

Pressure reducing valve



576 series



BS EN ISO 9001:2008
Cert. n° FM 21654



UNI EN ISO 9001:2000
Cert. n° 0003

01183/09 GB



Function

The pressure reducing valve is a device which, installed on the water mains, reduces and regulates the pressure entering from the public network, irrespective of upstream pressure variations.

In case of necessity, this series of pressure reducing valves is easy to inspect and maintain since it can be completely disassembled from the top and therefore it is not necessary to remove the appliance from the pipe.

The reducing valve can be used in water distribution networks, drinking water supply systems and irrigation systems.

Product range

576 series Pressure reducing valve

sizes DN 80-DN 150 (DN 200 on request)

Technical specifications

Materials

Body and cover: cast iron EN-GJS-450-10
Diaphragm: cloth covered elastomer - CR
Obturator: PUR
Obturator seat: stainless steel

Corrosion-resistant epoxy coating suitable for contact with drinking water.

Performance

Max. upstream pressure: 16 bar
Downstream pressure setting range: 1,5–6 bar
on request 6–12 bar
Max. working temperature: 65°C
Pressure gauge scale: 0–16 bar

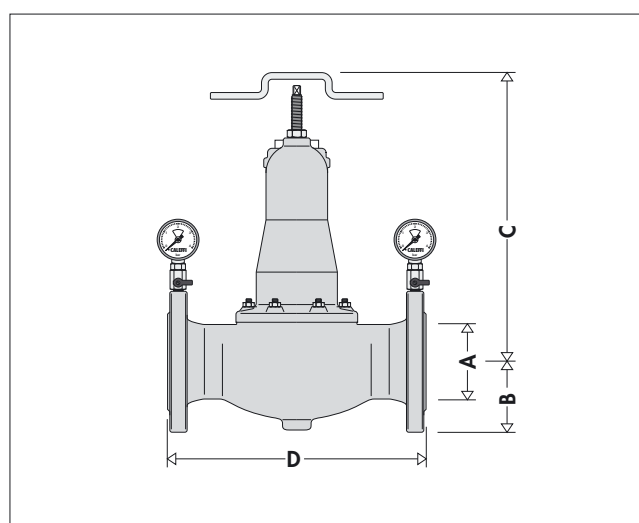
Connections

Flanged connections: DN 80–DN 150 (DN 200 on request)

Coupling with counterflange EN 1092-1 DN 80–DN 150, PN 16;
DN 200, PN 10

Face-to-face gage according to ISO 5752 series 1

Dimensions



Code	A	B	C	D	Weight (kg)
576080	DN 80	108	466	310	34
576100	DN 100	112	466	350	37
576120	DN 125	141	576	400	84
576150	DN 150	145	576	480	87
576200	DN 200	174	686	600	115

Operating principle

The operating principle of the pressure reducing valve is based on the balance between two opposing forces: the thrust exerted by the downstream pressure on the lower part of the mobile valve is counteracted by the adjustable compression force of the spring. Since the active surface of the diaphragm is equivalent to the active surface of the mobile valve, the thrust which the upstream pressure exerts on the lower part of the diaphragm is compensated by the thrust exerted on the upper part of the mobile valve, thus rendering the appliance insensitive to changes in upstream pressure. When the pressure downstream of the reducing valve becomes lower than the regulating pressure, the force exerted by the spring becomes predominant and the obturator opens, increasing the degree of opening to increase the flow rate and restore the pressure (Fig. 1). However when the downstream pressure increases, the obturator closes, reducing the degree of opening to limit the flow rate. The downstream pressure therefore remains constant.

