

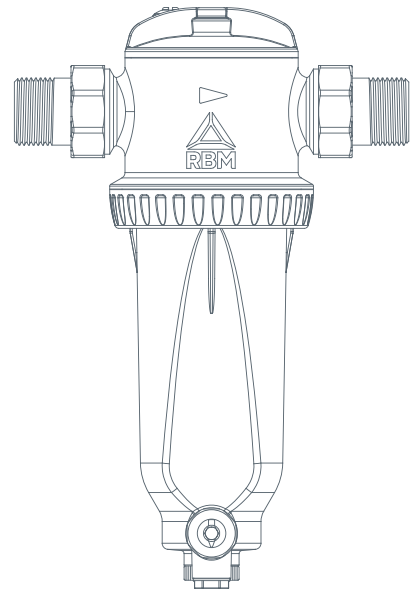
Rev. 10/2020

## **SERIES 3699 MP1**

Self-cleaning magnetic sludge  
remover filter for heating  
pumps.

# SERIES 3699 MP1

Self-cleaning magnetic sludge remover filter for heating pumps.



Removes any impurity

Self-cleaning

Excellent hydraulic properties

Extends the lifespan of heatpumps

Fights corrosion






Ensures system efficiency

Complete with integrated shut-off device and discharge ball cock.

## PRODUCTION RANGE

	Code	Size	Couplings
	3699.06.00	G 1"	M UNI-EN-ISO 228

## GAMMA DI PRODUZIONE - ACCESSORI

	Code	Size	Description
	3815.00.00	-	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-1"1/4M	Ball elbow fitting
	812.26.50 812.32.50	1"1/4F - 26x3 1"1/4F - 32x3	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.



## 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.

## DEGREE OF FILTRATION

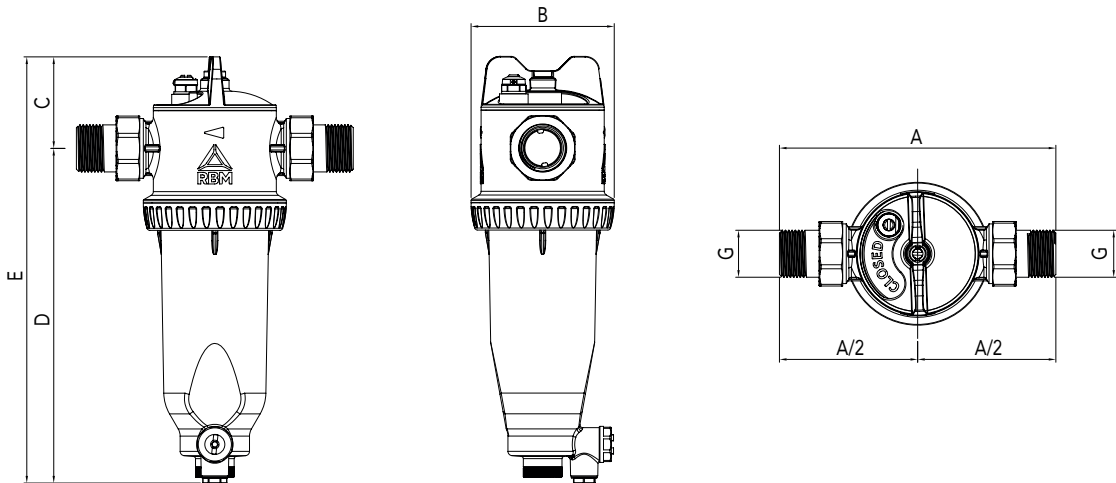
**MP1** removes any magnetic and non-magnetic particles that may cause damage to the system during the first day of operation. The continuous passage of the fluid through the filter during the normal operation of the system on which it is installed, gradually removes any dirt.

