

DIRTCAL® dirt separator

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5462 - 5469 Series

Installation, commissioning and servicing instructions



Function

In heating and air conditioning control 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 the heat exchangers, heating elements and pipes, resulting in a lower thermal efficiency within the system. The dirt separator separates off these dirt particles, which are mainly made up of particles of sand and rust, collecting them in a large collection chamber, from which they can be removed even while the system is in operation. This device is capable of efficiently removing even the smallest particles, with extremely limited head loss.

The sweat connection product is available in versions for horizontal and vertical pipe installations. The magnetic dirt separator is available with NPT threaded or sweat connections in versions for horizontal pipes only. Insulation shells are available separately for field installation for horizontal versions of the DIRTCAL® and DIRTMAG® dirt separators.

Product range

- | | |
|----------------|--|
| 5462 Series | DIRTCAL dirt separator for horizontal pipes with NPT threaded connections, sizes 3/4"–2" |
| 5462 Series | DIRTCAL dirt separator for horizontal pipes with sweat connections, sizes 1"–1 1/4" - 1 1/2" - 2" |
| 5463 Series | DIRTMAG magnetic dirt separator for horizontal pipes with NPT threaded connections, sizes 1"–2" |
| 5463 Series | DIRTMAG magnetic dirt separator for horizontal pipes with sweat connections, sizes 1"–2" |
| 5465 Series | Steel DIRTCAL dirt separator for horizontal pipes with ANSI flanged connections, sizes 2"–4" |
| 5469 Series | DIRTCAL dirt separator for vertical pipes with sweat connections, sizes 3/4"–1" |
| NA5465 Series | Steel DIRTCAL dirt separator for horizontal pipes with ANSI flanged connections (ASME and CRN Registered), sizes 2"–2 1/2"–3"–4"–5"–6" |
| CBN5462 Series | Insulation shells for DIRTCAL series 5462 and DIRTMAG series 5463, sizes 3/4"-2". |

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 DIRTICAL® dirt 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 DIRTICAL® 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 DIRTICAL® dirt separator, take the necessary precautions to ensure that such temperatures do not endanger people.

Leave this manual for the user

Technical specifications

Brass body dirt separators

Connections:	- Main:	3/4", 1", 1 1/4", 1 1/2", 2" NPT female 1"–1 1/4" - 1 1/2" - 2" sweat vertical: 3/4" - 1" sweat 1/2" F (with plug)
	- Top:	3/4" garden hose connection
	- Drain:	vertical: hose connection
Materials:	- Body, dirt collection chamber and top plug:	brass
	- Internal element:	glass reinforced nylon PA66G30 (stainless steel, 5469 series)
	- Hydraulic seal:	EPDM
	- Drain cock:	brass
Suitable fluids:		water, glycol solution
Max percentage of glycol:		50%
Max working pressure:		150 psi (10 bar)
Temperature range:		32–250°F (0–120°C)
Particle separation capacity:		to 5 µm (0.2 mil)

Steel body dirt separators

Connections: - Main:

2", 2 1/2", 3", 4", 5", 6" ANSI B16.5 150 CLASS RF Flanged (ASME & CRN registered)
 2", 2 1/2", 3", 4" ANSI B16.5 150 CLASS RF Flanged 3/4" M (with plug)
 1" NPT

- Top:

- Drain:

Materials:

- Body:

- Int. element:

- Hydraulic seal:

- Drain cock:

epoxy resin painted steel

stainless steel

non-asbestos fiber

brass

Suitable fluids:

water, glycol solution

Max percentage of glycol:

50%

Max working pressure:

150 psi (10 bar)

