MP1
SELF-CLEANING MAGNETIC SLUDGE REMOVER FILTER FOR HEATING PUMPS

CT3699.0_00
EN
October 2020

The 1st self-cleaning magnetic sludge remover filter for heating pumps.

- Removes any impurity;
- Self-cleaning;
- Excellent hydraulic properties;
- Extends the lifespan of heat pumps;
- Fights corrosion;
- Ensures system efficiency;
- Complete with integrated shut-off device and discharge ball cock.

PRODUCTION RANGE

	Code	Size	Couplings	Kv [m^3/h]
	**3699.06.00**	G 1”	MM UNI-EN-ISO 228	-

ACCESSORIES

	Code	Size	Description
	**3815.00.00**	1” F	Insulation jacket
	**3773.07.00**	G 1”1/4F-1”1/4F	Double swivel straight fitting
	**3773.07.10**	G 1”1/4F-1”F	Double swivel straight fitting
	**3773.07.20**	G 1”1/4F	Ball elbow fitting
	**812.26.50**	1”1/4F	Press fitting for multilayer pipe – rotary nut – flat seat gas thread

DESCRIPTION

MP1 *by* ***RBM*** enables to solve plant engineering problems due to particles, especially sand and rust that forms due to corrosion and scale during the normal operation of a system.

OPERATING PRINCIPLE:

Through its effective and constant action, the magnetic filter collects all the impurities present in the system, preventing them from circulating within it, thus avoiding wear and damage of all the components making up the system.

The impurities stopped by the filter are accumulated on its bottom as long as the opening of the specific discharge cock allows the expulsion thereof.

USE:

It is advised to install *MP1* on the return circuit, at the inlet of the heating pump, in order to protect it from any impurities in the system, especially during the start-up phase.
It is important to **follow the direction indicated by the arrow** on the body to ensure better performance of the filtering action.

DEGREE OF FILTRATION:

MP1 removes any magnetic and non-magnetic particles that may cause damage to the system during the first day of operation.
The continuous passage of the fluid through the filter during the normal operation of the system on which it is installed, gradually removes any dirt.

WARNINGS:

This filter contains a powerful magnet and strong magnetic fields are present.
We recommend the holders of pacemaker devices to keep a safe distance during filter operation and/or maintenance. Pay attention when using electronic devices near the magnets, to avoid affecting their operation.

