Automatic compact charging unit with BA type backflow preventer

580 series

01333/17 GB

Function

The compact charging unit is comprised of a shut-off valve with an inspectable strainer, a BA-type controllable backflow preventer and an automatic filling unit. It is installed on the water inlet piping in closed circuit heating systems. It maintains the pressure of the system stable at a set value, automatically topping up with water as required. The backflow preventer prevents the contaminated water of the closed heating circuit from flowing back into the domestic water supply, in compliance with the provisions of EN 1717. The device is supplied complete with preformed shell insulation and features a compact design to facilitate installation.

Reference documentation

- Brochure 01322 Backflow preventer 580 series

Product range

Code 580010 Automatic compact charging unit with BA-type backflow preventer size DN 15 (1/2")

Technical specifications

Materials

Backflow preventer

Body:	dezincification resistant alloy CR EN 1982 CC770S
Check valves:	POM-EPDM
Springs:	stainless steel EN 10270-3 (AISI 302)
Diaphragm and seals:	EPDM

Filling unit

Body:	dezincification resistant alloy CR EN 1982 CC770S
Cover:	PA6G30
Obturator stem:	dezincification resistant alloy CR EN 12164 CW724R
Diaphragm and seals:	NBR-EPDM

Ball shut-off valve

Body:	dezincification resistant alloy CR EN 1982 CC770S
Ball:	brass EN 12164 CW614N
Hydraulic seals:	EPDM
Lever handle:	PA6G30

Strainer

Body:	stainless steel EN 10088-2 (AISI 304L)
Strainer mesh size:	0,4 mm

Insulation

Material:	EPS
Density:	30 kg/m^3

Performance

Medium:	potable water
Max. working pressure:	10 bar
Max. working temperature:	65°C

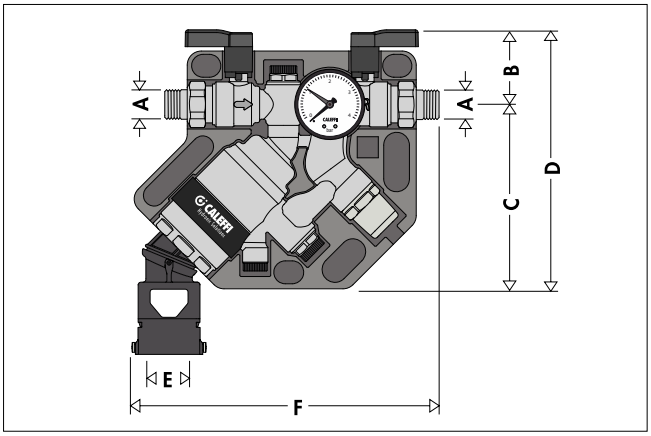
Backflow preventer

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

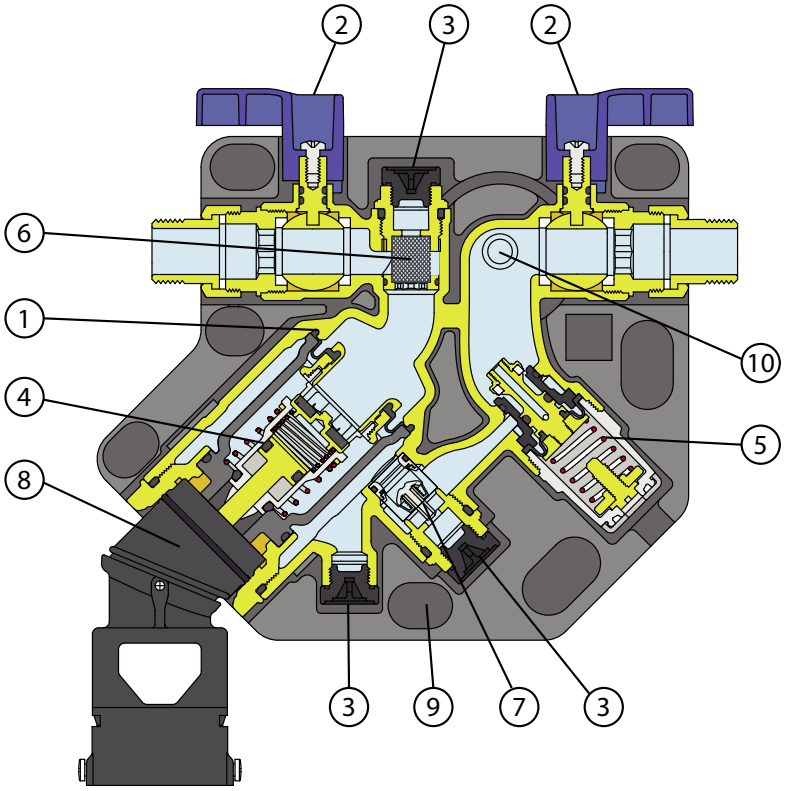
Filling unit

Adjustment range:	0,8–4 bar
Factory setting:	1,5 bar
Indicator accuracy:	± 0,15 bar
Pressure gauge range:	0–4 bar
Connections:	1/2" M (EN 10226-1) with union

