



AIRTERM DIRT

COMBINED SELF-CLEANING DIRT SEPARATORS / FLANGED DEAERATORS

CT2831.1_00
EN
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PRESSIONE
MASSIMA
DI SCARICO **10 bar**



- Removes any impurity;
- Self-cleaning;
- Ensures system efficiency
- Multifunction: Built-in dirt separator and deaerator
- High performance (max. discharge pressure 10 bar)
- Bi-directional.

PRODUCTION RANGE

SELF-CLEANING DIRT SEPARATOR / DEAERATOR

| Code | Size | Connections |
|------------|-------|--------------|
| 2831.09.72 | DN50 | Flanged PN16 |
| 2831.10.72 | DN65 | Flanged PN16 |
| 2831.11.72 | DN80 | Flanged PN16 |
| 2831.13.72 | DN100 | Flanged PN16 |
| 2831.14.72 | DN125 | Flanged PN16 |
| 2831.15.72 | DN150 | Flanged PN16 |

DESCRIPTION

THE PURPOSE:

Airterm Dirt combines the functions of common dirt separators and deaerators in a single solution. They are used to remove air and impurities from hydraulic systems.

By removing dirt and air from the system, unnecessary breakdowns and malfunctions can be reduced, helping to:

- Increase heating and cooling efficiency
- Reduce the formation of corrosion in all points of the system
- Reduce extraordinary maintenance work
- Reduce the effects causing system noise
- Lower the cost of system management

USE:

They can be used in **heating and cooling systems**.

CAUTIONS:

In order to function properly, the dirt separator/deaerator must be installed in a **vertical position** with the impurity drain valve facing downwards.

ADVANTAGES:

Merging two different components into one solution has allowed us to significantly reduce overall dimensions with respect to conventionally assembling two different products: dirt separator + deaerator.

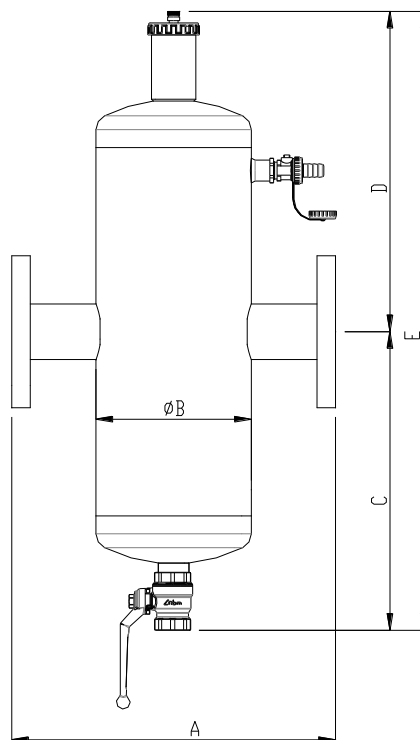
CONSTRUCTION FEATURES

- Body: Steel painted on the outside
- Elastomers used: EPDM PEROX and NBR
- Float: With levers made of polypropylene resin
- Spring: AISI 302 stainless steel
- Connections: Flanged PN16

