



Rev. 04/2024

MG PLUS

Self-cleaning dirt separator with magnet for boiler rooms.

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+ Removes any impurity

Self-cleaning

Maintains optimum system efficiency

Application in industrial, commercial and large-scale civil systems

Reinforced stainless steel filtering mesh with 100 micron filtering degree

Fitted with a dosage point to add treatment fluids, easily accessible

Limited overall dimensions (in relation to the product category)



Reduced maintenance costs:

- Magnets protected from contact with water, easy to clean
- The large removable basket with check valve prevents impurities from falling into the filter
- The large water content extends maintenance intervals
- The possibility of cleaning the filter without emptying completely reduces the amount of chemical additives to be replenished after each maintenance operation

Anti-condensation insulation casing available upon request



PRODUCTION RANGE

Figure	Code	Size	Connections	Weight (Kg)
	3541.09.10	DN50	Flanged PN16	44
	3541.10.10	DN65	Flanged PN16	65
	3541.11.10	DN80	Flanged PN16	67
	3541.13.10	DN100	Flanged PN16	70
	3541.14.10	DN125	Flanged PN16	91
	3541.15.10 *	DN150	Flanged PN16	101
	3601.09.02	DN50	-	-
	3601.10.02	DN65	-	-
	3601.11.02	DN80	-	-
	3601.13.02	DN100	-	-
	3601.14.02	DN125	-	-
	3601.15.02	DN150	-	-

* Product in preparation.

DESCRIPTION

MG Plus, a self-cleaning multifunction dirt separator filter with magnets for boiler rooms, represents the best solution to solve plant problems due to pollution resulting from particles of **sand and rust that form due to corrosion and incrustations** during the normal operation of a system.

OPERATING PRINCIPLE

Through its effective and constant action, the 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 blocked by the filter are accumulated inside the basket. You can start cleaning by opening the designated discharge valve.

USE

MG Plus is used to protect heating systems.

Thanks to the filter powerful magnetic capacity, its size and the flanged connections, it is used in industrial, commercial and large-scale civil systems.

CAUTIONS

In order to function properly, the filter product must be installed in a **vertical position** (on horizontal pipes), with the impurity drain valve facing downwards.

WARNINGS

This filter contains powerful magnets and features strong magnetic fields in it.

We recommend the holders of pacemaker devices to keep at a safe distance during the filter operation and / or maintenance. Pay attention to the use of electronic devices near the magnets to avoid affecting their operation.

CONSTRUCTION FEATURES

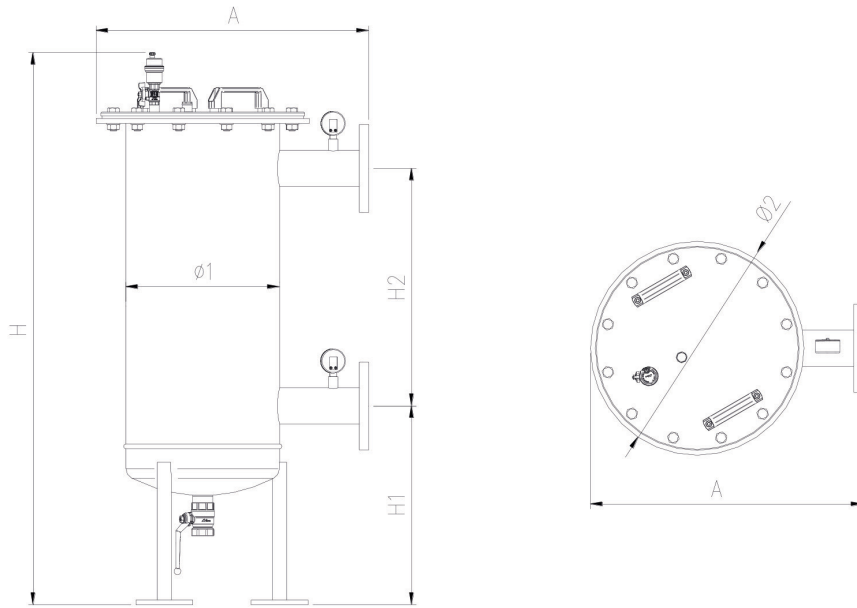
Main body and flanges	Steel painted on the outside (*)
Cover	Stainless steel
Ball valve body and air vent valve	Brass
Seals	EPDM PEROX
Filtering basket	AISI stainless steel
Neodymium magnets	B = 12,000 Gauss
Number of magnets	4
Connections	Flanged PN16
Pair of pressure gauges	Scale 0÷10 bar
Dosing point connection (to add treatment fluids)	G 3/8" (plugged when supplied)

