

XF Xtra Filtration magnetic dirt separator

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577 Series


Function

The Caleffi XF “Xtra filtration” magnetic dirt separator protects components in hydronic systems by maintaining impurity-free hydronic fluid to maximize heat transfer efficiency. The XF has a collision media for removing non-magnetic debris, a magnet to capture ferrous materials, and a 160 µm mesh filter to remove fine particle impurities starting with the first pass of the fluid. It is perfect for heat pump and boiler applications. The unique internal brush mechanism cleans the filter for simple and efficient purging. The XF can be mounted in vertical or horizontal applications due to its rotating collar.

Product range

577 Series	NPT male union	size 1”
	NPT female union	sizes 1-1/4”, 1-1/2”
	Press, sweat union	sizes 1”, 1-1/4”, 1-1/2”

Technical specifications

Materials

Body:	PA66G30
Upper cap:	brass EN 12164 CW617N
Purge screw:	brass EN 12164 CW617N
Locking nut for tee fitting:	size 1”: PPSG40
	sizes 1 1/4” and 1 1/2”: brass EN 12420 CW617N
Tee fitting:	brass EN 1982 CB 753S
Internal element:	PA66
Hydraulic seals:	peroxide-cured EPDM
Internal brushes:	PA66
Magnets:	neodymium rare-earth

Performance

Suitable fluids:	water, glycol solutions
Maximum percentage of glycol:	30%
Max. working pressure:	45 psi (3 bar)
Operating temperature range:	32 to 195 °F (0 to 90 °C)
Body internal volume:	size 1”: 0.5 quart (0.53 liter)
	sizes 1 1/4” and 1 1/2”: 0.6 quart (0.63 liter)
Filter mesh size:	160 µm
Magnetic induction:	3 x 0.475 T

Connections:

size 1”:	NPT male union
sizes 1-1/4” and 1-1/2”:	NPT female union
sizes 1”, 1-1/4” and 1-1/2”:	press, sweat union



SAFETY INSTRUCTION

This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.**



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warning.ca.gov.



CAUTION: All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes ordinances.



CAUTION: Over-tightening and breakage can occur with the use of Teflon® pipe joint compounds. Teflon® provides lubricity so that care must be exercised not to over-tighten joints. Failure to follow these instructions could result in property damage and / or personal injury.



CAUTION: System fluids under pressure or temperature can be hazardous. Be sure the pressure has been reduced to zero and the system temperature is below 100 °F (38 °C).



CAUTION: Clean the pipes of any debris, rust, incrustations, welding slag and any other contaminants. For optimal operation, air in the system must be removed.



CAUTION: If the device is not installed properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.



WARNING: The outer surface of the device, especially in polymer type components, must not come into contact with any chemical substance, either on purpose or accidentally. The system fluid and any chemical additives used within the water piping system – whether for washing or as protection – must be compatible with the materials used to make the device and with the function it performs.



CAUTION: Make sure that all the connecting pipework is water tight.

Caleffi shall not be liable for damages resulting from stress corrosion, misapplication or misuse of its products.



CONSIGNE DE SÉCURITÉ

Ce symbole d'avertissement servira dans ce manuel à attirer l'attention sur la sécurité concernant instructions. Lorsqu'il est utilisé, ce symbole signifie. **ATTENTION! DEVEZ ALERTE ! VOTRE SÉCURITÉ EST EN JEU ! NE PAS SUIVRE CES INSTRUCTIONS PEUT PROVOQUER UN RISQUE DE SECURITE.**



AVERTISSEMENT: Ce produit peut vous exposer à des produits chimiques comme le plomb, qui est connu dans l'État de Californie pour causer le cancer, dommages à la naissance ou autre. Pour plus d'informations rendez-vous www.P65Warnings.ca.gov.



ATTENTION: Tous les travaux doivent être effectués par du personnel qualifié formé à la bonne application, installation et maintenance des systèmes conformément aux codes et règlements locaux.



ATTENTION: Un serrage excessif et une rupture peuvent survenir avec l'utilisation de Teflon® composés de joint de tuyau. Le Teflon® offre un pouvoir lubrifiant de sorte que les soins doivent être exercé pour ne pas trop serrer les joints. Non-respect de ces instructions pourrait entraîner des dommages matériels et / ou des blessures corporelles.