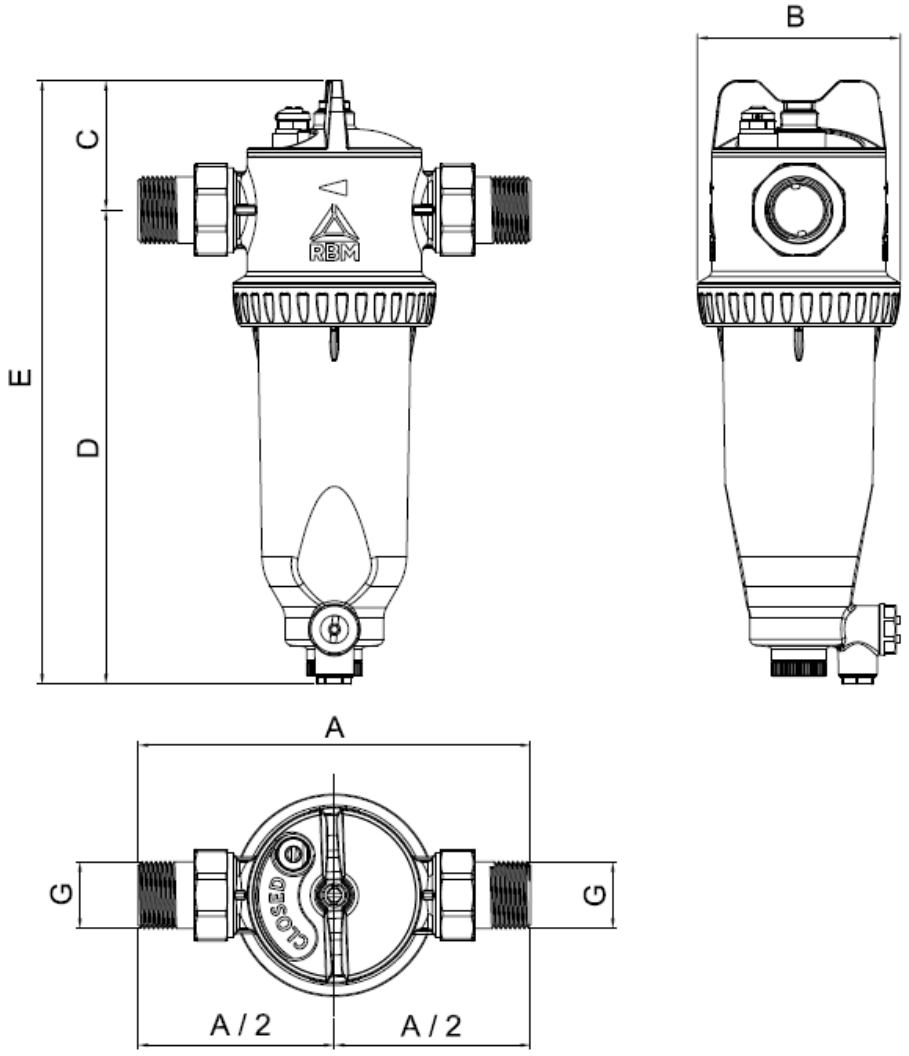
CONSTRUCTION FEATURES

• Body:	Polyamide PA66 +30% FV
• Filtering cartridge:	AISI 304 Stainless Steel
• Hydraulic seals:	Elastomer
• Magnet:	Neodymium REN35 B = 11.000 Gauss
• Connections:	MM UNI-EN-ISO 228

TECHNICAL FEATURES

• Compatible fluid:	Water, Water + Glycol:
• Max. operating pressure:	6 bar
• Max pressure during maintenance:	3 bar
• Operating temperature:	0 - +70°C
• Max T (one hour max)	90°C
• Degree of filtration:	800 µm

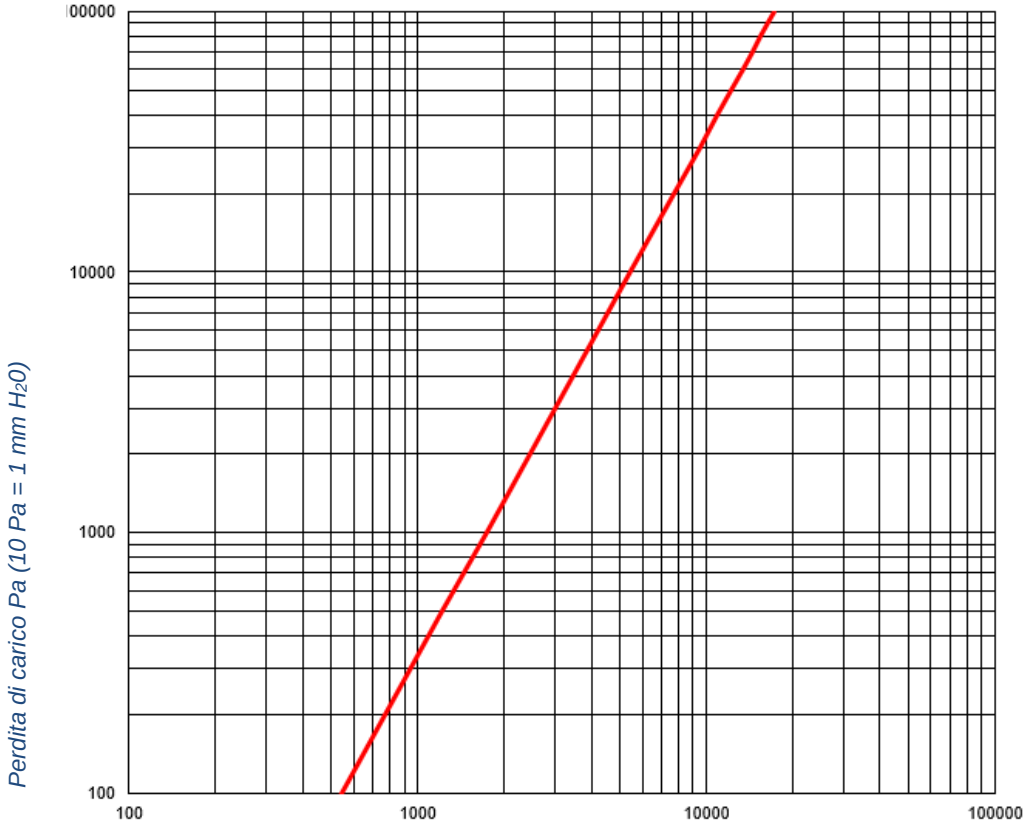
DIMENSIONAL FEATURES



Code	Size G	A [mm]	øB [mm]	C [mm]	D [mm]	E [mm]
3699.06.00	1”	193.6	100	51	234	285

