



DESCRIPTION

103 – K103/2

PA66 (GF30) magnetic dirt separator with strainer for heating and cooling systems. Equipped with:

- Inspectable filter (700 µm).
- Adjustable drain for maintenance operations.
- Removable magnet for maintenance operations.
- Manual air vent
- Orientable tee connection

APPLICATION FIELD

The EvoMAGic 103 series magnetic dirt separator is used as a separator for impurities (magnetic and non-magnetic) that are often found in small/medium size heating and cooling systems; the presence of a removable magnet and an adjustable drain allows to discharge these impurities quickly and effectively during maintenance operations.

It has been developed to work only on vertical axis; so, the EvoMAGic series 103 magnetic dirt separator is equipped with a tee connection (360°) which allows several connection positions: horizontal, vertical or even tilted axes pipes.

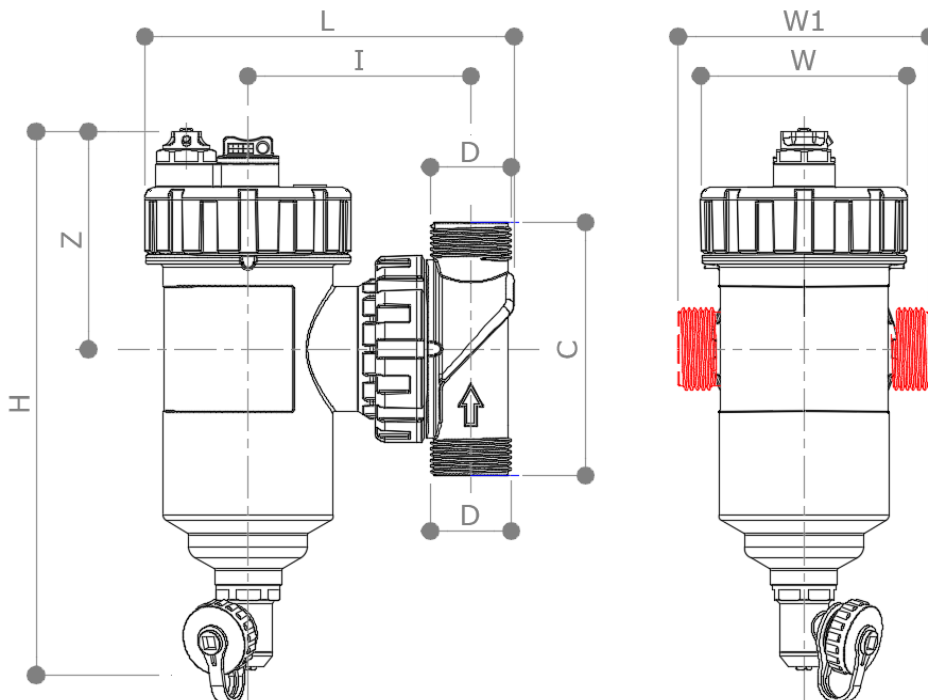
Because of the specific capacity and allowable flow rate, the EvoMAGic 103 series magnetic dirt separator is not suggested to be installed under wall boilers (sub-boiler) (please refers to series 102V and 102H); on the other hand, it could be installed in small heating/cooling stations.

Different versions are available:

- 103 – magnetic dirt separator with strainer.
- K103/2 – kit magnetic dirt separator with 2 ball valve 52MET/1 1”M x 1”F flat end swivel nut.
- K103/2 – kit magnetic dirt separator with 2 ball valve 52MET/1 ¾”M x 1”F flat end swivel nut.

