DIRTOUT™ XL

Multifunction magnetic dirt separator for boilers and heat pumps

CARING FOR WATER

STEC0001HCE.EN.08

PATENT PENDING

Mod. DF100

Mod. DF110

DIRTOUT™ DUAL MODE

Mod. DF120

Function

The metal parts of a heating system are subject to corrosion which release impurities into the water. When they reach the generator, these ferrous debris can clog the exchanger or be attracted to the circulator magnets, causing them to block. DirtOUT™ XL is a magnetic filter with three filtering stages which, thanks to a patented design, preserves the system and keeps it healthy, combining a long-lasting and effective protective action with reduced dimensions and ease of installation.

Plus

- Triple filtering action
- Self-cleaning
- Extends the life of the boiler and/or heat pump
- Guarantees the efficiency of the system

Cyclonic filtering action

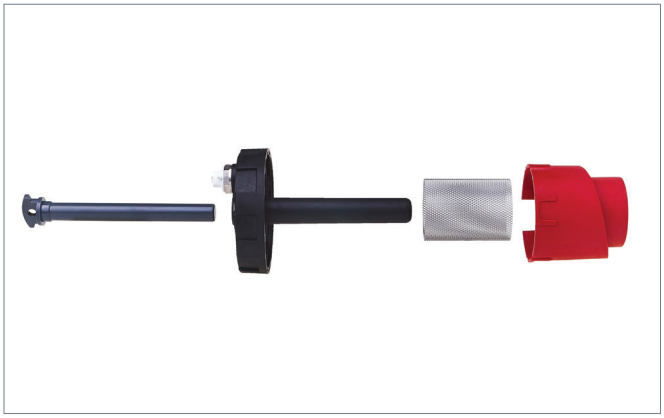
Magnetic filtering action

Mechanical filtering action

Product range

MODEL	CODE	DESCRIPTION	SIZE	COLOUR
DF100	DF00100022	Multifunctional magnetic dirt separator filter in polymer, with ball valves, FF connections	ø 22 x ø 22	Black
DF100	DF00100028	Multifunctional magnetic dirt separator filter in polymer, with ball valves, FF connections	ø 28 x ø 28	Black
DF100	DF00100034	Multifunctional magnetic dirt separator filter in polymer, with ball valves, FF connections	3/4" F x 3/4" F	Black
DF100	DF00100100	Multifunctional magnetic dirt separator filter in polymer, with ball valves, FF connections	1" F x 1" F	Black
DF100	DF00100114	Multifunctional magnetic dirt separator filter in polymer, with ball valves, FF connections	1" 1/4 F x 1" 1/4 F	Black
DF110	DF00110022	Multifunctional magnetic dirt separator filter in polymer, brass diverter, FF connections	ø 22 x ø 22	Black
DF110	DF00110028	Multifunctional magnetic dirt separator filter in polymer, brass diverter, FF connections	ø 28 x ø 28	Black
DF110	DF00110034	Multifunctional magnetic dirt separator filter in polymer, brass diverter, FF connections	3/4" F x 3/4" F	Black
DF110	DF00110100	Multifunctional magnetic dirt separator filter in polymer, brass diverter, FF connections	1" F x 1" F	Black
DF110	DF00110100MM	Multifunctional magnetic dirt separator filter in polymer, brass diverter, MM connections	1" M x 1" M	Black
DF120	DF00120114	Multifunctional magnetic dirt separator for energy saving DUAL MODE	1" 1/4 F x 1" 1/4 F	Black