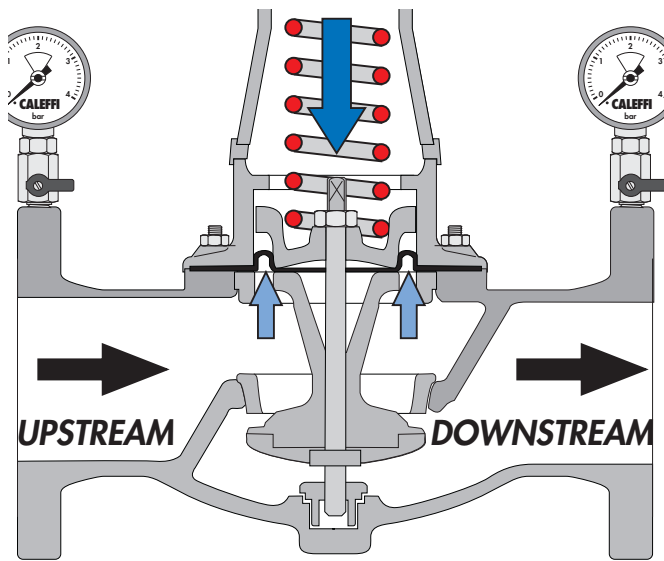
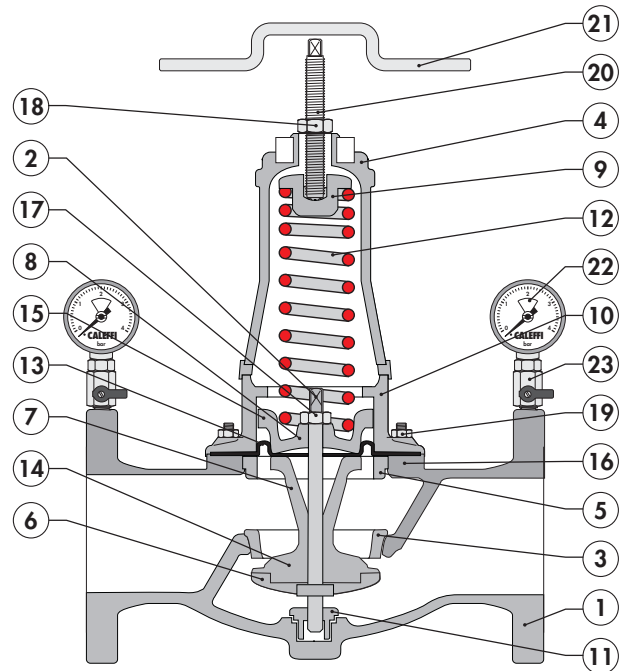


Fig.1

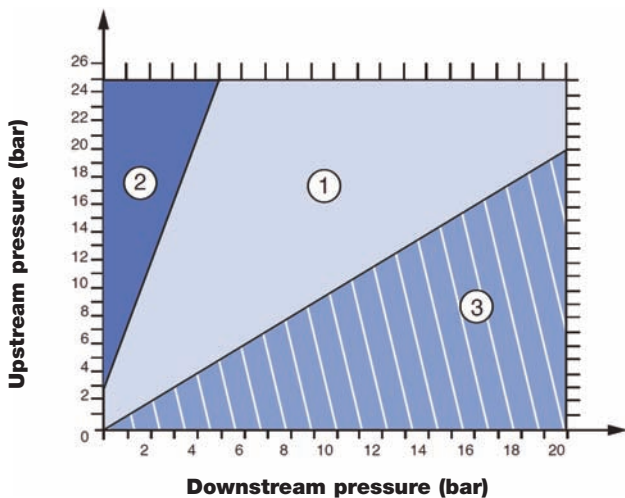
Characteristic components

- | | |
|----------------------|--------------------------|
| 1 Body | 13 Diaphragm |
| 2 Stem | 14 Mobile valve |
| 3 Seat | 15 Guide ring |
| 4 Cover | 16 Lower cylinder O-ring |
| 5 Lower cylinder | 17 Non-removable nut |
| 6 Obturator holder | 18 Nut |
| 7 Obturator stop | 19 Cover fixing nut |
| 8 Flange | 20 Setting screw |
| 9 Mounting plate | 21 Adjustment key |
| 10 Guide cylinder | 22 Pressure gauge |
| 11 Guide beat | 23 Pressure gauge cock |
| 12 Adjustment spring | |



