

580

automatic compact charging
unit with BA type backflow
prevention valve



altecnic
CALEFFI group

580 automatic charging unit with BA backflow preventer



Application

The Altecnic 580 compact automatic charging unit comprises a isolating valve with an inspectable strainer, a BA-type controllable reduced pressure zone (RPZ) backflow preventer and an automatic filling unit.

It should be installed on the water inlet piping in closed circuit heating systems.

The unit maintains a stable pressure in the system at a set value, automatically topping up with water as required.

The RPZ prevents the contaminated water of the closed heating circuit from flowing back into the domestic water supply, in accordance with the provisions of BS EN 1717.

The device is supplied complete with preformed shell insulation and features a compact design to facilitate installation.

Technical Specification

Materials

Component	Material	Grade
Backflow preventer		
Body:	Brass	BS EN 12165 CW617N
Check valves:	Polymer/elastomer	POM/EPDM
Springs:	Stainless steel	BS EN 10270-3 (AISI 302)
Diaphragm:	Elastomer	EPDM
Seals:	Elastomer	EPDM
Filling unit		
Body:	Brass	BS EN 12165 CW617N
Cover:	Nylon	PA6G30
Control stem:	DZR	BS EN 12164 CW724R
Diaphragm:	Elastomer	EPDM
Seals:	Elastomer	EPDM

Ball isolating valve

Body:	Brass	BS EN 12165 CW617N
Ball:	DZR	BS EN 12164 CW724R
Seals:	Elastomer	EPDM
Lever:	Nylon	PA6G30

Strainer

Body:	Stainless steel	BS EN 10088 (AISI 304L)
Strainer mesh size:		0.4 mm

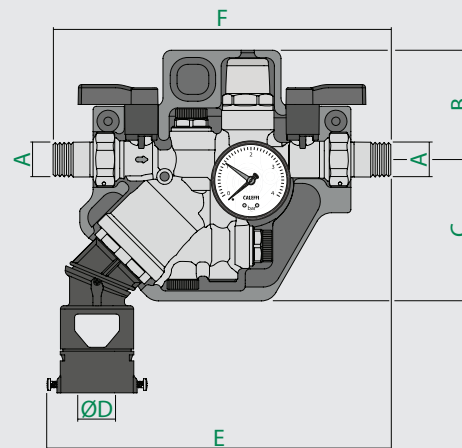
Insulation

Material:	EPP
Density:	30 kg/m ³

Performance

Medium:	Potable water
Maximum working pressure:	10 bar
Maximum working temperature:	65°C

Dimensions



Ref No	A	B	C	ØD	E	F	kg
580011	1/2"	66	85	40	207	203	1.35

Technical Specification Continued

Component

Backflow preventer

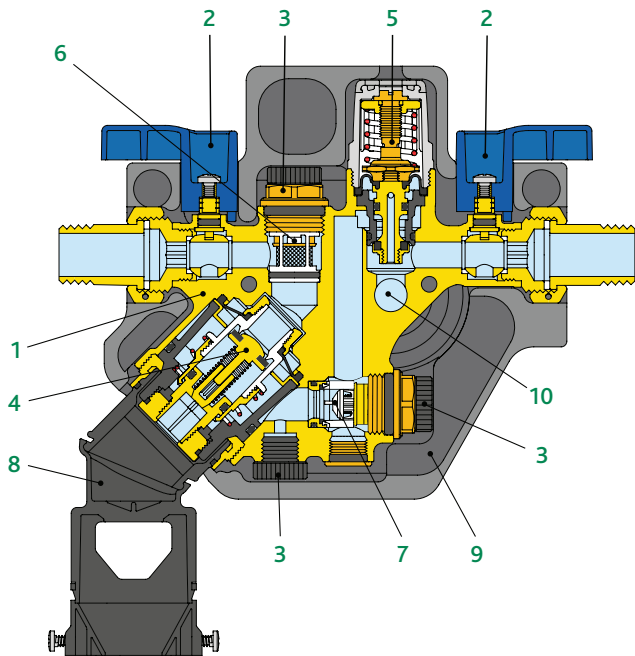
Designation:	Grade
Designation:	Family B, Type A
Certification:	BS EN 12729
Pressure test ports:	upstream, intermediate & downstream

Filling Unit

Adjustment range:	0.8 to 4 bar
Factory setting:	1.5 bar
Indicator accuracy:	±0.15 bar
Pressure gauge range:	0 to 4 bar
Connections - 1/2" M with union:	BS EN 10226-1

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Components



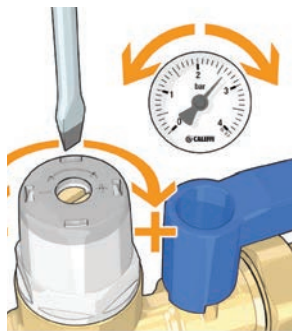
Construction Details

Automatic filling unit

The system filling pressure may be set by turning the regulating screw during the system filling phase.

