

CALEFFI XF semi-automatic self-cleaning magnetic filter

577 series



01391/23 EN

replaces 01391/22.01 EN



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Function

The CALEFFI XF filter separates impurities in the system right from the first passage. Its large filtration surface and impurity separation upstream of the filter also minimises the problem of mesh clogging. System water is treated in three distinct steps: through an initial impurity separation mesh, using magnets located on the central stem and, finally, by passing through an outlet filter. CALEFFI XF continuously protects the generator and devices from any impurities that form in the hydraulic circuit. It can be adjusted for horizontal or vertical installation. Internal cleaning brushes mean that maintenance can be carried out without shutting off the device.

Product range

- 577 series CALEFFI XF semi-automatic self-cleaning magnetic filter with threaded connections _____ sizes DN 20 (3/4"), DN 25 (1") and DN 32 (1 1/4")
- 577 series CALEFFI XF semi-automatic self-cleaning magnetic filter with fittings for copper pipe _____ sizes DN 20 (Ø 22) and DN 25 (Ø 28)
- 577 series CALEFFI XF semi-automatic self-cleaning magnetic filter with threaded connections and by-pass _____ sizes DN 40 (1 1/2"), DN 50 (2")

Technical specifications

Materials

Body:	PA66G30
Upper cap:	brass EN 12164 CW617N
Purge screw:	brass EN 12164 CW617N
Locking nut for tee fitting:	
- code 577500, 577600, 577700, 577200 and 577300:	PPSG40
- code 577800 and 577900:	brass EN 12420 CW617N
Tee fitting:	brass EN 1982 CB 753S
Internal element:	PA66
Hydraulic seals:	EPDM
Internal brushes:	PA66

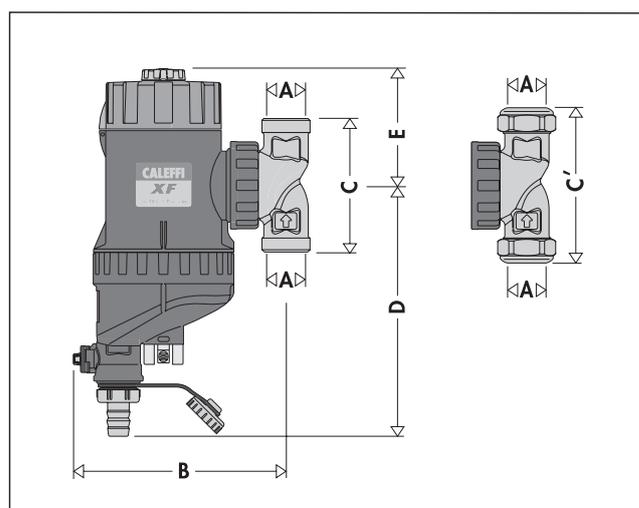
Performance

Medium:	water, glycol solutions
Maximum percentage of glycol:	30 %
Maximum working pressure:	3 bar
Working temperature range:	0–90 °C
Device internal volume:	
- code 577500, 577600, 577700, 577200 and 577300:	0,53 litres
- code 577800 and 577900:	0,6 litres
Filter mesh size:	160 µm
Magnetic induction:	3 x 0,475 T

Connections

Body:	3/4", 1", 1 1/4" F (ISO 228-1)
	1 1/2", 2" F (ISO 228-1)
	Ø 22 and Ø 28 mm for copper pipe