FLUID DYNAMICS FEATURES

Pressure drop diagram



Size	Kv [l/h]
1”	17 300

OPERATING PRINCIPLE

By going through a set course, the fluid is forced to cross the mesh of the cartridge and enter the filtering chamber.
In this filtering chamber, thanks to the simultaneous action of the:

- filtering cartridge
- magnet
- design choices for the filtering chamber section

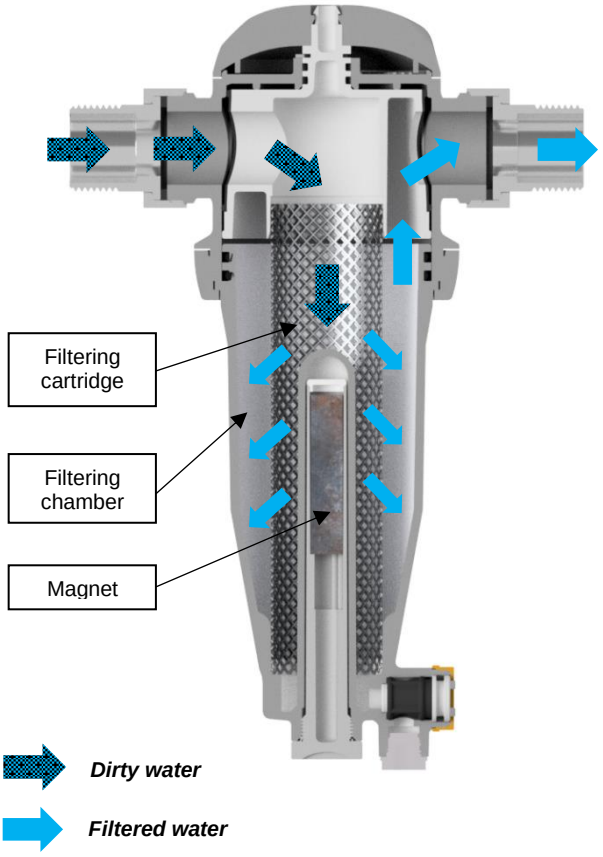
the water full of debris undergoes a filtering grade treatment.

First of all, the sudden cross-section variation (the filtering chamber has a much greater diameter than the conduit) slows down the fluid motion and, consequently, the entrainment rate of the particles suspended in it.

The particles collide with the mesh of the filtering cartridge and then slow down.

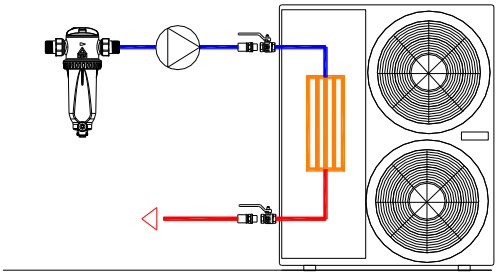
The heavier particles fall downwards due to gravity, which prevails over the drag force.
The magnet, placed inside a cylinder at the centre of the filtering chamber, attracts all the impurities having magnetic characteristics.

This way, all the magnetic (ferrous residues) and non-magnetic (algae, sludge, sand...) contaminants in the system are removed.

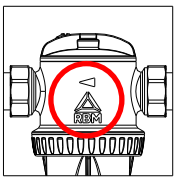


INSTALLATION

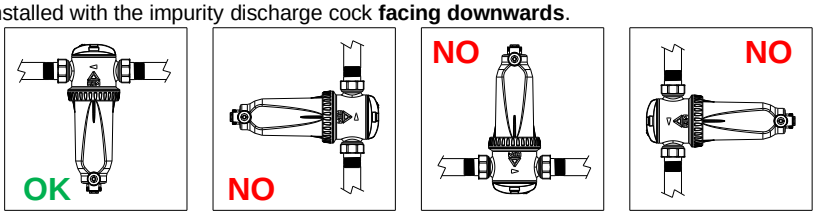
- It is advised to install *MP1* on the return circuit, at the inlet of the heating pump, in order to protect it from any impurities in the system, especially during the start-up phase.



- It is important to **follow the direction indicated by the arrow** on the body to ensure the maximum efficiency of the filtering action.



- *MP1* must be installed with the impurity discharge cock **facing downwards**.



