



# AIRTERM DIRT AND AIRTERM MAG COMBINED SELF-CLEANING DIRT SEPARATORS / DEAERATORS

CT2831.0\_00  
EN  
April 2015



*Airterm Dirt*



*Airterm Mag \**


MAXIMUM  
DISCHARGE  
PRESSURE **10 bar**




- Removes any impurity
- Self-cleaning
- Ensures system efficiency
- Multifunction: Built-in dirt separator and deaerator
- Magnetic (\*)
- Bi-directional

## PRODUCTION RANGE

### SELF-CLEANING DIRT SEPARATOR / DEAERATOR

	Code	Size	Connection	Type
	2831.04.00	1/2"	F UNI-EN-ISO 228	Airterm Dirt
	2831.05.00	3/4"	F UNI-EN-ISO 228	
	2831.06.00	1"	F UNI-EN-ISO 228	
	2831.07.00	1"1/4	F UNI-EN-ISO 228	
	On request	Ø 22	Copper compression pipe	
	On request	Ø 28	Copper compression pipe	

### SELF-CLEANING MAGNETIC DIRT SEPARATOR / DEAERATOR

	Code	Size	Connection	Type
	2863.04.00	1/2"	F UNI-EN-ISO 228	Airterm Mag
	2863.05.00	3/4"	F UNI-EN-ISO 228	
	2863.06.00	1"	F UNI-EN-ISO 228	
	2863.07.00	1"1/4	F UNI-EN-ISO 228	
	On request	Ø 22	Copper compression pipe	
	On request	Ø 28	Copper compression pipe	

## 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 circuits.

In addition, *Airterm Mag* is equipped with a powerful magnet to capture particles such as rust and sand that are formed due to corrosion and scale during the normal operation of a system.

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 (on horizontal pipes)**, 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.

**WARNINGS:** *Airterm Mag* contains a powerful magnet, and strong magnetic fields are present within the filter.

We recommend the holders of pacemaker devices to keep at a safe distance during the filter operation and / or maintenance.

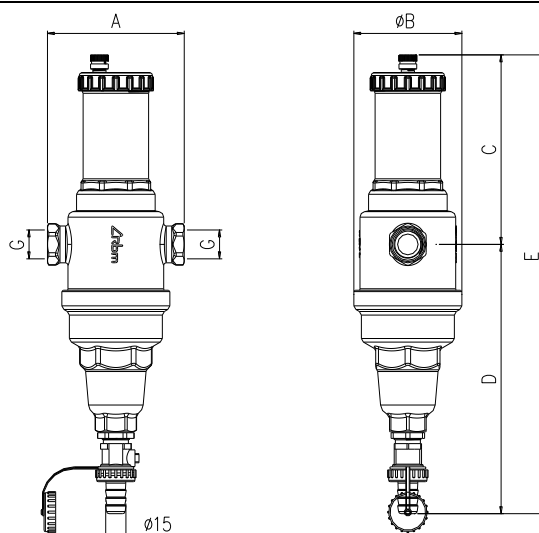
## CONSTRUCTION FEATURES

- Body: Brass CW 617N UNI EN 12165
- Elastomers used: EPDM and NBR
- Float: With levers, made of polypropylene resin
- Cartridge: AISI 302 stainless steel
- Spring: AISI 302 stainless steel
- Magnet (series 2863 only): Neodymium
- Connections: F UNI-EN-ISO-228 / Compression connection for copper pipe (depending on version)