The effective pressure is read on the pressure gauge.

The cartridge containing the diaphragm, seat, obturator and compensation piston is a pre-assembled unit with a cover and can be removed to facilitate inspection and maintenance procedures.



Non-sticking materials

The components inside the assembly are made from plastic having a low adherence coefficient. This solution minimises the chance of lime scale formation, the main cause of malfunctions.

Self-contained cartridge and membrane of the backflow preventer

The self-contained cartridge contains the membrane, the upstream check valve, the discharge valve and the whole activation system.

When maintenance is required it can be easily extracted from the body without the aid of further seal elements.

The membrane, integrated with the cartridge, separates the upstream zone from the intermediate zone. It also acts as a hydraulic seal between the two zones. For this reason, there are no O-rings between the two zones.



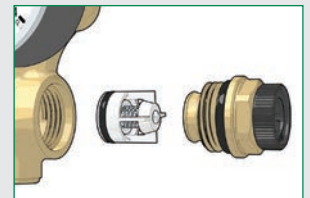
Components

- 1 Compact , self contained body
- 2 Isolation valve
- 3 Pressure test port
- 4 Type BA backflow prevention cartridge - BS EN 12729
- 5 Filling unit cartridge - pressure reducing valve BS EN 1567 - W570-3)
- 6 Removable upstream filter
- 7 Removable downstream check valve BS EN 13959
- 8 Discharge tundish BS EN 1717
- 9 Insulation
- 10 Pressure gauge connection on two sides

Construction Details Continued

Downstream check valve

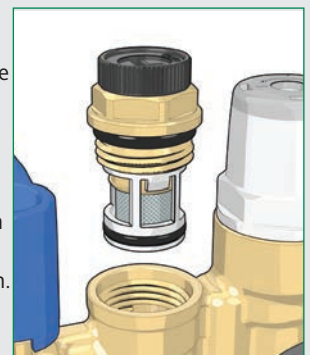
The downstream check valve is positioned before the filling unit and is held in place by a locking nut. For maintenance, simply remove the locking nut.



Shut-off valve, pressure test ports and inspectable strainer upstream

The isolation valves and the three pressure test ports (to BS EN 12729) allow periodic operation checks of the backflow preventer and the reducing valve in accordance with BS EN 806-5.

The removable upstream strainer protects the backflow preventer from any impurities in the mains water supply that could impair its operation.



Insulation

The assembly is supplied complete with insulation dimensioned to limit thermal losses.

Compact design and versatility

The unit has been designed with compact dimensions to facilitate installation in confined spaces, this being a common requirement for small and medium size systems for which this product is aimed

Thanks to the adjustable discharge tundish, the charging unit can be installed on both horizontal and vertical pipes with an upward flow.

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Controllable reduced pressure zone backflow preventer type BA Corrosion-proof materials

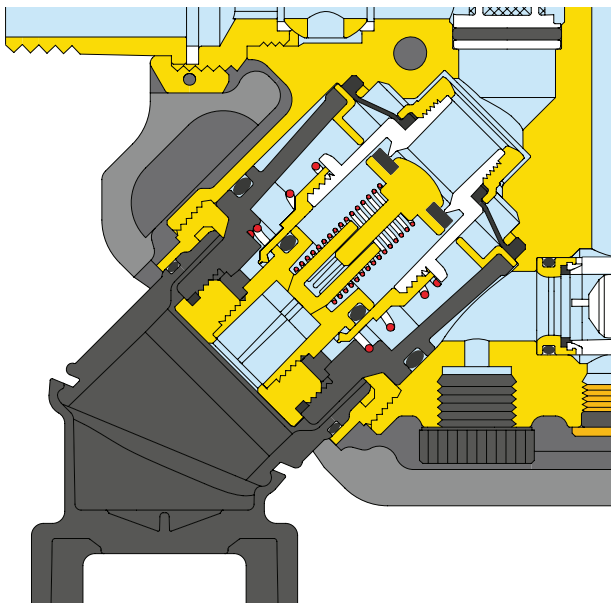
The materials used to manufacture the backflow preventer must be corrosion resistant when in contact with drinking water.