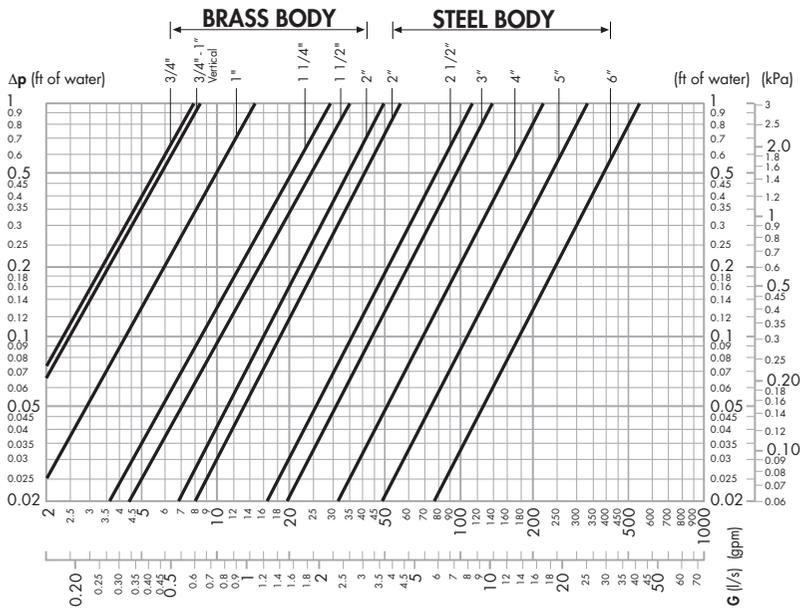
Temperature range without insulation:

32–250°F (0–120°C)

Particle separation capacity:

to 5 μm (0.2 mil)

Hydraulic characteristics



	BRASS BODY						STEEL BODY					
Size	3/4"	3/4"-1" *	1"	1 1/4"	1 1/2"	2"	2"	2 1/2"	3"	4"	5"	6"
Cv	18.8	19.9	32.6	56.6	73.3	81	88	176	211	328	520	842

* Vertical versions

The maximum fluid velocity recommended at the unit connections is ~ 4 f/s.

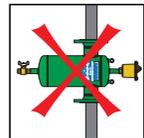
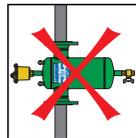
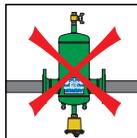
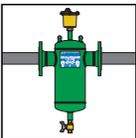
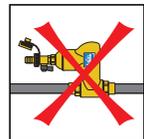
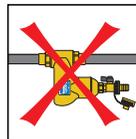
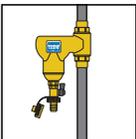
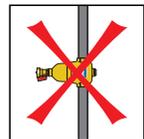
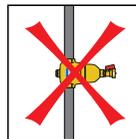
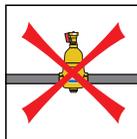
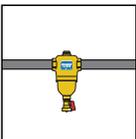
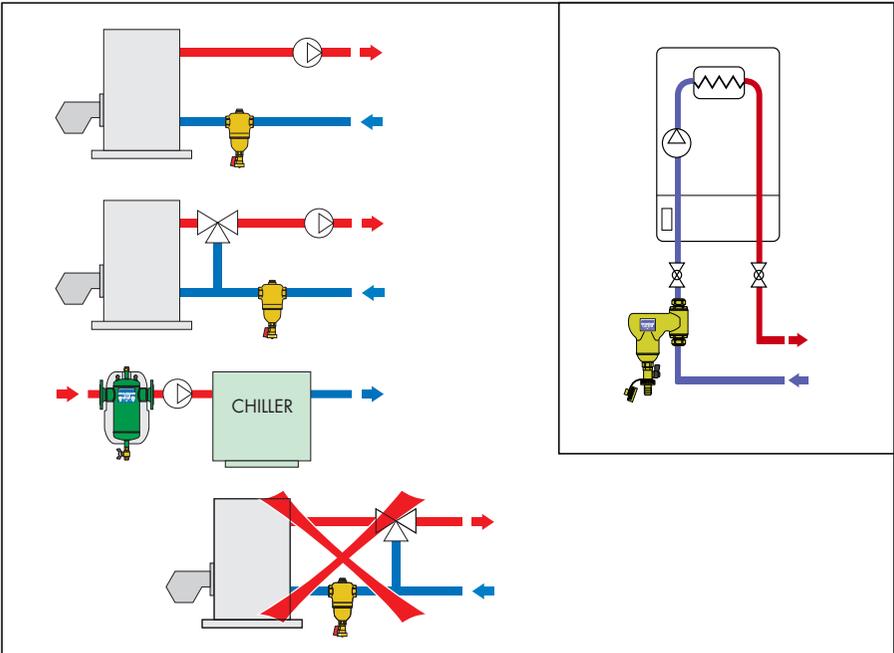
The following table shows the maximum flow rates to comply with this condition.

