threaded connections without exceeding the permissible torques: 35 N·m for 1/2" valves, 45 N·m for 3/4" valves.
11. Carry out installation in accordance with SP 73.13330.2012 “Internal sanitary systems of buildings”.
12. In accordance with GOST 12.2.063-2015, cl. 9.6, fittings must not be subjected to loads from the pipeline (bending, compression, tension, torsion, misalignment, vibration, uneven tightening of fasteners, etc.). Provide supports or compensators where necessary.
13. The misalignment of the connected pipelines must not exceed 3 mm for a length of up to 1 m, plus 1 mm for each subsequent metre (SP 73.13330.2012, cl. 5.1.8).
14. When installing upstream of a water heater, leave a free pipeline section at least 5 DN long between the heater and the valve.
15. Setting. Before applying pressure, unscrew the plug (7) and fit a 1/4" pressure gauge into the outlet. Supply water with the draw-off taps closed. Turn the adjusting screw (5) at the top of the cap to set the required pressure on the gauge within the setting range. The factory setting is 3 bar.



**OPERATION AND MAINTENANCE REQUIREMENTS**

1. The valve must be operated at the pressure and temperature specified in the technical parameters table.
2. Maintenance consists of cleaning the cartridge filter of deposits. Carry out maintenance at least once every 12 months of operation, more often if the water contains a high amount of suspended solids.
3. Carry out maintenance and replacement of parts only with the water supply shut off and the pressure released.
4. After maintenance, check the outlet pressure on the pressure gauge and repeat the setting if necessary.
5. Installation using a pipe lever wrench, or gripping the plastic cap or the pressure gauge outlet plug, is prohibited.
6. Freezing of the working medium in the valve is not allowed.

**MANUFACTURER**

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Country of origin: China

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