



MG1F®

UNDER-BOILER MAGNETIC DIRT SEPARATOR FILTER

CT3701.0-
EN_00

July 2020



Patent
No. 102016000104280



- Super compact
- Removes any impurity
- Fights corrosion
- Increases the lifespan of the boiler
- Maintains optimum system efficiency

PRODUCTION RANGE

	Code	Size	Connection on system side	Connection on boiler side
	3701.05.80	G 3/4"	F UNI-EN-ISO 228	F UNI-EN-ISO 228 (swivel fitting)
	3701.05.90	G 3/4"	F UNI-EN-ISO 228	F UNI-EN-ISO 228 (swivel fitting)

PRODUCTION RANGE - ACCESSORIES

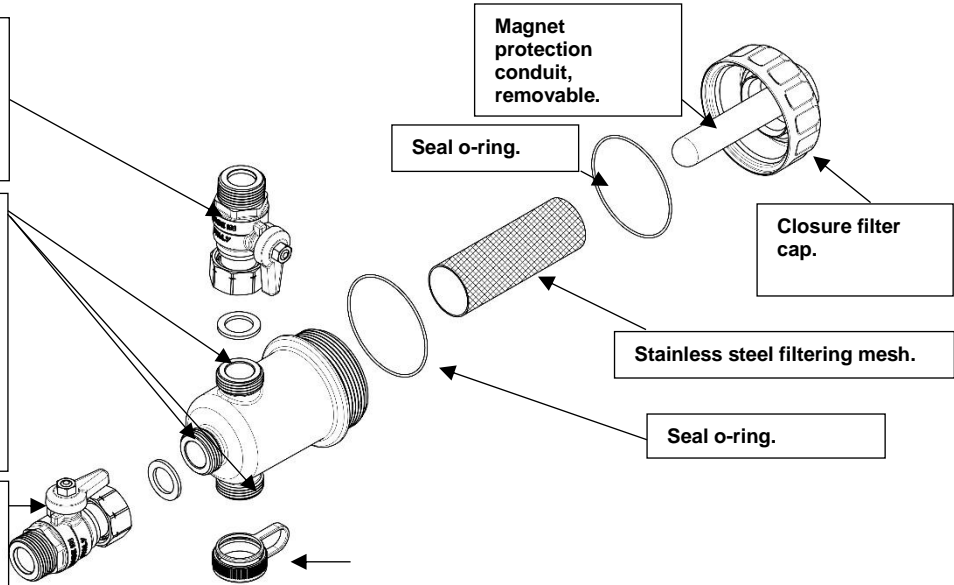
	Code	Description	Size	Connection on boiler side
	3174.05.00	Straight swivel fitting, for filter/boiler connection.	G 3/4"	F UNI-EN-ISO 228 (swivel fitting)
	3174.05.10	Curved swivel fitting, for filter/boiler connection.	G 3/4"	F UNI-EN-ISO 228 (swivel fitting)
	3174.05.30	Flexible extendible fitting, for filter connection.	G 3/4"	M UNI-EN-ISO 228
	3174.05.20	Ball valve with rotary coupling.	G 3/4"	M UNI-EN-ISO 228
	3812.05.00	Ball valve 3/4" F - 3/4" F rotary	G 3/4"	F UNI-EN-ISO 228

COMPONENTS DESCRIPTION

Shut-off ball valve: By shutting it off, it is possible to perform filter cleaning operations easily.

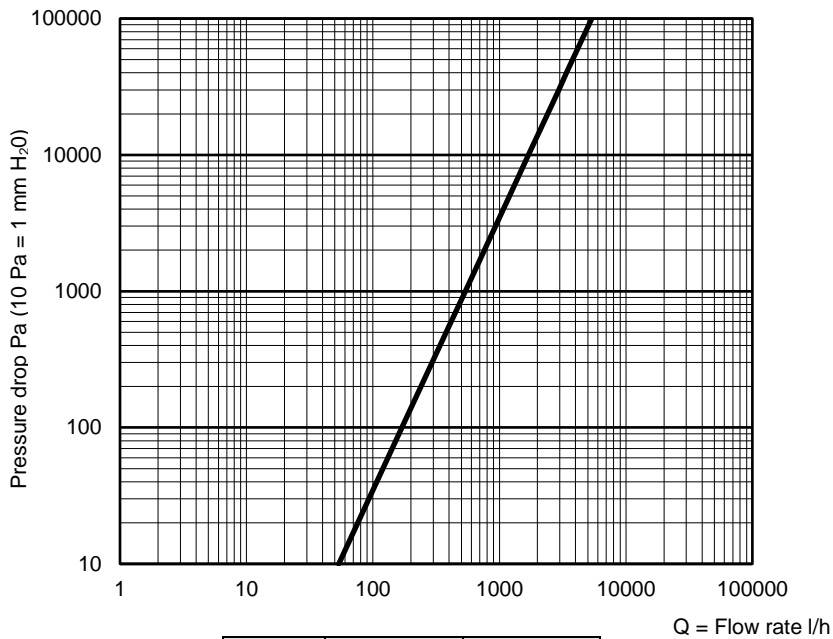
Threaded connections G 3/4": The design choice to make all the threaded connections of the main body of the same dimensions, allows for extreme installation versatility. For further information, please see the "INSTALLATION" section on this technical data sheet.