(*) should be regularly washed with warm water and mild liquid detergent, followed by a fresh water rinse to maintain the attractive appearance of the powder cured film. The use of abrasive cleaners is not recommended, nor is the use of active organic solvents.

TECHNICAL FEATURES

Usable fluid	Water Water + Glycol 30%
Maximum fluid temperature	95 °C
Maximum operating pressure	10 bar (1000 kPa)
Degree of filtration	100 micron

DIMENSIONAL FEATURES



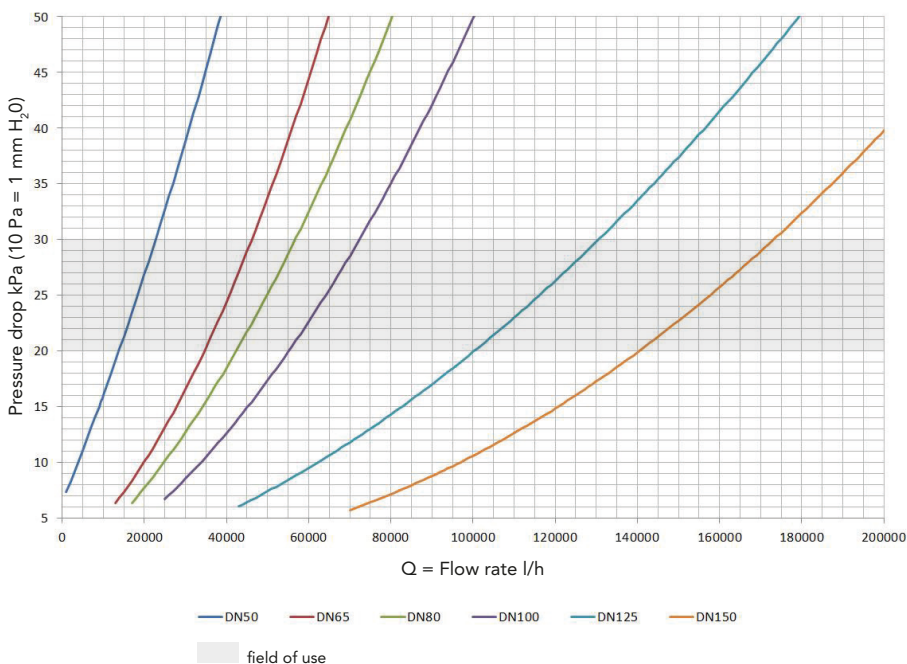
Code	Size*	A [mm]	Ø 1 [mm]	Ø 2 [mm]	H1** [mm]	H2 [mm]	H** [mm]
3541.09.10	DN50	473	220	346	385	450	1060
3541.10.10	DN65	575	324	450	419	500	1162
3541.11.10	DN80	575	324	450	419	500	1162
3541.13.10	DN100	575	324	450	419	500	1162
3541.14.10	DN125	656	406	532	435	550	1241
3541.15.10	DN150	656	406	532	450	550	1271

* Flanged connections - Flange suitable for coupling with counter-flange UNI EN 1092-1.

