

535H

high performance
pressure reducing valve



installation guide

altecnic
CALEFFI group



CERTIFICATION MARK

535H high performance pressure reducing valve

These installation instructions are for the Altecnic 535H high performance pressure reducing valves with compression or female threaded ends.

Introduction

Pressure reducing valves when installed on water systems reduce and stabilise the pressure entering from the public mains. This incoming pressure is generally too high and variable for direct application to domestic systems.

535H pressure reducing valves have a specially shaped diaphragm to give accurate pressure regulation in response to changes in downstream pressure.

The control stem housing of the cartridge is made from a plastic material with a low co-efficient of adhesion, which reduces the probability of scale deposits forming, the main cause of pressure reducing valve malfunction.

The cartridge and strainer screen are easily removed for periodic cleaning and maintenance.

The 535H series of pressure reducing valve is certified according to BS EN 1567 for operating with inlet water temperatures up to 80°C.

The 533H is specifically designed for higher flow rates with a low noise level when operating.

Product Code	Size	Connections	Type
535015H	15mm	compression	Cu x Cu with gauge port
535022H	22mm	compression	Cu x Cu with gauge port
535028H	28mm	compression	Cu x Cu with gauge port
535040H	½"	screwed iron	M x M - with gauge port
535041H	½"	screwed iron	M x M - with pressure gauge
535050H	¾"	screwed iron	M x M - with gauge port
535051H	¾"	screwed iron	M x M - with pressure gauge
535060H	1"	screwed iron	M x M - with gauge port
535061H	1"	screwed iron	M x M - with pressure gauge
535070H	1¼"	screwed iron	M x M - with gauge port
535071H	1¼"	screwed iron	M x M - with pressure gauge
535080H	1½"	screwed iron	M x M - with gauge port
535081H	1½"	screwed iron	M x M - with pressure gauge
535090H	2"	screwed iron	M x M - with gauge port
535091H	2"	screwed iron	M x M - with pressure gauge

Warning



The following instructions must be read and understood before installing and maintaining the product.

CAUTION! Failure to follow these instructions could result in a safety hazard!

Construction Details

Component	Material	Grade
Body	DZR chrome plated	BS EN 12165 CW724R
Cover	Nylon	PA 66M40/1
Control stem	Stainless steel	BS EN 10088-3 (AISI 303)
Cartridge	Polymer	PPSG40
Moving components	DZR	BS EN 12165 CW724R
Diaphragm	EPDM	
Seals	EPDM	
Strainer screen	Stainless steel	BS EN 10088-2 (AISI 304)
Seat	Stainless steel	BS EN 10088-3 (AISI 303)

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Technical Data

Max inlet pressure:	16 bar
Outlet pressure setting range:	1 to 6 bar
Factory setting:	3 bar
Max working temperature:	80°C
Pressure gauge scale:	0 to 10 bar
Pressure gauge connection:	G1/4
Strainer mesh size:	½" & 15 to 1" & 28 0.51 mm
	1¼" to 2" 0.65 mm
Medium:	potable water
Certification:	BS EN 1567
Acoustic group:	½" & 15 to 1" & 28 II
WRAS approved product:	Yes

Recommended Flow Rates

Pressure reducing valves must be sized in accordance with the system specification and the appropriate flow rates for avoiding oversizing with possible malfunction.

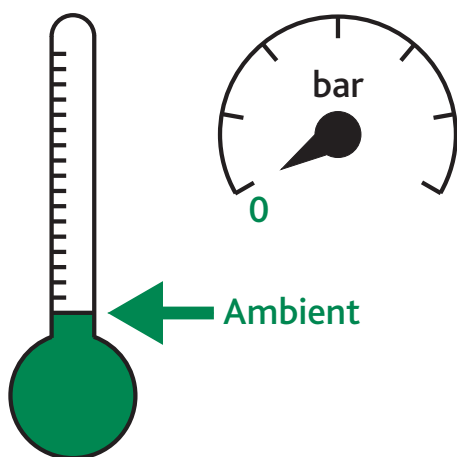
For an average flow velocity of 2 m/s, the maximum flow rates for each valve size, according to BS EN1567 are;

