5457

DIRTMAGPRO®

altecnic
CALEFFI group

5457 dirtmagpro - dual magnet

Application

The DIRTMAGPRO continually collects debris contained in the hydraulic circuits of heating and cooling systems.

The dual magnet design of the DIRTMAGPRO allows higher flow velocities up to 1.6 m/s and higher flow rates up to 30 l/m.

This allows the DIRTMAGPRO to used on system up to 10.4 kW with a $\Delta T = 5^{\circ}C$.

The manual air valve in the cap allows air to be released during system filling or if air collects at the top of the collection chamber.

The debris collects in the bottom of the valve body from where it can be discharged via the drain valve at the bottom of the collection chamber.

The two removable magnets ensure high efficiency for the separation of ferrous impurities.

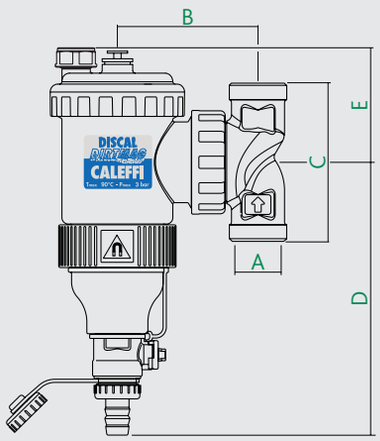
Construction Details

Component	Material	Grade
Body	Polymer	PA66G30
Dirt separation chamber	Polymer	PA66G30
Locking nut for 'T' fitting	Polymer	PPSG40
Tee fitting	Brass	BS EN 1982 CB735S
Air vent	Brass	BS EN12164 CW614N
Seals	Elastomer	EPDM
Drain valve	Brass	BS EN12165 CW617N

Technical Specification

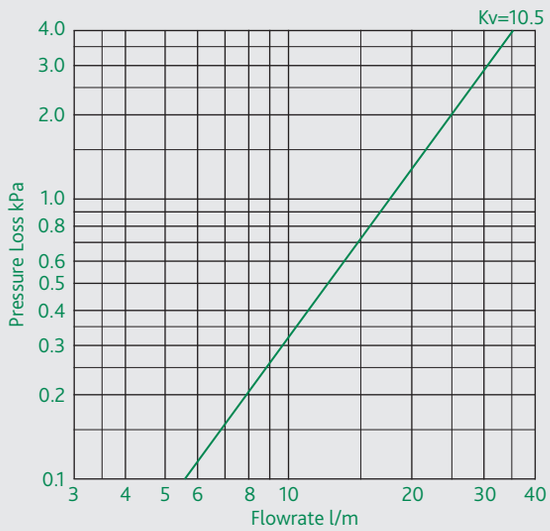
Medium:	water, glycol solution
Max. percentage of glycol:	30%
Max. working pressure:	3 bar
Max. discharge pressure:	3 bar
Working temperature range:	0 to 90°C
Max. flow velocity:	1.6 m/s
Max. flow rate:	30 l/m
Particle separation rating:	up to 5 µm
Ring system magnetic induction:	2 x 0.27 T
Central magnetic induction:	4 x 0.485 T

Dimensions



Ref No	Size	A	B	C	D	E	kg
545705	DN20	¾"	87.5	96	172.5	72	1.3
545706	DN25	1"	87.5	110	172.5	72	1.3
545702	DN20	Ø22	87.5	115	172.5	72	1.3
545703	DN25	Ø28	87.5	116.6	172.5	72	1.3

Hydraulic Characteristic



DN	20	25	20	25
Connection	¾"	1"	Ø22	Ø28
Code	546405	546405	546405	546405
Kv - m^3/hr	10.5	10.5	10.5	10.5
l/min MAX	30	30	30	30
l/min MIN	1.3	1.3	1.3	1.3

The maximum recommended flow velocity inside the pipe is 1.6 m/s. The following shows the maximum flow rates to meet this requirement.

Size	Ø22	Ø28
l/min	30.7	51.7

Based on BS EN 1057 copper tube

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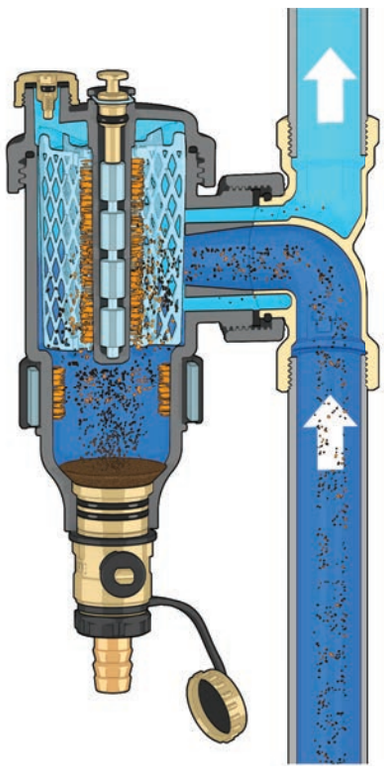
Construction and Flow Details



Design

The DIRTMAGPRO dirt separator chamber is manufactured from glass fibre re-inforced polyamide 66 with a high density polyethylene internal filter element and external magnet.

The first magnet is positioned around the body below the flow line for improved collection of ferrous particles.

The second magnet is positioned centrally in a chamber in the cap and is therefore not in contact with the flowing medium.

The DIRTMAGPRO has a specially designed mesh to accommodate the higher flow rates.

