

Instruction Manual

DIRTMAG[®] Composite Dirt Separator with Magnet



EN
v. 1.1

Regulus

Function

The dirt separator separates all impurities circulating in closed circuit systems with very low head losses. The impurities are collected in a large decantation chamber that requires just infrequent cleaning, and from which they can be removed even while the system is in operation.

The DIRTMAG dirt separator is also equipped with a removable magnetic ring for the separation of ferrous impurities.

Made of a composite material specially designed for use in air-conditioning systems, this dirt separator is especially versatile as it can be installed on either horizontal and vertical pipes.

Technical Data

Material

Body:	PA66G30
Dirt separator cover:	PA66G30
Top plug:	brass EN 12164 CW614N
Drain screw:	brass EN 12164 CW614N
Tee fitting:	brass EN 1982 CB 753S
Locking nut for tee fitting:	brass EN 12420 CW617N
Internal element:	HDPE
Hydraulic seals:	EPDM
Drain valve:	brass EN 12165 CW617N

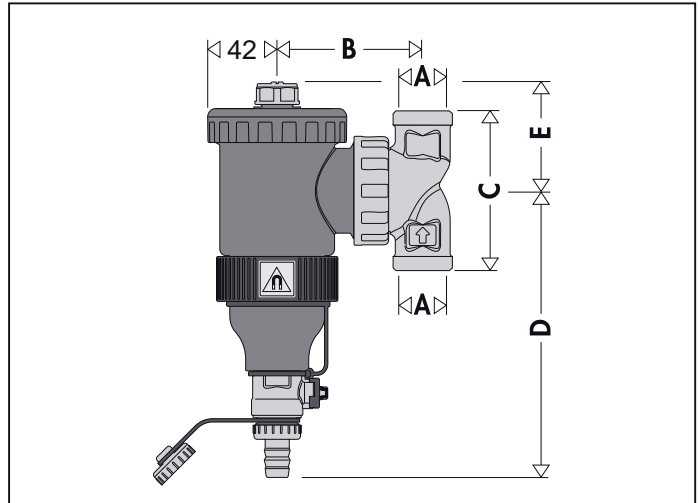
Performance

Medium:	water/glycol mixture
Max. percentage of glycol:	30%
Max. working pressure:	3 bar
Working temperature range:	0-90 °C
Ring system magnetic induction:	2 x 0,3 T

Connections

Body:	3/4", 1" F (ISO 228-1)
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Dimensions



Code	DN	A	B	C	D	E	Weight [kg]
12940	20	3/4"	87,5	96	172,5	65,5	1,5
12941	25	1"	87,5	141	172,5	65,5	1,5

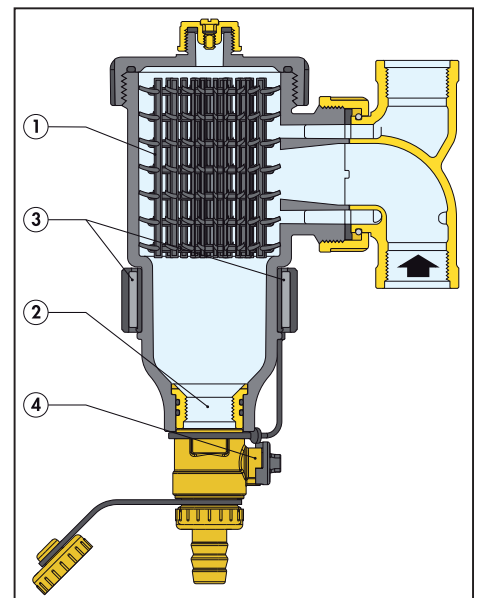
Operating principle

The operating principle of the dirt separator with magnet is based on a combined action of a number of physical phenomena.

The internal element (1) consists of a set of radial reticular surfaces. Impurities in the water, on striking these surfaces, get separated and sink to the bottom of the body (2) where they are collected.

Ferrous impurities are also trapped inside the dirt separator body, thanks to the action of the two magnets (3) inserted into a special removable outer ring. The large internal volume of the separator slows down the flow speed of the medium, helping to separate the contained particles by gravity.

The collected impurities are discharged, even with the system running, by opening the drain cock (4).