ATTENTION: Les liquides du système sont sous pression ou de la température peuvent être dangereux. Être sûr que la pression a été réduite à zéro et la température du système est inférieure à 100 °F (38 °C). Le non-respect de ces instructions peut entraîner des dommages matériels et/ou des blessures.



ATTENTION: Nettoyer les tuyaux de tout débris, roille, incrustations, scories de soudure et d'autres contaminants. Pour un fonctionnement optimal, de l'air dans le system doit être retiré.



ATTENTION: Si la valve, n'est pas installée, mise en service et Entretien correctement, selon les instructions contenues dans ce manuel, il Peut ne pas fonctionner correctement et peut mettre en danger l'utilisateur.



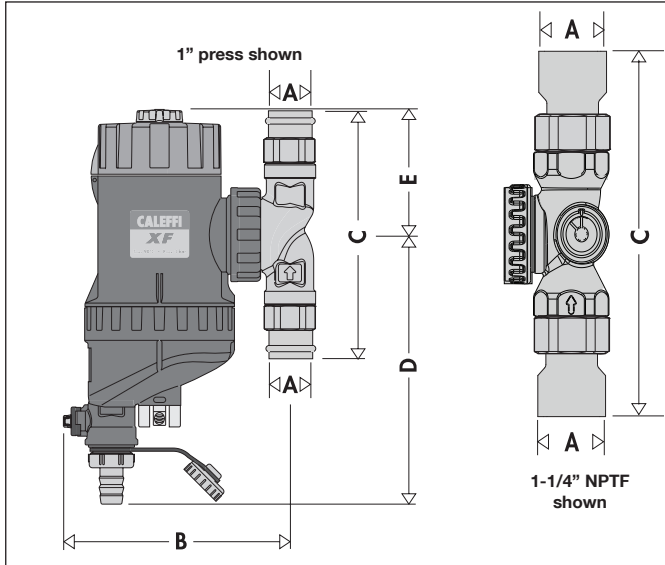
AVERTISSEMENT: La surface extérieure de l'appareil, en particulier les composants de type polymère, ne doit pas entrer en contact avec des substances chimiques, que ce soit volontairement ou accidentellement. Le produit et les additifs chimiques utilisés dans les canalisations d'eau - que ce soit pour le lavage ou la protection - doivent être compatibles avec les matériaux utilisés pour la fabrication de l'appareil et avec la fonction qu'il remplit.



ATTENTION: S'assurer que tous les raccordements sont étanches.

Caleffi ne pourra être tenue responsable des dommages résultant de la corrosion, d'une mauvaise utilisation ou une mauvaise utilisation des produits.

Dimensions:



Code	A	B	C	D	E	Wt. (lb/kg)
NPT female threaded connections						
577870A	1¼"	7 5/16"	10 15/16"	7¼"	5½"	8/7/4.0
577980A	1½"	7 5/16"	8 13/16"	7¼"	4 3/8"	8.4/3.8
NPT male threaded connections						
577660A	1"	6¼"	6 13/16"	7¼"	3 3/8"	4.3/2.0
Sweat connections						
577669A	1"	6¼"	6 13/16"	7¼"	3 3/8"	4.3/2.0
577879A	1¼"	7 5/16"	9 7/16"	7¼"	4 11/16"	8/7/4.0
577989A	1½"	7 5/16"	8 9/16"	7¼"	4 5/16"	8.0/3.6
Press connections*						
577666A	1"	6¼"	6 15/16"	7¼"	3½"	4.3/2.0
577876A	1¼"	7 5/16"	13½"	7¼"	5 15/16"	8.9/4.0
577986A	1½"	7 5/16"	13 3/16"	7¼"	6 5/8"	7.8/3.5

