

5360

pressure reducing valves
for 1st stage control



altecnic
CALEFFI group

5360 pressure reducing valve for 1st stage control



Application

Pressure reducing valves are installed in water systems to reduce and stabilise inlet pressures from mains water supplies or boosted water systems, which generally are too high and variable for domestic appliances to function correctly.

The 5360 pressure reducing valve is a high performance valve manufactured specifically for high rise buildings and other applications where high pressures are present and require staged pressure control.

The 5360 pressure reducing valve carries out the first stage of pressure reduction in a two valve series where the pressure ratio between the inlet and outlet would be too high for a single pressure reducing valve to control.

Design

The 5360 pressure reducing valves are factory set to maintain 8 bar downstream pressure. The pressure can be adjusted using a 10mm Allen key/screw driver, depending upon size.

A pressure gauge with a range of 0 to 25 bar is fitted as standard in the downstream port.

The internal cartridge assembly can be easily removed for inspection, cleaning and maintenance operations.

The compensated seat design means that the set downstream pressure remains independent of upstream pressure variations.

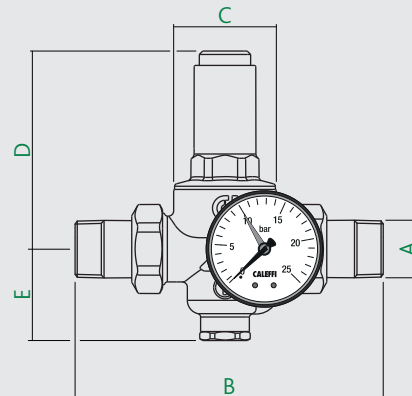
An integral filter prevents debris from entering the cartridge, which may affect its performance.

Product Code	Size	Connections	Type
536043	½"	screwed iron	M x M - with pressure gauge
536053	¾"	screwed iron	M x M - with pressure gauge
536063	1"	screwed iron	M x M - with pressure gauge
536073	1¼"	screwed iron	M x M - with pressure gauge
536083	1½"	screwed iron	M x M - with pressure gauge

Technical Data

Max. inlet pressure:	25 bar
Outlet pressure setting range:	6 to 10 bar
Factory setting:	8 bar
Max. working temperature:	80°C
Pressure gauge range:	0 to 10 bar
Pressure gauge range:	0 to 25 bar
Filter mesh size:	½" to 1" Ø 0.51
	1¼" & 1½" Ø 0.65
Medium:	portable water
Complies with:	BS EN 1567
Acoustic group:	I

Dimensions

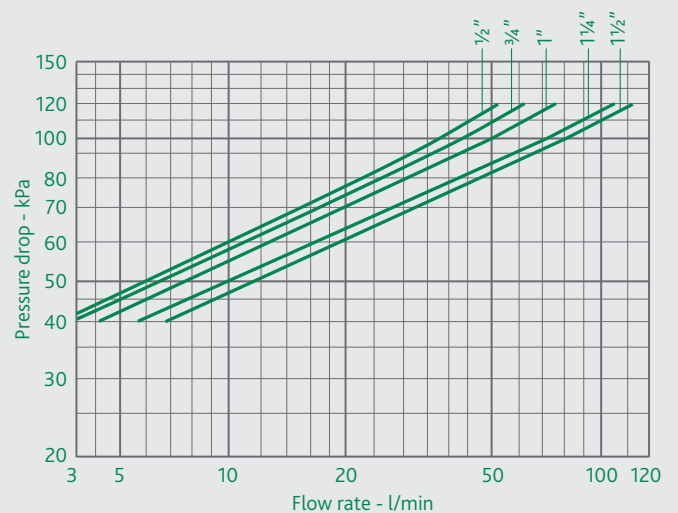


Prod Code	A	B	C	D	E	kg
536043	R½	140	53.5	85.3	53.5	1.5
536053	R¾	160	54	115.7	53.5	2.0
536063	R1	180	54	115.7	53.5	2.3
536073	R1¼	204	63	135.2	62.8	3.4
536083	R1½	220	63	135.2	62.8	4.0

Construction Details

Component	Material	Grade
Body	DZR copper alloy	BS EN 1982 CC770S
Cover	Brass	BS EN 12165 CW617N
Control spindle:	Stainless st. (AISI 303)	BS EN 10088-3
Spring:	Stainless st. (AISI 302)	BS EN 10270-3
Moving parts:	Stainless st. (AISI 303)	BS EN 10088-3
Seals	Elastomer	EPDM
Strainer screen	Stainless st. (AISI 304)	BS EN 10088-2
Seat	Stainless st. (AISI 303)	BS EN 10088-3
Cartridge	DZR copper alloy	BS EN 12165 CW602N