MADE IN ITALY



Materials

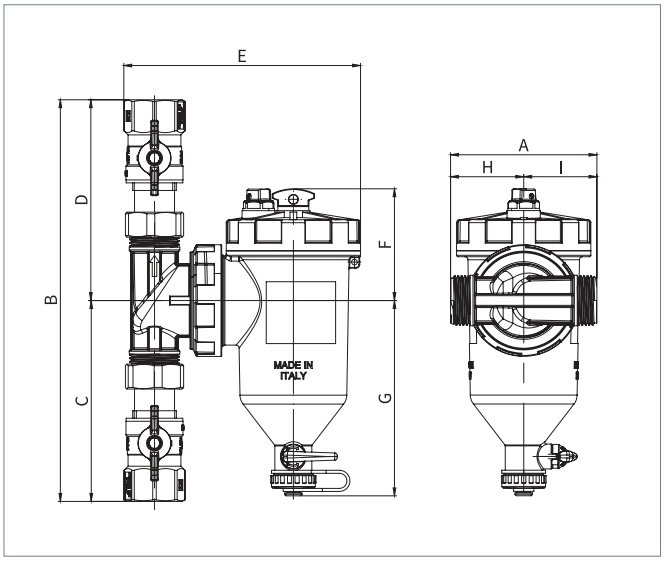
Body, cyclonic insert and locking ring: PA66 + GF 30%

"TEE" joint: PA66 + FV 30% alternatively brass UNI EN 1982 CB7535

Magnet: Neodymium

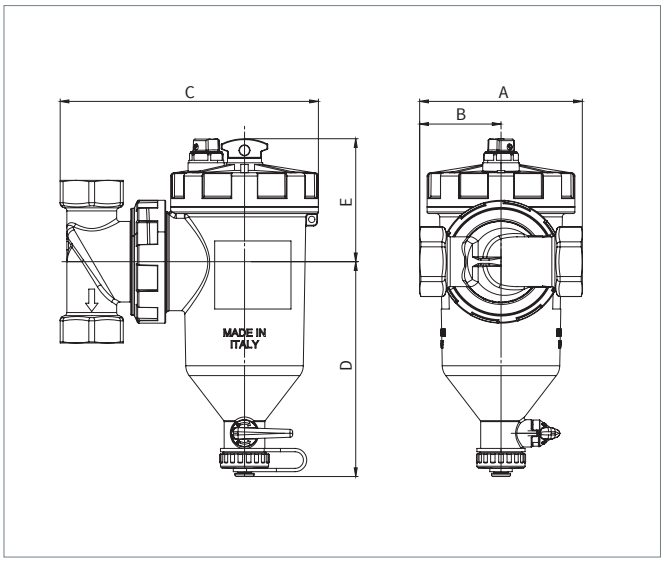
Filtering cartridge: Stainless steel AISI 304

Sealing parts: Peroxide-cured EPDM



Dimensions DF100

SIZE	3/4"	1"	1" 1/4	22 mm	28 mm
A	97	97	97	97	97
B	246	269,5	318	287	291
C	123	134,75	159	143,5	143,5
D	123	134,75	159	145,5	145,5
E	157	157	174	153	157
F	74	74	74	74	74
G	130	130	130	130	130
H	48,5	48,5	48,5	48,5	48,5
I	48,5	48,5	48,5	48,5	48,5