## 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

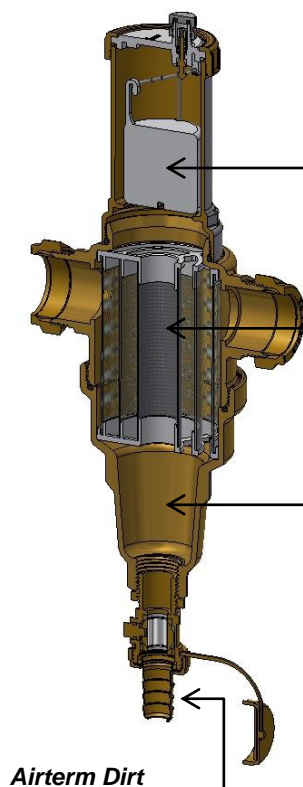


Code	G	A [mm]	Ø B [mm]	C [mm]	D [mm]	E [mm]
<b>2831.04.00</b>	1/2"	100	79	136,5	194	330,5
<b>2831.05.00</b>	3/4"	105	79	136,5	194	330,5
<b>2831.06.00</b>	1"	110	79	136,5	194	330,5
<b>2831.07.00</b>	1"1/4	115	79	136,5	194	330,5
<b>On request</b>	Ø 22	124,6	79	136,5	194	330,5
<b>On request</b>	Ø 28	130	79	136,5	194	330,5

<b>2863.04.00</b>	1/2"	100	79	136,5	188	324,5
<b>2863.05.00</b>	3/4"	105	79	136,5	188	324,5
<b>2863.06.00</b>	1"	110	79	136,5	188	324,5
<b>2863.07.00</b>	1"1/4	115	79	136,5	188	324,5
<b>On request</b>	Ø 22	124,6	79	136,5	188	324,5
<b>On request</b>	Ø 28	130	79	136,5	188	324,5

## STRENGTHS / WORKING PRINCIPLE



**Airterm Dirt**

### PASSIVE PART: Megaluft

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



### INNOVATIVE RBM 3-Layer CARTRIDGE:

Made up of three **stainless steel** sheets with different filtering grades. Stainless steel is **an outstanding guarantee of durability** and maximum reliability under varying pressure and temperature conditions. With respect to any other possible choice, this is certainly the one with greater resistance to corrosion and wear generated by impurities (whose nature is less and less predictable).

The cartridge is hit directly by the flow and continuous section variations help to create swirling movements which favour the release of **microbubbles**; these microbubbles settle on the internal metal cage and, after reaching an adequate size, rise upwards and are ejected from the passive part of the device.

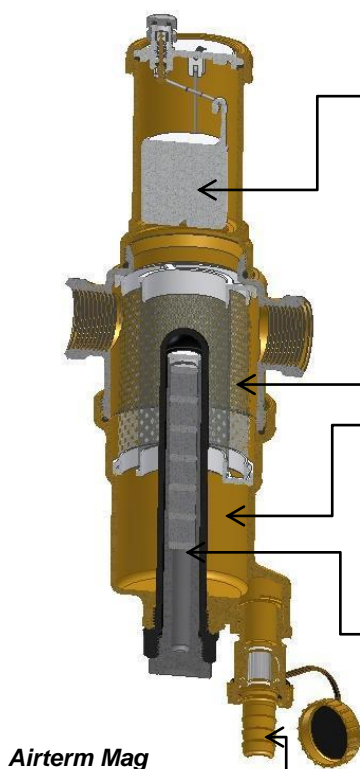
At the same time, this contributes to minimising the possibility of impurities running through and offers little resistance to the flow passage (characterised by **very small head loss**). It does not hamper the dirt descent into the accumulation area, so dirt particles do not risk being carried away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

### ACCUMULATION AREA:

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

### PURGE VALVE:

Adjustable, with hose connector and safety cap.



**Airterm Mag**

### PASSIVE PART: Megaluft

See *Airterm Dirt* (above) for more specifications.

### INNOVATIVE RBM 3-Layer CARTRIDGE:

See *Airterm Dirt* (above) for more specifications.

### ACCUMULATION AREA:

See *Airterm Dirt* (above) for more specifications.