DIMENSIONS

103

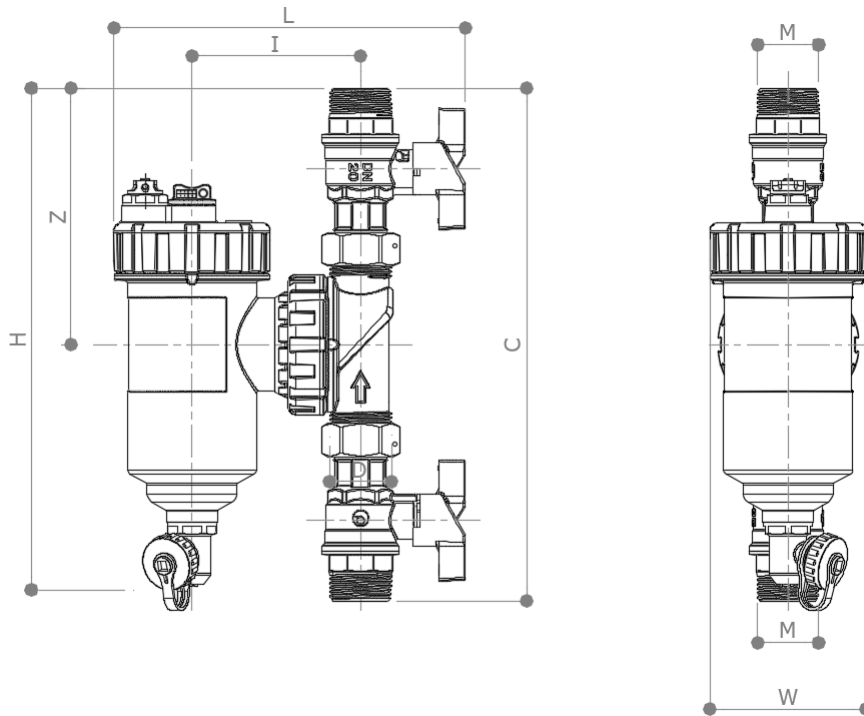


D	=	1" M ISO228 flat end
L	=	149 mm
H	=	219 mm
I	=	90 mm
Z	=	88 mm
C	=	102 mm
W	=	84 mm
W1	=	102 mm
Weight	=	620 g

W max width with orientable connection in vertical position

W1 max width with orientable connection in horizontal position

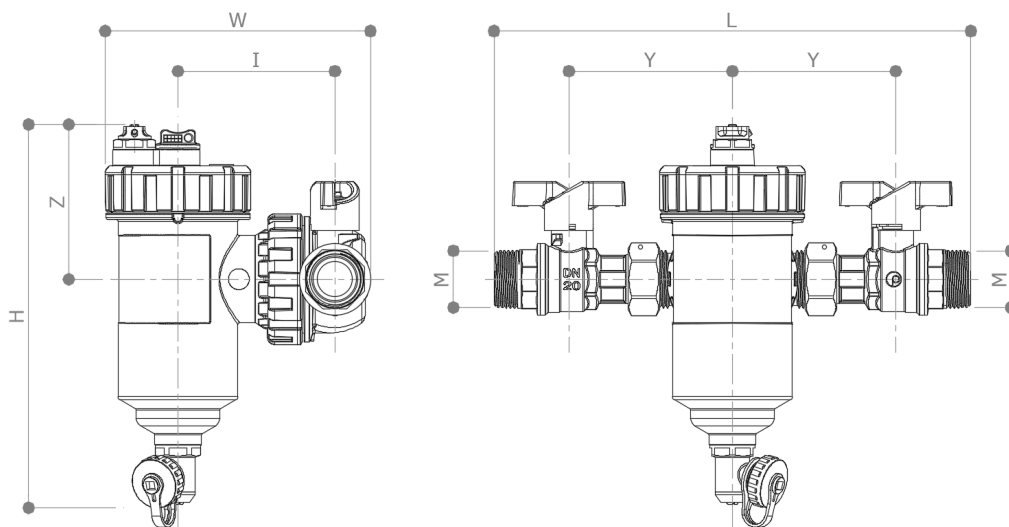
K103/2 – VERTICAL PIPES



M	=	¾" M	1" M
L	=	188	188
H	=	270	268
I	=	90	90
Z	=	139	137
C	=	278	274
W	=	84	84
Weight	=	1472	1512

Dimensions in mm and weight in g

K103/2 – HORIZONTAL PIPES



M	=	¾" M	1" M
L	=	278	274
H	=	219	219
I	=	90	90
Z	=	88	88
Y	=	94	94
W	=	153	153
Weight	=	1472	1512

Dimensions in mm and weight in g

COMPONENTS AND MATERIAL

Body	PA66 (GF30)
Internal flow diverter	POM
Magnet holder	POM
Holding nut	POM
Orientable connection	PA66 (GF30)
Cap	PA66 (GF30)
Drain	CW617N Nickel plated
Manual air vent	CW614N
Ball valves (K103/2)	EN12163 - CW617N
Strainer	AISI 304
Washers and O-Ring	EPDM

FEATURES

Medium	Water (glycol max.30 %)
Max working temperature	90°C
Max working pressure	4 bar
Magnet	REN35 11.800-12.400 Gs
Strainer mesh	700 µm