***Lay length for press:**

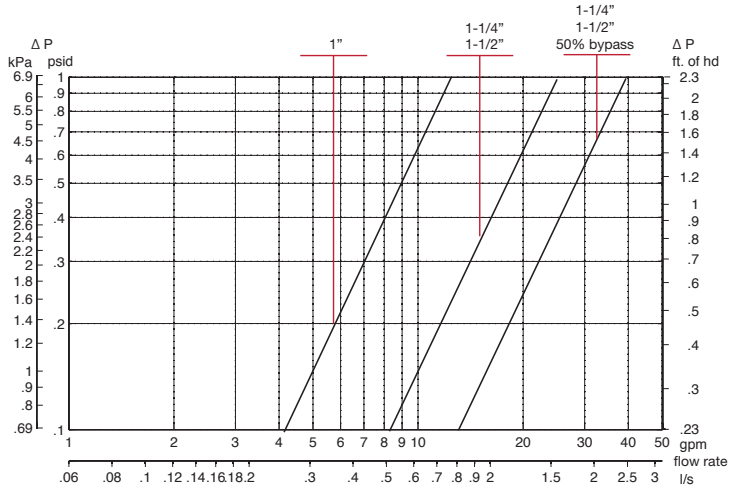
size 1": 5 1/16 inch
 size 1-1/4": 9 11/16 inch
 size 1-1/2": 8 5/16 inch



Safety

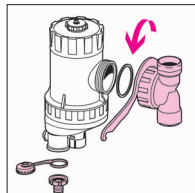
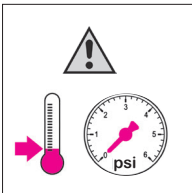
If the 577 XF magnetic filter is not installed, commissioned and maintained properly in accordance with these instructions, it may not operate correctly, and may cause damage to objects and/or people. Make sure all the connections are watertight.

Hydraulic characteristics



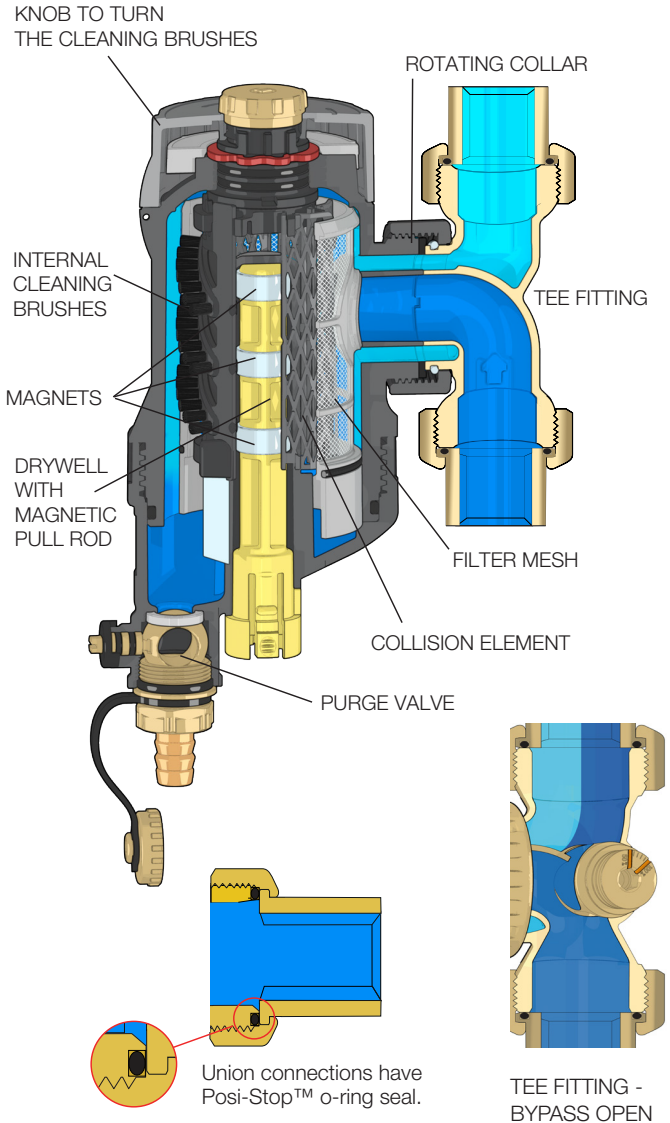
MAX. FLOW RATE			
Size	1"	1¼"	1½"
GPM	13	26	26
Cv	12	27	27
Cv 50% bypass	--	46	46

Assembly:



Assembly and disassembly should always be conducted while the system is cold and not pressurized.

