

DIRTMAG® dirt separator

© Copyright 2015 Caleffi

NA5453 Series

Installation, commissioning and servicing instructions



Function

In heating and chilled water systems, the circulation of water containing impurities may result in rapid wear and damage to components such as pumps and control valves. It also causes blockages in heat exchangers, heating elements and pipes, resulting in lower thermal efficiency within the system.

The dirt separator separates off these dirt particles, circulating within the closed circuit system. These particles are collected in a large chamber, requiring infrequent cleaning, which requires simply removing the magnet ring and opening the large drain valve while the system is running. This device is capable of efficiently removing particles to a very small size, with very low pressure head loss.

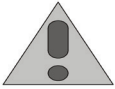
The DIRTMAG® magnetic dirt separator removes both ferrous and non-ferrous impurities continuously, featuring a powerful removable external magnet around the body that removes up to 100% of the ferrous impurities, including magnetite, that can form in a hydronic system. The DIRTMAG® has 2½ times the removal performance of a standard dirt separator. The body of the NA5453 series separator is made of glass reinforced nylon specifically designed for use in heating and cooling systems. It also is especially versatile as it can be installed on either horizontal or vertical piping with the rotating brass base mount.

The NA5453 series is available with conventional NPT and sweat union connections and for size 3/4", the Presscon™ copper tail-piece with union nut that makes installation and maintenance fast, easy and efficient. Special slots in the EPDM O-ring allows fluid to leak during system testing if unpressed and provide a perfect leak proof seal when completely pressed. Also, models are available with isolation inlet and outlet shutoff valves, which can be used as a dosing point to inject chemical additives into the hydronic circuit.

Product range

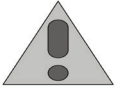
NA54530 series	DIRTMAG® dirt separator with magnet for horizontal and vertical pipes connections ¾" & 1" NPT male union
NA54539 series	DIRTMAG® dirt separator with magnet for horizontal and vertical pipes connections ¾" & 1" sweat union
NA54536 series	DIRTMAG® dirt separator with magnet for horizontal and vertical pipes connections ¾" press union
NA54535 series	DIRTMAG® dirt separator with magnet for horizontal and vertical pipes with isolation shut off valves connections ¾" & 1" NPT female union

SAFETY INSTRUCTION

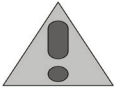


This safety alert symbol will be used in this manual to draw attention to safety related instructions. When used, the safety alert symbol means.

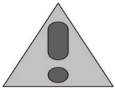
ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.



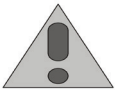
CAUTION: All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes and ordinances.



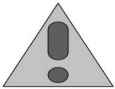
CAUTION: If the DIRTMAG® separator is not installed, commissioned and maintained properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.



CAUTION: Make sure that all the connecting pipework is water tight.



CAUTION: When making the water connections, make sure that the pipework connecting the DIRTMAG® is not mechanically over-stressed. Over time this could cause breakages, with consequent water losses which, in turn, could cause harm to property and/or people.



CAUTION: Water temperatures higher than 100°F (38°C) can be dangerous. During the installation, commissioning and maintenance of the DIRTMAG® separator, take the necessary precautions to ensure that such temperatures do not endanger people.

Leave this manual for the user

Technical specifications

Materials

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

Performance

Suitable Fluids:	water, glycol solutions
Max. percentage of glycol:	30%
Max. working pressure:	45 psi (3 bar)
Working temperature range:	32–195°F (0-90°C)
Magnets:	neodymium rare earth
Paricle separation capacity:	to 5µm (0.2 mil)
Ferrous impurities separation efficiency:	up to 100% removal
Dosing capacity:	12 fluid oz

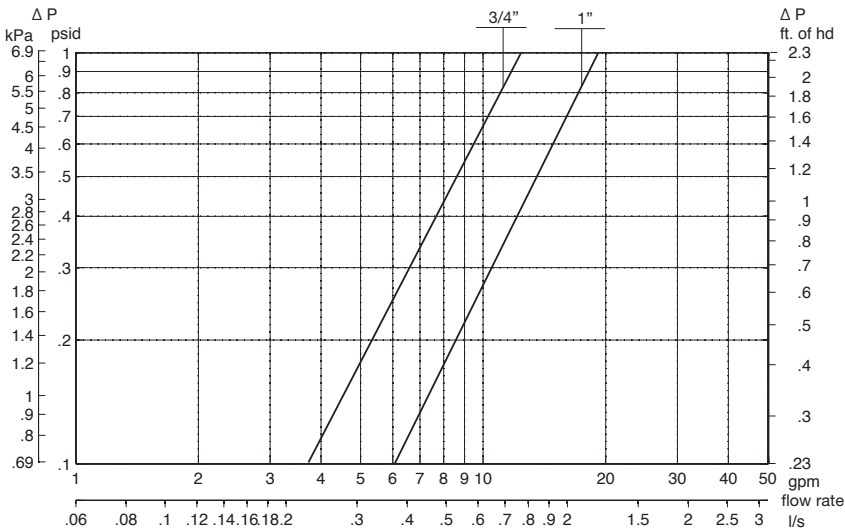
Connections

Main connections:	3/4" and 1" NPT male union
	3/4" and 1" NPT female
	3/4" and 1" sweat union
	3/4" press union
	5 7/16" hose connection