The components are therefore manufactured using a dezincification resistant alloy, plastic materials and stainless steel to ensure high performance over time.

Easy maintenance

The backflow preventer is a device that must be periodically checked to confirm its operating status during its working life, as required by regulation BS EN 806-5.

When needed, any disassembly and maintenance is easy to perform thanks to the use of easy to identify components and replace without the need to remove the body from the pipework.



Using the backflow preventer with reference to UK standards

The use of the BA type backflow preventer is regulated by the Water Bylaws to prevent pollution from backflow.

The reference standard is BS EN 1717 "Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow"

This standard classifies the water in the system according to the level of risk it represents for human health.

Category 1: Water to be used for human consumption coming directly from a potable water distribution system.

Category 2: Fluid presenting no human health hazard, as per 1, the quality of which can have undergone a change in taste, odour, colour or temperature.

Category 3: Fluid representing some human health hazard due to the presence of one or more harmful substances.

Category 4: Fluid presenting a human health hazard due to the presence of one or more "toxic" or "very toxic" substances or one or more radioactive, mutagenic or carcinogenic substances.

Category 5: Fluid presenting a human health hazard due to the presence of microbiological or viral elements.

Using the backflow preventer with reference to UK standards Cont.

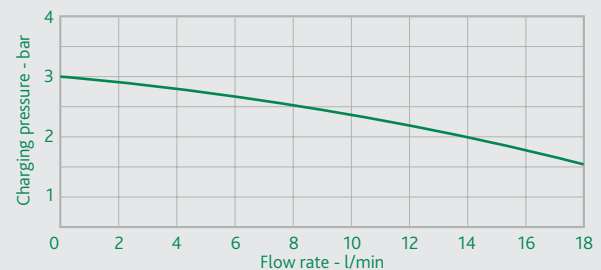
According to this classification, suitable backflow prevention devices must be fitted in water distribution circuits.

BA type backflow preventers can be used to protect against the risk of pollution from backflow for types of water up to category 4. For category 5 types of water an air gap separation must be used.

The table entitled "Protection matrix" lists a series of systems with category 4 medium based on the indications provided in the regulation.

British Standard BS EN 12729 "Devices to prevent pollution by backflow of potable water. Controllable backflow preventer with reduced pressure zone. Family B - Type A" defines the functional, dimensional and mechanical requirements of controllable reduced pressure zone backflow preventers of type BA.

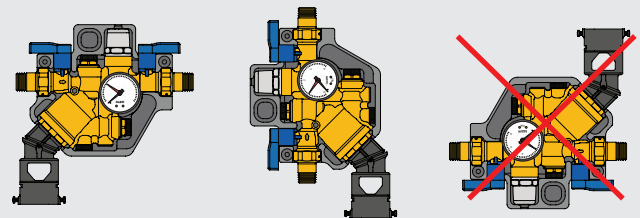
Hydraulic Characteristic



Charging flow rate 1.1 m³/hr = 18 l/min • 1.5 bar • BS EN 1567

Installation

- 1 The charging unit must be installed horizontally or vertically, respecting the direction of flow shown by the arrow on the body. The discharge tundish must comply with standard BS EN 1717 and be connected to a suitable drain.



- 2 The unit is normally set to a pressure no lower than the value obtained by adding 0.3 bar to the supply pressure.
- 3 During charging the internal mechanism will automatically adjust the pressure by closing the supply when the set value is reached, without having to watch the lengthy charging operation.
- 4 Once the system is charged, the isolation valve can be closed. To re-instate the automatic filling conditions the valve just has to be opened. The system pressure value will gradually go by to the set value.

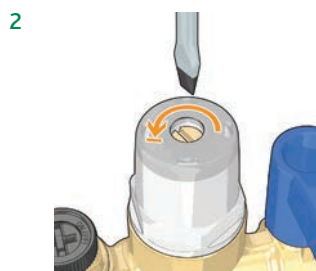
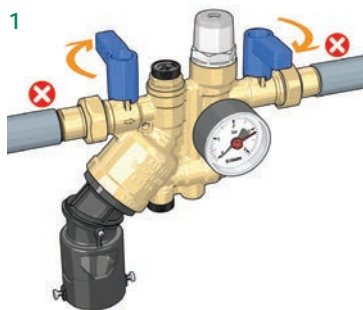
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Inspection and Maintenance