Shut-off ball valve: By shutting it off, it is possible to perform filter cleaning operations easily.



FLUID DYNAMICS FEATURES

Pressure drop diagram



Size	Kv Angle (standard) [m ³ /h]	Kv Straight [m ³ /h]
G 3/4"	5.49	5.37

OPERATING PRINCIPLE

By going through a set course, the fluid is forced to cross the mesh of the cartridge and enter the filtration chamber.

In the filtration chamber, thanks to the simultaneous action of:

- magnet
- filtering cartridge
- direction of the fluid given by the specific internal geometry

in the different phases, water is filtered from ferrous sludge.

First of all, the sudden cross-section variation (the filtering chamber has a greater diameter than the conduit) slows down the fluid motion and, consequently, the entrainment rate of the particles suspended in it, thus preventing them from avoiding the action exerted by the magnetic field.

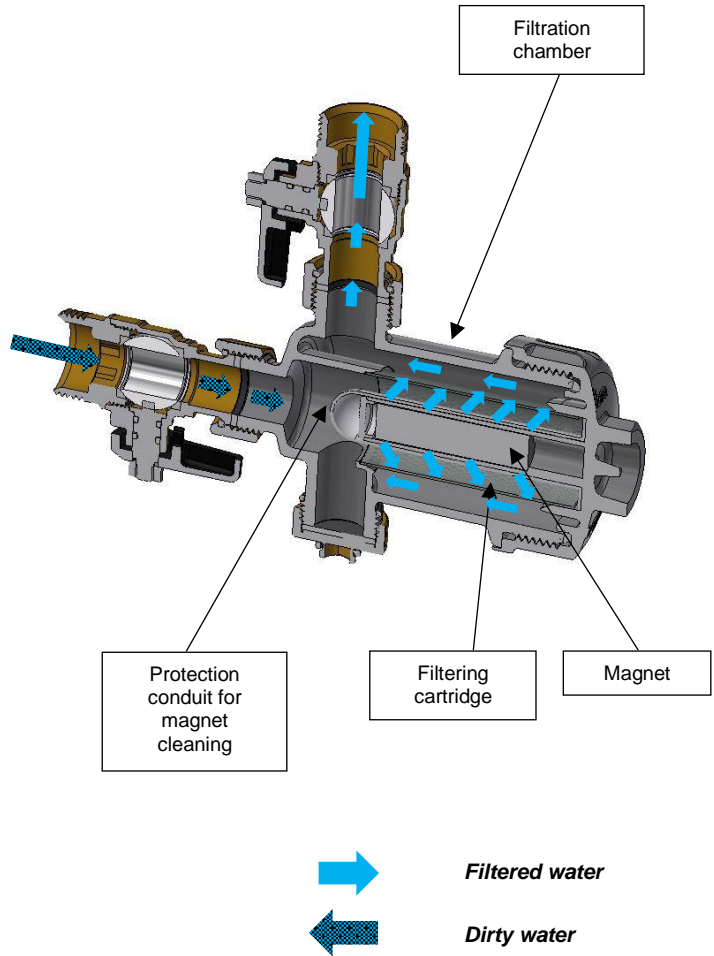
The larger particles collide with the mesh of the filter cartridge and then slow down before circulating again.

The magnet, placed inside a cylinder at the centre of the filtration chamber, attracts all the impurities having magnetic characteristics.

In the filter installation configuration with the main cartridge/filter body facing downwards, the heavier particles fall downwards due to gravity, which prevails over the drawing in force.

In this way, all magnetic (ferrous residues) and non-magnetic (algae, sludge, sand, etc.) contaminants in the system are retained in the filtration chamber.

The stainless steel cartridge was developed in order not to exert excessive resistance to the passage of fluid (low pressure drops) and to favour a motion of the fluid itself that contributes to bring the heaviest particles to the bottom.