Pressure Drop Chart

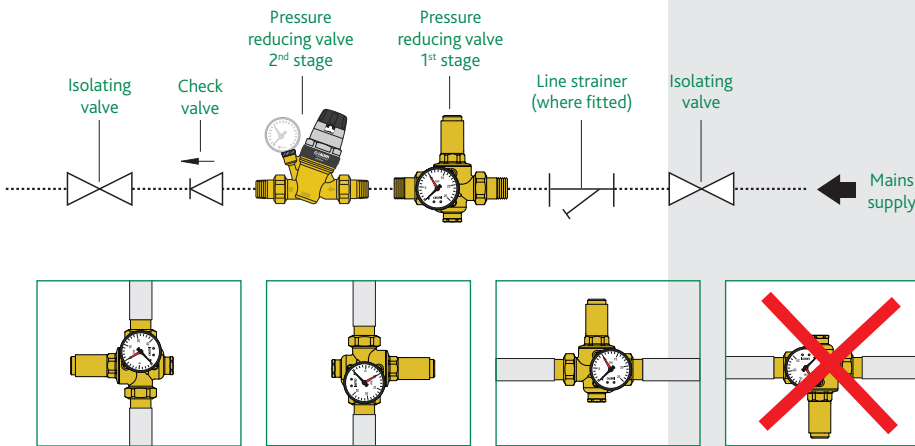


Under the following conditions:

Inlet pressure 16 bar
Outlet pressure 8 bar

5360 pressure reducing valve for 1st stage control

Installation Diagrams



Prior to Installation

The pressure reducing valve has to be sized in accordance with the system design and the proper selection of the project flow rate, for avoiding any oversizing or undersizing with possible malfunctioning.

This pressure reducing valve must be installed by a qualified and authorised person following these instructions.

The installer must:

- ensure the pressure reducing valve is compatible with any other equipment in the system it may interact with or come into contact with.
- assess and acknowledge all hazards related to the use of the valve by installing the unit correctly.
- install isolating valves fitted with pressure ports or similar equipment to measure the upstream pressure.

Installation

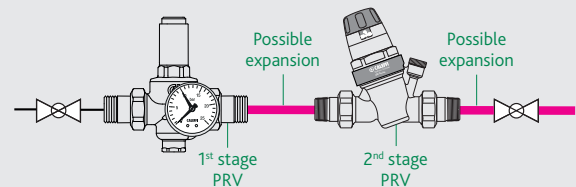
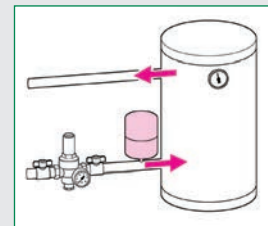
- 1 Before installing the pressure reducer, open all the outlets to flush the system and expel any air or debris in the pipework.
- 2 Install isolating valves upstream and downstream to facilitate any future maintenance.
- 3 The pressure reducing valve can be installed in either vertical or horizontal pipework, however it must not be installed upside down.
- 4 Close the downstream isolating valve.
- 5 Check the required pressure on the pressure gauge; the valve come factory set at 8.0 bar.
- 6 Adjust the downstream pressure by means of the spring pressure regulating nut located under the head cover, turning with a 10mm hexagonal Allen key to increase the set value or anticlockwise to reduce it.

Installation Recommendations

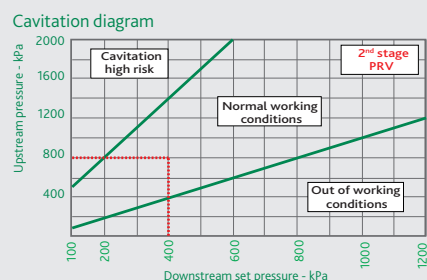
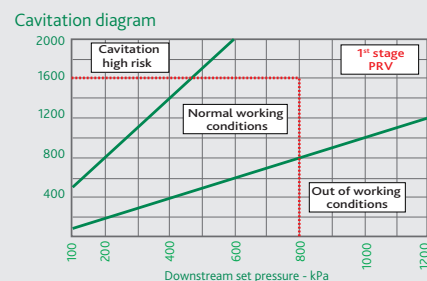
When installed upstream of a hot water storage tank, we recommend installing an expansion vessel or similar equipment to absorb the increase in pressure due to the thermal expansion of the water.

When installed in large buildings, adopt technical measures such as using short pipes or including expansion valves and similar equipment to limit the increased pressure due to the thermal expansion of the water caused by temperature changes downstream of the pressure reducing valve itself (or downstream of the first and second stage reducing valves, if two are present).

Installation Recommendations



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 below diagram.



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Installation Recommendations Continued

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 behaviour 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 10 bar, set pressure 5 bar, the pressure ratio = $10/5 = 2:1$.