### MAGNET:

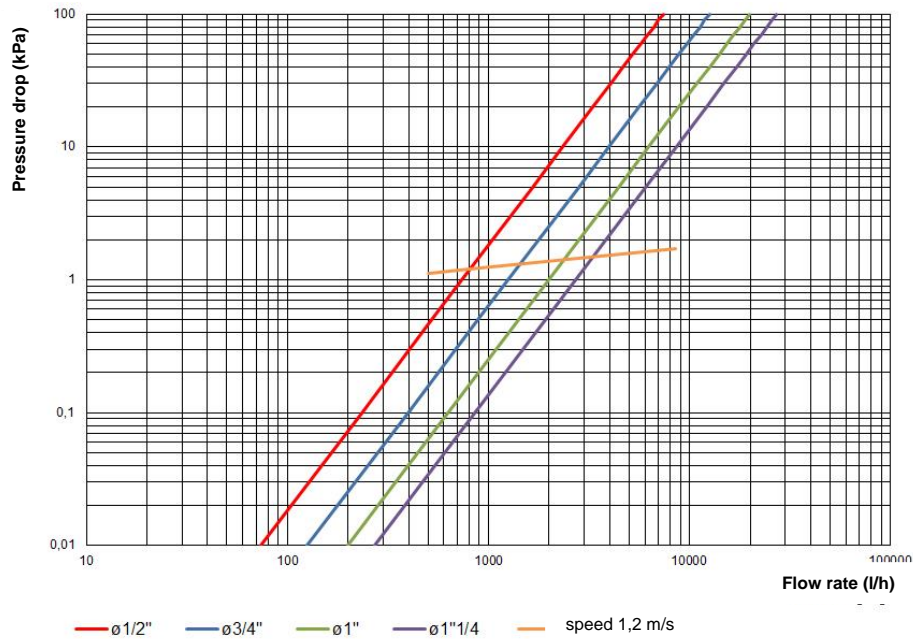
(Only available in the Airterm Mag device series 2863)  
Powerful magnet to capture particles such as rust and sand that are formed due to corrosion and scale during the normal operation of a system.

### PURGE VALVE:

See *Airterm Dirt* (above) for more specifications.

## FLUID DYNAMICS FEATURES

### Flow rate diagram - pressure drop



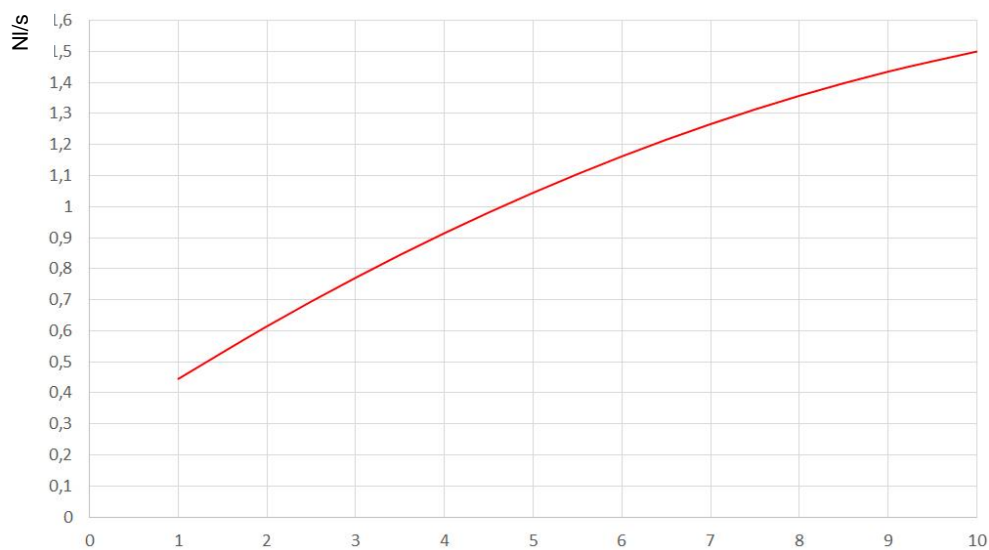
Size	1/2"	3/4" - Ø22	1" - Ø28	1 1/4"
Kv (m <sup>3</sup> /h)	7,40	12,66	20,44	28,14

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.

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

DN	Size	l/min.	m <sup>3</sup> /h
15	1/2"	13,2	0,79
20	3/4" - Ø22	22,8	1,37
25	1" - Ø28	35,4	2,12
32	1 1/4"	58,2	3,49