Dimensions



Code	A	B	C	D	E	F	Mass (kg)
580010	1/2"	53	131	184	Ø40	220	1,8



Characteristic components

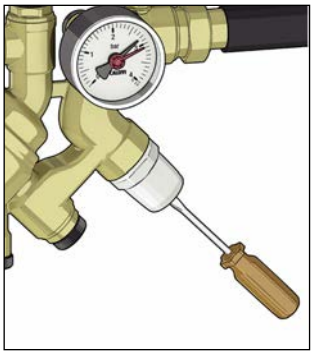
The charging unit 580 series is composed of:

1, Compact, self-contained body
2, Two shut-off valves
3, Three pressure test ports
4, BA Type backflow preventer cartridge (EN 12729)
5, Charging unit cartridge (pressure reducing valve) (EN 1567-W570-3)
6, Inspectable/removable upstream strainer
7, Inspectable/removable downstream check valve
8, Discharge tundish
9, Insulation
10, Pressure gauge connection on two sides

Construction details

Automatic filling unit

The system filling pressure may be set, 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 self-contained unit with a cover, and can be removed to facilitate inspection and maintenance procedures.



Non-sticking materials

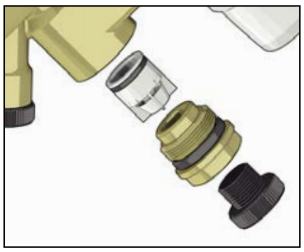
The components inside the assembly are made of plastic having a low adherence coefficient. This solution minimises the chance of lime scale formation, the main cause of malfunctions.

Self-contained cartridge and membrane of the backflow preventer

The self-contained cartridge comprises, all in one piece, the membrane, the upstream check valve, the discharge valve and the whole activation system. In case of maintenance, 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.

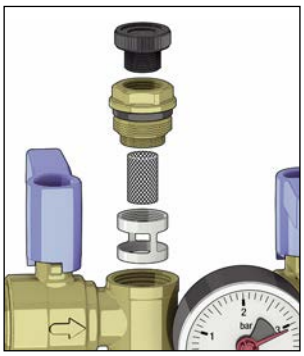
Downstream check valve

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



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

The shut-off valves and the three pressure test ports (to EN 12729) allow periodic operation checks of the backflow preventer and the pressure reducing valve in accordance with EN 806-5.
The inspectable upstream strainer, in accordance with EN 1717, 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 sized to limit thermal losses and to prevent condensation from forming on the surface.

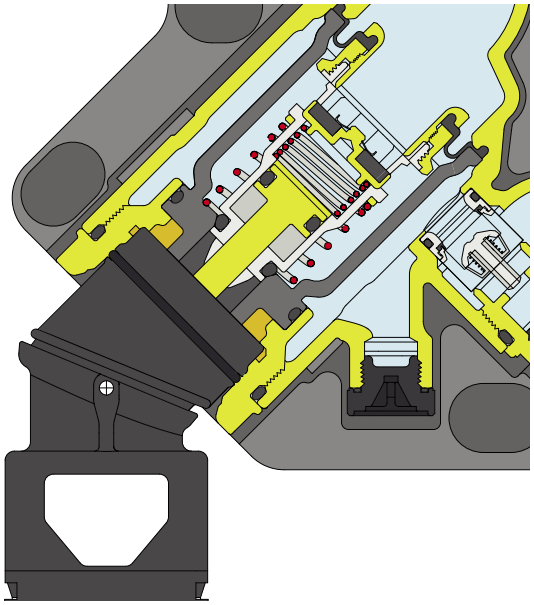
Compact design and versatility

The unit has been designed with compact dimensions to facilitate installation in confined spaces, this being a common situation for the small and medium size systems at which this product is aimed.
Thanks to the adjustable tundish, the charging unit can be installed on both horizontal and vertical pipes with an upward flow.

Controllable reduced pressure zone backflow preventer type BA

Corrosion-proof materials
The materials used to manufacture the backflow preventers must be insensitive to corrosion caused by contact with drinking water They are therefore constructed using a dezincification resistant alloy, plastic materials and stainless steel to ensure high performance over time.