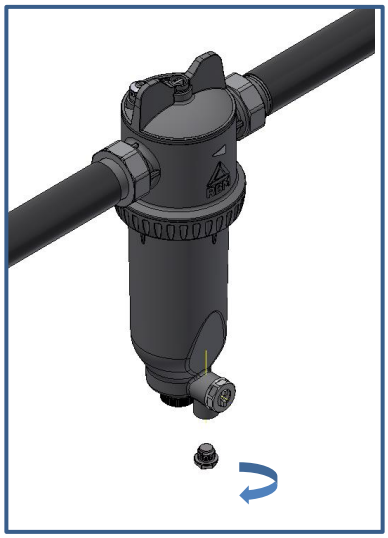
There is a 1/4" manual air vent valve in the upper part of the filter.
This can be used to eliminate air that was not expelled during refill, or micro-bubbles that may form following processes that occur during the normal operation of the system.

MAINTENANCE INTERVENTIONS WITHOUT DISASSEMBLING THE FILTER

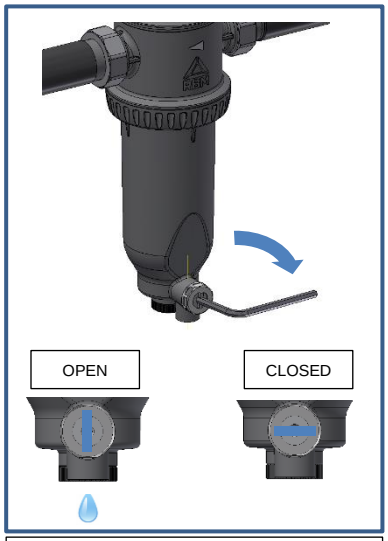
It is possible to clean the cartridge by extracting the magnet or, alternatively, by completely unscrewing the cartridge support/magnet.

Before cleaning *MP1*, ensure the working environment is safe.
RBM recommends **that the HEATING PUMP IS OFF and the system is allowed to cool at room temperature** before carrying out any maintenance intervention, in order to prevent burns.

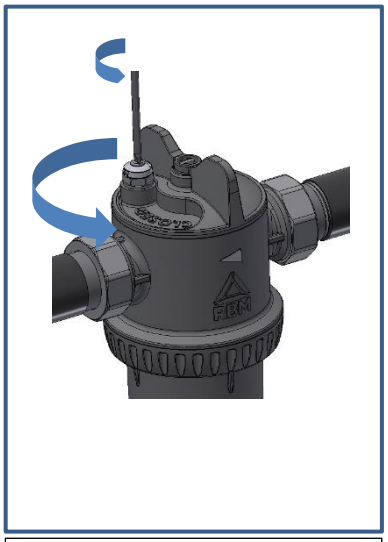
MAINTENANCE INTERVENTION WITHOUT DISASSEMBLING THE FILTER



TURN OFF THE PUMP.
UNSCREW THE DRAIN PLUG



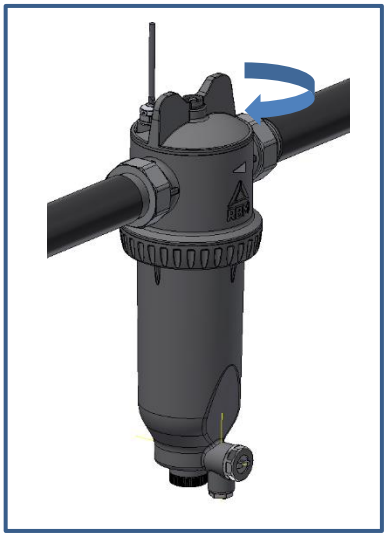
OPEN THE DRAIN VALVE
TO DEPRESSURISE THE SYSTEM.
(5 seconds) and close it again.
use a container to collect drain water



CLOSE THE FILTER BY ROTATING THE KNOB.
Open the air vent using a flat head screwdriver to prevent the vacuum effect during discharge

Unscrew the magnet and remove it.
Place the magnet on a clean surface.

Open the drain. The dirt inside the filter no longer captured by the magnet will be channelled outside by the flow of water in the drain.
Use a container of at least 1 L.

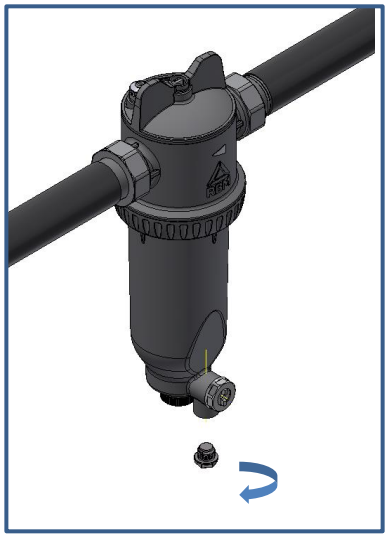


1. Close the drain.
2. Mount the grey safety plug back on.
3. Mount the magnet back on.
4. TURN THE KNOB TO OPEN POSITION.
5. START THE PUMP.
6. Lastly, close the air vent after venting some air.