OPERATING PRINCIPAL

Thanks to the magnet and the strainer, the EvoMAGic 103 series magnetic dirt separator can capture and collect the suspended debris (magnetic and non-magnetic) carried around by the flow. A specific lamellar diverter conveys the flow inside a strainer delimited; the magnetic field generated by the removable magnet acts within it. The magnetic impurities are caught thanks to the magnet, whereas the non-magnetic particles are blocked by the strainer and tends to settle in the bottom body (calm chamber) of the dirt separator. Once the strainer is crossed, the cleaned flow rate moves on towards the generator (boiler, chiller or heat pump). A specific feature of EvoMAGic 103 series is the orientable connection: despite the dirt separator has to work vertically, the 360° orientable connection allows the installation on different pipe direction. It can be installed on vertical, horizontal or tilted pipes. Installation requirements must be observed. Refers to specific INSTALLATION section.



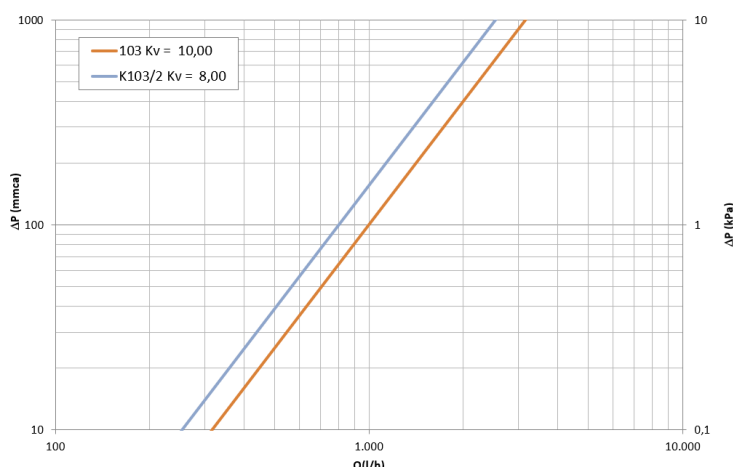
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PRESSURE DROP DIAGRAM

The diagram shown beside represents the trend of the pressure drops generated by the dirt separator according to the flow rate across it.

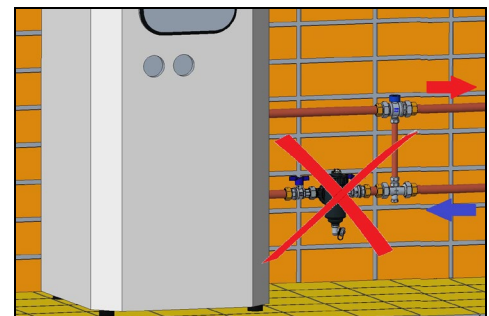
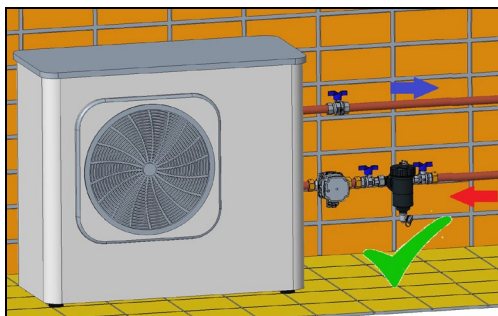
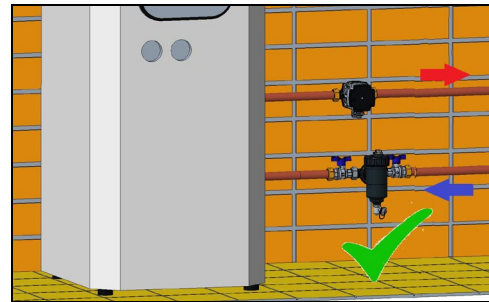
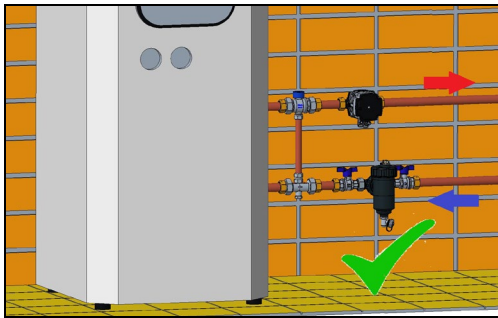
According to design rules, water speed into pipes should not exceed 1,2-1,3 m/s. This means that the suggested max flow rate across the dirt separator should be around 1,35/1,40 m³/h (1350-1400 l/h).

