

Pre-adjustable pressure reducing valve with self-contained cartridge

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5350 series

Installation, commissioning and servicing instructions

Function

Pressure reducing valves are devices which, when installed on private water systems, reduce the pressure entering from the public mains. This incoming pressure is generally too high and variable for direct application to domestic systems. These valves can also be used to control inlet pressure to hot water storage.

The Caleffi 5350 series meet the requirements of "AS1357.2:2005 Valves primarily for use in warm and hot water systems - P. 2: Control valves".



AS 1357.2
C of C 02467

Product range

5350

535040/1 1/2"

535050/1 3/4"

535060/1 1"

535070/1 1 1/4"

535074/5* 1/4"

535080/1 1 1/2"

535090/1 2"

Union male end connections (ISO 7)

*reduced 1" cartridge



Technical specifications

Materials

Body:

dezincification resistant alloy **CR** EN 12165 CW602N
(535070 - 535080 - 535090); EN 1982 CB752S

Cover:

PA66G30

Control spindle:

stainless steel

Moving parts:

dezincification resistant alloy **CR** EN 12164 CW602N

Membrane:

EPDM

Seals:

EPDM

Strainer:

stainless steel

Performance

Max. pressure upstream:

1600 kPa

Downstream pressure setting range:

100–600 kPa

Factory setting:

300 kPa

Max. operating temperature:

40°C

Pressure gauge scale:

100–1000 kPa

Filter mesh size Ø:

0,51 mm

Medium:

water

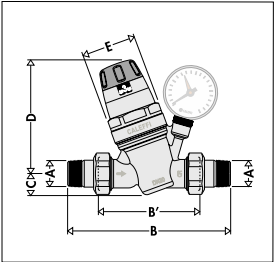
Flow rate:

see graph

Complies with:

AS 1357.2

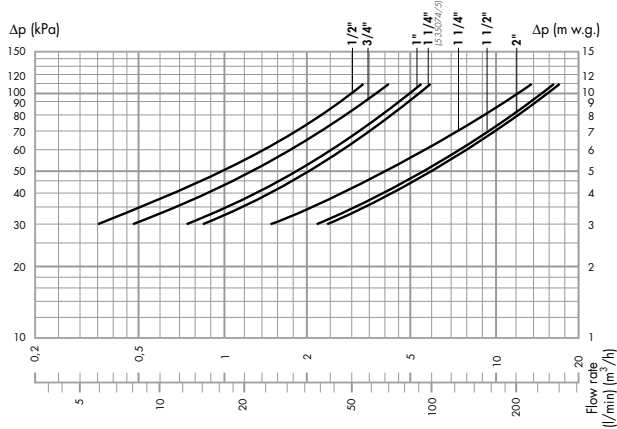
Dimensions



A	B	B'	C	D	E	Weight (kg)
1/2"	140	76	20,5	112	Ø 54	0,92
3/4"	160	90	20,5	112	Ø 54	1,06
1"	180	95	20,5	112	Ø 54	1,38
1 1/4"	200	110	40	178	Ø 73	2,60
1 1/4"	197	103	25	113	Ø 56	1,65
1 1/2"	220	120	40	178	Ø 73	3,40
2"	250	130	40	178	Ø 73	4,30

*reduced 1" cartridge

Pressure drop diagram

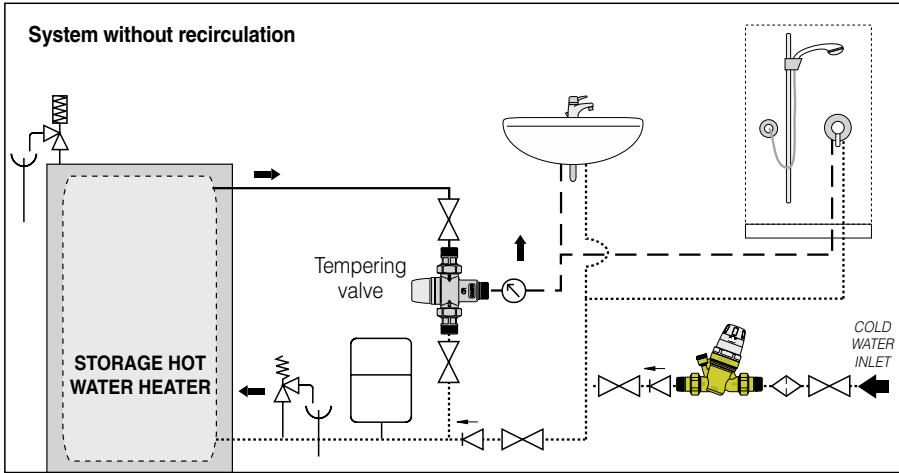
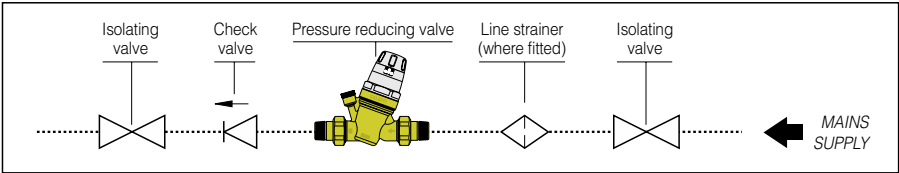