Hydraulic characteristics

The following cavitation diagram can be used to check the operating conditions of the pressure reducing valve:



- Zone 1** : normal operating conditions
Zone 2 : cavitation zone (use not recommended)
Zone 3 : impossible

Sizing

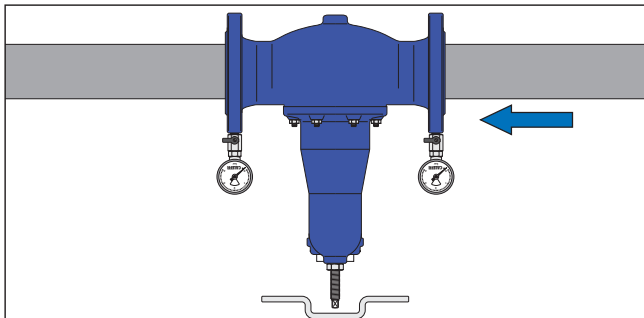
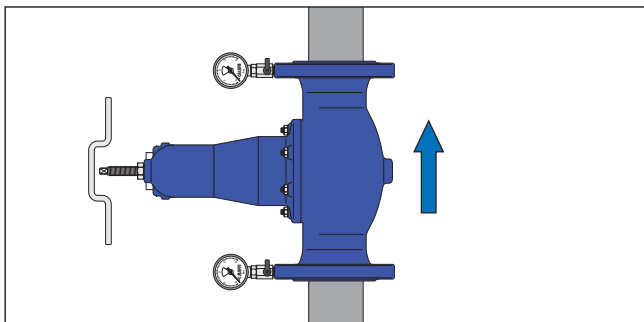
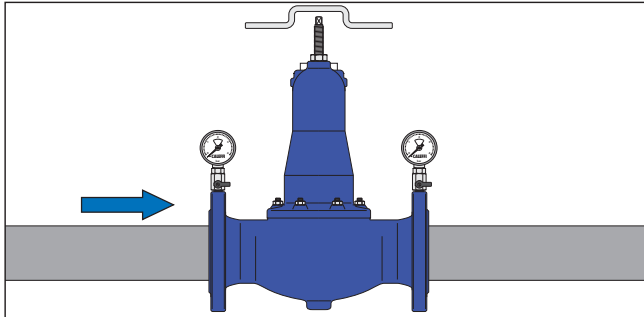
The diameter of the appliance must be chosen based on the maximum flow rate and the conditions of use and not according to the diameter of the pipe.

DN	80	100	125	150	200
Max. recommended flow rate (l/s)	7,5	11,8	18,4	26,5	47,2

The maximum flow rate is calculated considering an average velocity in the inflow section of 1,5 m/s.

Installation

1. Before the installation, open all distribution taps to clean out the system and to expel air remaining in the pipes.
2. Install the shut-off valves upstream and downstream to facilitate future maintenance.
3. The reducing valve can be installed in any position.



4. Close the downstream shut-off valve.
5. Calibrate the device using the special key, turning it clockwise to increase the value and anticlockwise to decrease it.
6. Read the desired value on the downstream pressure gauge.

Installation recommendations

Water hammer is one of the major causes of breakage in pressure reducing valves. Consequently during installation in high-risk systems, it is advisable to fit suitable devices to absorb water hammer.

Functional faults

The reducing valve does not maintain the set value

In the majority of cases, this problem is due to impurities depositing on the seat seal and causing seepage and creeping, thereby increasing downstream pressure.

