

Pressure reducers art. RDP 10-RDP 20



A pressure reducing valve is a device which reduces and stabilizes the upstream pressure to a set downstream pressure. Pressure reducers are widely used in domestic installations to separate from a hydraulic viewpoint the private facility and the water mains, where water pressure is too high and variable for a direct supply. The device allows not only to decrease pressure to a value that is compatible with domestic facility, but also to keep it constant at the inlet of the facility itself, which therefore works in better conditions, thanks to the compensated seat. RDP series of piston pressure reducers features the possibility of manual regulation, allowing the operator to adjust outlet pressure to the desired value.

■ TECHNICAL FEATURES

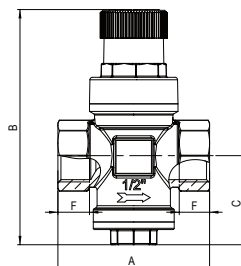
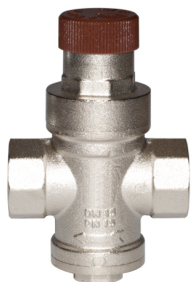
Max operating temperature: 80 °C
 Max inlet pressure: 15 bar
 Outlet pressure regulation: 1÷4 bar
 Pre-setting: 3 bar
 Min pressure drop for a correct operation: 1 bar

■ MATERIALS

Body: CW617N brass
 Internal component and diaphragm: CW614N brass
 Cover and plug: PA
 Seals: NBR

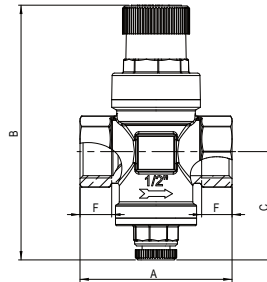
■ DIMENSIONS

RDP 10. Piston pressure reducer



ART.	COD.	SIZE	DN	A	B	C	F
RDP 10	509004	2 × 1/2"	1/2"	60	93	35	12
RDP 10	509005	2 × 3/4"	3/4"	60	93	35	12

RDP 20. Piston pressure reducer with manometer connection

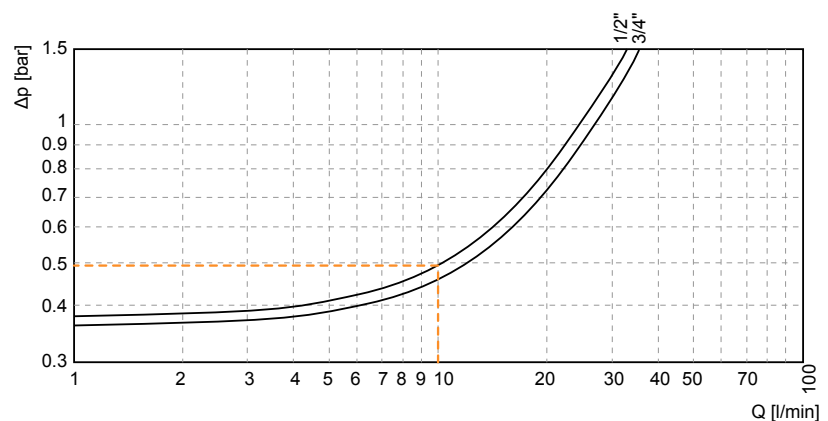


ART.	COD.	SIZE	DN	A	B	C	F
RDP 20	509007	2 × 1/2"	1/2"	60	101	43	12
RDP 20	509008	2 × 3/4"	3/4"	60	101	43	12

■ HYDRAULIC FEATURES

The diagram represents the pressure loss generated by the pressure reducer into the circuit as a function of flow rate. The value of pressure drop that can be read on the graph should be added to the pressure reduction imposed by the device setting. The diagram has been obtained with a 8 bar inlet pressure and 3 bar pre-setting pressure.