** Minimum value (adjustable by means of feet supplied with the filter, extendable to approximately 200 mm).

FLUID DYNAMICS FEATURES

Flow rate diagram - pressure drop



Code	Size	Q ₂₀ * [m ³ /h]	Q ₃₀ ** [m ³ /h]
3541.09.10	DN50	14	23
3541.10.10	DN65	35	46
3541.11.10	DN80	42	57
3541.13.10	DN100	55	73
3541.14.10	DN125	100	131
3541.15.10	DN150	141	173

* Flow rate with pressure drop 20 kPa

** Flow rate with pressure drop 30 kPa

OPERATING PRINCIPLE

By going through a set course, the fluid is forced to enter the filtering chamber where, through the simultaneous action of:

- filtering cartridge
- magnet
- specific dimensioning of the filtering chamber section

the water full of debris is suitably filtered.

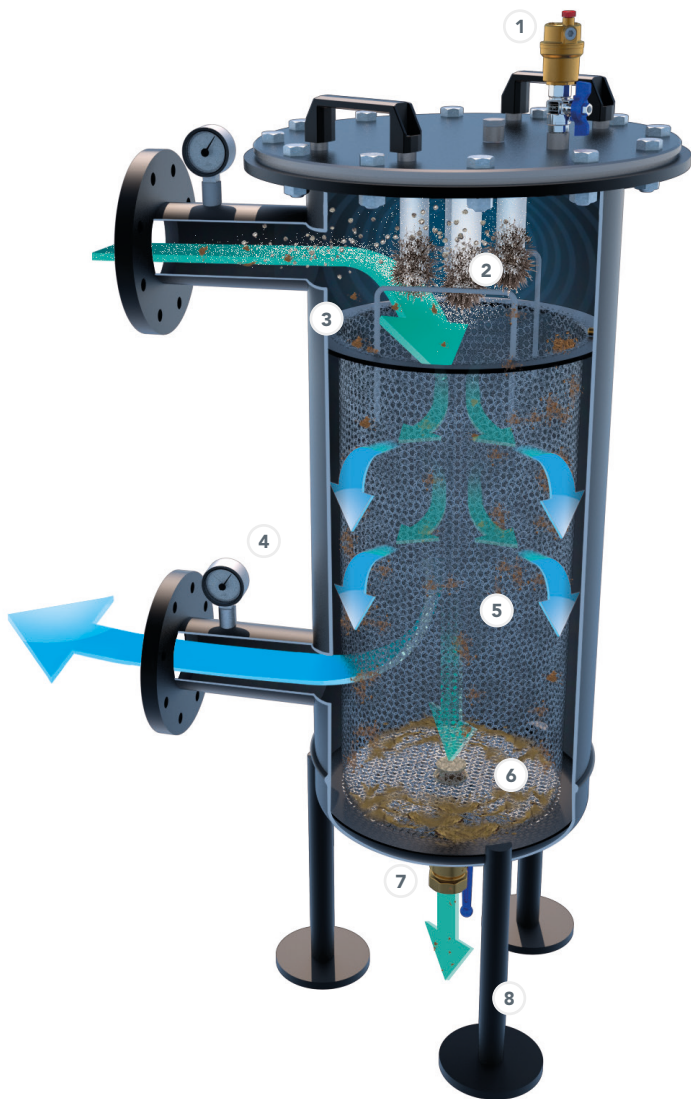
The first action that promotes correct filtration is the sudden cross-section variation (the filtering chamber has a much greater diameter than the conduit), which slows down the fluid motion and, consequently, the entrainment rate of the particles suspended in it.

The heavier particles fall downwards due to gravity, which prevails over the drag force, giving this filter the typical properties of common dirt separators.

However, lighter particles (larger than 100 microns) are retained inside the basket thanks to a direct filtration effect.

The magnets, positioned at the top end of the filter itself, block all impurities with magnetic characteristics (ferrous residues, metallic sludge).