	BRASS BODY						STEEL BODY					
Size	3/4"	3/4"-1" *	1"	1 1/4"	1 1/2"	2"	2"	2 1/2"	3"	4"	5"	6"
gpm	6	9.0	9.3	15.3	23.9	36	37	62	94	148	259	376
l/s	0.4	0.57	0.6	1.0	1.5	2.28	2.35	3.9	5.9	9.3	16.3	23.7

* Vertical versions

Installation

The dirt separator must always be installed in a vertical position, preferably on the return circuit upstream of the boiler (or chiller). This enables it to intercept dirt particles already present in the circuit, particularly when it is first started, before they reach the boiler (or chiller). Flow direction for the DIRTAL and DIRTMAG dirt separators is bi-directional; flow in either direction is permitted.



Draining off dirt

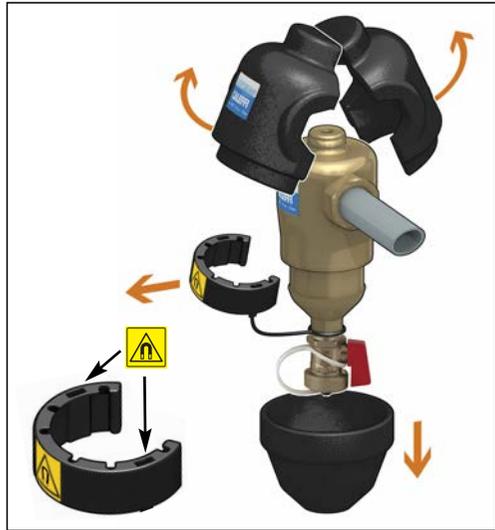
The dirt separator collection chamber has a ball drain cock. Using the handle provided it is possible to drain off the accumulated dirt particles even with the system in operation.



Procedure for removing insulation and draining dirt particles in the DIRTMAG series 5463

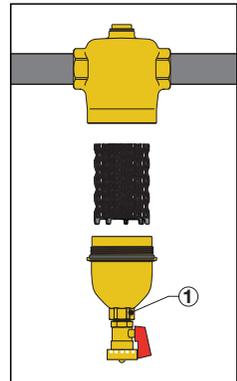
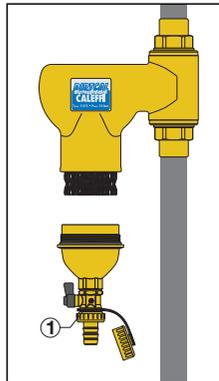
WARNING: The symbol  shown on the removable ring indicates the presence of magnets that generate a strong magnetic field. This could cause damages to electronic devices kept in its proximity.

1. Remove the insulation by taking off the bottom casing of the collection chamber first, and if necessary, the top insulation casing later.
2. Remove the magnetic ring containing the two magnets, that during operation attracted the ferrous particles.
3. Flush out the ferrous and nonferrous debris by turning the handle to open the drain valve.
4. When finished, replace the insulation shells.



Maintenance

To perform maintenance, simply use a 26 mm hexagon wrench (1) to unscrew the dirt collection chamber, to which the inner mesh element is connected for removal and for cleaning.

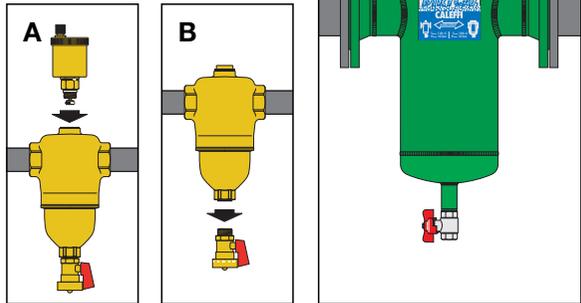


Use of top connector

The connector on top of the dirt separator can be used for optional installation of an automatic air vent valve, Caleffi code 502243A for the threaded or sweat versions- 5462 Series (A), replacing the standard 1/2" NPT Male plug (pn NA10044). Use Caleffi code 501502A for the flanged version 5465 Series (C) -replacing the standard 3/4" NPT End Cap (pn 41525).

Use bottom connector

The dirt separators come complete with drain valves installed on the bottom port: Caleffi code 538402 FD for horizontal threaded or sweat versions- 5462 series (A), 538400 for vertical versions- 5469 series, code NA39753 for the flanged version - 5465 series (C).



Safety

The 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



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