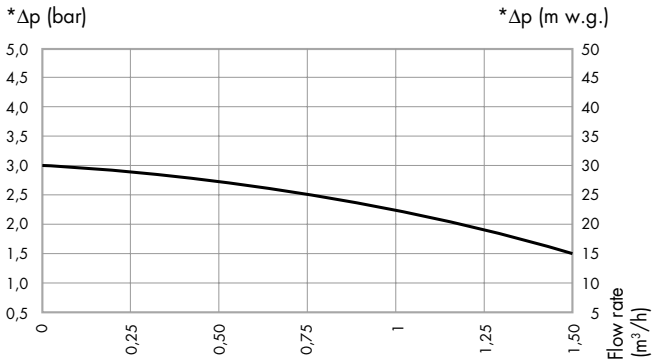
Easy maintenance
The backflow preventer is a device that must undergo periodic checking of its operating status during its normal working life, as required by regulation EN 806-5. When needed, any disassembly and maintenance work is easier to perform thanks to the use of components easy to verify and replace without having to disassemble the valve body from the pipe.



Using the backflow preventer in reference to European standards
The use of the BA type backflow preventer is regulated by the European regulations about the prevention of pollution from backflow. The reference standard is **EN 1717:2000** *"Protection against pollution of drinking water in water systems and general requirements for the devices used to prevent pollution caused by backflow"*.
This standard classifies the water in the systems 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.

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 European regulation.
European regulation **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.

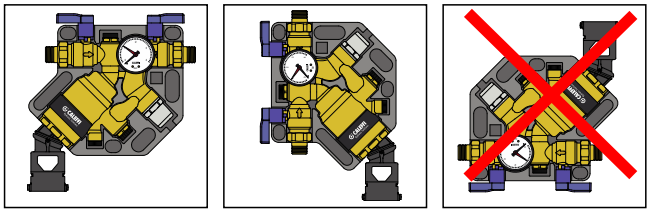
Hydraulic characteristics



Charging flow rate 1,5 m³/h • Δp 1,5 bar • Ref. EN 1567
** Charging pressure of system downstream the unit.*

Installation

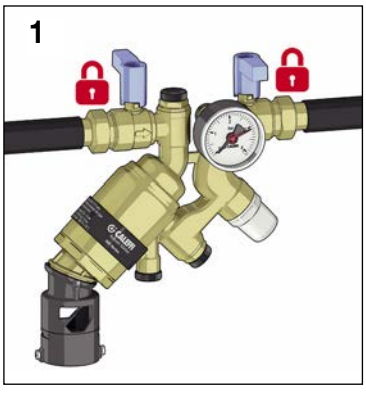
1, The charging unit must be installed horizontally or vertically, respecting the direction of flow shown with an arrow on the valve body. The discharge tundish must comply with standard EN 1717 and be connected to the sewage piping.

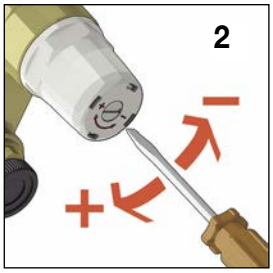


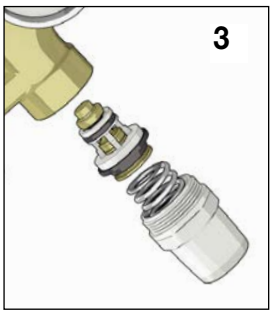
2, The unit is normally set to a pressure no lower than the value obtained by adding the hydrostatic pressure and 0,3 bar.
3, During the filling stage, the internal mechanism will automatically adjust the pressure by closing the supply when the set value is reached, without having to watch the lengthy filling operation.
4, Once the system is filled, the shut-off valve can be closed. To reinstate the automatic filling conditions, the valve just has to be re-opened. The system pressure value will gradually go back to the set value.