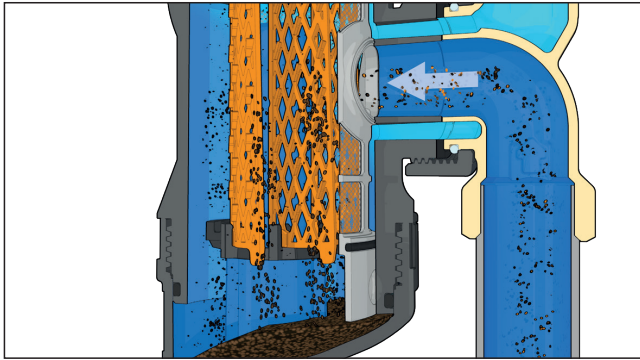
Construction:



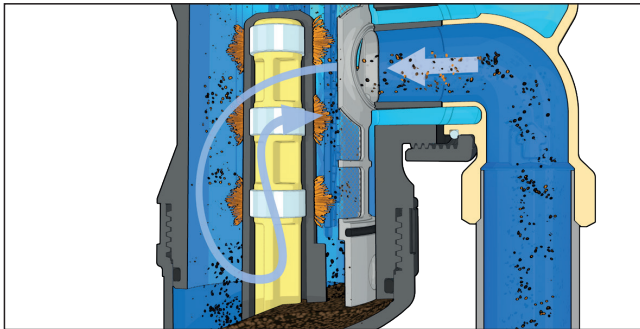
Principle of operation:

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

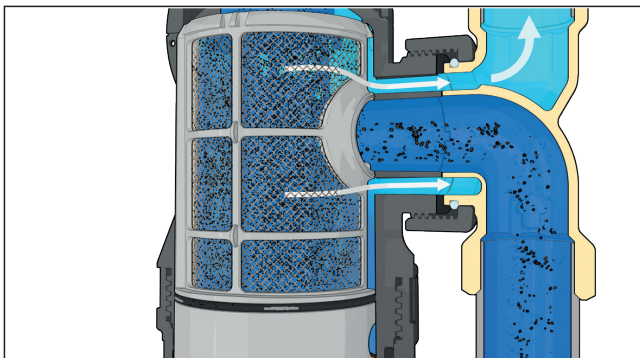
1. The water enters at the center of the device and comes into contact with the internal element, which consists of a set of concentric mesh surfaces. The microparticles are separated by the joint action of the large chamber and the mesh surfaces.



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



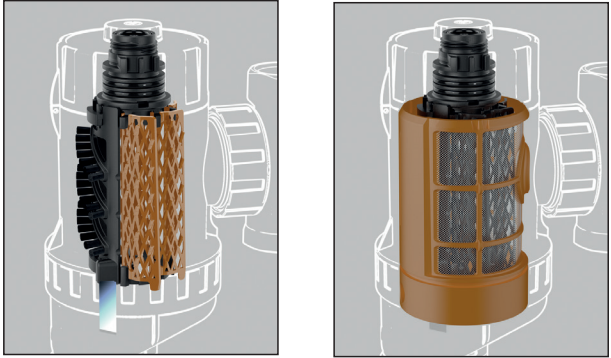
3. At the device outlet, the water passes through a filter mesh, which retains the residual impurities by mechanically selecting the particles according to their size. The large filter mesh surface with a mesh size of 160µm makes it less prone to clogging.



Construction details:

Dual filtering effect

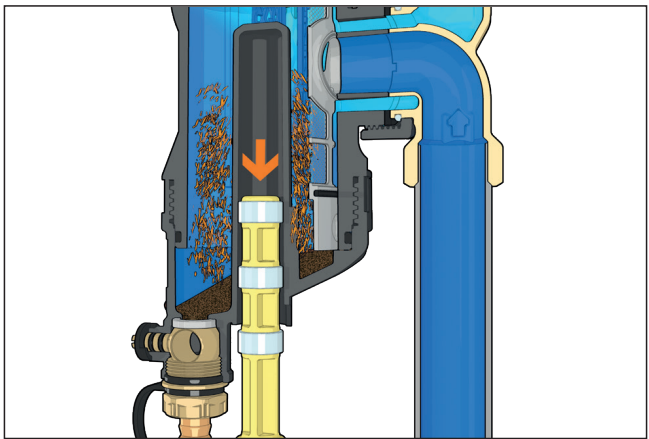
The Caleffi XF magnetic filter contains two devices that remove impurities. The first is an internal mesh element, composed of a set of concentric surfaces that cause particles up to 5µm to precipitate. The second is an outlet filter with a large surface, which mechanically selects and retains impurities by size (160 µm).