Example. Assumption: device RDP 10, size 1/2", 10 l/min flow rate → on the graph a ~0.5 bar pressure drop can be read. With 3 bar pre-set outlet pressure, the outlet pressure is $(3 - 0.5) = 2.5$ bar.



■ OPERATING INSTRUCTIONS

Preliminary notes

The place of installation for pressure reducer has to be protected from frost and easily inspectable. It is advisable to install cut-off valves upstream and downstream the pressure reducer to facilitate maintenance operations. In order to protect pressure reducer from overpressure, install a check valve immediately downstream the device. In case of water heater downstream the pressure reducing valve, install an expansion vessel.

A typical installation outline for a pressure reducer is reported in Fig.1: this arrangement is strongly recommended since it optimises the operation of the device and all downstream plant, besides making maintenance work easier. In Fig.1 the following components can be found:

1. Cut-off valves: to be fitted upstream and downstream of the reducer in order to isolate the system from the public mains upstream and the private utilities downstream during maintenance work;
2. Self-cleaning filter art. FI 00: this device blocks impurities from the water mains; it is fundamentally important to fit this device since it prevents the accumulation of impurities in various devices installed along the domestic circuit. The presence of dirt in the reducer, particularly around the seal, may compromise performances by causing seeping and consequent increases in downstream pressure;
3. Pressure reducer art. RDP xx;

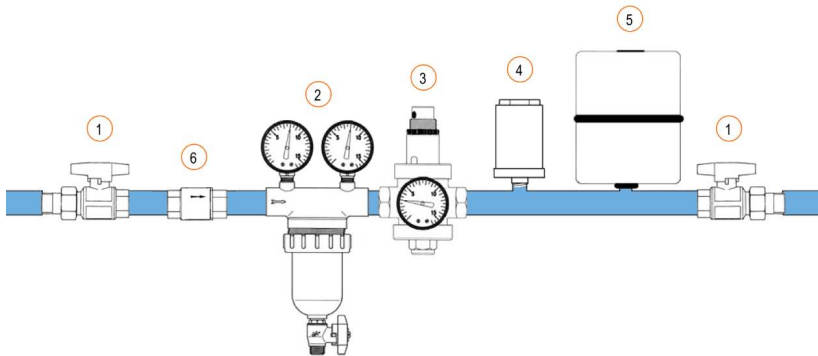


Fig. 1: Installation outline with pressure reducer and accessories.

4. Water-hammer shock absorber art. ACA 00: one of the most frequent phenomena causing even serious damages in the plant is the so called water hammer. The water hammer is provoked by abrupt flow interruptions, for instance caused by valve closures or pump stops, which generate a sequence of overpressure waves propagating through the pipe. To prevent the occurrence of a water hammer, it is possible to use this mechanical spring stop-shock device, which protects the most critical components by absorbing plant overpressures;
5. Expansion vessel: in plants featuring system for hot water production and storage, pressure can rise due to fluid thermal expansion even if pressure reduce valve works properly. Using a membrane expansion vessel allows to absorb this overpressure;
6. Check valve art. VR 00: prevent backflows through the plant; it is therefore used to avoid pollution of the public mains by private users.

Installation

Before installing the device, air and dirt trapped within the piping system must be expelled.

The pressure reducer can be installed both on vertical and horizontal piping segments, provided that the direction indication is fulfilled: in order to check the flow direction, refer to the arrow impressed on the device body (Fig.2). Art. RDP 20 is equipped with threaded connection for a pressure gauge. It is possible to unscrew the PA plug in order to install a pressure gauge in the size of 1/4". In such position, the pressure gauge shows the pressure value downstream the reducing valve.