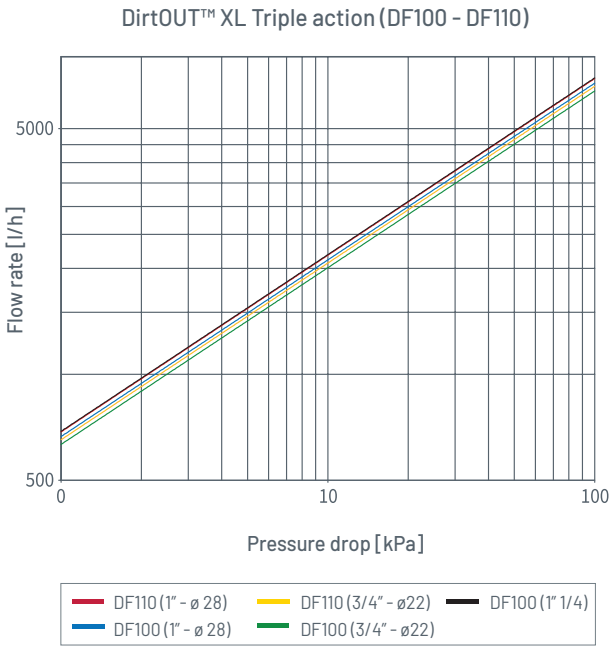
Dimensions DF110

SIZE	3/4"	1"	22 mm
A	98	98	108
B	49	49	54
C	155,55	155,6	154
D	130	130	130
E	76	74	76

DF120

SIZE	1" 1/4
A	98
B	49
C	165
D	130
E	76

HYDRAULIC CHARACTERISTICS



Technical data DF100/DF110

Magnet: 14000 G

Porosity of filters: 500 ÷ 800 µm

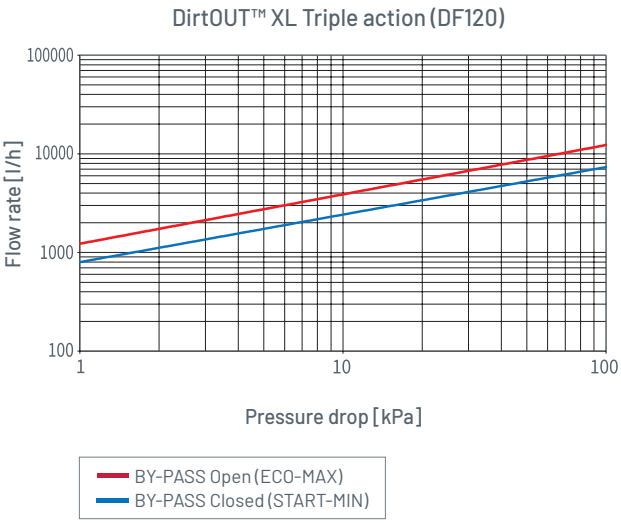
Compatible fluids: water; water + glycol 50% max

Max pressure: 3 bar

Temperature range: 0 ÷ 90 °C

MODEL	SIZE	Kv
DF110	3/4" - ø 22	6,6 m³/h
DF110	1" - ø 28	6,9 m³/h
DF100	3/4" - ø 22	6,4 m³/h
DF100	1" - ø 28	6,7 m³/h
DF100	1" 1/4	6,9 m³/h

HYDRAULIC CHARACTERISTICS



Technical data DF120

Magnet: 14000 G

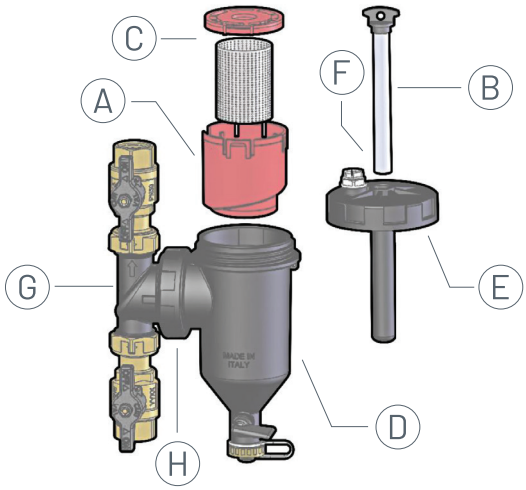
Porosity of filters: 500 ÷ 800 µm

Compatible fluids: water; water + glycol 50% max

Max pressure: 3 bar

Temperature range: 0 ÷ 90 °C

MODEL	SIZE	POSITION	MODE	Kv
DF120	1" 1/4	BY-PASS Chiuso	START	7,4 m³/h
DF120	1" 1/4	BY-PASS Aperto	ECO	15,1 m³/h



Description

A. Cyclonic insert
B. Magnet
C. Filtering cartridge
D. Body
E. Upper cover
F. Manual air-vent valve
G. "TEE" joint also available in brass and without ball valve
H. Locking ring