Size	15mm ½"	22mm ¾"	28mm 1"	1¼"	1½"	2"
Q (l/m)	21.1	37.8	60	96.6	151.6	233.3

Water outlet	Flow Rate
Bath tub, kitchen tap dishwasher	12 l/min
Shower	9 l/min
Wash basin, bidet, washing machine, WC with cistern	6 l/min

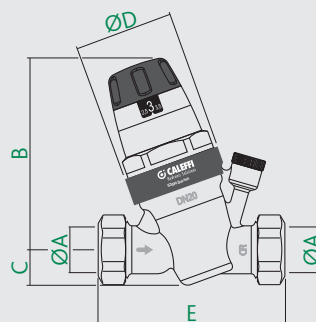
Installation

Please read these instruction before commencing installation to ensure the correct fitting position is selected and sufficient space and access is available for adjustment and any future maintenance.

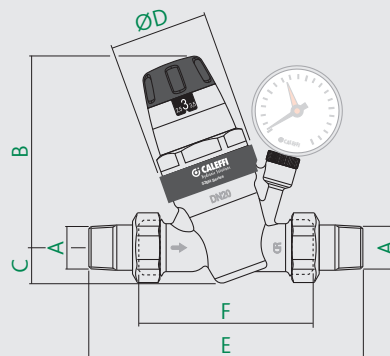


Assembly and disassembly should always be carried out while the system is cold and not under pressure.

Dimensions



Prod Code	A	B	C	D	E	kg
535015H	Ø15	115	20.5	60	101	0.69
535022H	Ø22	115	20.5	60	109	0.74
535028H	Ø28	115	20.5	60	115	0.79



Prod Code	A	B	C	D	E	F	kg
535040H	R½	115	20.5	60	140	76	0.86
535041H	R½	115	20.5	60	140	76	0.96
535050H	R¾	115	20.5	60	160	90	1.02
535051H	R¾	115	20.5	60	160	90	1.12
535060H	R1	115	20.5	60	180	95	1.31
535061H	R1	115	20.5	60	180	95	1.41
535070H	R1¼	178	40	78	200	110	2.78
535071H	R1¼	178	40	78	200	110	2.88
535080H	R1½	178	40	78	220	120	3.30
535081H	R1½	178	40	78	220	120	3.40
535090H	R2	178	40	78	250	130	4.41
535091H	R2	178	40	78	250	130	4.51

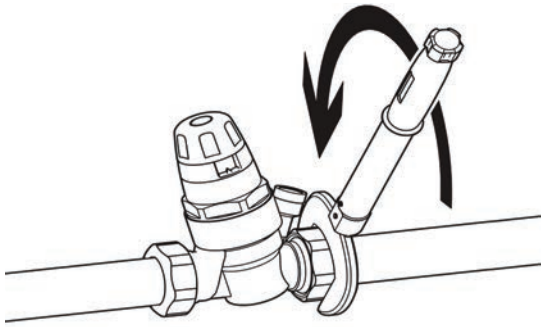
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Installation Continued

When installing valves with compression ends to BS EN 1254-2 the torques given below should be used.

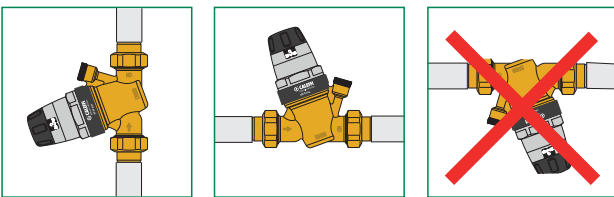
Ensure the joint is clean and free from debris and burrs.

Seal paste or tape should not be required.