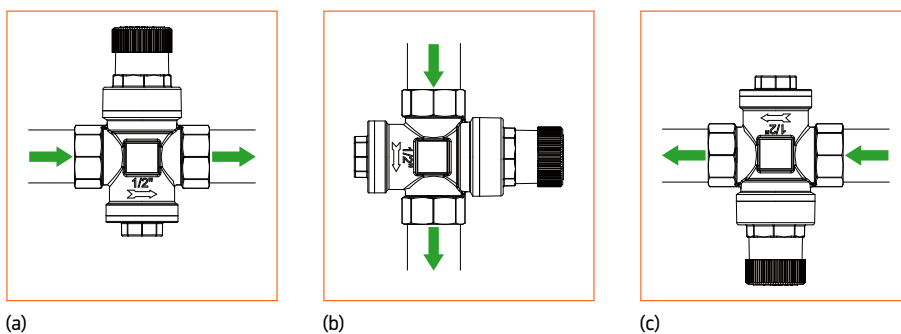


Fig. 2: Possible orientations of pressure reducer.

Regulation

All the pressure reducing valves are pre-set on a 3 bar outlet pressure. However, it is possible to change the downstream pressure by means of the adjusting device. The final adjustment of the pressure reducer has to be performed out with filled water system and with all the outlets closed.

The upstream pressure has to be at least 1 bar higher than the set pressure.

In order to adjust the pressure reduction valve to a pressure value different from the default, proceed as follows.

1. Close the downstream shut-off valve.
2. Unscrew the plug (Fig.3a) and remove it (Fig.3b).
3. Adjustment is carried out by means of an hexagonal key on the upper part of the device; turn clockwise in order to increase the downstream pressure, turn anticlockwise in order to reduce the downstream pressure (Fig.3c).
4. Open outlets in the private water system, in order to check the stability of the adjustment.
5. Adjust the downstream pressure with outlets totally shut-off and with water at room temperature only.
6. Screw the plug.

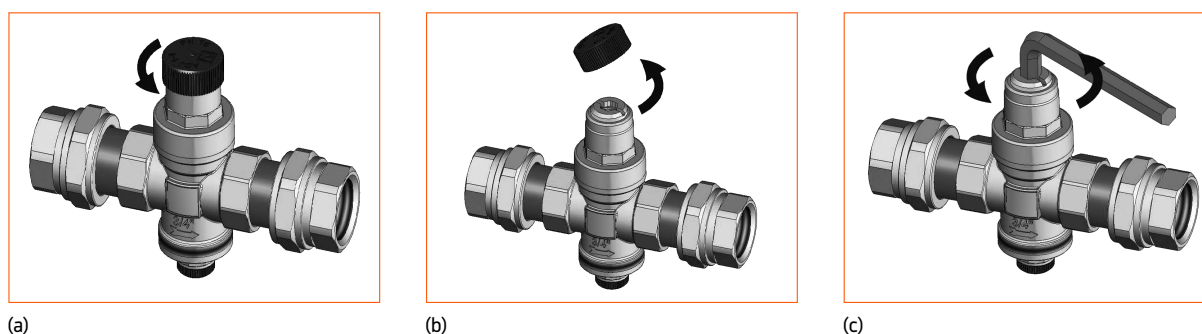


Fig. 3: Adjustment instructions for pressure reducer.

■ NOTES

In order to avoid the occurrence of noise or cavitation phenomena, it is advisable to keep the inlet/outlet pressure reduction factor below 2.5. For instance, for a desired 4 bar outlet pressure, inlet pressure should not be higher than 10 bar. If required, consider to install more pressure reducer valves connected in series.

■ CERTIFICATIONS

Pressure reducing valves RDP 10 and RDP 20 are suitable for domestic water services, heating and air-conditioning plants, compressed air systems¹. They can be used with water, compressed air¹ and non-aggressive fluids. I.V.A.R. pressure reducing valves comply with the requirements of Council Directive 97/23/EC (PED) and the CE marking is not requested according to art. 3 clause 3 of DL 25/02/2000 n. 93.

■ ACCESSORIES



FI 00. Self-cleaning filter with 2 manometers, removable cartridge and discharge tap.



ACA 00. Water-hammer shock absorber.

¹In the type-testing according to PED Council Directive, it is necessary that pressure reducing valves were approved as a part of the installation



VR 00. Check valve.

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