### Discharge capacity diagram

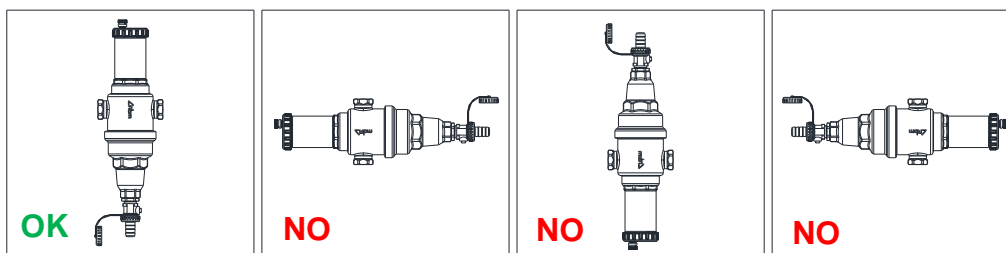


Airterm Dirt series 2831  
Airterm Mag series 2863

## USE / INSTALLATION

Dirt separators/deaerators *Airterm Dirt* and *Airterm Mag* 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 area 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 maintenance work to be performed, make sure that around *Airterm Dirt* and *Airterm Mag* there is enough space
- 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* and *Airterm Mag* are **bi-directional components**, therefore they have the same efficiency irrespective of the direction of the flow running through them
- *Airterm Dirt* and *Airterm Mag* must be always installed with the **air discharge valve facing upwards and the impurity drain valve facing downwards**.



## APPLICATION DIAGRAMS

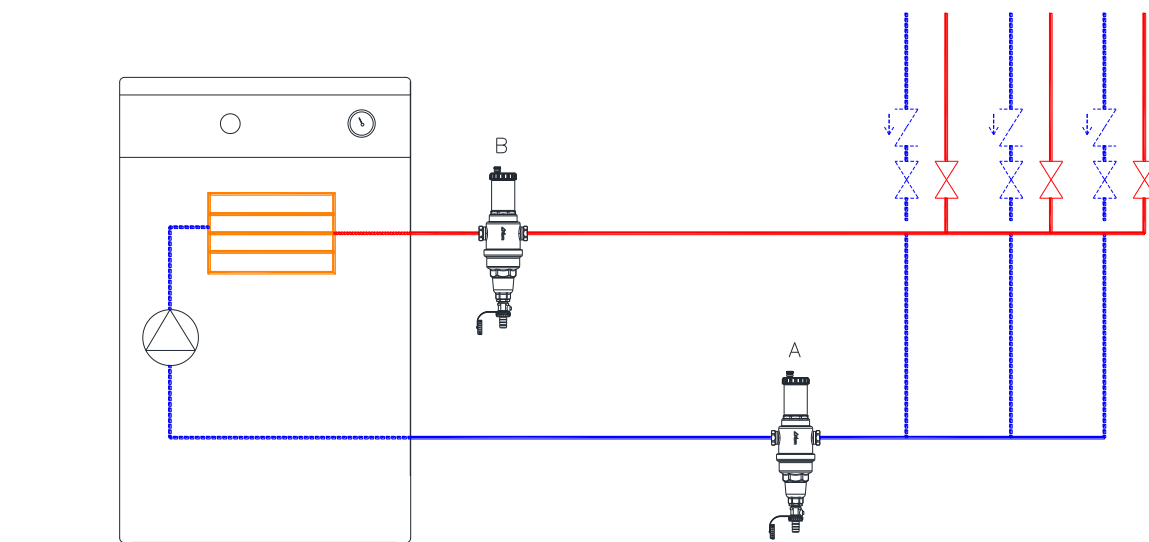


Diagram 1:

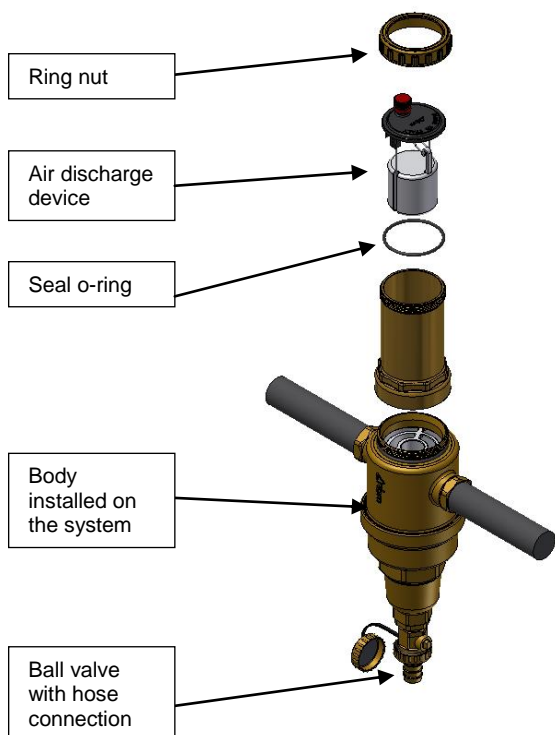
- *Airterm Dirt* (or *Airterm Mag*) installed on the primary circuit return, at the boiler inlet (**A**), with the main function of dirt separator. (Installation to be preferred, recommended by RBM).
- *Airterm Dirt* (or *Airterm Mag*) installed on the system delivery (**B**), with the main function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

