DIRTMAGIQ™

dirt separator

PTC International Application Pending

altecnic

5453 DirtmagIQ™ dirt separator

Application

In heating and chilled water systems the circulating water will undoubtedly contain debris which entered the pipework during site storage and construction.

The debris may consist of pipe scale, thread turnings, rust particles, thread sealing tape or jointing paste and air bourne dust particles.

If left within the pipework this debris may cause erosion to bends and fittings, and cause damage to pumps and control valves. Modern systems contain many small control valves in which the seats could become damaged or blocked, these types of valve require a clean system to work efficiently.

Dirt separators are an efficient way of removing debris and are capable of removing small particles down to 5 µm (microns) in size.

Debris is collected in the large chamber allowing longer periods between cleaning, which can be done whilst the system is operating.

Dirt separators if cleaned regularly have a low pressure loss characteristic, important for reducing energy demands and on going running costs.

Design

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

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

The conventional method is to position the magnet inside the collection chamber but the DirtmagIQ™ has the magnet positioned around it, helping to maintain a low pressure loss.

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

Supplied with compression ends complying with BS EN 1252-2 for use with R250 (half hard) copper tube.

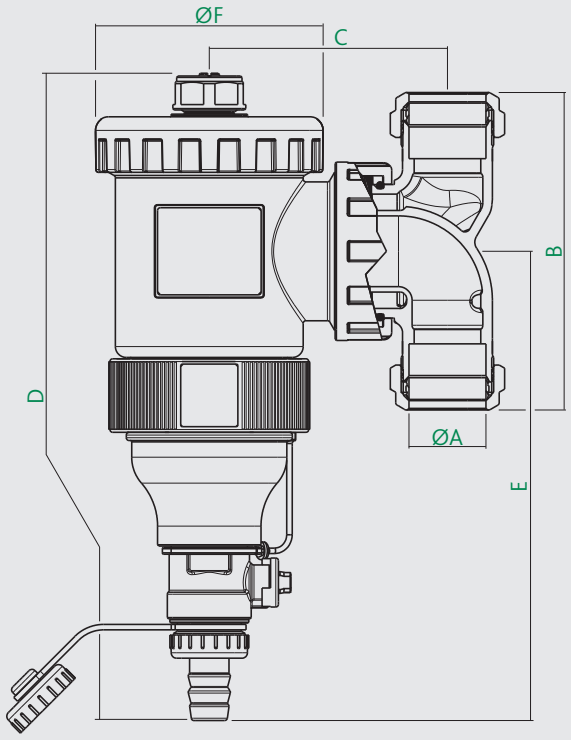
Supplied hose union ball blow down valve and manual air vent.

Construction Details

Component	Material	Grade
Body Tee	Brass	BS EN 1982 CB753S
Dirt Collection Chamber	Polyamide 66	PA 66 GF 30
Dirt Chamber Cover	Polyamide 66	PA 66 GF 30
Internal Element	Polyethylene	HDPE
Seals	EPDM	
Union Nut	Brass	BS EN 12420 CW617N
Air vent	Brass	BS EN 12164 CW614N
Blowdown Valve	Brass	BS EN 12165 CW614N
Magnet	2600 G	

Product Code	Size	Connections
545302	22 mm	comp. x comp.
545303	28 mm	comp. x comp.

Dimensions



Prod Code	A	B	C	D	E	F	kg
545302	22	115	87.5	238	173	84	2.15
545303	28	117	87.5	238	173	84	2.15

Technical Data

Medium:	water glycol solution
Max. percentage of glycol:	30%
Max. working pressure:	3 bar
Temperature range:	0 to 90˚C
Minimum particle size:	5 µm

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Operating Principle

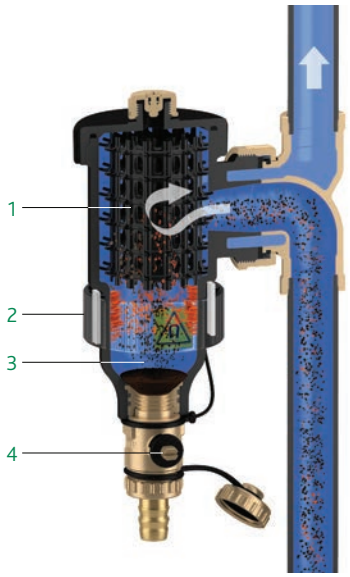
Dirt separators operate by a combination of physical principles.

The internal element (1) is constructed to form a radial net shaped element.

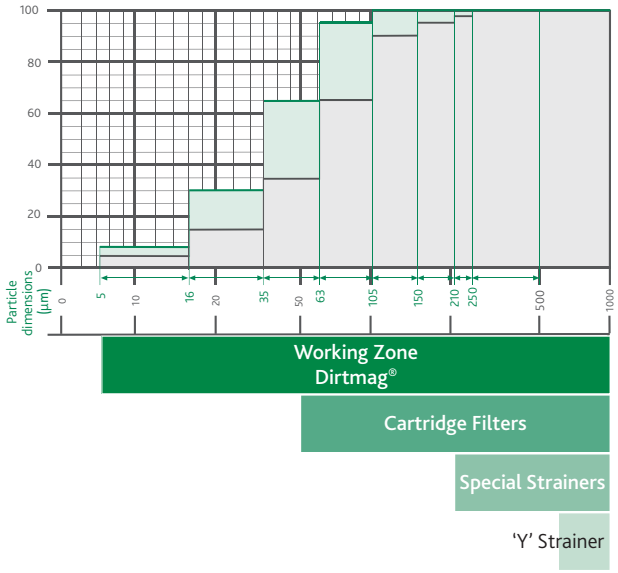
Debris in the water strikes the element, causing it to drop to the bottom of the body (3).