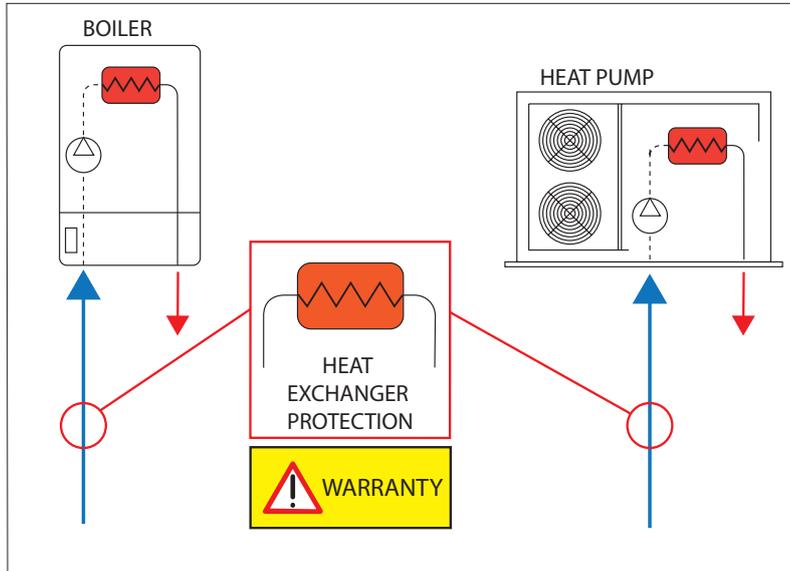
Dimensions



Code	DN	A	B	C	C'	D	E	Mass (kg)
577200	20	Ø 22	158	-	115	184	87	1,4
577300	25	Ø 28	158	-	117	184	87	1,4
577500	20	3/4"	158	96	-	184	87	1,3
577600	25	1"	158	110	-	184	87	1,4
577700	32	1 1/4"	158	131	-	184	87	1,6
577800	40	1 1/2"	186	140	-	184	87	3,3
577900	50	2"	186	140	-	184	87	3,0

Problems caused by impurities in hydraulic circuits

The components of a heating and cooling system are exposed to degradation caused by the impurities that circulate in the thermal medium. If they are not removed, they can impair the operation of appliances or devices such as boilers, circulators or adjustment devices, especially during system commissioning. This problem must not be underestimated because the boiler warranty will be null and void if it is not protected by a filter from when it is commissioned onwards.



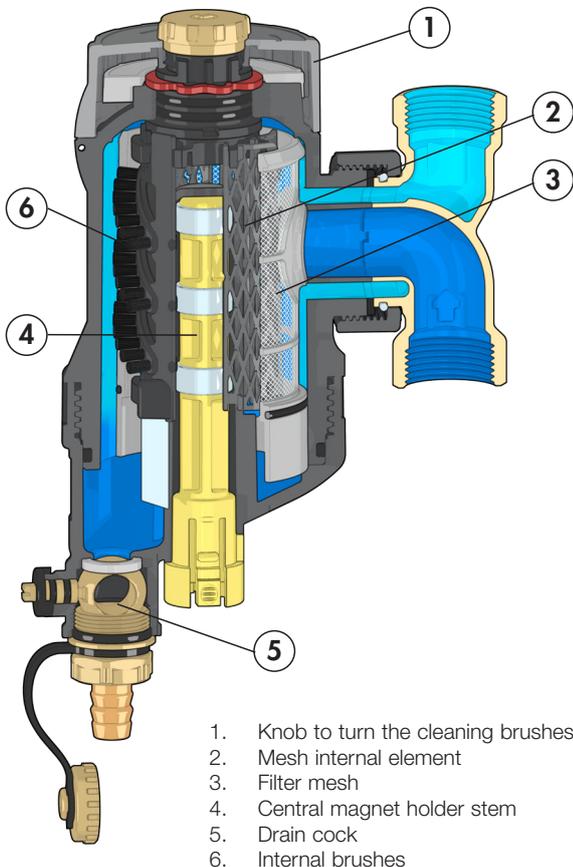
It is therefore necessary to use a device that can remove impurity particles in all working conditions.

The dirt separator eliminates even particles of small diameters (sizes of a few hundredths of a millimetre) **by making them collide with the internal element** so that the dirt settles in the **collection chamber**. This last step only occurs after the medium has recirculated several times, and therefore with the system running.

The mesh filter completely removes particles with diameters in the order of tenths of a millimetre by mechanically retaining the impurity particles carried by the thermal medium, right **from the first passage** (system commissioning).