Product Code	Size	Torque
535015H	Ø15	50 Nm
535022H	Ø22	60 Nm
535028H	Ø28	80 Nm

- 1 Turn all the taps on before installing the pressure reducing valve, to flush the system and expel any air remaining in the pipes.
- 2 Install shut-off valves upstream and downstream to facilitate maintenance operations.
- 3 The pressure reducing valve may be installed on either vertical or horizontal pipe.
However, it must not be installed upside down



- 4 Close the downstream shut-off valve.
- 5 The pressure indicator is visible from both sides of the pressure setting knob allowing the pressure reducing valve to be set to the required value prior to installation.
The pressure indicator displays incremental step of 0.5 bar allowing the pressure to be adjusted easily.
- 6 The valves are factory set to a pressure of 3 bar.
- 7 When fitted with a pressure gauge in the gauge port or downstream of the valve the outlet pressure can easily be confirmed during setting at installation.
- 8 After installation, the internal mechanism will automatically control the outlet pressure, until the set value has been reached.
- 9 Slowly re-open the downstream shut-off valve.

Installation Below Ground

The pressure reducing valves should not be installed below ground, for the following reasons:

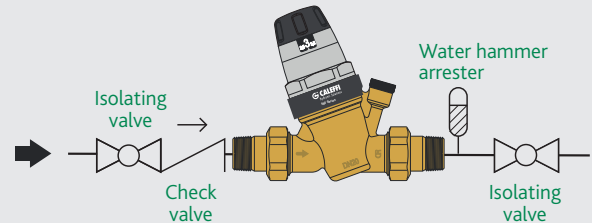
- The reducing valve may be damaged by frost.
- Inspection and maintenance operations may be difficult.
- The pressure gauge, if fitted, will be difficult to read.

Outdoor installation

Pressure reducing valves should not be installed outside the building unless properly protected from frost and the weather.

Water hammer

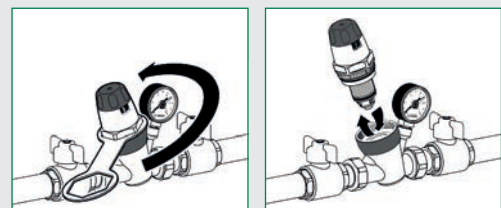
This is one of the main causes of failure in pressure reducing valves. It is recommended to fit special devices to absorb water hammer when installing pressure reducers in at-risk systems.



Maintenance

When checking, cleaning or replacing the complete regulating cartridge:

- Isolate the pressure reducing valve using upstream and downstream isolating valves (not supplied).
- The special construction of the regulating unit does not require any adjustment of the calibrated pressure, which can be left at the set value.
- Remove the upper cover, using the special spanner.



- The upper cover is integral with the internal regulating cartridge.
- Check and clean the filter by holding under clean running water.
- 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.
- Reopen the shut-off valves. The pressure will return to the original set value.

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Trouble Shooting

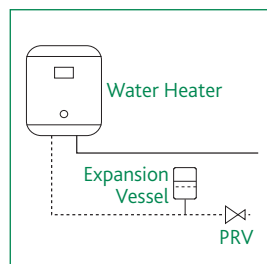
Certain types of failure, which are generally due to system design, are often wrongly attributed to the pressure reducing valve.

The most frequent causes are as follows:

1. Increased downstream pressure when installed close to a water heater.

This problem is due to the water heater increasing the temperature and expanding the volume of water, which increases the pressure.

The pressure cannot be reduced because the pressure reducing valve is closed.



The solution is to install an expansion vessel between the water heater and the pressure reducing valve to "absorb" the increase in pressure.

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

In most cases this is the result of debris that deposits on the valve seat causing leakage with the resulting increase downstream pressure.

The solution is to carry out maintenance and clean the removable cartridge and in particular the resilient disc facing which may have embedded debris or be damaged.

Please leave this Manual for the User

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Altecnic Ltd Mustang Drive, Stafford, Staffordshire ST16 1GW

T: +44 (0)1785 218200 E: sales@altecnic.co.uk

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