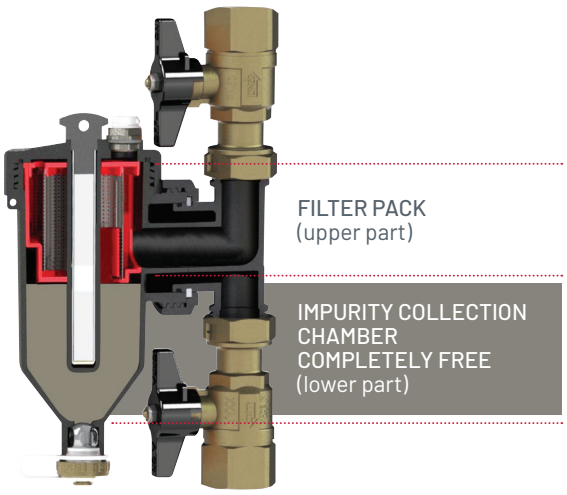
Operating principle

DirtOUT™ XL is a filter combining the effective separation of debris by cyclonic action with dual magnetic and mechanical filtering. The special patented insert is designed to guide the flow into a vortex pattern, to create the first essential cleaning prior to the actions of a powerful magnet and of the filtering cartridge. **Thanks to the cyclonic and magnetic separation upstream of the filter, the clogging problem is minimized**. Design and materials have been carefully selected to ensure high-performances, resistance and long-lasting operation.
The swivel coupling makes it suitable for installation in any system configuration. The device is equipped with manual air-vent valve, drain valve.

STEP 1
CYCLONIC FILTERING ACTION

STEP 2
MAGNETIC FILTERING ACTION

STEP 3
MECHANICAL FILTERING ACTION



Filter insert and collection chamber

The impurity collection chamber being free from the filter pack, makes it possible to reduce the frequency of cleaning (bleeding) while keeping the filter pack at its most efficient as it is not drowned in dirt. The impurities collected in the settling chamber cannot go back into circulation thanks to the specially designed cartridge.

ECO MODE (MAX)

START MODE (MIN)

Adjustable by-pass

(Only for model DF120)

The DN32 size (Cod. DF00120114 - 1" 1/4) has a by-pass which allows the flow passing through the device to be reduced and thus increase the Kv value.
Use in **START** mode is recommended by moving the selector to - **MIN** during commissioning and for the first few days of system use.
While running, switch to **ECO** mode by moving the selector to - **MAX**.

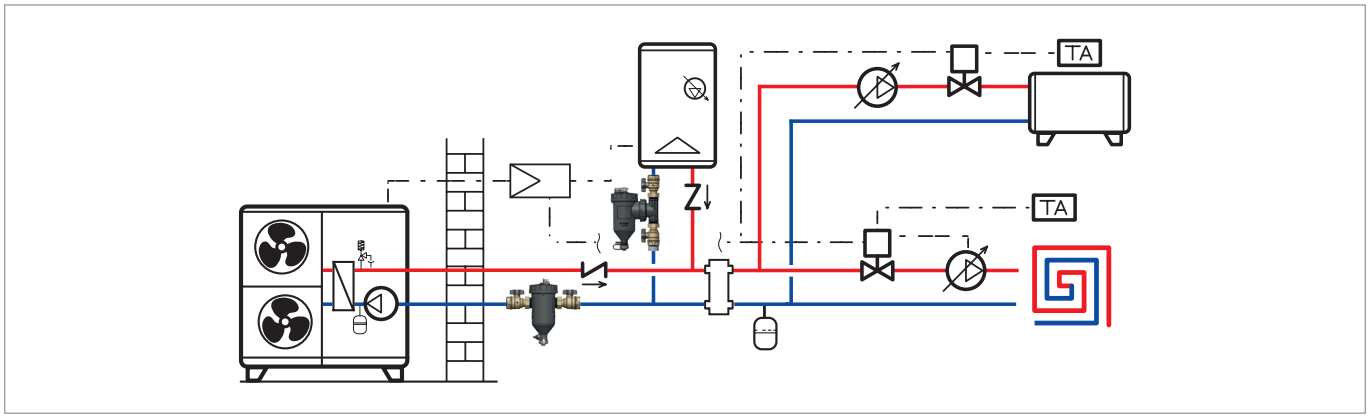
START (MIN) MODE

The **START** mode is mainly used during system startup. In this position all system water is fed through the HCE DirtOUT™ XL.
The advantage is that air, impurities and magnetite are attracted extremely quickly. This mode allows the first major cleaning of the system to be done.