- Kv = 8 with valves (i.e. K103/2)**
- Kv = 10 without valves (103)**

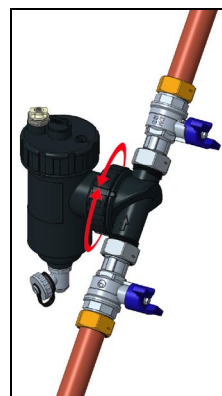
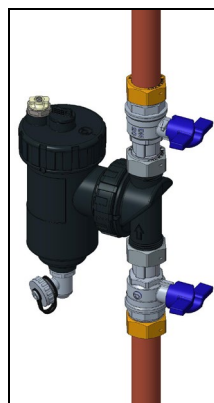
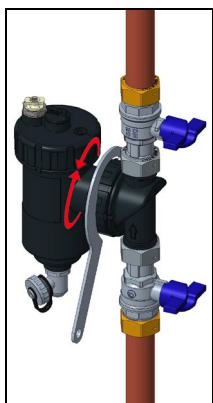
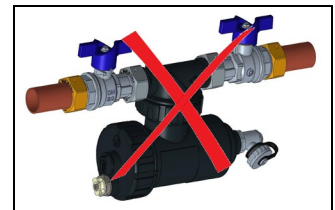
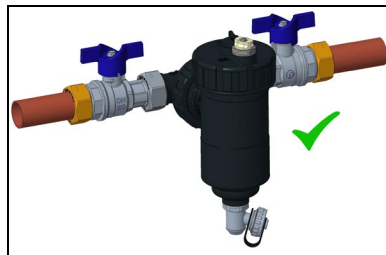
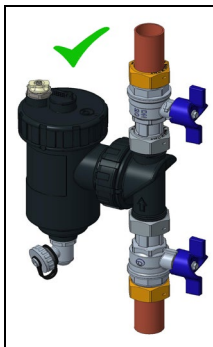


INSTALLATION

The EvoMAGic 103 series magnetic dirt separator has been specifically developed for installation in heating/cooling rooms. It must be installed on the **RETURN** pipes (just upstream the heat generator or any other device/by-pass to control or divert the flow) in order for catching and collecting all the magnetic and non-magnetic particles. **Flow direction must be observed** to ensure the proper operation of the product (see arrows on orientable connection).

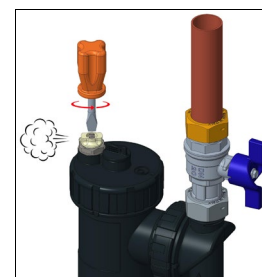


Upside-down and horizontal installation of the magnetic dirt separator **MUST BE AVOIDED**



Thanks to the 360 ° swivel connection, using the specific provided key, installation on pipes that run vertically, horizontally or tilted is possible and easy. Avoid any installation position with the dirt separator axis is placed horizontally, diagonally or even upside down.

The air vent on the top cap allows air purging gathered in the upper part of the dirt separator chamber. The air vent can be open and closed through a flat screwdriver.

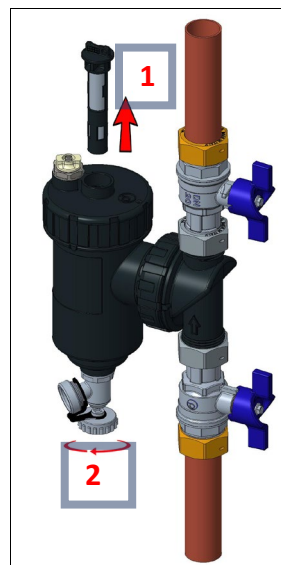


CLEANING AND MAINTENANCE

Particles removal

Removal of a-magnetic particles (captured by the strainer) and magnetic particles (attracted by the magnet) can be carried out as follows:

1. Remove the magnet by pulling it up;
2. open the orientable drain through the square key on the drain cap. Before opening the drain, connect a hose with 3/4" hose connection.