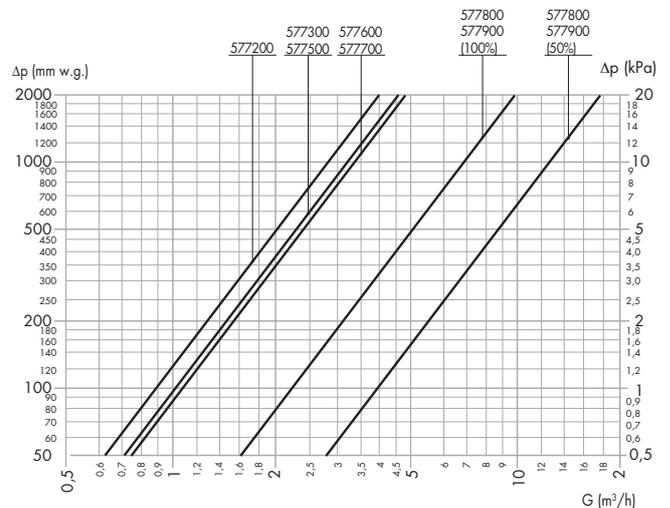
The effectiveness of the filter action comes with significant pressure drops and the need to clean the filter mesh frequently. The fast filter maintenance and cleaning system helps limit pressure drops.

Characteristic components



1. Knob to turn the cleaning brushes
2. Mesh internal element
3. Filter mesh
4. Central magnet holder stem
5. Drain cock
6. Internal brushes

Hydraulic characteristics



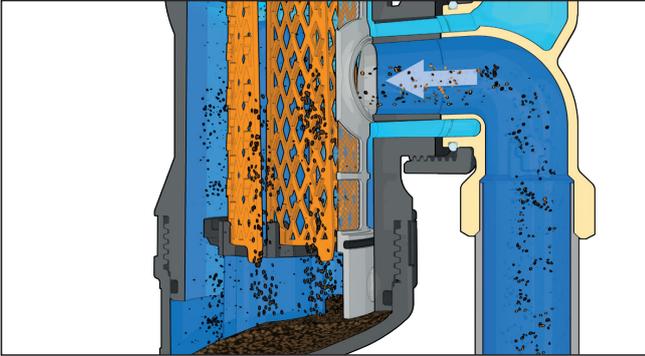
code	size	Kv (m³/h)
577500	3/4"	10,3
577600	1"	10,7
577700	1 1/4"	10,7
577200	Ø 22	9,0
577300	Ø 28	10,5

code	size	Kv (m³/h)	Kv (m³/h)
		100 % filtration	50 % filtration
577800	1 1/2"	23	40
577900	2"	23	40

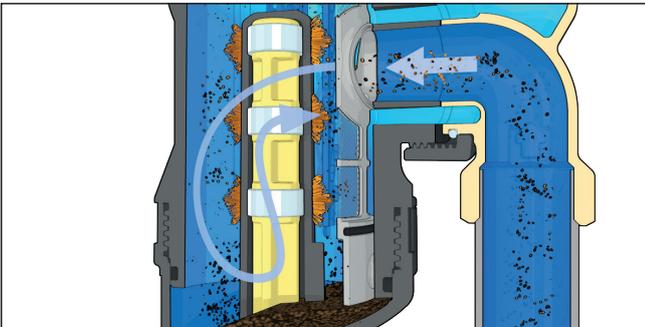
Operating principle

Water treatment in the system takes place in three separate stages:

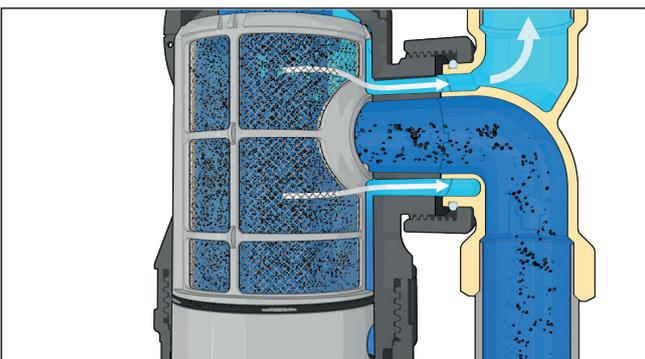
1. The water enters at the centre of the device and comes into contact with the internal element, which consists of a set of concentric mesh surfaces. The microparticles are separated by the joint action of the large chamber and the mesh surfaces.