ECO (MAX) MODE

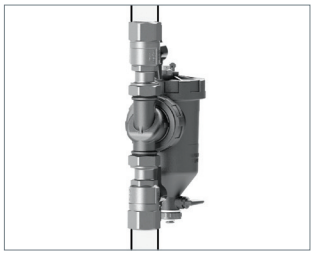
In **ECO** mode, part of the system water (partial flow) is fed through the HCE DirtOUT™ XL system. This position ensures lower head loss and pressure drop.
The advantage lies in the fact that the system pump has to work less. Air, impurities and magnetite are captured effectively but with reduced consumption.

Installation layouts

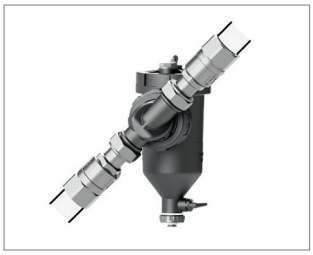


Operating instructions

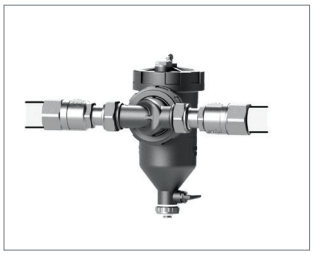
DirtOUT™ XL can be fitted, horizontally, vertically or obliquely, thanks to a 360° coupling piece and a locking ring allowing its connection to the pipe. The device has an adjustable Tee: by unscrewing the ring nut it is possible to adjust it in 45° steps to adapt it to vertical, 45° oblique or horizontal pipes.



1. VERTICAL FITTING



2. OBLIQUE FITTING



3. HORIZONTAL FITTING

Installation positions

- The filter should preferably be installed on the boiler return pipe.
- The double wrench provided must be used to loosen/tighten the locking ring and the cover.
- In case of very dirty water, the use of a 500 µm fine-mesh filter is recommended during system flushing. Once the system has been flushed, the first-stage cartridge should be replaced with the standard 800 µm filter (see "Package contents" section).
- The air collected in the device can be expelled through the air-vent valve located on the upper cover.

- Top plug tightening torque: from 8 to 10 Nm
- Adjustable tee ring tightening torque: from 8 to 10 Nm
- Tightening torque of the shut-off valves (when provided): from 6 to 8 Nm

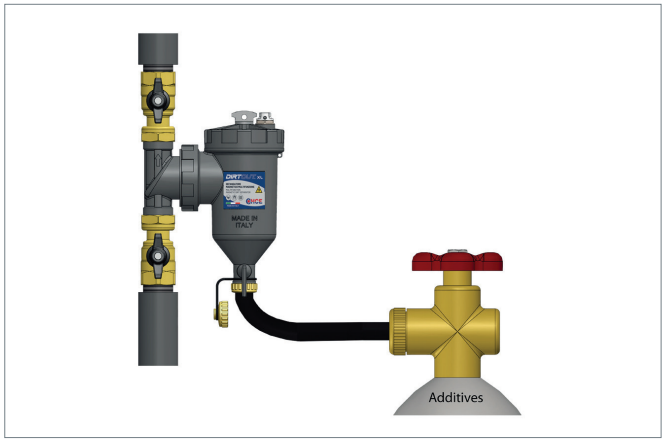
Note: for detailed information on the fitting, use and maintenance of the DirtOUT™ XL dirt separator, refer to the relative instruction sheet. In case it is lost, ask for a copy to be sent.