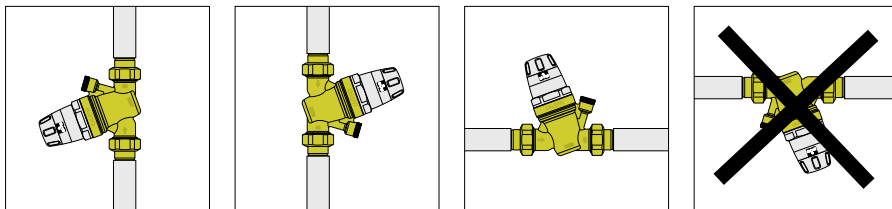
Under the following conditions:
Inlet pressure 600 kPa
Outlet set pressure: 400 kPa

Installation

The pressure reducing valve must be installed by a licensed plumber and in accordance with AS/NZS 3500, relevant local requirements and following these instructions.

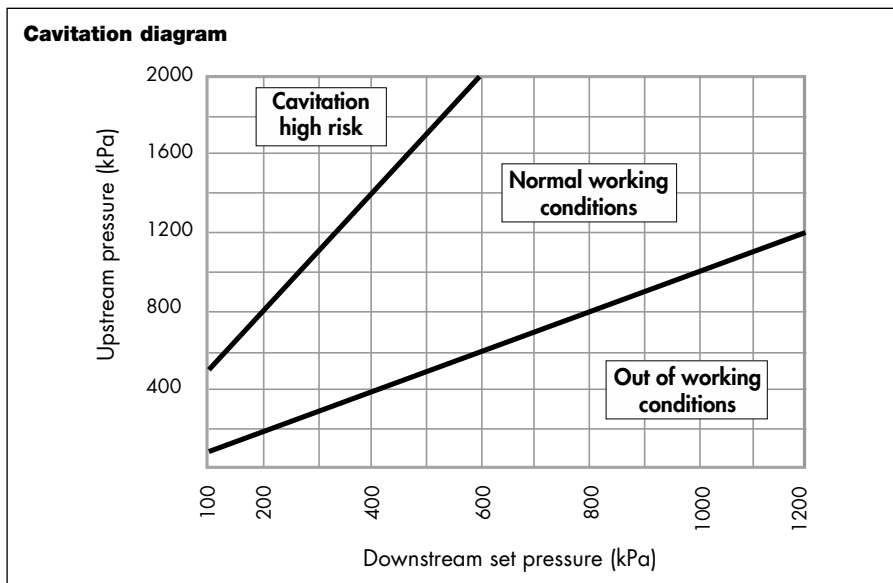
Installation diagram





- 1) Before installing the pressure reducing valve, open all the outlets to flush the system and expel any air left in the pipework.
- 2) Install shut-off valves upstream and downstream to facilitate maintenance operations.
- 3) The pressure reducing valve can be installed in either vertical or horizontal pipework. However it must not be installed upside down.
- 4) Close the downstream shut-off valve.
- 5) This mechanical pre-setting system with adjustment knob and pressure indicator visible on both sides makes it possible to set the reducing valve to the required value in the system before installation. The pressure indicator has an incremental movement, so that the pressure can be adjusted continuously, displaying the value at 50 kPa (0.5 bar) increments.
- 6) Calibration is carried out by means of the adjusting knob on the upper part of the device. The reducers are pre-set at the factory to a pressure of 300 kPa (3 bar).
- 7) In view of the pre-setting function, the installation of a pressure gauge downstream of the appliance is not essential.
- 8) After installation, the internal mechanism will automatically adjust the pressure until it reaches the required value.
- 9) Reopen the downstream shut-off valve slowly.

Recommendation for installation conditions



To minimize the risk of cavitation within the valve that may result in malfunctioning with erosion of valve sealing area, vibrations and noise, it is highly recommended to refer to the working conditions represented in the above diagram.