Inspection and maintenance

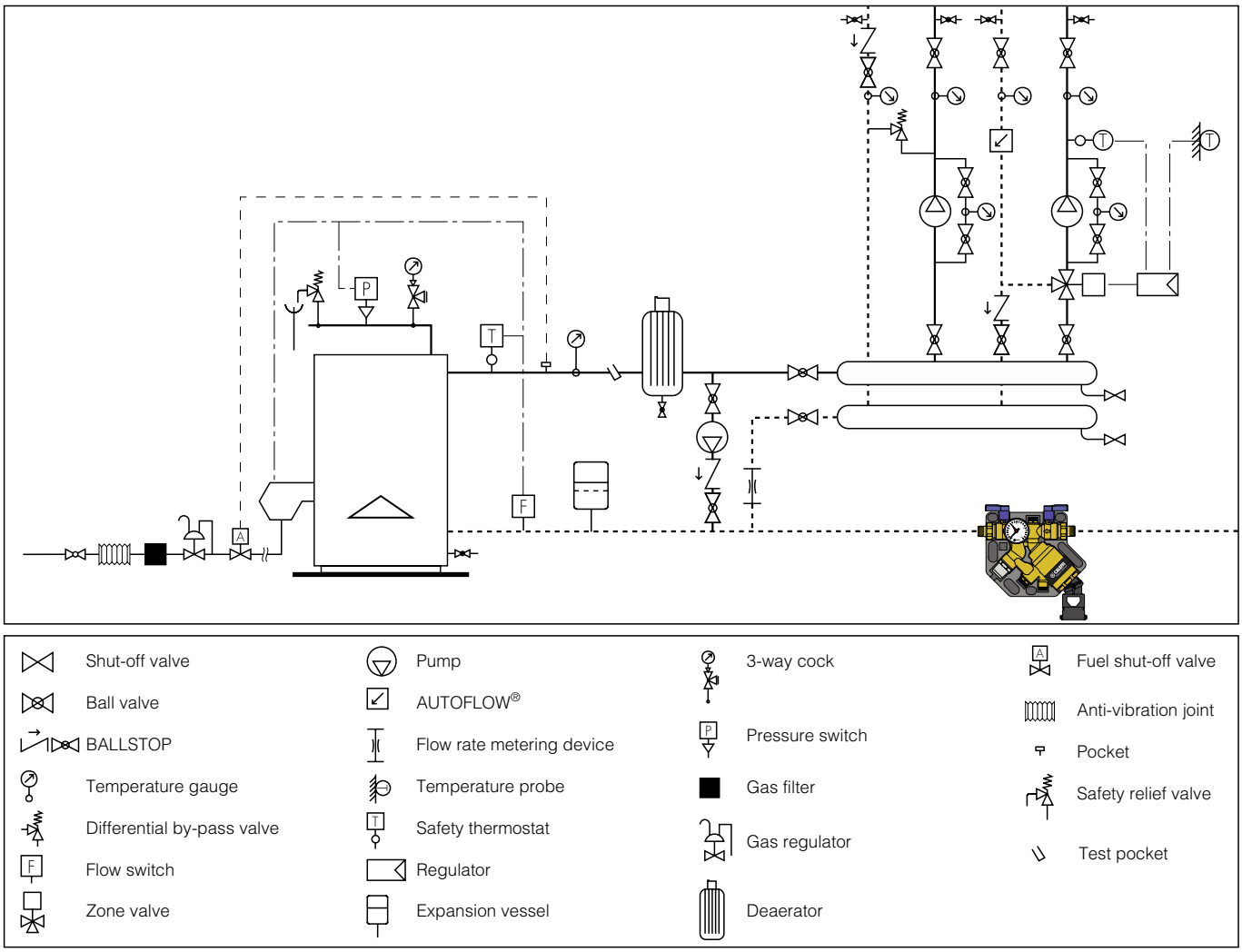
Loading group
The following are necessary for periodic cleaning, inspection and replacement of the entire cartridge:
1) Shut off the assembly with the valve upstream and downstream.
2) Loosen the setting screw all the way.
3) Remove the cartridge.
4) After inspection and any necessary cleaning of the body, the entire assembly can be reassembled or replaced using the spare cartridge.
5) Re-calibrate the appliance.







Application diagram



SPECIFICATION SUMMARY

Code 580010

Automatic compact charging unit with BA type backflow preventer. 1/2" M connections (ISO 10226-1) with union. Maximum working temperature 65°C. Maximum working pressure 10 bar. Medium drinking water.

Complete with:

- Controllable reduced pressure zone backflow preventer, BA type, compliant with EN 12729. Dezincification resistant alloy body, diaphragm and sealing gasket in EPDM. Stainless steel springs. Complete with discharge tundish with collar for fixing to the drain pipe;
- Pre-adjustable filling unit. Dezincification resistant alloy body, control stem and movable parts. PA6G30 cover. Diaphragm and seals in NBR-EPDM. Adjustment range 0,8–4 bar. Pressure gauge with scale 0–4 bar;
- Dezincification resistant alloy shut-off ball valve. Brass ball. EPDM hydraulic seals. PA6G30 lever handle;
- Upstream strainer with filtering mesh size Ø 0,4 mm;
- Insulation in EPS, density 30 kg/m^3.

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