2. The magnets positioned on the central stem capture and trap the ferrous impurities, down to the smallest size.



3. At the device outlet, the water passes through a filter mesh, which retains the residual impurities by mechanically selecting the particles according to their size. The large filter mesh surface with a mesh size of 160µm makes less prone to clogging.



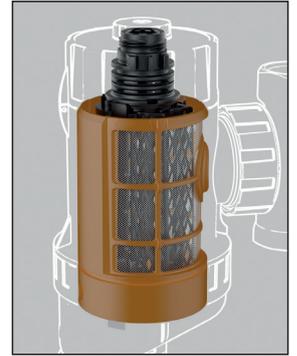
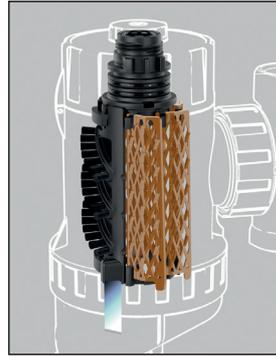
Construction details

Dual filtering effect

The CALEFFI XF filter contains two devices that contribute to removing impurities.

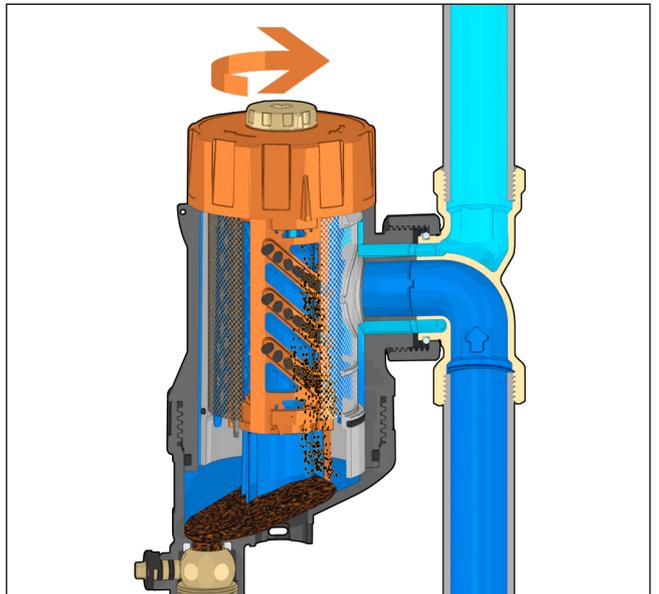
The first is an internal mesh element, composed of a set of concentric surfaces that cause particles up to 5µm to precipitate.

The second is an outlet filter with a large surface, which mechanically selects and retains impurities according to their size (160 µm).



Cleaning the filter mesh

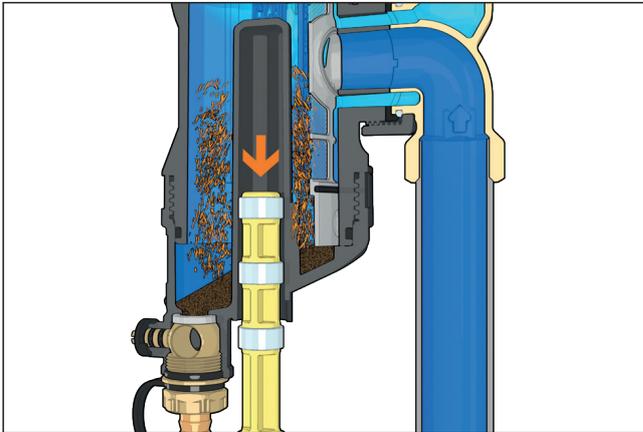
To clean the CALEFFI XF filter with the circulator stationary, there is no need to disassemble the component because it contains a mechanism with brushes to clean the filter mesh.



