

# Magnetic – Microbubble Air and Dirt Separator

## Introduction

Magnetic - The Air Free & Clean Solution - An air & dirt free water system through one unit.

Problems arising with Air, Dirt & Magnetite in water systems

## Deaeration

The word Deaeration describes the removal of dissolved gases from liquids such as air from water. When water is heated or the pressure reduced gas microbubbles are released into the system. Microbubbles & dirt (which turns to sludge) can be the cause of major problems such as pump failure, corrosion, and energy loss.

## The Solution

Filtering Magnetite efficiently & successfully.

As an aid to system cleaning you should specifically install Magnetic Filtering. The range has been developed to remove potentially damaging particles from both hot and chilled water systems. It is comprised of a very fine stainless-steel strainer capable of stopping debris down to 10 micron. Inside the body of our unit is also a high-gauss magnetic rod, these two elements combined together provide a very powerful cleaning device. As the water flows through the unit the magnetite is attracted to the magnetic rod and even the smallest particles down to 5 micron and less are collected. Through simple & cost effective maintenance the magnetic rod is then removed. All magnetite which flows through the unit will be removed 100%.

## Dirt Removal

The unit is also used to remove dirt particles from heating and chilled water systems. Installed it will eliminate all non magnetic dirt particles down to 10 microns.

## Features

- High-gauss magnetic rod installed to remove all magnetite in the water system.
- Greatly reduced commissioning times after initial fill.
- Longer system life (through air and dirt elimination)
- Low-pressure drop
- Bi-directional flow
- Max. temp. 110 c
- Max. Working pressure 10 bar
- Tested to 21 bar
- Stainless steel shell
- Air collects in the air chamber before being automatically vented
- Floating dirt can be removed by opening the valve situated on the side of the unit.
- The same valve is used for releasing air when filling the system
- Large collector ensures that flushing is only required periodically
- Can be flushed while fully operational (no need to shut down)
- An internal stainless steel concentrator to aid removal of air and dirt.

## Location

This unit must be installed at the hottest part of the system. In a heating system this is the main flow from the boilers. The static head must not exceed 30 metres.

In a chilled water system the unit must be located in the return close to the chiller. Maximum static head must not exceed 15 metres.

N.B. If the static head is greater than these figures the efficiency of the unit is reduced. The maximum flow rates through the unit is 3m/sec. If these values are exceeded the efficiency is reduced.

## **Commissioning**

The unit requires no special commissioning. All units are fitted with a fast bleed valve, which should be used when initially filling the system. The same valve is used for draining off floating "scum" and also prevents the possibility of dirt clogging the air vent.

Maintenance will be required to remove trapped dirt and sludge. Opening the ball valve at the bottom of the unit does this. The valve may be opened while the system is under pressure.

## **Maintenance - Removing & cleaning the Magnetic rod**

Isolating valves should be installed either side of the connecting flanges on the unit. Close the two isolating valves. Secondly open the ball valve located on the bottom of the unit or the fast bleed valve. Care should be taken as the water may be very hot. Then remove the bolts located on the single front blank flange. Then remove the blank flange with the magnate attached. Extreme care should be taken at this point as the magnate is very powerful. Remove all attached debris on the magnetite. Once the magnate is clean and free from debris please re-insert into the main body of the unit. Tighten all bolts on the flange; close all valves on the unit. Open the two isolating valves (slowly) and check for leaks (around the gasket on the blank flange).

Scalding is a danger at high pressures and temperatures. Ensure that the water is safely piped to drain before opening the valve.

The system pressure will flush the dirt out. Leave the valve open until the collected dirt has been flushed out, repeat this operation every few days. Once the water is clear it may be possible to drain every 6 months or so depending on the size and age of the system.

When cleaning the units internal magnate please be aware that only small amounts of magnetite might be collected on the magnate if regular flushing of the dirt separator is taking place. All the larger sizes of magnetite will be collected in the bottom of the dirt separator as normal. It is still very important to flush the dirt separator as part of the standard maintenance programme through the valve on the bottom of the unit. Doing this will prevent the magnate from clogging quickly and reducing its effectiveness, and therefore the actual magnate will not have to be removed and cleaned as often ( less costs).

Most of the dissolved air will be removed in a few days. However this may vary from system to system. In large systems it may take several weeks. Dirt separators can only remove dirt that is circulating.

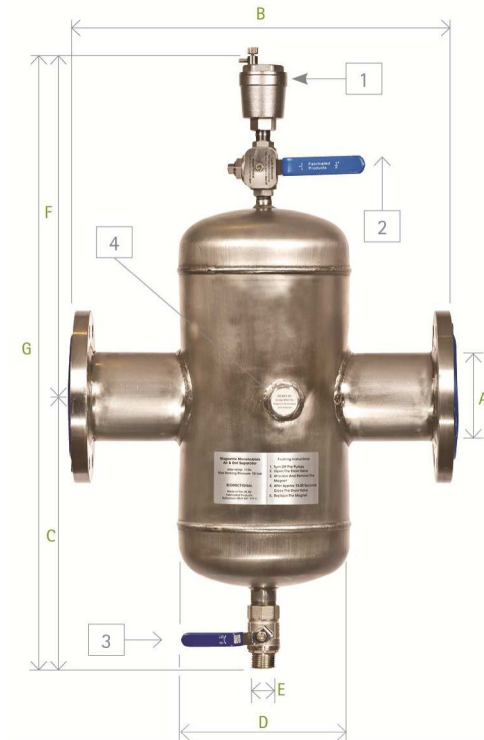
## **Flanges**

All flanges are drilled to BS 4504 PN16 as standard. Plain ends and other flange ratings are available on request.

## **Drain valve**

All models are supplied with a ball valve for draining the collected dirt and sludge.

## MAGNETIC Combined unit Air (de-aerator) - & Dirt Separator Model AD-M



Model No.	Dimensions (mm)							Tested to
	A	B	C	D	E	F	G	
AD-M50	50	430	300	170	25	380	680	21 Bar
AD-M65	65	430	300	170	25	380	680	21 Bar
AD-M80	80	490	360	220	25	440	800	21 Bar
AD-M100	100	490	360	220	25	440	800	21 Bar
AD-M125	125	630	470	325	25	550	1020	21 Bar
AD-M150	150	630	470	325	25	550	1020	21 Bar
AD-M200	200	810	625	410	50	625	1250	21 Bar
AD-M250	250	880	775	510	50	775	1550	21 Bar
AD-M300	300	1100	875	610	50	875	1750	21 Bar
AD-M350	350	1500	950	770	50	950	1900	21 Bar
AD-M400	400	1500	1125	770	50	1125	2250	21 Bar
AD-M450	450	1750	1125	920	50	1125	2250	21 Bar
AD-M500	500	2000	1175	1220	50	1175	2350	21 Bar
AD-M600	600	2000	1325	1220	50	1325	2650	21 Bar

1. High Capacity Auto Air Vent
2. 3 Way Valve / Bleed Valve
3. Drain Valve
4. Removable High-Gauss Magnetic Rod