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



- dirty water
- clean water

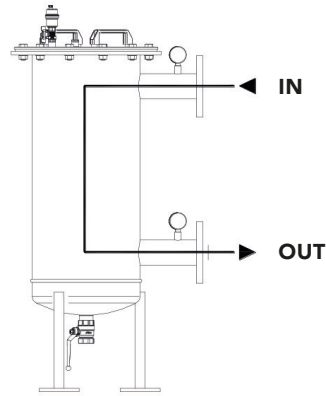
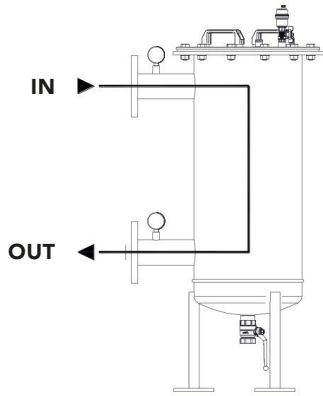
- 1 AUTOMATIC AIR VENT VALVE**
to eliminate air at the filling stage, complete with the ball shut-off valve.
- 2 MAGNETIC FILTERING UNIT**
Powerful magnets in neodymium to capture ferrous particles such as rust that form due to corrosion during the normal operation of a system, metal debris, processing residues, etc. The magnet assembly is protected by direct contact with water by a removable conduit that makes filter cleaning operations easier. For further details, see the "Maintenance Guide" section of this data sheet.
- 3 SUDDEN SECTION INCREASE**
It causes the fluid to slow down.
Average incoming speed: 2.5 m/s
Average speed after the filter inlet: 0.2 m/s
The settling of particles due to the effect of gravity is favoured.
- 4 PAIR OF PRESSURE GAUGES**
Through the display of the differential pressure, it is possible to assess the degree of clogging of the filter.
- 5 FILTERING MESH**
Stainless steel stretched mesh (100 micron filtration degree) contained in a basket that can be easily pulled out from above. This is equipped with an automatic closing shutter, located at the bottom, to prevent leakage of impurities during maintenance.
- 6 ACCUMULATION ZONE**
Large and very far from the flow passage, resulting in less frequent maintenance work.
- 7 DRAIN BALL VALVE**
Size 1" 1/4.
- 8 BASE**
adjustable height.

INSTALLATION GUIDE

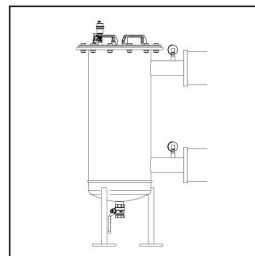
- It is recommended to install **MG Plus** on the primary circuit return (**generator inlet**) and in any case upstream of the devices that it must protect (circulators, exchangers, etc.). To allow subsequent maintenance work, make sure there is enough space around **MG Plus**;
- Drain heating system and locate return pipe. Filter is installed on return pipe;
- Install **shut-off valves** upstream and downstream of the filter, in

order to allow scheduled maintenance work and filter cleaning to be performed;

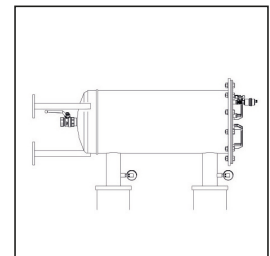
- It is advisable to provide for a bypass to avoid interrupting the service of the generator during filter cleaning operations;
- Install **MG Plus** making sure that all connections are properly aligned;
- Install **MG Plus** according to one of the following configurations:



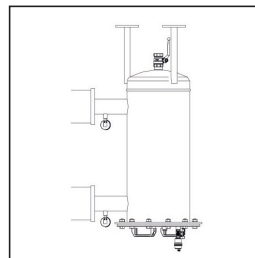
- Screw all the components supplied disassembled from the filter (impurity drain valve at the bottom of the filter, air vent valve and relative shut-off device and pressure gauges);
- In order to function properly, the filter product must be installed in a vertical position (on horizontal pipes), with the impurity drain valve facing downwards;
- After completing the installation, make sure that there are no water leaks or other leakage with the shut-off valves fully open.