Separation of ferrous impurities

The central magnets offer greater efficiency in the collection of ferrous impurities. They are captured by the strong magnetic field in the central part of the body.

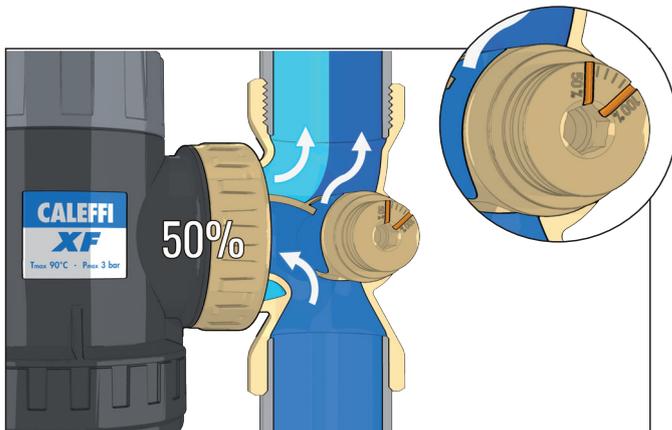
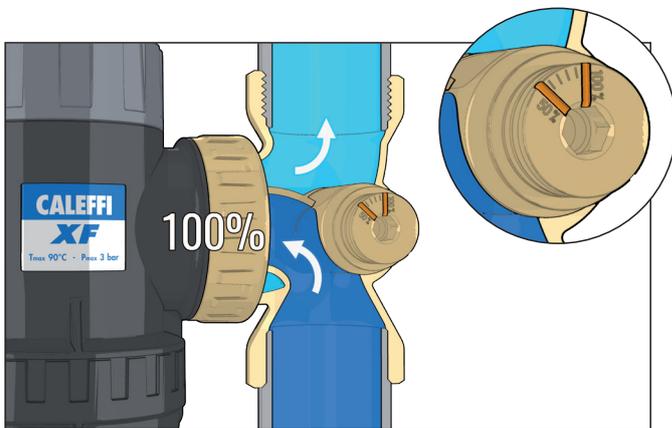
Simply remove the central magnet holder stem from the body to allow the impurities to settle, so that they can be expelled without disassembling the dirt separator filter.



Adjustable by-pass

Sizes DN 40 (code 577800, 1 1/2") and DN 50 (code 577900, 2") are equipped with a by-pass to restrict the flow rate passing through the device and thereby increase the Kv value.

We recommend 100 % filtration during commissioning and for the first few weeks of system operation. Then, during the "constant" phase, the device can be set to operate with by-pass to achieve a higher Kv.



Technopolymer

The CALEFFI XF filter is made using a technopolymer selected for heating and cooling system applications. Its basic features are:

- high resistance to plastic deformation;
- good resistance to crack propagation;
- very low humidity absorption, for consistent mechanical behaviour;
- high resistance to abrasion caused by continuous medium flow;
- constant performance as temperature varies;
- compatibility with the glycol and additives used in circuits.