## MAINTENANCE INTERVENTIONS

*Airterm Dirt* and *Airterm Mag* have been designed in such a way that they can be disassembled and serviced. For cleaning operations, both the air discharge device and the cartridge can be easily accessed. During these operations, the body remains installed on the system.

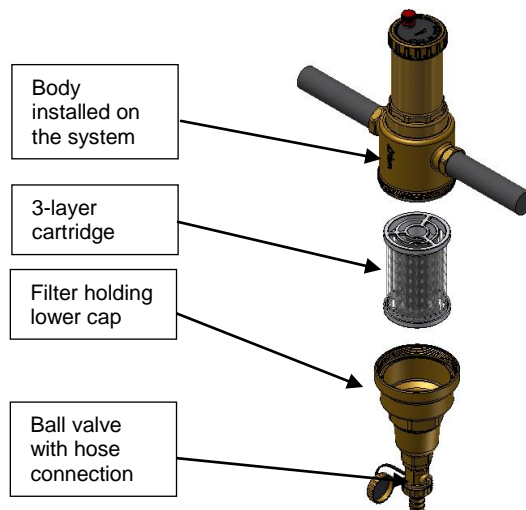
### AIR DISCHARGE DEVICE:

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.



### FILTER CLEANING:

By simply unscrewing the filter holding lower cap, the RBM 3-layer cartridge can be accessed to perform any cleaning.



Routine maintenance Filter purging can be performed with the system running, acting on the ball valve provided with hose connection. 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.

Extraordinary routine: To properly clean and service *Airterm Dirt* (filtering cartridge cleaning), follow the steps described below:

- Intercept the filter through the ball valves located upstream and downstream of the filter itself
- Unscrew the filter lower body (should high temperature fluid circulate in the circuit, use the necessary precautions and safety devices to avoid direct contact with the fluid)
- Remove the RBM 3-layer filtering cartridge and wash it under running water; possibly replace it if it is damaged
- Place the cartridge in the filter lower body and screw it to the filter upper body - Carefully reposition the sealing ring in its place
- Re-open the ball valves upstream and downstream of the filter to open the hydraulic system

## SPECIFICATION ITEMS

### SERIES 2831

Filter for self-cleaning dirt separator/deaerator model *Airterm Dirt*, complete with discharge ball cock with hose connection. Brass body. AISI 304 steel 3-layer filtering cartridge. EPDM hydraulic seals. Threaded connections FF UNI-EN-ISO 228 (or compression ones for copper pipe). Maximum operating pressure 10 bar. Max. discharge pressure 10 bar. Maximum operating temperature 110° C. Available sizes 1/2" ÷ 1 1/4" (or compression for copper pipe ø22 and ø 28).

### SERIES 2863

Filter for self-cleaning magnetic dirt separator/deaerator model *Airterm Mag*, complete with discharge ball cock with hose connection. Brass body. AISI 304 steel 3-layer filtering cartridge. EPDM hydraulic seals. Neodymium magnet. Threaded connections FF UNI-EN-ISO 228 (or compression ones for copper pipe). Maximum operating pressure 10 bar. Max. discharge pressure 10 bar. Maximum operating temperature 110° C. Available sizes 1/2" ÷ 1 1/4" (or compression for copper pipe ø22 and ø 28).



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.

**RBM**  
RBM Spa  
Via S. Giuseppe, 1  
25075 Nave (Brescia) Italy  
Tel. 030-2537211 Fax 030-2531798  
E-mail: info@rbm.eu - www.rbm.eu