Construction details

Technopolymer

The dirt separator is made using a polymer specially selected for heating and cooling system applications. The main features of the technopolymer are:

- high resistance to strain, while maintaining good ultimate elongation
- good resistance to crack propagation
- very low humidity absorption, for consistent mechanical behavior
- high resistance to abrasion caused by continuous medium flow
- performance maintained over temperature variation
- compatibility with glycols and additives used in circuits.

These basic material characteristics, combined with the appropriate shaping of the most highly stressed areas, enable comparison with the metals typically used in the construction of dirt separators.

Low head losses and high performance maintained over time

The high performance of the dirt separator is based on the use of the internal element with reticular surfaces. The principle of collision and decantation of particles makes the dirt separation action more efficient if compared to the common strainers. This performance is constant over time, unlike common strainers which instead get clogged by the trapped sludge, thus changing the functional features.

Dirt separator design and a large dirt collection chamber

The dirt collection chamber has the following features:

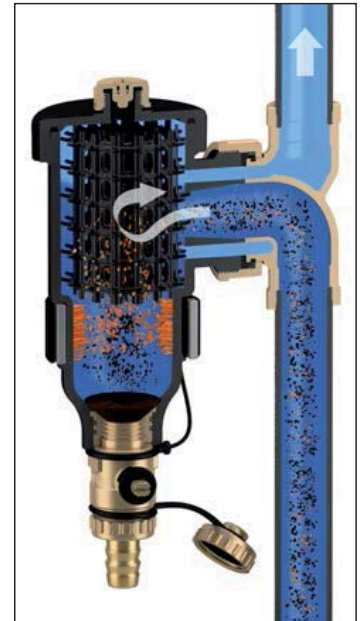
- it is located at the bottom of the device, at such a distance from the connections that the collected impurities are not affected by the swirling of the flow through the mesh;
- it is large enough to offer an increased amount of collected dirt, which means emptying/discharging procedures are required less often (in contrast to strainers that need to be cleaned frequently);
- it is easy to inspect, by unscrewing it from the valve body for any servicing of the internal element required in the event of obstruction by fibers or large dirt particles.

Separation of ferrous impurities

This dirt separator, fitted with a magnet, offers higher efficiency in the separation and collection of ferrous impurities. The impurities are trapped inside the dirt separator body by the strong magnetic field created by the magnets inserted in the special outer ring.

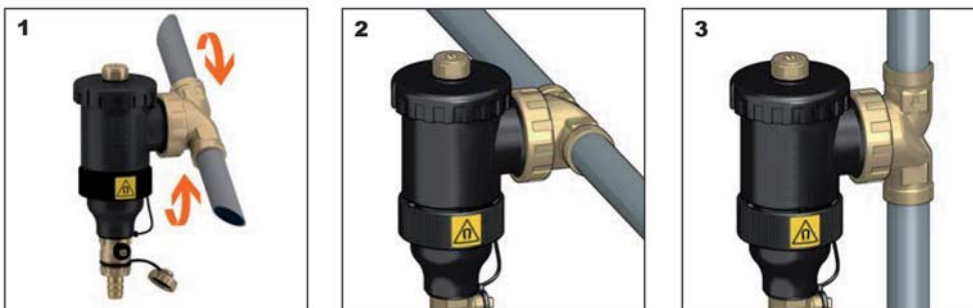
The outer ring can also be removed from the body to allow their decantation and subsequent draining while the system is still running.

Since the magnetic ring is positioned outside the dirt separator body, the hydraulic characteristics of the device do not change.