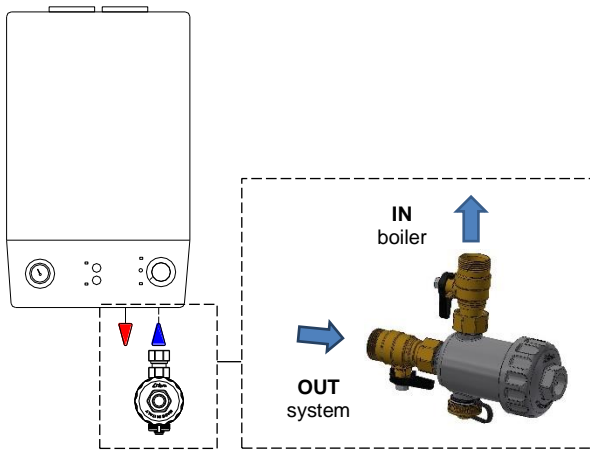


INSTALLATION

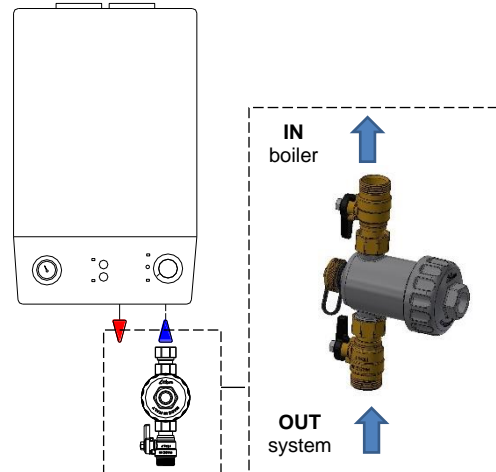
It is advised to install *MG1F* on the return circuit, at the inlet of the boiler, in order to protect it from any impurities in the system, especially during the start-up phase.

Thanks to a series of design solutions, *MG1F* is characterised by extreme installation versatility: it can be mounted either with the cartridge/filter body facing the front and downwards.

In case of limited space available under the boiler (e.g., boiler installed in kitchen cabinets), *MG1F* must be installed with the main cartridge/filter body **facing the front**.

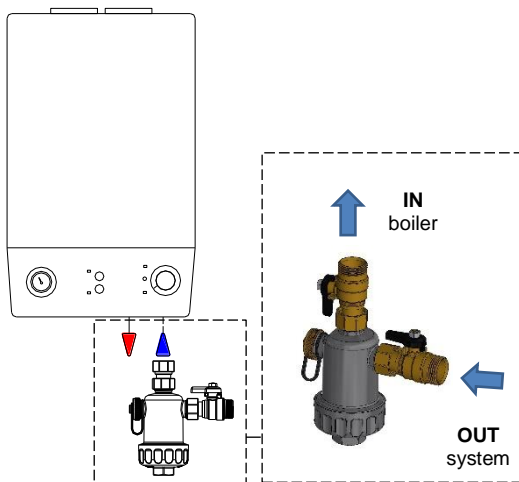


Layout 1:
Application of *MG1F* with the main cartridge/filter body **facing the front**.

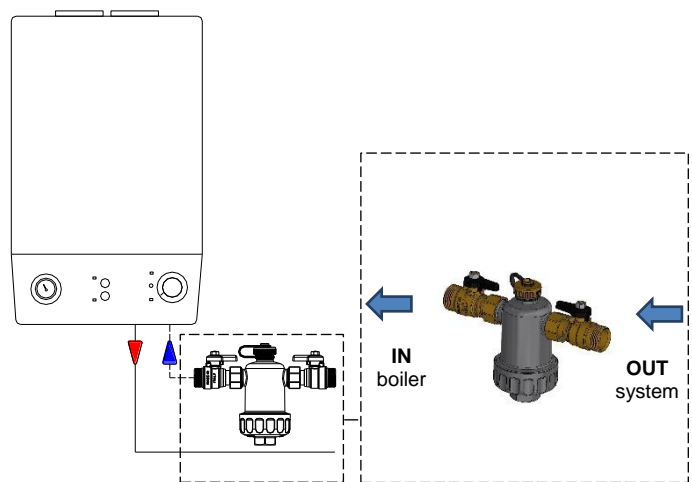


Layout 2:
Application of *MG1F* with the main cartridge/filter body **facing the front and with line connections**.

If there is more space available for installation, it is possible to position *MG1F* with the main cartridge/magnet body **facing downwards**.



Layout 3:
Application of *MG1F* with the main cartridge/filter body **facing downwards**.



Layout 4:
Application of *MG1F* with the main cartridge/filter body **facing downwards and with line connections**.