## CONSTRUCTION FEATURES

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

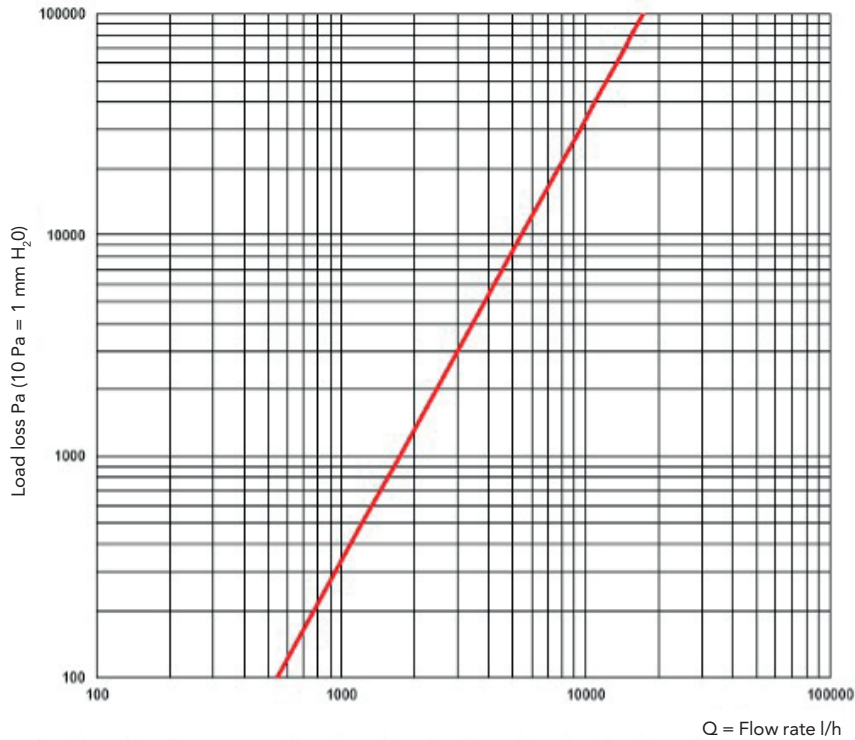
## TECHNICAL FEATURES

<b>Compatible fluid:</b>	Water, Water + Glycol:
<b>Max. operating pressure:</b>	6 Bar
<b>Max pressure during maintenance:</b>	3 Bar
<b>Operating temperature:</b>	0 ÷ +70 °C
<b>Max T (one hour max)</b>	90 °C
<b>Degree of filtration:</b>	800 µm



Code	Size G	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]
3699.06.00	1"	193,6	100	51	234	285

## FLUID DYNAMICS FEATURES



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

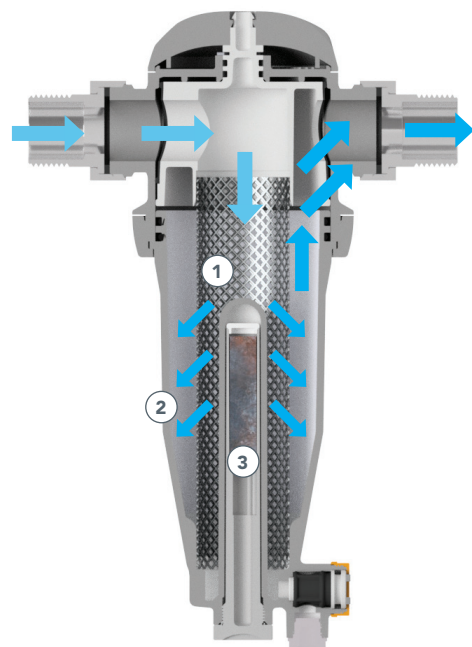
First of all, the sudden cross-section variation (the filtering chamber has a much greater diameter than the conduit) slows down the fluid motion and, consequently, the entrainment rate of the particles suspended in it.

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 nonmagnetic (algae, sludge, sand...) contaminants in the system are removed.**

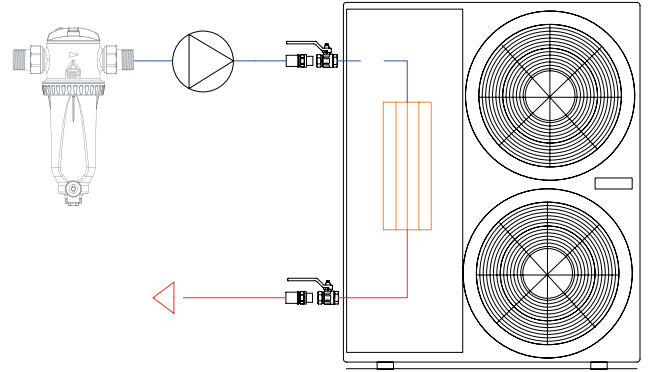


- ① Filtering cartridge
- ② Filtering chamber
- ③ Magnet

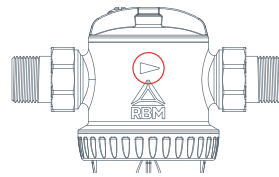
Filtered water      Dirty water

## INSTALLATION

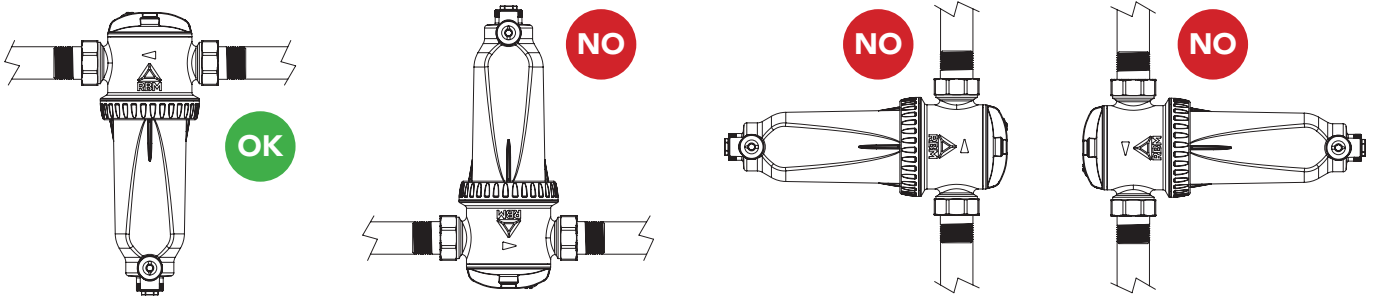
It is advised to install **MP1** on the return circuit, at the inlet of the heating pump, in order to protect it from any impurities in the system, especially during the start-up phase.