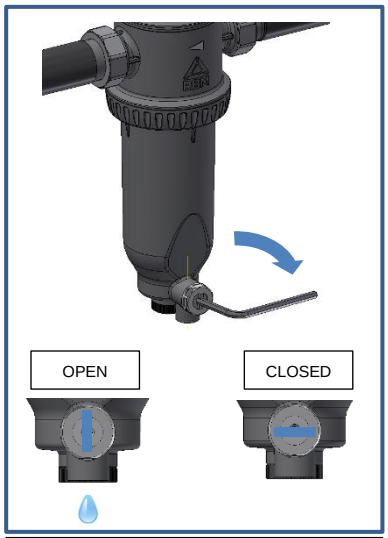
MAINTENANCE INTERVENTIONS DISASSEMBLING THE FILTER

Before cleaning *MP1*, ensure the working environment is safe.
RBM recommends **that the HEATING PUMP IS OFF and the system is allowed to cool at room temperature** before carrying out any maintenance intervention, in order to prevent burns.

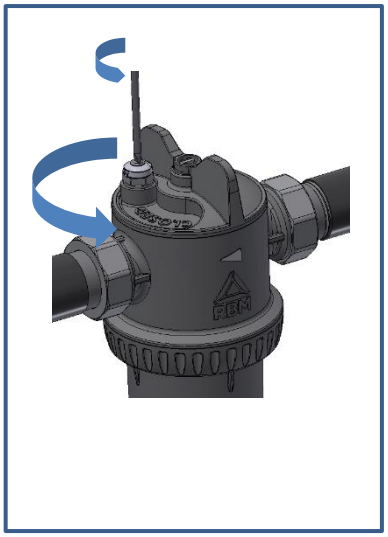
MAINTENANCE INTERVENTION DISASSEMBLING THE FILTER



TURN OFF THE PUMP.
UNSCREW THE DRAIN PLUG



OPEN THE DRAIN VALVE
TO DEPRESSURISE THE SYSTEM.
(10 seconds) and close it again.
use a container to collect drain water



CLOSE THE FILTER BY ROTATING THE KNOB.
Open the air vent using a flat head screwdriver to prevent the vacuum effect during discharge

Open the drain and empty the water inside it.
Use a container of at least 1 L.

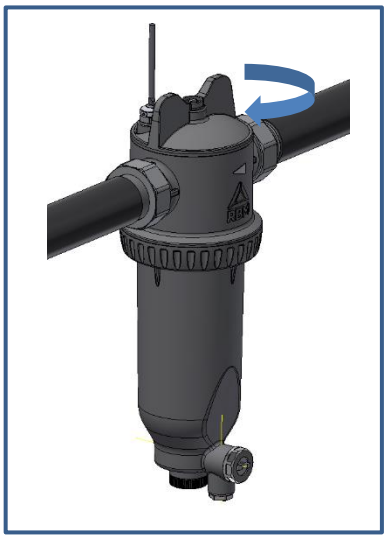
Unscrew the Ring nut.

Release the body.

Remove the magnet (put it in a clean place).

Remove the Stainless steel cartridge.

Wash the body and cartridge under running water.



1. Mount the body again and tighten the ring nut.
2. Close the drain
3. Mount the grey safety plug back on.
4. Mount the magnet back on.
5. TURN THE KNOB TO OPEN POSITION.
6. START THE PUMP.
7. Lastly, close the air vent after venting some air.

SPECIFICATIONS

SERIES 3699

Self-cleaning magnetic sludge remover filter for heating pumps, model *MP1*. Body in plastic polymer. AISI 304 stainless steel reinforced filtering cartridge. Elastomer hydraulic seals. Threaded connections MM UNI-EN-ISO 228.
Max operating pressure 6 bar. Operating temperature 0 ÷ +90 °C. Neodymium magnet B = 11,000 gauss. Degree of filtration 800 µm. Removes all impurities; Self cleaning; Excellent hydraulic properties; Extends the lifespan of heat pumps; Maintains optimum system efficiency; Complete with integrated shut-off device and discharge ball cock. Available size 1”

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