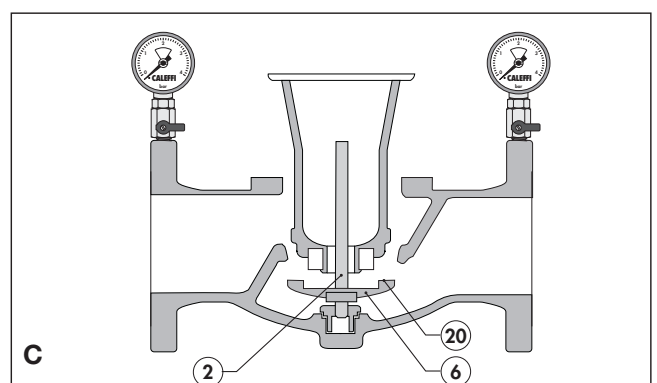
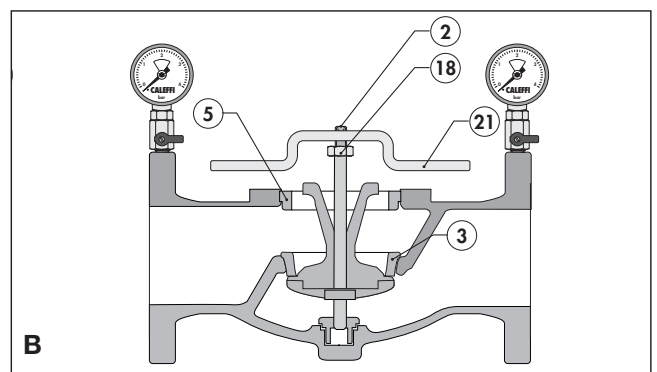
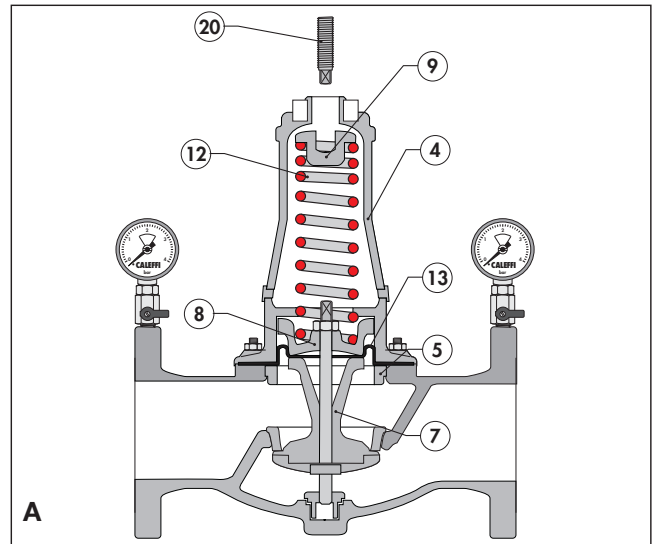
The solution is to install a filter downstream of the valve and to ensure that maintenance is properly carried out (see maintenance section).

Maintenance

When performing maintenance it is not necessary to remove the appliance from the pipe.

1. Isolate the appliance by closing the shut-off valves.
2. Unscrew the setting screw (20) in an anticlockwise direction until it is completely removed, diagram A.
3. Unscrew the nuts and remove the cover (4). Extract the mounting plate (9) and the spring (12).
4. Disengage the diaphragm (13) from the pins. With the adjustment key (21) positioned as indicated in diagram B unscrew the nut (18) with a plate wrench.
5. Remove the flange (8), the diaphragm (13), the obturator stop (7) and the lower cylinder (5).
6. To unscrew the seat (3) use the up-side down turned cover as shown in diagram C.
7. After having removed the seat, extract the obturator holder (6) and the gasket (20) using the stem (2).

NOTE: If necessary, the obturator gasket can be changed without removing the seat. Check that it is correctly refitted.



SPECIFICATION SUMMARY

576 series

Pressure reducing valve with compensated seat. Flanged connections DN 80 (from DN 80 to DN 150, PN 16; DN 200 PN 10). Cast iron body. Stainless steel seat. Diaphragm in cloth covered elastomer - CR, obturator in PUR. Maximum working temperature 65°C. Maximum upstream pressure 16 bar. Downstream pressure setting range from 1,5 to 6 bar, on request from 6 to 12 bar. Supplied with double pressure gauge 0–16 bar upstream and downstream. Corrosion-resistant epoxy coating for contact with drinking water. Diaphragm, seat and obturator removable for maintenance purposes.

We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice.



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