TECHNICAL FEATURES

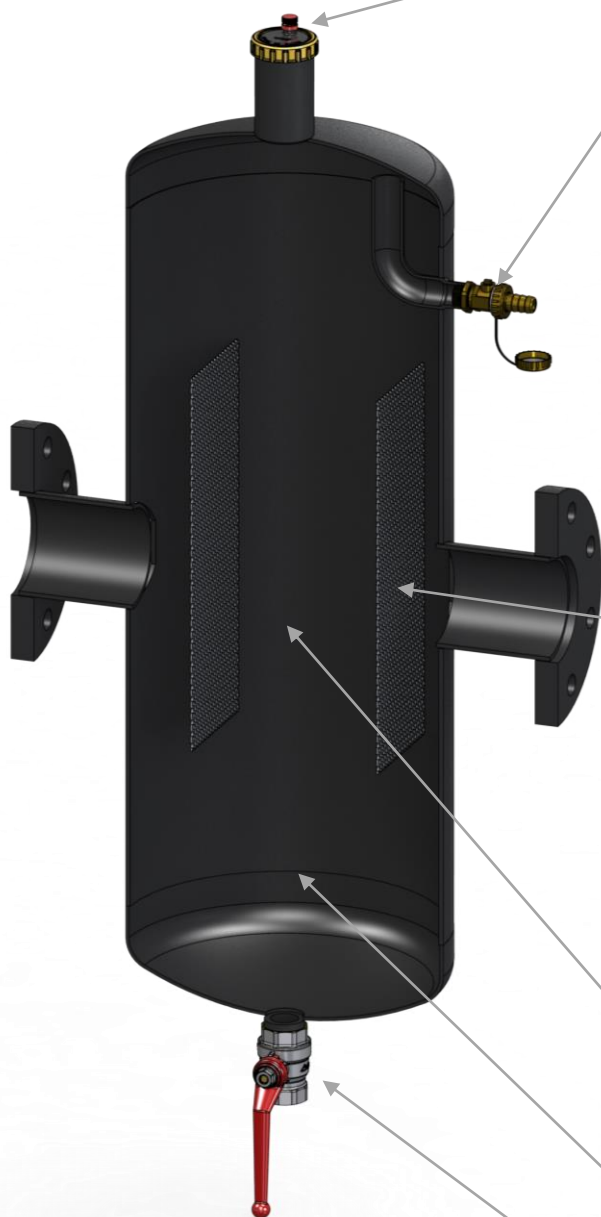
- Usable fluid: Water
Water + glycol 30%
- Maximum fluid temperature: 110°C
- Maximum operating pressure: 10 bar (1000 kPa)
- Maximum discharge pressure: 10 bar (1000 kPa)

DIMENSIONAL FEATURES



| Code | Size | A [mm] | $\varnothing B$ [mm] | C [mm] | D [mm] | E [mm] | Weight [kg] |
|------------|-------|--------|----------------------|--------|--------|--------|-------------|
| 2831.09.72 | DN50 | 350 | 168 | 346.5 | 324 | 670.5 | 17 |
| 2831.10.72 | DN65 | 350 | 168 | 346.5 | 324 | 670.5 | 18 |
| 2831.11.72 | DN80 | 470 | 273 | 475 | 452.5 | 927.5 | 32 |
| 2831.13.72 | DN100 | 470 | 273 | 475 | 452.5 | 927.5 | 35 |
| 2831.14.72 | DN125 | 635 | 323.9 | 559 | 536.5 | 1095.5 | 70 |
| 2831.15.72 | DN150 | 635 | 323.9 | 559 | 536.5 | 1095.5 | 75 |

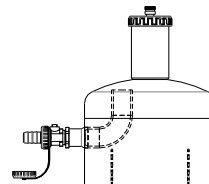
STRENGTHS / WORKING PRINCIPLE



PASSIVE PART: Megaluft

High-performance air vent valve (discharge guaranteed up to 10 bar).

Side ball valve with hose connection:



It has the dual function of:

- Supporting the automatic air vent valve to discharge large amount of water following maintenance work or after the system has been filled;
- To discharge any impurities floating on the water.

Double flow breaker septum:

Consisting of 2 perforated **steel** sheets positioned at the flange inlets.

The double septum is hit directly by the flow, thereby helping to create whirlwind motions that favour the release of **microbubbles**. These microbubbles settle on the internal metal septum and, after reaching an adequate size, they move upwards and are ejected by the passive part of the device.

At the same time, this contributes to minimising the possibility of impurities running through and offers little resistance to the flow passage (characterised by **very small head loss**). It does not hamper the dirt descent into the accumulation zone, so dirt particles do not risk being carried away by the flow running towards the dirt separator outlet.

Decantation chamber:

The sudden section increase slows down the inlet flow, thereby favouring the decantation of dirt particles.