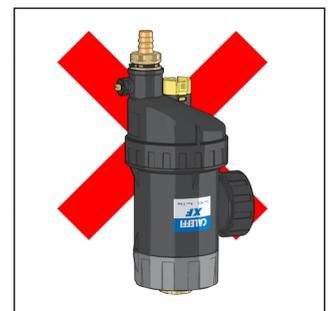
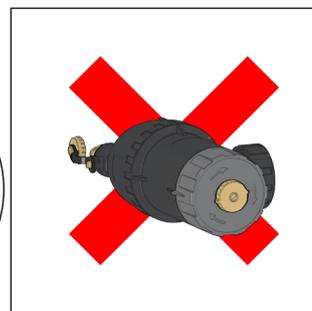
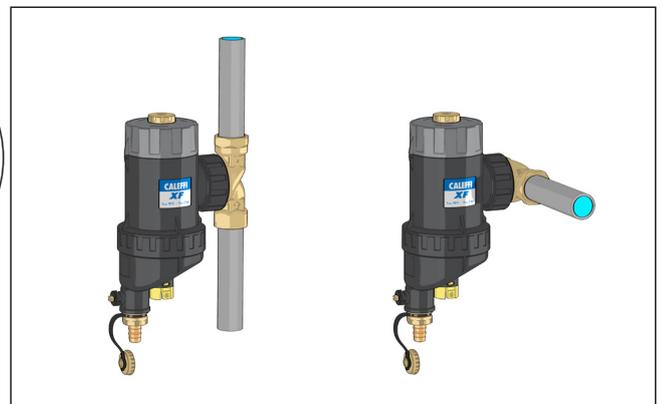
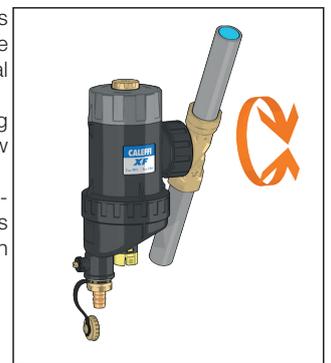
These basic features, combined with the appropriate shapes of the most highly stressed areas, make it comparable with the metals typically used in the construction of filters.

Installation on horizontal and vertical pipes

The CALEFFI XF filter is adjustable so that it can be installed on both horizontal and vertical pipes.

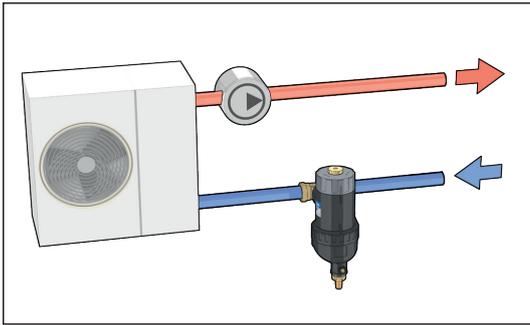
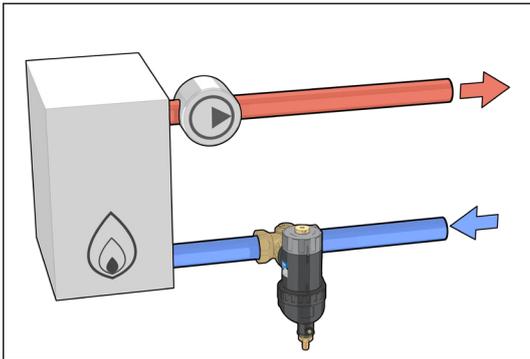
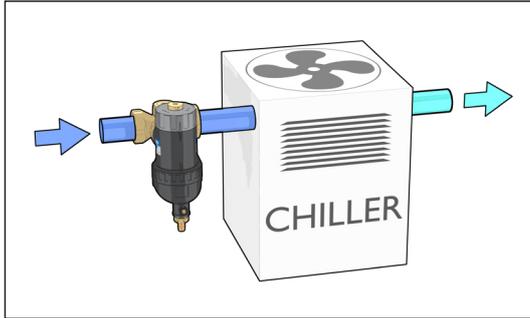
Use the special tightening wrench to screw and unscrew the locking nut.

The functional and fluid-dynamic characteristics remain unchanged in both configurations.



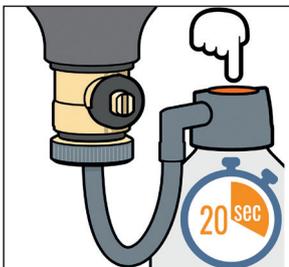
Installation

The CALEFFI XF filter must be installed in accordance with the flow direction indicated by the arrow on the tee fitting. It is preferable to install it upstream of the generator.