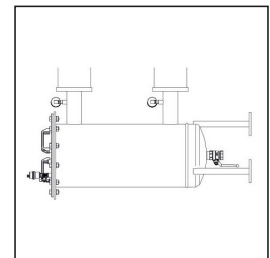
OK



NO

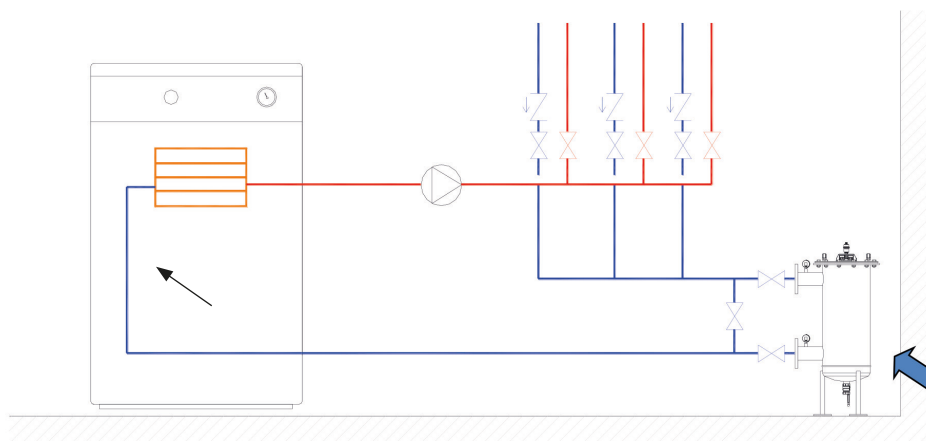


NO



NO

APPLICATION DIAGRAMS



Layout 1:
MG Plus installed on the primary circuit return, at the generator inlet.

MAINTENANCE GUIDE

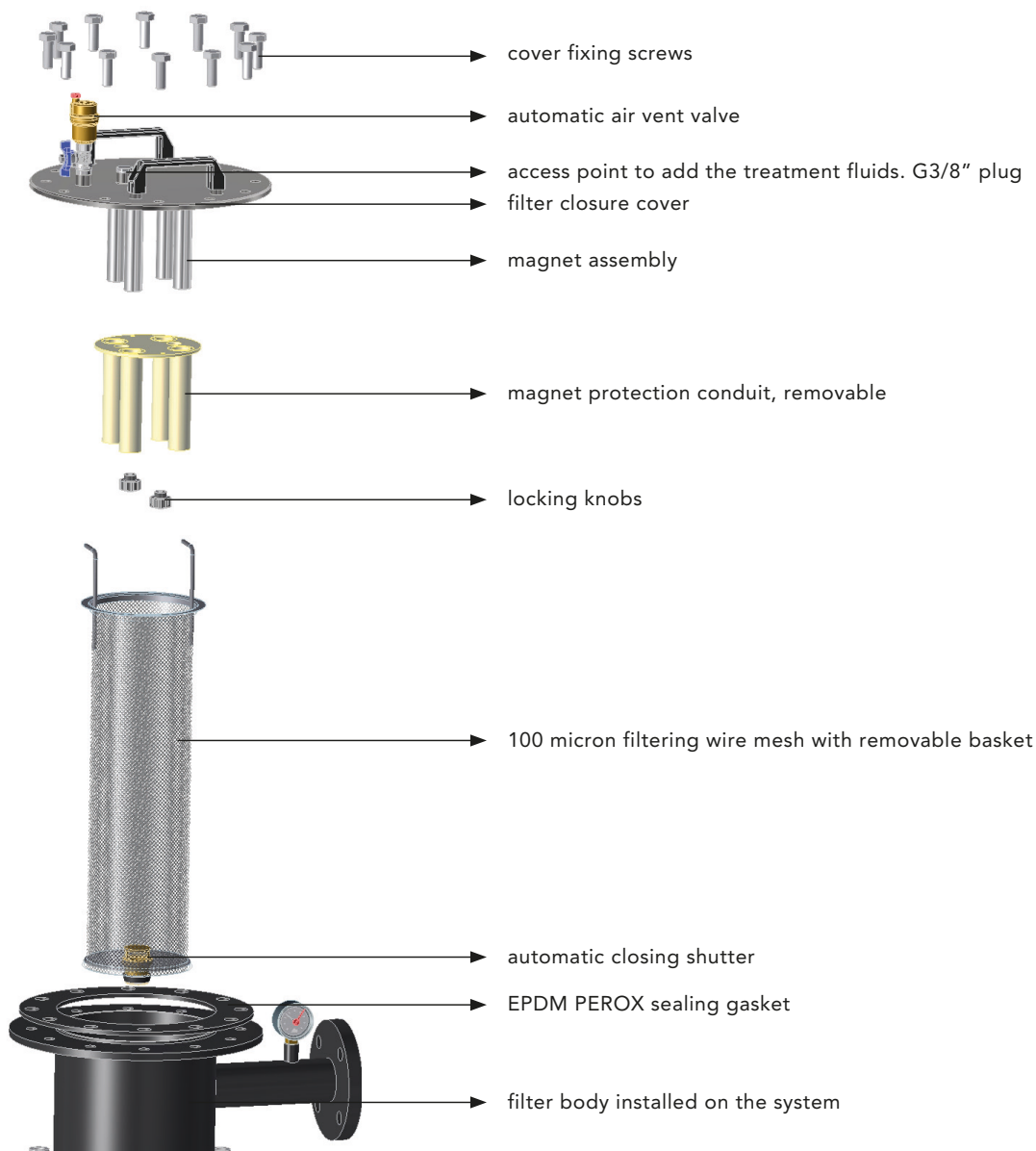
It is important to **perform the cleaning operation** at least **once a year**. In case of first application, perform the first inspection after a month.