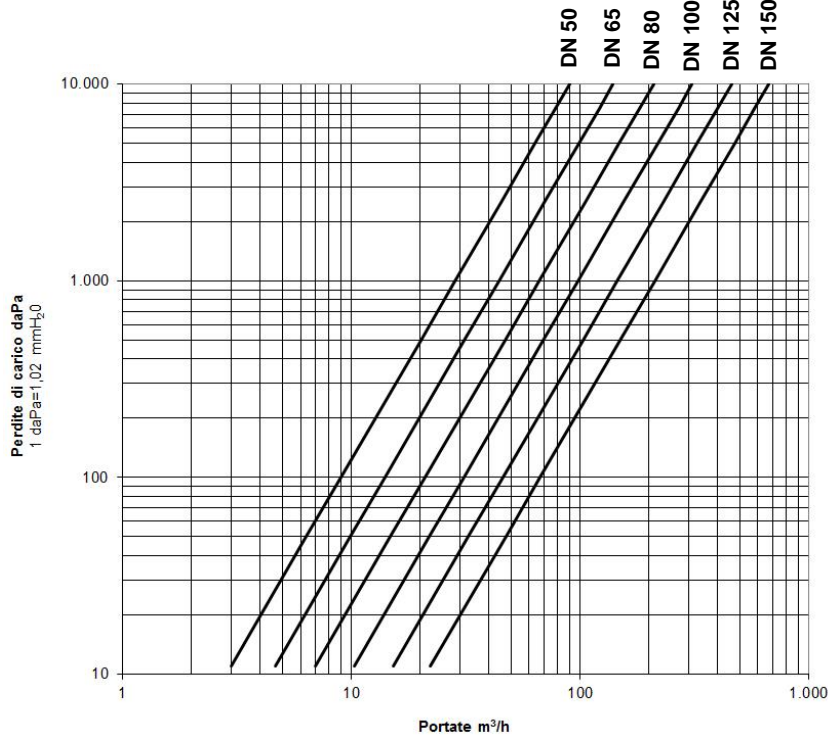
Accumulation zone:

Large and very far from the flow passage, resulting in less frequent maintenance work.

Purge valve.

FLUID DYNAMICS FEATURES

Flow rate diagram - pressure drop



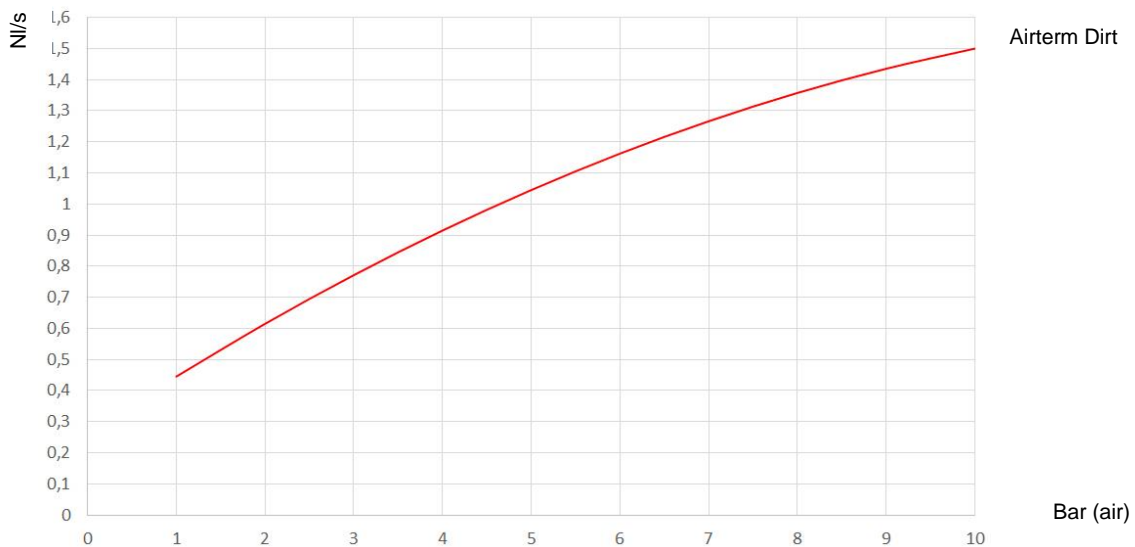
| Size | DN50 | DN65 | DN80 | DN100 | DN125 | DN150 |
|------------------------|-------|--------|--------|--------|--------|--------|
| Kv (m ³ /h) | 90.00 | 140.00 | 210.00 | 310.00 | 460.00 | 670.00 |

It is recommended to keep the maximum speed of the fluid in the pipe within the value of 1.2 m/s. Higher speeds may impair the proper operation of the air discharge device or generate noise.