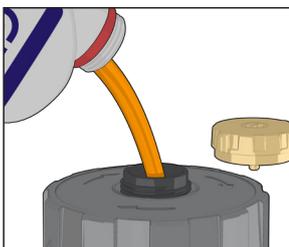


Additives dosing

The CALEFFI XF filter can also be used as an access point to inject chemical additives into the circuit in order to protect the system.



Additives can be injected using pressurised canisters.

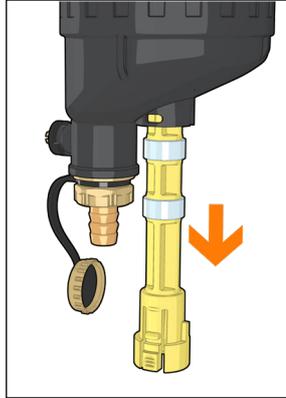


Liquid additives can only be added if shut-off valves have been installed downstream and upstream of the device.

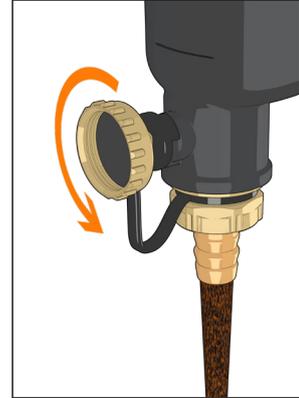
Maintenance and dirt discharge

The filter mesh cleaning mechanism with special brushes means that the device does not have to be disassembled in order to carry out maintenance. It is sufficient to leave the system filling unit in operation.

1. Switch off the circulator and remove the central magnet holder stem.



2. Drain the impurities with the filling unit active.



3. Turn the top knob clockwise to clean the filter mesh with the special internal brushes. Turn a few times to clean properly.

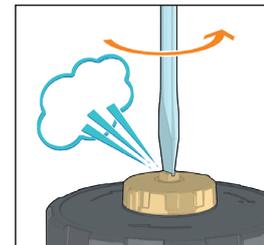


4. After cleaning, align the indicator on the top knob with the reference mark on the device body. Close the drain cock and start the system.