The union joint between the brass body and separator body makes the DIRTMAGPRO suitable for installation in horizontal, vertical or inclined pipes.

Supplied hose union ball blow down valve and manual air vent.

Dirt Separation

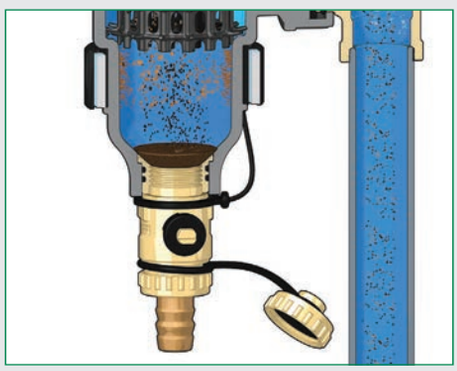
Dirt separators operate by a combination of physical principles.

The internal element is constructed to form a radial net shaped element.

Debris in the water strikes the element, causing it to drop to the bottom of the collection chamber.

The larger internal volume of the DIRTMAGPRO compared with the area of the pipe, reduces the velocity of flow and with the aid of gravity and the magnetic elements helps to collect the debris.

Dirt Separation Continued



The collected debris can be discharge from the DIRTMAGPRO whilst the system is in operation by removing the ring and central magnets, opening the blow down valve and flushing through the debris.

Installation

The DIRTMAGPRO must be installed in a vertical position and ideally upstream of the pump.

Manually turn the Tee fitting to adapt the connections for horizontal or vertical pipe.

The flow through the DIRTMAGPRO must be in accordance with flow direction indicated by the arrow on the body.

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Dirt Separation Efficiency

The effectiveness of any device to separate and collect particles of debris from a flowing liquid depends upon:-

1. The larger the particles the more effective the device.
2. If the flow velocity reduces the particles separate and fall more easily.
3. The number of times the liquid re-circulates through the device

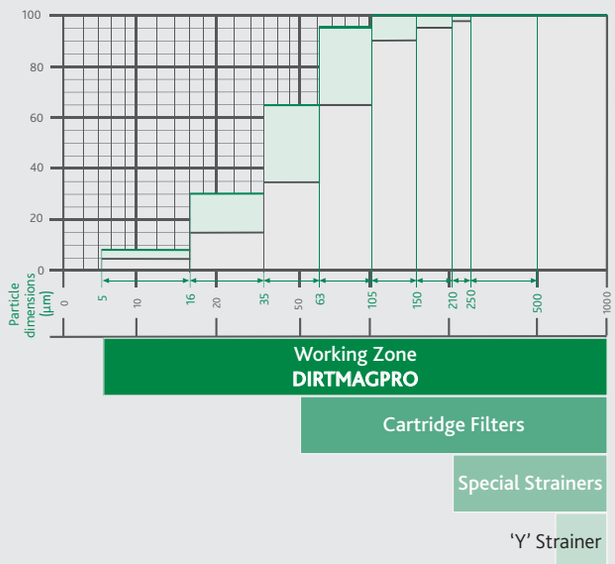
The design of the DIRTMAGPRO dirt separator enables it to collect particles down to a minimum size of 5 µm = 0.005 mm.

The chart summarises tests conducted to illustrate how quickly particles are collected .

After only 50 circulations, approximately one day of operation, 100% of particles 100 µm = 0.1mm in size and approximately 80% of all particles had been collected.

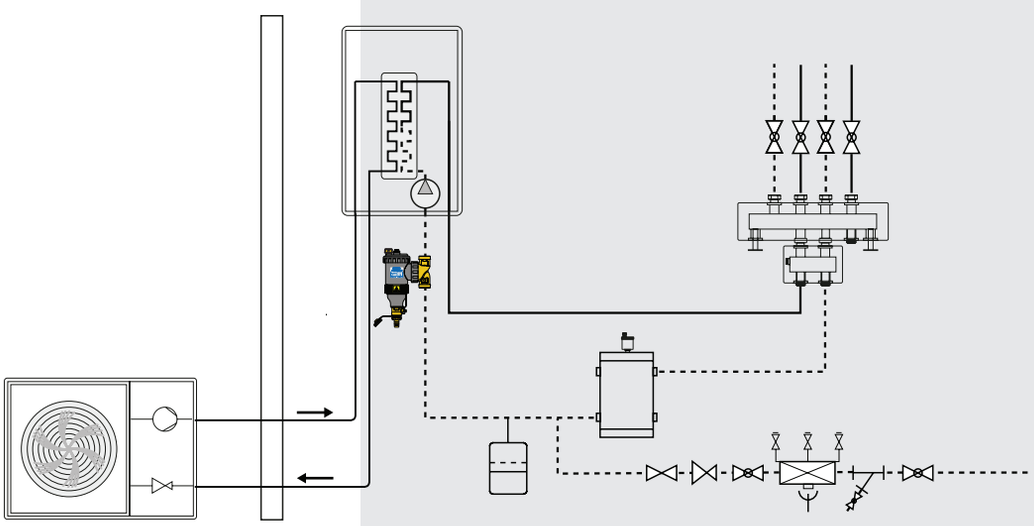
Continued circulation gradually leads to the virtual removal of all particles.

Dirt Separation Efficiency - Particle Size



Typical Application

- Isolation valve
- Ball valve
- Expansion vessel
- Backflow preventer
- Pressure reducing valve
- 'Y' filter
- Pump
- DIRMAGPRO dirt separator



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