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 INTERVENTION WITHOUT DISASSEMBLING THE FILTER

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

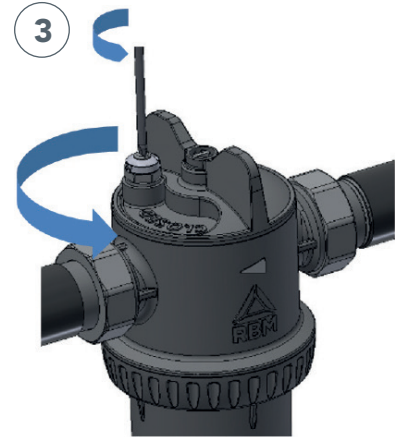
Before cleaning **MP1**, ensure the working environment is safe. RBM recommends that the **heating pump is off and the system is allowed to cool at room temperature** before carrying out any maintenance intervention, in order to prevent burns.



1 Turn off the pump.  
Unscrew the drain plug.



2 Open the drain valve to depressurise the system. (5 Seconds) and close it again. Use a container to collect drain water.



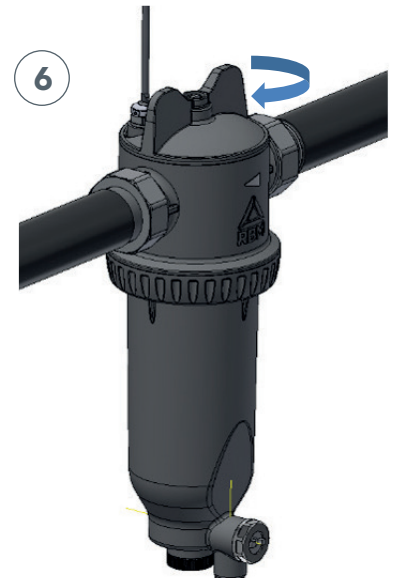
3 Close the filter by rotating the knob. Open the air vent using a flat head screwdriver to prevent the vacuum effect during discharge.



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



5 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.



6 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 INTERVENTION DISASSEMBLING THE FILTER

Before cleaning **MP1**, ensure the working environment is safe.

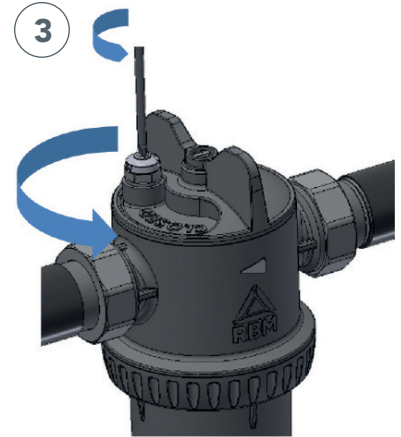
RBM recommends that the **heating pump is off and the system is allowed to cool at room temperature** before carrying out any maintenance intervention, in order to prevent burns.



turn off the pump.  
unscrew the drain plug.



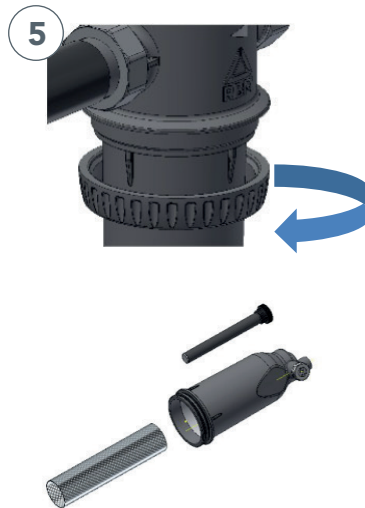
Open the drain valve to depressurise the system. (10 seconds) and close it again. use a container to collect drain water.



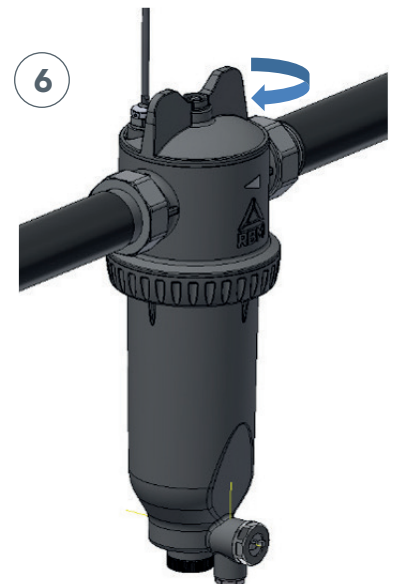
Close the filter by rotating the knob. Open the air vent using a flat head screwdriver to prevent the vacuum effect during discharge.



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  $0 \div +90$  °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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