The table below shows the flow rates to meet the recommended speed of 1.2 m/s.

| DN | Size | l/s | m ³ /h |
|-----|-------|-------|-------------------|
| 50 | 2" | 2.36 | 8.48 |
| 65 | 2"1/2 | 3.98 | 14.34 |
| 80 | 3" | 6.03 | 21.71 |
| 100 | 4" | 9.42 | 33.93 |
| 125 | 5" | 14.73 | 53.01 |
| 150 | 6" | 21.21 | 76.34 |

Discharge capacity diagram



USE / INSTALLATION

Dirt separators/deaerators *Airterm Dirt* operate the systems with air-depleted water, therefore they can absorb the air bubbles nestled in the system critical areas while collecting all the system impurities (resulting both from decantation and the collision with the inner grid), thereby preventing them from circulating within it, wearing and damaging all the system components.

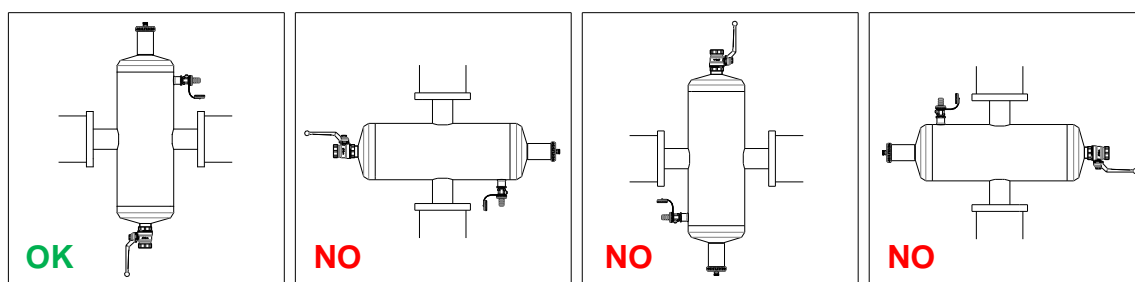
- In order to obtain optimal deaeration, they must be **installed on the system warmest side**, as it is the zone in which microbubbles form more. The dirt separator must be installed on the primary circuit return (**boiler inlet**) and in any case upstream of the devices that it must protect (circulators, exchangers, etc. ...). Having said that, dirt separators/deaerators RBM **can be installed without distinction on the system delivery and return**.

To allow subsequent maintenance work, make sure there is enough space around *Airterm Dirt*.

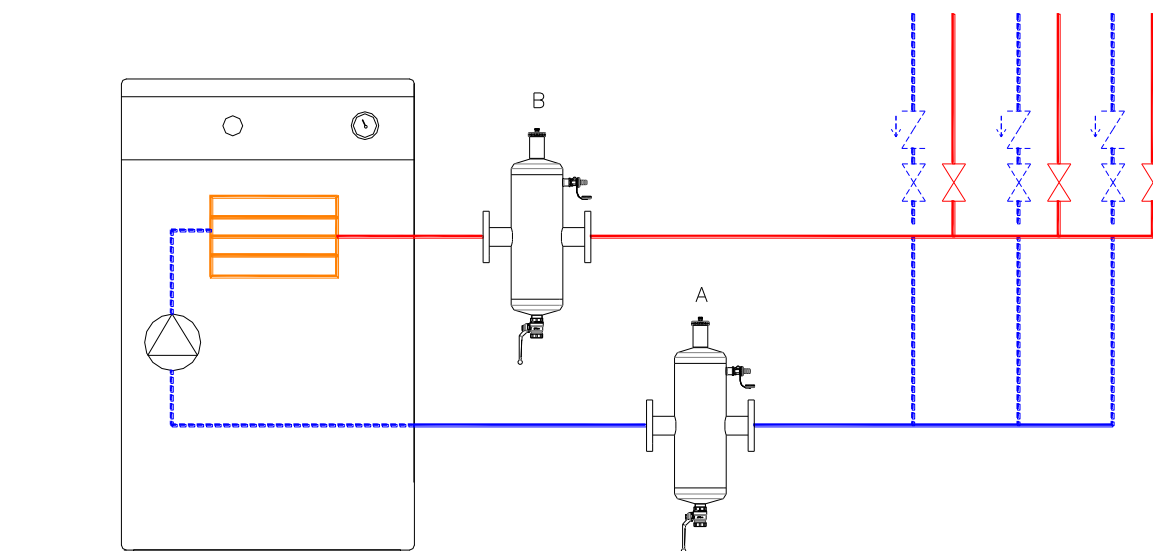
- Install **shut-off valves** upstream and downstream of the dirt separator/deaerator, in order to allow scheduled maintenance work and filter cleaning to be performed;