Due to the numerous factors and variable conditions experienced such as system pressure, water temperature, air presence, flow rate and velocity, which may affect the behavior of the pressure reducing valve, it is advisable that the pressure ratio between the upstream pressure and the downstream set pressure is kept ideally to a value 2:1 and no greater than a value of 3:1. (For example, upstream 1000 kPa, set pressure 500 kPa, the pressure ratio = $1000/500 = 2:1$). In these conditions, the possible risk of cavitation and malfunctioning is minimised, however this does not exclude the possible effects of the many other variables within the system under operating conditions.

If the pressure ratio exceeds the indicated limit, the system design pressure or use of 1st stage pressure reducing valves shall be reviewed. (For example, 1st stage reducing pressure from 1600 to 800 kPa and then 2nd stage from 800 to 400 kPa).

Pipework upstream and downstream of the pressure reducing valve shall be supported in accordance with the manufacturer's instructions, AS/NZS 3500 along with any other local authority requirements, to avoid the creation and transfer of vibration and/or noise into the installation.

The inlet strainer of the pressure reducing valve shall be periodically checked and cleaned, to minimize any partial or complete blockage which may limit the flow rate from the valve and/or create noise.

System flushing, cleaning and disinfection of the pipework to which the valve is installed shall be performed by suitably qualified persons in accordance with the system component manufacturer's instructions, AS/NZS 3500 along with any other applicable local authority requirements. Exceeding the maximum stated chemical concentrations and/or duration of exposure may negatively impact on the performance of the system and/or components installed such as the pressure reducing valve. Chemical dosed products must be chemically compatible with materials used for the construction of the pressure reducing valve, specified in its technical documentation.

Installation below ground

Installing pressure reducing valves below ground is not recommended, because:

- there is a risk of the reducing valve being damaged by frost
- inspection and maintenance is difficult
- reading the pressure gauge is difficult.

Water hammering

This is one of the main causes of faults in pressure reducing valves. It is best to fit special devices to absorb water hammering when fitting pressure reducing valves in systems at risk.



WARNING:

If it is **critical** to maintain the downstream pressure setting to protect equipment, as a safety measure, we recommend that a pressure, or safety, relief valve is installed downstream of the pressure reducing valve.

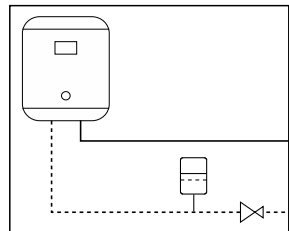
Trouble-shooting

1. Increased downstream pressure near a water heater

This problem is due to the water being heated by the water heater. There is no relief of the pressure because the reducing valve is correctly closed. The solution is to install an expansion vessel (between the heater and the reducer) to "absorb" the pressure increase.

2. The pressure reducing valve does not maintain its set pressure

In most cases this is the result of impurities that deposit on the valve seat causing leakage with a resulting increase in pressure downstream. The solution is to fit a filter upstream from the reducer and subsequently to maintain and clean the cartridge (see *Maintenance*).

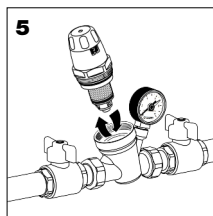
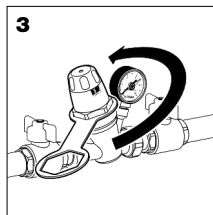


Maintenance

The pressure reducing valve is a device that controls the hydraulic circuit and its functioning needs to be checked at least every 12 months.

When checking, cleaning or replacing the complete regulating cartridge:

- 1) Shut-off the reducing valve.
- 2) The special construction of the regulating unit does not require any adjustment of the calibrated pressure, which can be left at the set value.
- 3) Remove the upper cover, using the spanner suitable. The upper cover is integral with the internal regulating cartridge.
- 4) Check and clean the filter, present on 5350 series.
- 5) The whole self-contained cartridge can be refitted or replaced with a spare. When the cartridge is screwed back into the body, the pressure indication windows will return to the original position.
- 6) Reopen the shut-off valves. The pressure will return to the original set value.



Safety

If the pressure reducing valve is not installed, commissioned and maintained properly in accordance with the instructions contained in this manual, it may not operate correctly, and may cause damage to objects and/or persons.

Make sure that all the connections are water-tight.

When installing the pressure reducing valve, make sure not to over-tighten the connections to the valve, as, over time, a failure can occur with subsequent water leakage causing damage.

In the case of highly aggressive water, arrangements must be made to treat the water before it enters the pressure reducing valve, in accordance with current legislation. Otherwise, the pressure reducing valve may be damaged and not function correctly.

Leave this operating manual with the user

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