THE DEVICE MUST BE INSTALLED IN COMPLIANCE WITH CURRENT REGULATIONS AND MUST BE DONE BY A QUALIFIED FITTER.

ATTENTION MAGNETIC FIELD!
The symbol on the device indicates the presence of a strong magnetic field. Keep the magnet away from electronic or electromedical devices such as pacemakers, magnetic cards, etc..., as this could cause damage or malfunction.

Maintenance

The amount of sludge and impurities deposited in the device depend on the system's condition and materials.
Although the device has a very large sediment chamber, we recommend cleaning with the boiler off and the system cold, to prevent ferromagnetic impurities from returning into circulation after having removed the magnet.
The factory-fitted 500 µm filter cartridge allows initial thorough cleaning of the system.
After an initial period of operation (approximately one month) it is recommended to carry out the following checks:
1) thorough cleaning
2) evaluate whether to keep the 500 µm cartridge or whether to install the 800 µm cartridge with a larger mesh. No maintenance is required for the magnet as it is protected by a special coating.
Subsequent cleaning can be carried out every three months (basic cleaning) and annually (thorough cleaning).



BASIC CLEANING
After closing the downstream shut-off valve and removing the magnet, flush through the device's discharge valve.

THOROUGH CLEANING
Close both shut-offs, remove the magnet to make the ferromagnetic debris fall to the bottom, detach the body from the adjustable Tee and remove all the components.
Wash with water and reassemble everything. Cleaning is described in detail in the use and maintenance instructions.

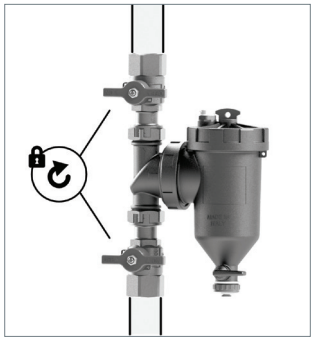
INLET FOR ADDITIVES
The discharge valve can be used as an injection point for chemical additives.

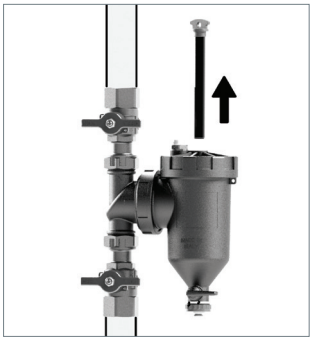
Basic cleaning operations

CAUTION
Before any inspection, cleaning or maintenance operation, make sure the boiler is switched off and that the shut-off valves upstream and downstream of the device are closed, and allow some time for the components to cool down.

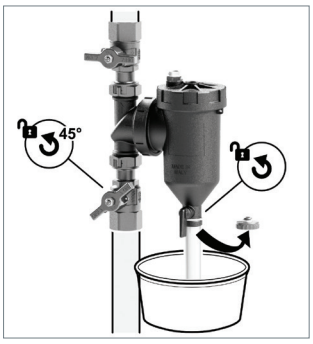
To clean the device, proceed as follows:

1. Close the shut-off valves upstream and downstream of the filter.
2. Extract the magnet: the debris is released and is collected on the bottom of the chamber.
3. Unscrew the drain valve plug on the bottom.
4. Connect a hose to the valve or place a collector below the device.
5. Open the drain valve by operating the lever.
6. Slightly open the shut-off valve upstream of the device, to allow water to flow and flush the debris out of the filter.
7. After the discharge has been completed, close the upstream shut-off valve and the drain valve, remove the hose or the collector and plug the drain valve.
8. Put the magnetic insert back into the proper housing. Open the shut-off valves again.