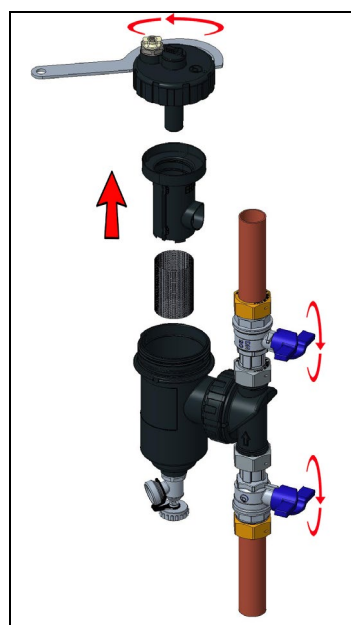


Removal and cleaning of the strainer

This operation MUST be carried out with the system OFF.

Firstly, close the valves upstream and downstream the dirt separator: always minimize the water leakage.

Through the provided key, loosen and remove the upper cap. Then, pull the strainer out and clean it with fresh water; if required, replace it. Finally, re-assemble everything. Care must be taken pushing the strainer in the upper body of the dirt separator.



ACCESSORIES

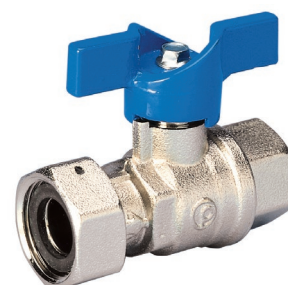
52MET/1: ball valve 1" M x 1" F flat end swivel nut.

52MET/1: ball valve 3/4" M x 1" F flat end swivel nut.

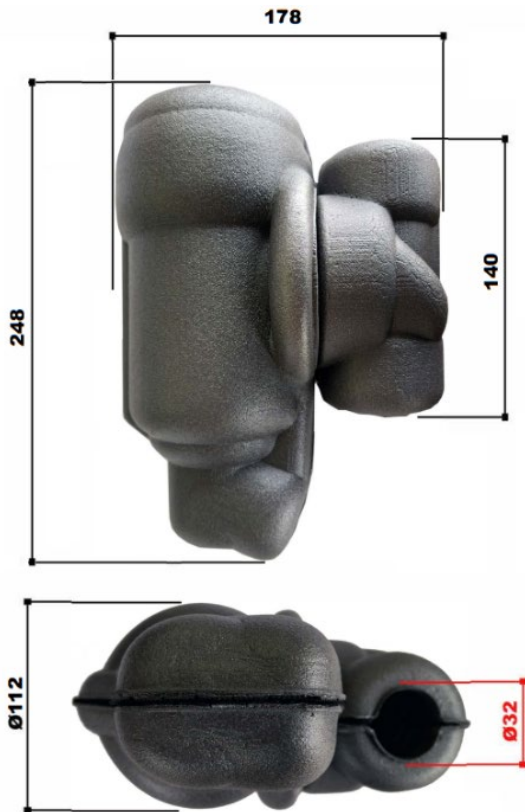


52MET: ball valve 1" F x 1" F flat end swivel nut.

52MET: ball valve 3/4" F x 1" F flat end swivel nut.



INSULATING SHELL 0103GI



UL-classified thermal insulation shell. Composed of 2 half-shells joined by Velcro® and manufactured with a sandwich structure (two layers). The specific model for the dirt separator (0103GI) consists of two parts: the first for the body and the second for the adjustable connection fitting.



MATERIALS

External layer: polyethylene cross linked foam with high density (80 kg/m³). This layer gives rigidity to the structure of the shell.



Internal layer: polyethylene cross linked foam with low density (29 kg/m³). This layer increases the insulation performance of the shell.

TECHNICAL FEATURES

	Standard	Insulation material		Unit of measure
Density	ISO 845	29	80	Kg/m ³
Compression stress (50% deflection)	ISO 3386/1	88	260	kPa
Tensile longitudinal strength	ISO 1798	0,18	0,80	MPa
Extension longitudinal stretch	ISO 1798	120 (rupture)	170 (rupture)	%
Residual distortion 22h at 23°C	ISO 1856	13	1,5	%
Operating temperature range	-	-60÷90	-60÷90	°C
Thermal conductivity at 40°C	EN 12667	0,040	0,049	W/mK
Fire resistance	UL94	HF1	HF2	-

WARNING

The EvoMAGic 103 series magnetic dirt separator has a powerful magnet. **It generates strong magnetic fields inside the device. Pacemaker holders are recommended to keep at a safe distance during operation and maintenance.** Pay attention when using electronic devices near the magnet: performances can be affected by the magnetic field.