FILTERING CARTRIDGE CLEANING:

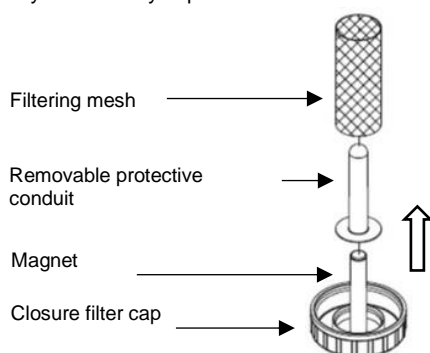
It is possible to carry out periodical cleaning operations of the cartridge by unscrewing the lower drain plug or the closure filter cap.

Before cleaning **MG1F** check that the work environment is safe; RBM recommends that the boiler is off and the system is allowed to cool at room temperature before carrying out any maintenance intervention, in order to avoid damage and burns.

Shut off the filter to be serviced by closing the ball valve(s). Carefully unscrew the lower drain plug, the water will gradually start flowing out (**Fig. 1**).

In case of vertical filter installation (**Fig. 2**) directly unscrew the filter cap using a 29 mm wrench. Ensure that water is collected in a container of suitable dimensions.

When the water stops flowing out, completely remove the cover or filter cap and extract the magnet protection conduit from the filter, so as to easily remove any ferrous particles. Wash with water and thoroughly rinse under the tap to completely remove any impurities.



Ensure the O-ring seal is not damaged; otherwise replace it. Reassemble in reverse order.

To guarantee a perfect hydraulic seal and at the same time avoid damaging the parts, when re-assembling the filter, comply with the following tightening torques:

- closure filter cap: torque **10-12 Nm**
- lower drain plug: torque **6-7 Nm**

Ensure there are no leaks prior to recommissioning.

It is important to perform cleaning at least once a year. In case of first application, perform the first cleaning after a month.

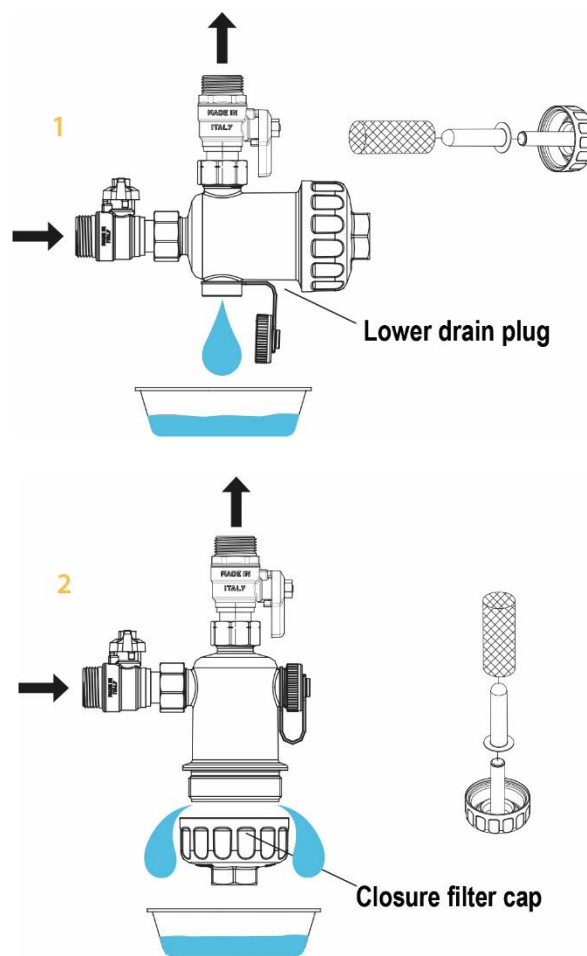


Fig. 2

Figure 2: by shutting off both the ball valves and by relieving the pressure in the filter by means of the drain plug, it is possible to completely remove the filter to facilitate maintenance operations

SPECIFICATIONS

3701 SERIES

Compact magnetic system filter, model **MG1F**. Threaded fitting 3/4"F x 3/4"F. Polymer body. AISI 304 steel filtering cartridge. EPDM PEROX seals. Brass ball valve. Brass swivel fitting. Threaded connections MF UNI-EN-ISO 228.

Max. operating pressure 3 bar. Operating temperature 0÷90 °C. Neodymium magnet B = 11,000 gauss. $B(T \text{ max}) / B(T \text{ room})^* < 1\%$ where * T max = 130 °C - T room = 21 °C. Reduced dimensions; Retains all impurities; Excellent hydraulic properties; Increases the lifespan of the boiler; Fights corrosion; Maintains optimum system efficiency; Total passage shut-off valves; Installation versatility.



RBM spa reserves the right to improve and change the described products and related technical data at any moment and without prior notice: always refer to the instructions attached with the supplied components; this sheet is an aid, should the instructions be extremely schematic. Our technical department is always available for any doubts, problems or clarifications.



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