Separation of ferrous impurities:

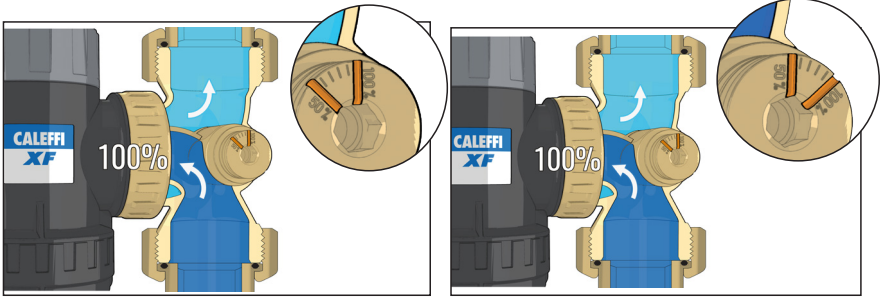
The central magnets offer greater efficiency in the collection of ferrous impurities. They are captured by the strong magnetic field in the central part of the body.

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.



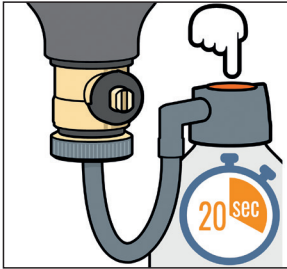
Adjustable by-pass:

Sizes 1-1/4" and 1-1/2" come with a by-pass to restrict the flow rate passing through the Caleffi XF magnetic filter and thereby increase the Cv value. However, 0% by-pass is recommended during commissioning and for the first few weeks of system operation. Then, during the "constant" phase, the XF magnetic filter can be set to operate with by-pass to achieve a higher Cv. This reduces the pressure drop and puts less demand on the system circulators.

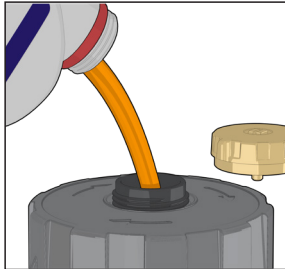


Additives dosing:

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



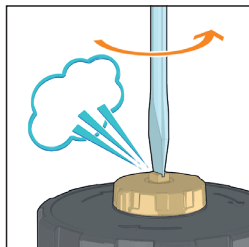
Additives can be injected using pressurized canisters.



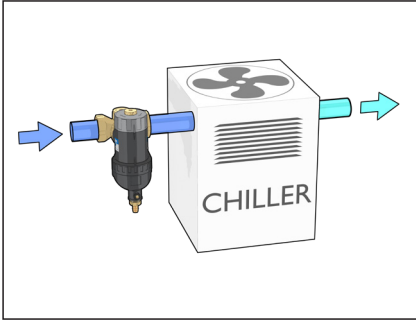
Liquid additives can only be added if shut-off valves have been installed downstream and upstream of the device.

Air vent:

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

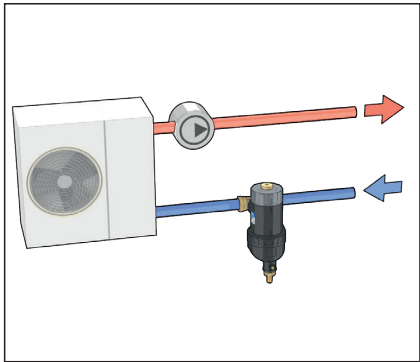
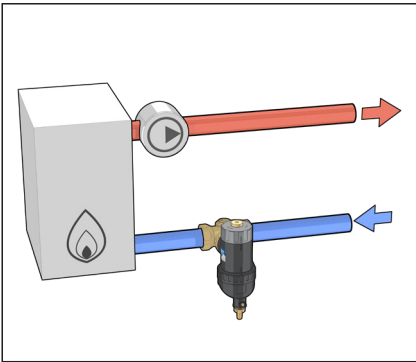


Installation:

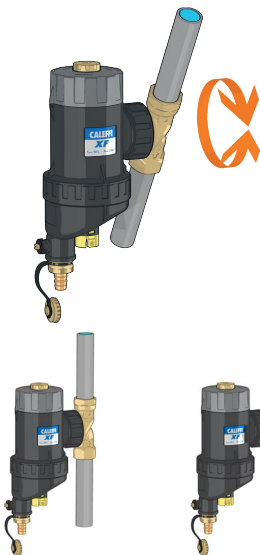


The Caleffi XF magnetic filter must be installed in accordance with the flow direction indicated by the arrow on the tee fitting.