Lay length (press connection):

Drain valve:

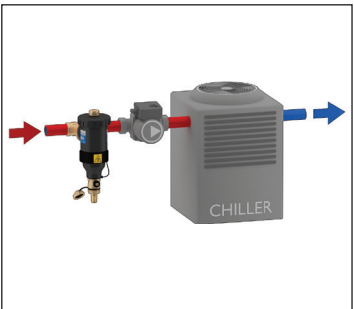
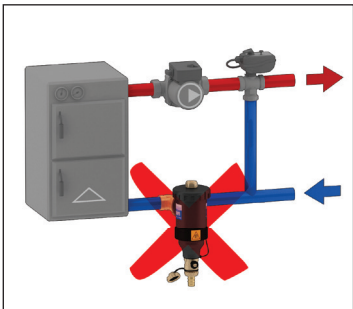
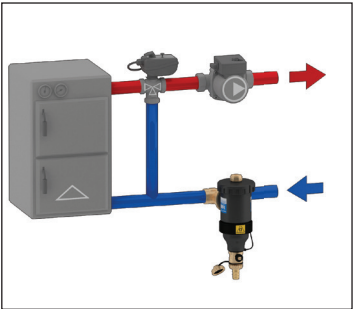
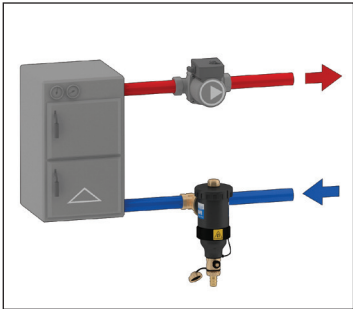
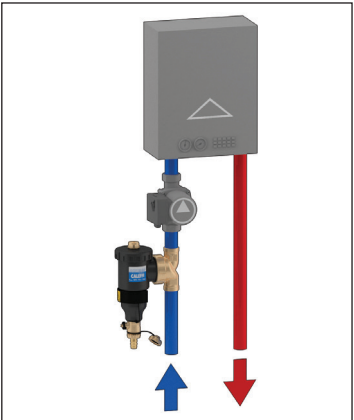
Hydraulic characteristics



FLOW RATE			
	Size	¾"	1"
4.0 f/s	GPM	8	9
10.0 f/s	GPM	14	20
	Cv	12	19

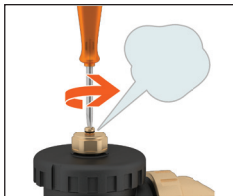
Installation

The magnetic dirt separator should be installed in accordance with the flow direction indicated by the arrow on the tee fitting and the return circuit upstream of the boiler. The magnetic dirt separator should always be installed upstream of the pump and always with its body in vertical position.



Air vent

Eliminate air collected in the top of the body by loosening the top plug screw.



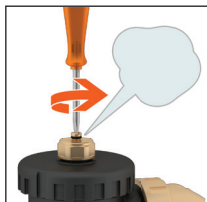
Draining off dirt and ferrous impurities

Remove the magnetic ring (1) and drain the collected dirt and ferrous impurities. This can be done while the system is running, using the key provided (2).



Dosing


This multifunction device can also be used as a dosing point to inject chemical additives into the circuit. Codes NA545355 and NA545356 offer integral isolation check valves making for a more convenient dosing vessel, providing an easy access point for routine system water treatment in hydronic systems.



Maintenance

To perform maintenance after isolating the separator, simply unscrew the top cover using the provided key and remove the attached internal element inside the collection chamber.



WARNING: The symbol  shown on the removable ring indicates the presence of magnets that generate a strong magnetic field. This could cause damages to electronic devices kept in its proximity.

1. Remove the magnetic ring containing the two magnets, that during operation attracted the magnetites.
2. Flush out the ferrous and nonferrous debris by turning the handle to open the drain valve.
3. When finished, replace the magnetic ring and close the drain valve.



**Safety**

The magnetic dirt separator must be installed by a licensed plumber in accordance with national regulations and/or relevant local requirements.

Make sure that all connecting joints are water tight.

When making pipe connections take care not to damage the thread in the body of the valve by over tightening. Take care not to apply too much force to the body of the valve when making pipe connections.

Water temperatures greater than 120°F may cause serious burns. When installing, using and maintaining dirt separators take appropriate measure to ensure that these temperatures do not cause harm to persons.

Leave this manual at the service of users for their use



Caleffi North America, Inc.
3883 W. Milwaukee Road
Milwaukee, WI 53208
T: 414.238.2360 F: 414.238.2366

05-01-15