The larger internal volume of the DirtmagIQ™, compared with the area of the pipe, reduces the velocity of flow and with the aid of gravity and the magnetic element (2) helps to collect the debris.

The collected debris can be discharge from the dirt separator whilst the system is in operation by opening the blow down valve (4) and flushing through the debris.

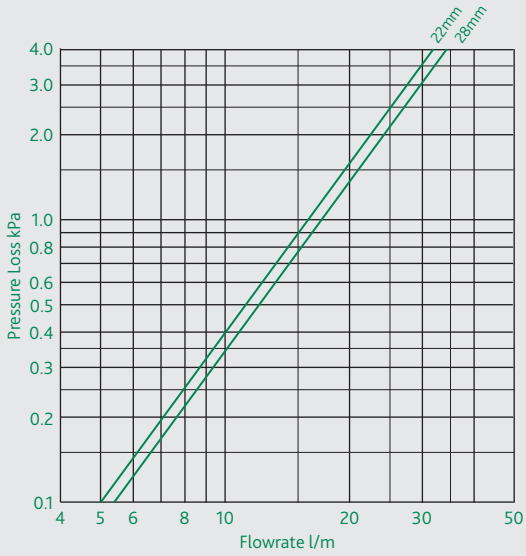


Dirt Separation Efficiency - Particle Size



Tests conducts by TNO - Science and Industry Laboratory (NL)
*Test results based on Horizontal Models only

Pressure Loss Chart



Size	22mm	28mm
Kv - m^3/h	9.5	10.6

The maximum recommended flow velocity inside the pipe is 1.2 m/s. The following shows the maximum flow rates to meet this requirement.

Size	Ø22	Ø28
l/m	23.1	38.8

Based on BS EN 1057 copper tube and BS EN 10255 steel pipe.

Lower Pressure Loss

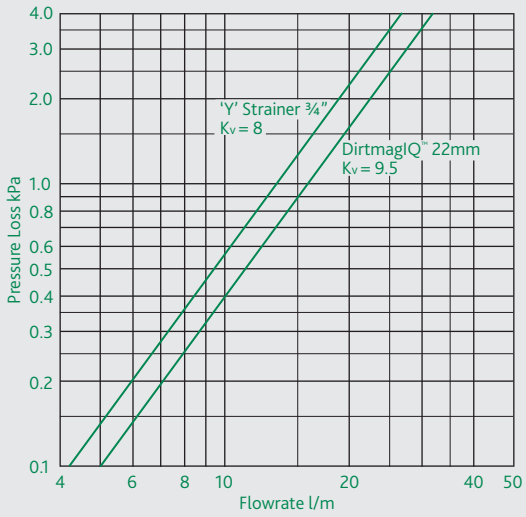
A conventional 'Y' strainer performs its function via a mesh or perforated sheet element, the size of the holes selected to collect the smallest specified particle size.

The strainer therefore has an initial pressure loss which increases as the basket fills, especially when more that half full.

The dirt separator functions by particles striking the element and dropping into the collection chamber.

The pressure loss is greatly reduced and is not affected by the amount of debris collected.

Note: Both devices require cleaning as part of a planned maintenance programme.



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Blowdown Valve

DirtmagIQ™ dirt separators are equipped with a hose union ball isolating blowdown valve.

This valve allows debris in the collection chamber to be flushed through with the system still running, by connecting a suitable hose to the union connection and opening the ball valve.

The blanking cap is the operating key for the ball valve and provides long term security.

Air Vent

The collection chamber can be vented to release any trapped air that may have accumulated during system filling or when in service using a screw driver to open the manual air vent.

Installation

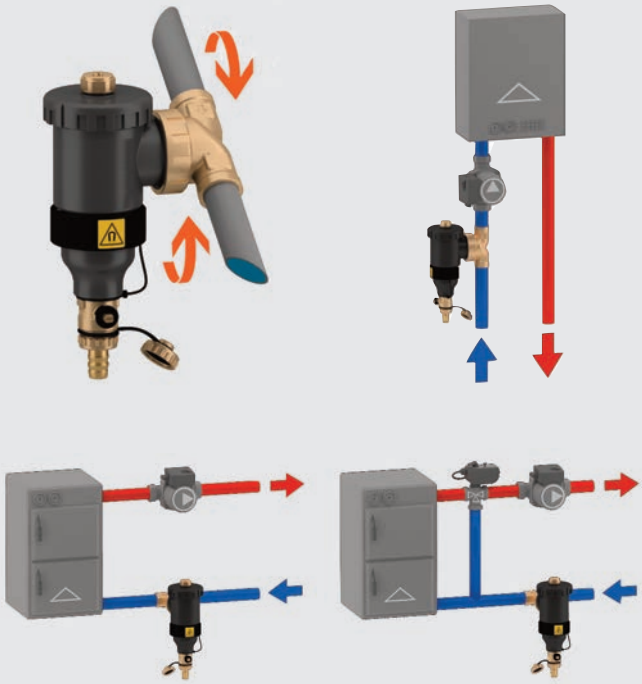
Dirt separators are easy to install and should preferably be installed in the return circuit upstream of the boiler.

This enables debris already present in the pipework to be intercept before it reaches the boiler, particularly during system flushing.

Dirt separators should always be installed as shown with the blowdown valve beneath the collection chamber.

DirtmagIQ™ dirt separator are uni-directional and must be installed with the flow direction as indicated by the arrow on the body.

The union joint between the body and the collection chamber allows the DirtmagIQ™ to be installed in horizontal, vertical or inclined pipework thus eliminating the need to stock both horizonal and vertical models.



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