It is preferable to install it upstream of the chiller or boiler heat exchanger.



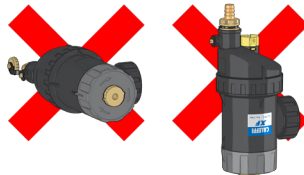
Installation on horizontal and vertical pipes:



The Caleffi XF magnetic 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.

Turn the tee fitting to adapt the connections for horizontal or vertical pipes and only install with the body in a vertical position, in accordance with the flow direction indicated by the arrow.

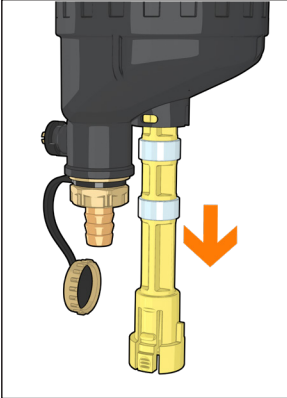
Leave a space of at least 5 inches free at the bottom of the strainer, to allow removal of the central magnet (see page 11).



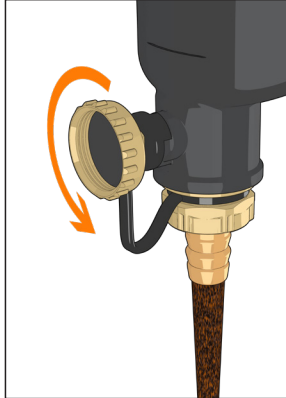
Maintenance and dirt discharge:

The filter mesh cleaning mechanism with special brushes means that the Caleffi XF magnetic filter does not have to be disassembled for maintenance. It is sufficient to leave the system filling unit in operation.

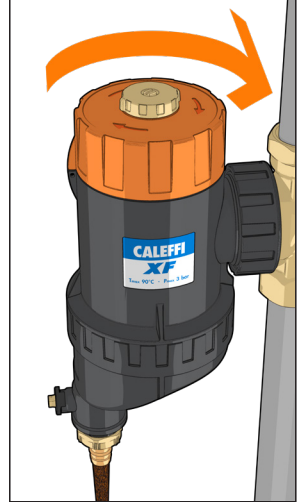
1. Switch off the circulator and remove the central magnet holder stem. 5 inch clearance is needed for full removal.



2. Drain the impurities with the filling unit active.

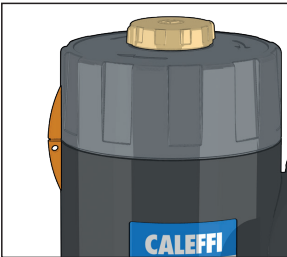


3. Turn the top knob clockwise to clean the filter mesh with the special internal brushes. Turn a few times to clean properly.



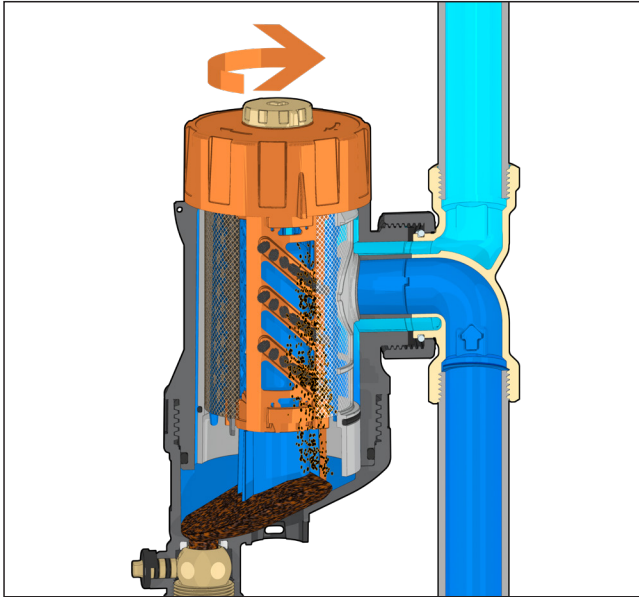
4. After cleaning, align the indicator on the top knob with the reference mark on the device body.

Close the drain valve and start the system.



Filter mesh:

To clean the Caleffi XF magnetic 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.



LEAVE THIS MANUAL WITH THE USER.

Laissez ce manuel à la disposition de l'utilisateur.

1-2024

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