- *Airterm Dirt* is a **bi-directional component**, therefore it has the same efficiency irrespective of the direction of the flow running through it;

- *Airterm Dirt* must be installed in a **vertical position** with the **air vent valve facing upwards** and the **impurity drain valve facing downwards**.



APPLICATION DIAGRAMS



Layout 1:

- *Airterm Dirt* installed on the primary circuit return, at the boiler inlet (**A**), with the main function of dirt separator. (Installation to be preferred, recommended by RBM).

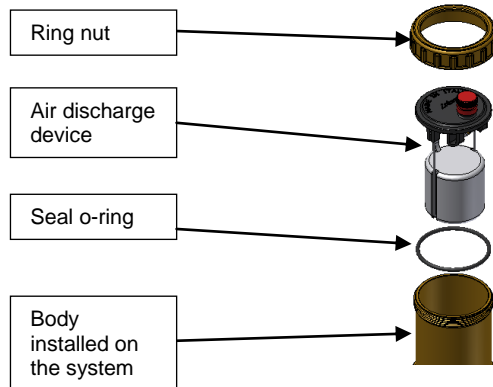
AirtermDirt installed on the system delivery (**B**), with the main function of deaerator.

MAINTENANCE INTERVENTIONS

AirtermDirt has been designed in such a way that it can be dismantled and serviced.

By simply unscrewing the upper ring nut, it is possible to access the air discharge device to check its functionality and perform any maintenance work.

During this operation the separator body remains always installed on the system. The shut-off Valves upstream and downstream of the deaerator must be closed.



DIRT SEPARATOR FILTER PURGE:

The dirt separator filter can be purged with the system running, acting on the drain ball valve located at the bottom of the filter.

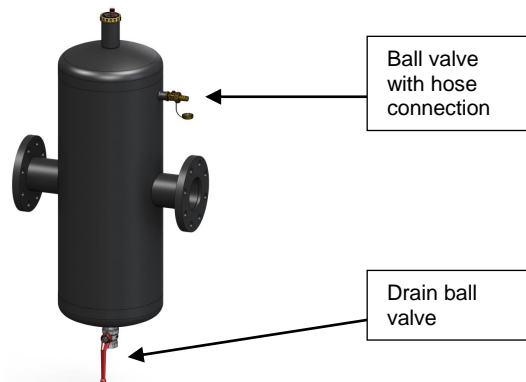
It is important to **perform the purge operation at least once a year**.

In case of first application, perform the first purge after a month.

After completing the maintenance operations, remove the air in the device/system.

The side ball valve is designed to favouring the removal of air in the filter (to support the upper air discharge device), following maintenance work.

During this operation, the side ball valve must remain open. Intercept the ball valve once the valve starts to drain the water from the system.



SPECIFICATION ITEMS

2831 SERIES

Filter for self-cleaning dirt separator/deaerator model *Airterm Dirt*, complete with discharge ball valve and side ball valve with hose connection. Steel body painted on the outside EPDM PEROX hydraulic seals. PP float. Float guide and brass rod. Float lever and stainless steel spring. PN16 flanged connections. The fluid can be used with water and water with glycol added to it, max. 30%. Maximum operating pressure 10 bar. Max. discharge pressure 10 bar. Maximum operating temperature 110 °C. Available sizes DN50 ÷ DN150.



RBM spa reserves the right to improve and change the described products and related technical data at any moment and without prior notice: always refer to the instructions attached with the supplied components; this sheet is an aid, should the instructions be extremely schematic. Our technical department is always at your disposal for any doubt, problem or clarification.

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