1. Close the shut-off valves.


2. Remove the magnet.


3. Open the drain valve.



4. Slightly open the shut-off valve upstream and allow water to flush the inner parts
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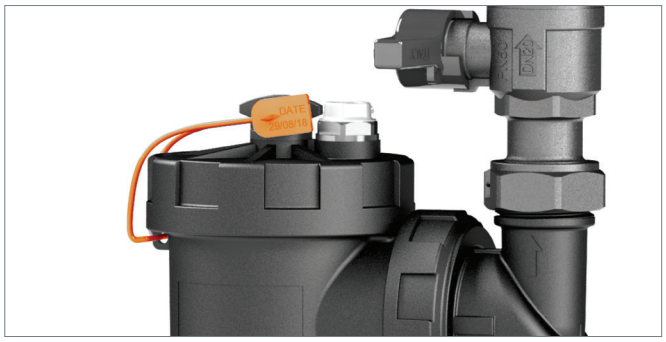
Thorough cleaning operations

To fully inspect the dirt separator or to clean or replace the filter cartridge.
Close both shut-offs, remove the magnet to make the ferromagnetic debris fall to the bottom.
Detach the body and adjustable tee and remove all the components. Wash with water and reassemble everything.

Inspection, cleaning and maintenance



The magnet can be protected from accidental removal by applying the provided tamper-evident seal through the eyelet located on the accessible upper endpoint. The seal features a label where the date of the most recent cleaning can be marked.

The device should be cleaned at least with the following frequency:

- 1 month after the first installation;
- once a year.

However, the minimum cleaning frequency depends on the characteristics of the system.

Package contents

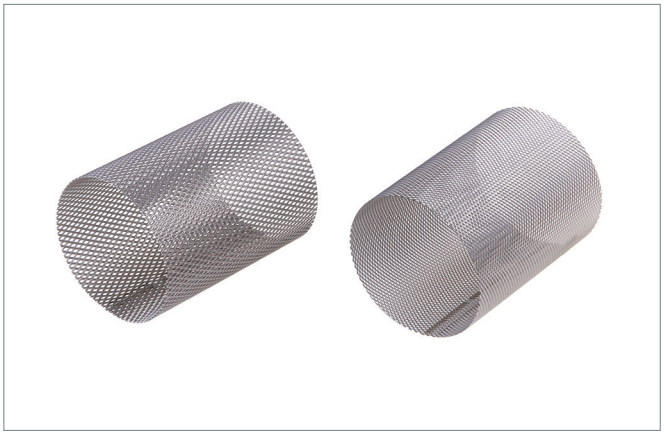
- Magnetic filter DirtOUT™ XL
- 2 shut-off ball valves (just for the model with the plastic Tee)
- Double manœuvre wrench
- Tamper-evident seal
- First-stage 500 µm filtering cartridge
- Standard 800 µm filtering cartridge

Accessories and spare parts

Ball valves 3/4" F x 3/4" F - 1"F x 1"F - 1" 1/4 F x 1" 1/4 F

Automatic air vent valve 3/8" M

Ball valves copper/mild steel pipe compression fitting
Ø 22 mm - Ø 28 mm



Filtering cartridge 500 µm e 800 µm

Tender specifications

DirtOUT™ XL, triple-action magnetic filter: cyclonic action ensured by an insert developed to guide boiler water flow so to maximise the slow-down and separation of sludge; removal of ferrous debris by means of a neodymium rod magnet generating 14000-G magnetic field; mechanical filtration through 800 µm cartridge. First-stage 500 µm filtering cartridge included. Internal components can be fully inspected and cleaned. Large 400 ml collection chamber. Manual air-vent valve. Drain valve with lever and plug. 360°-positionable "tee" piece to install the device in different directions. Installations on horizontal, vertical or oblique lines are permitted. Tool to manœuvre the locking ring and the upper cover included. Eyelet for anti-tampering protection of the magnetic insert, tamper-evident seal included. Materials: body, cyclonic insert and locking ring in PA66 + GF 30%; "tee" piece in polyacrylamide IXEF®; filtering cartridge in stainless steel AISI 304; sealing parts in peroxide-cured EPDM. Compatible fluids: water, water + glycol max 50%. Maximum recommended flow rate: TBD. Maximum pressure: 3 bar. Working temperature range: 0-90 °C.