Before cleaning **MG Plus**, ensure the working environment is safe.

If the filter has not been installed with a bypass, RBM recommends ensuring the generator is off and the system is allowed to cool at a room temperature before carrying out any maintenance intervention, in order to avoid damages and burns. In the case of a filter installed with a bypass, simply wait until the water contained in it has cooled down sufficiently.

To properly clean and service **MG Plus**, follow the steps described below:

- Intercept the filter through the valves located upstream and downstream of the filter itself;
- Drain a small amount of water in the filter via the lower drain valve to lower the pressure in the filter;
- Unscrew the nuts and remove the screws securing the upper filter cover to the body;
- Remove the closure cover from the filter by ensuring you do not to damage the magnets attached to it;
- Unscrew the two locking knobs of the magnet protection conduit;
- Remove the magnet protection conduit to easily remove the ferrous impurities caught by magnets. Wash with water and thoroughly rinse to completely remove any impurities;
- Take out the filter wire mesh by using the designated basket and clean it or replace it. The automatic closing shutter on the bottom prevents impurities from entering inside the basket. Wash with water and thoroughly rinse to completely remove any impurities;
- Ensure the sealing gasket is not damaged; if necessary, replace it;
- Place back the filter wire mesh;
- Place back the magnet production conduit and tighten the two fastening knobs. - Tighten by hand; during this operation, the use of tools is not required;
- Place back the top cover of the filter, the screws and tighten the fastening nuts;
- Open the shut-off valves again to open the hydraulic system;
- Ensure there are no leaks prior to recommissioning;
- Restoring the correct amount of conditioning chemicals according to the amounts required by the design engineer.



SPECIFICATION ITEMS

3541 SERIES

Magnetic self-cleaning multifunctional magnetic filter-dirt separator for boiler rooms, model RBM MG Plus, with magnetic and non-magnetic dirt separation function, air separation and activation point, as well as system conditioning dosage. Complete with automatic air vent valve with shut-off device, ball valve to discharge impurities and a pair of pressure gauges 0÷10 bar. Main body and flanges made of steel painted on the outside. Steel closure cover. EPDM PEROX hydraulic seals. Large-capacity filtration basket with filtering mesh with a 100 micron filtration degree extended across the whole surface with double stainless steel reinforcement mesh (external and internal). Automatic closing shutter at the bottom, to prevent leakage of dirt during maintenance. Permanent neodymium magnets, with dry assembly, externally protected by a removable conduit for easy maintenance and cleaning of the filter. Magnetic field B=12.000 gauss. Number of magnets: 4. PN16 flanged connections. The fluid can be used with water and water with glycol (30%). Maximum operating pressure 10 bar. Maximum fluid temperature 95°C. Degree of filtration 100 micron. Available sizes DN50÷DN150.

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 at your disposal for any doubt, problem or clarification.