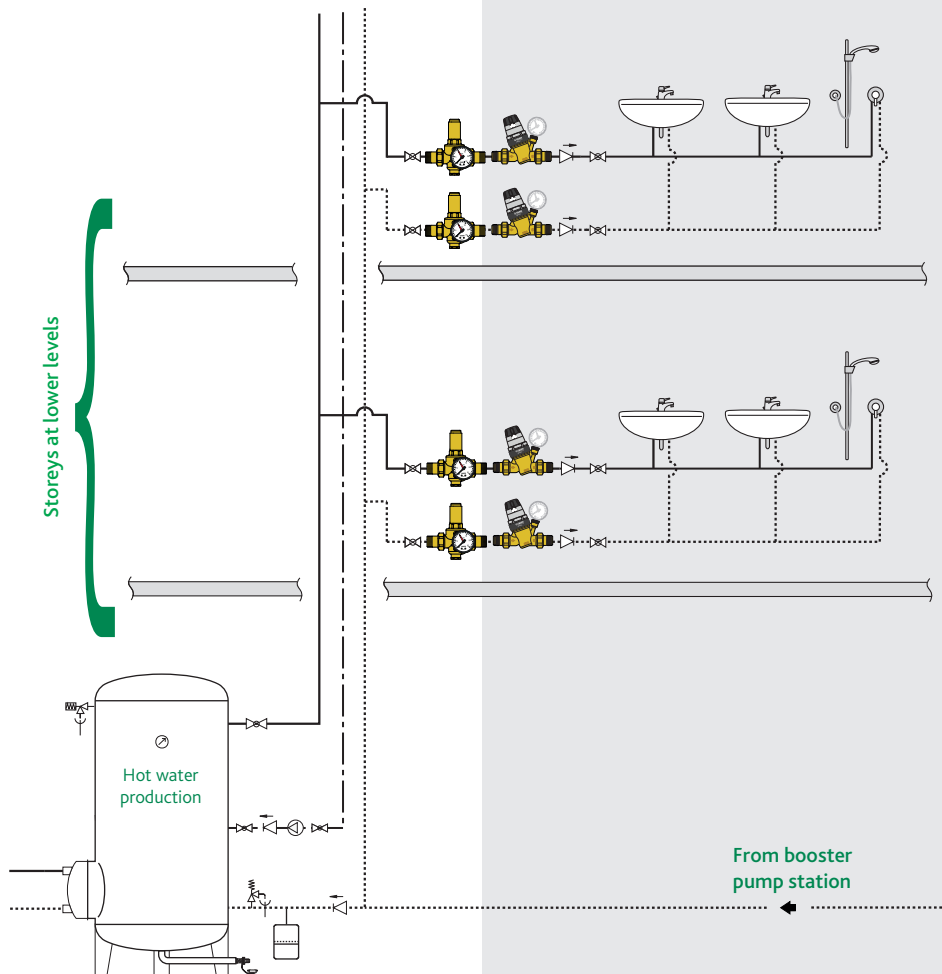
In these conditions, the possible risk of cavitation and malfunctioning is minimised, however this does not exclude the possible effects of the many other variables within the system under operating conditions.

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 16 to 8 bar and then 2nd stage from 8 to 4 bar.

Pipework upstream and downstream of the pressure reducing valve shall be supported in accordance with the manufacturer's instructions to avoid the creation and transfer of vibration and/or noise into the installation.

Typical Large System with Recirculation



Installation Recommendations Continued

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 and/or create noise.

Flushing through water systems using certain chemicals may wholly or partially remove the lubricant from the internal workings of the valve, which may adversely affect its performance. We recommend that following flushing of the system with chemicals; valves are checked for correct operations.

Water Hammer

This is one of the main causes of faults in pressure reducing valves.

It is recommended to fit special devices to absorb water hammer 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.

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Maintenance

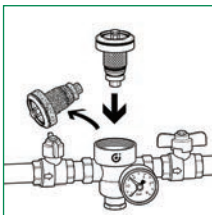
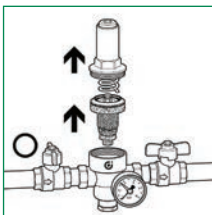
The pressure reducing valve must be checked and serviced in compliance with the provisions of applicable regulations.

Even when installed, commissioned and serviced properly, the reducing valve's internal components are subject to normal wear and tear, which may result in leaks and other malfunctions.

We advise that you check that it is in good working order and service and clean the cartridge at least every 12 months.

For cleaning, inspection or replacement of the entire cartridge:

- 1 Isolate the reducer.
- 2 Unscrew the spring pressure regulating nut to release the spring tension.
- 3 Remove the head cover.
- 4 Extract the cartridge using two screwdrivers.
- 5 After inspection and cleaning if necessary, the complete cartridge can be refitted or replaced using a spare cartridge.
- 6 Recalibrate the pressure reducing valve.



Problem Solving

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 pressure reducing valve is correctly closed.

Solution:

The solution is to install an expansion vessel (between the heater and the reducer) to "absorb" the pressure increase or an expansion control valve to relieve the pressure.

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.

Solution:

The solution is to fit a filter upstream from the reducer and subsequently to maintain and clean the cartridge - see Maintenance.

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 injury to personnel.

Make sure that all the connections are water-tight.

When installing the pressure reducing valve make sure not to overtighten 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.

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