Inspecting and cleaning the pressure reducing valve

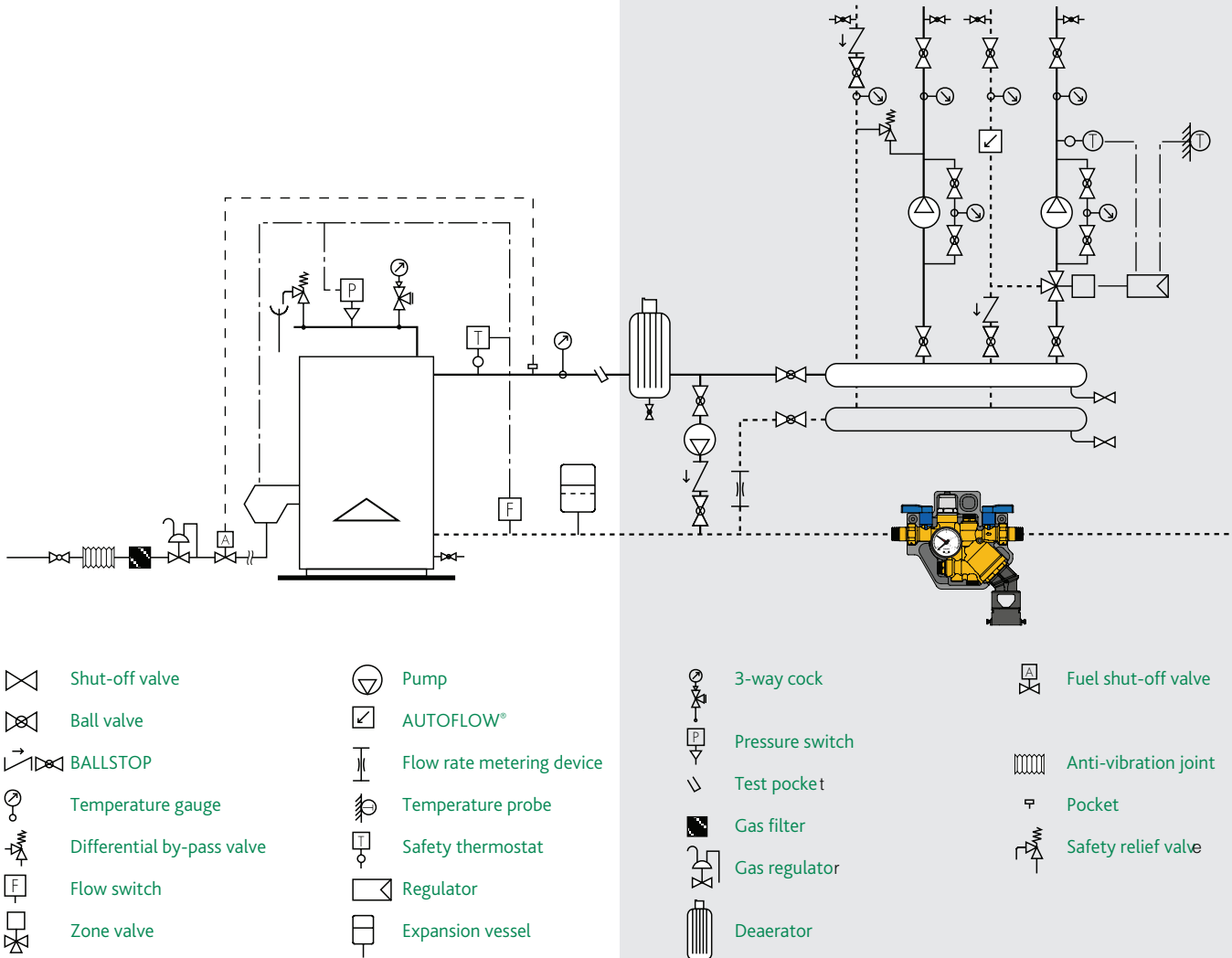
The pressure reducing valve cartridge should be periodically inspected, cleaned and if damaged replaced with a complete new assembly:

- 1 Shut off the assembly with the upstream and downstream valves.
- 2 Loosen and remove the adjustment screw.
- 3 Remove the cartridge.
- 4 After inspection and cleaning the pressure reducing valve cartridge, the entire assembly can be reassembled or replaced using a spare cartridge.
- 5 Re-calibrate the pressure reducing valve..



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Application Diagram



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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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altecnic.co.uk

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