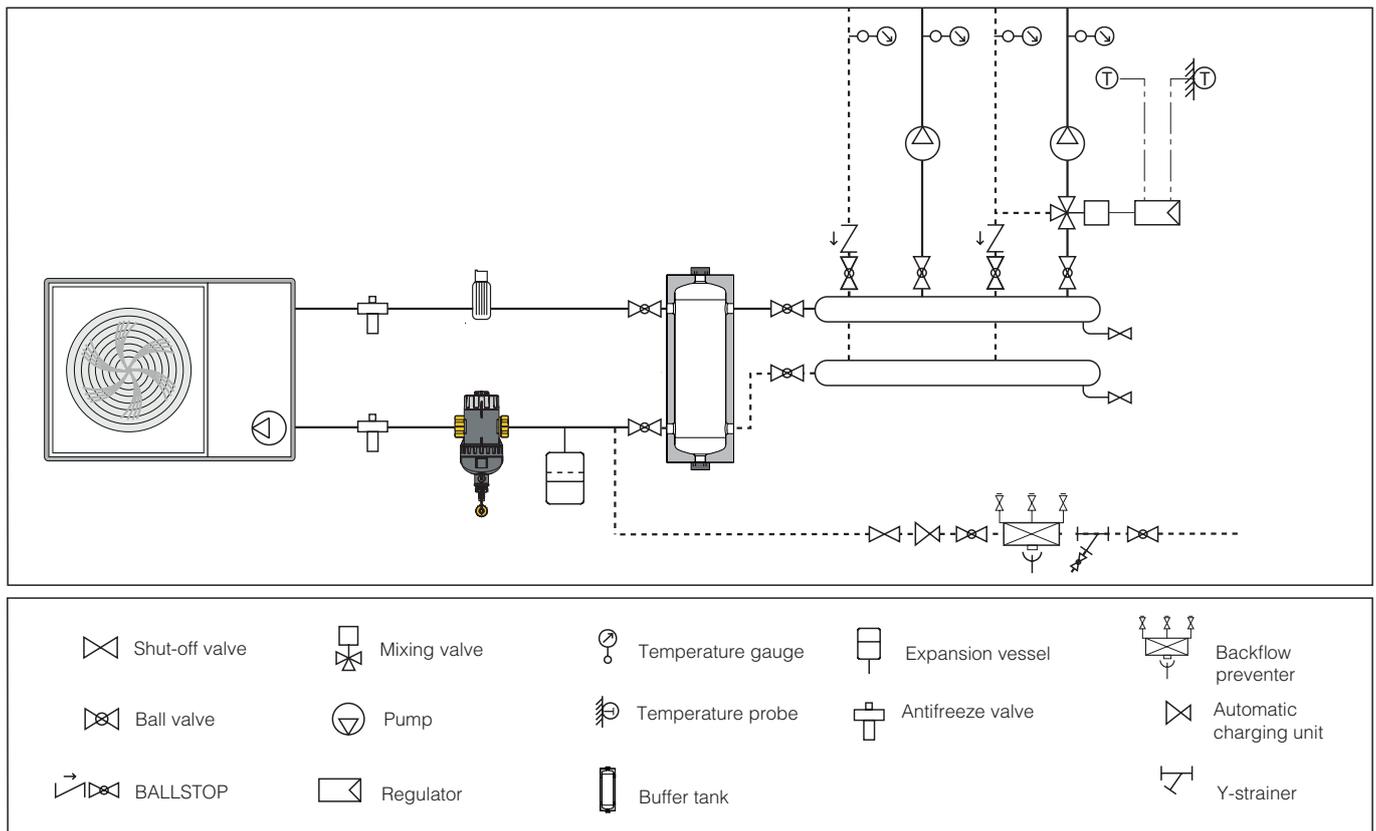


Air vent

The air that builds up at the top of the body can be purged by unscrewing the vent cap with a screwdriver or butterfly key.



Application diagram



SPECIFICATION SUMMARY

577 series CALEFFI XF

CALEFFI XF semi-automatic self-cleaning magnetic filter. DN size 20 (and DN 25, DN 32). Adjustable 3/4" F (and 1" F, 1 1/4" F) connections (ISO 228-1). Composite body PA66G30. PA66 internal element. EPDM hydraulic seals. Locking nut for tee fitting in PPSG40. POM-stainless steel filter mesh. Complete with internal PA66 brushes. Medium: water and glycol solutions; max. percentage of glycol 30 %. Maximum working pressure 3 bar. Working temperature range 0–90 °C. Filter mesh size 160 µm. Device internal volume 0,53 litres.

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577 series CALEFFI XF

CALEFFI XF semi-automatic self-cleaning magnetic filter. DN size 20 (and DN 25). Adjustable connections with olive fittings for Ø 22 mm (and Ø 28 mm) copper pipe. Composite body PA66G30. PA66 internal element. EPDM hydraulic seals. Locking nut for tee fitting in PPSG40. POM-stainless steel filter mesh. Complete with internal PA66 brushes. Medium: water and glycol solutions; max. percentage of glycol 30 %. Maximum working pressure 3 bar. Working temperature range 0–90 °C. Filter mesh size 160 µm. Device internal volume 0,53 litres.

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577 series CALEFFI XF

CALEFFI XF semi-automatic self-cleaning magnetic filter. DN size 40 (and DN 50). Adjustable 1 1/2" F (and 2" F) connections (ISO 228-1). PA66G30 technopolymer body and cover. PA66 internal element. EPDM hydraulic seals. Locking nut for brass tee fitting. POM-stainless steel filter mesh. Complete with internal PA66 brushes. Medium: water and glycol solutions; max. percentage of glycol 30 %. By-pass to reduce the flow rate through the device. Maximum working pressure 3 bar. Working temperature range 0–90 °C. Filter mesh size 160 µm. Device internal volume 0,6 litres (code 577800 and 577900).

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The website www.caleffi.com always has the most up-to-date version of the document, which should be used for technical verifications.