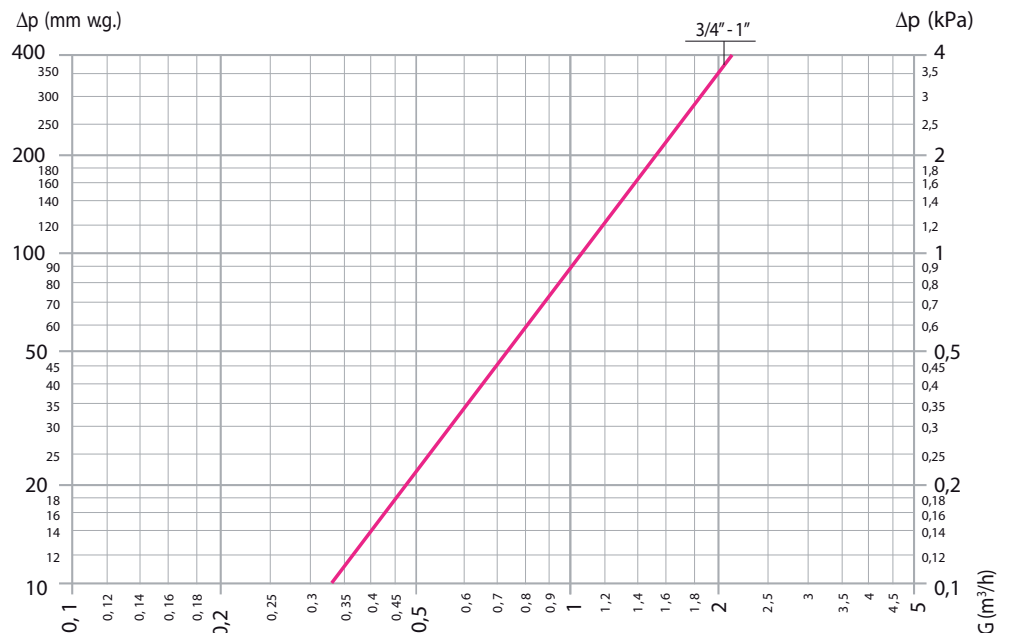
Adjusting the body to horizontal and vertical pipes

Thanks to the special coupling between the locking nut and the tee fitting, the dirt separator can be adjusted (1) for installation to either horizontal (2) and vertical (3) pipes, keeping the same operating features.



Hydraulic characteristics

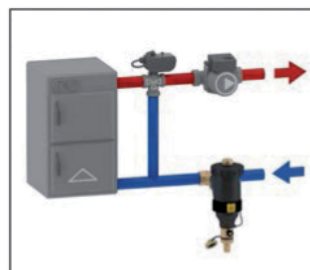
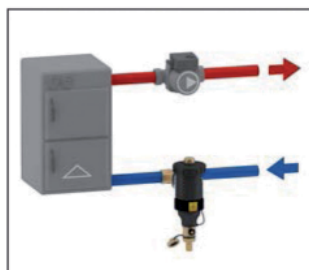
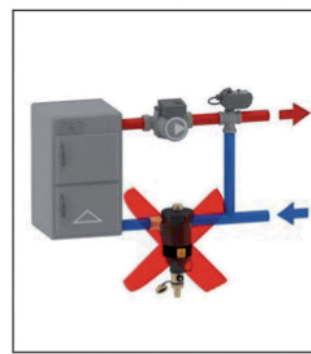
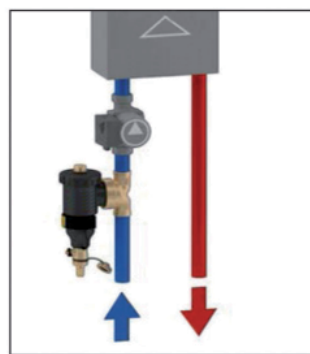
DN	20	25
Connection	3/4"	1"
Kv (m³/h)	10,3	10,5



Installation

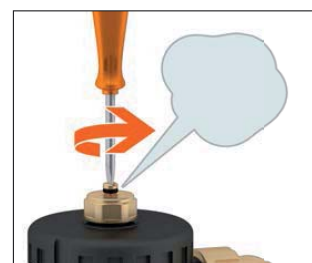
The dirt separator should be installed in accordance with the flow direction indicated by the arrow on the tee fitting and, preferably, on the return circuit upstream of the boiler.

The dirt separator should always be installed upstream of the pump and always with its body in vertical position and drain cock pointing downwards.



Air vent

By using a screwdriver to loosen the screw on the top plug, it is possible to eliminate any air collected at the top of the body.



Sludge discharge

Remove the ring in which the magnets are housed (1) and drain the impurities, even while the system is running, using the special key provided (2).



Maintenance

In case of maintenance to the dirt collection chamber, simply unscrew the top cover using the provided key, then extract the internal element that is designed to be removed for cleaning.



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