

SALUS®

**MAG**  
**DEFENDER**

Full Flow Magnetic Filter



Model: MD22

## INTRODUCTION

Today, high efficiency boilers offer excellent performance for heating systems, however this performance can be eroded significantly if little attention is given to the cleanliness of the complete central heating system. Historically the majority of systems suffer from iron oxide contamination, which takes the form of sludge deposits which are caused by corrosion of the heating system.

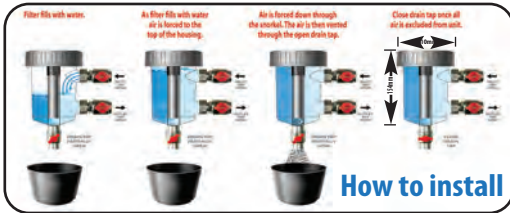
The iron oxide particles vary in size and the sub-micron particles are present in the system fluid continuously during system operation. The oxide particles can cause premature failure of valves and pumps and boiler efficiency is reduced dramatically as the particles contaminate the boilers heat exchanger, and the complete system pipework.

The SALUS Mag Defender offers system protection and increased efficiency, as it has been designed to remove the suspended iron oxide particles without reducing flow rate through the system.

Installation is simple; isolation valves rotate 360° so a number of location options can be facilitated.

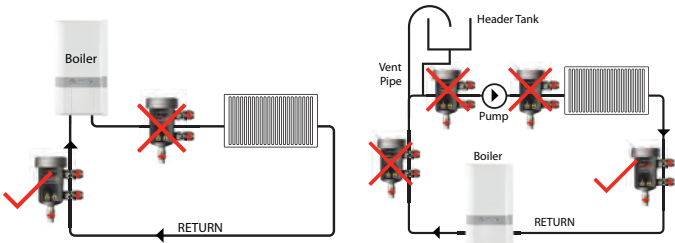
An added advantage to installers is the bottom mounted valve for servicing. Once isolated the bottom valve allows the easy discharge of contaminants. The main body is 500mL, which allows the installer to add the correct amount of corrosion inhibitor when the isolation valves are closed.

## QUICK REFERENCE GUIDE



## INSTALLATION

In order to achieve the best protection for the boiler, it is recommended that the Mag Defender is fitted after the last radiator before the boiler.



## INSTALLATION

In determining a suitable location for installation, it is important to ensure you allow adequate access for servicing.

The following instructions are designed to assist engineers in the safe and effective installation and servicing of the SALUS Mag Defender and should be followed at all times. Any queries arising from either installation or servicing, contact SALUS Controls direct on 01226 323961.

### **Do's:**

- Install the filler upright to enable the device to be fully evacuated of air during commissioning. Pipe runs are vertical, horizontal or any angle in between. The inlet and outlet can also be swapped to suit.
- Where the device is fitted to the metallic building structure earth-bonding continuity is required around the device. All bonding connections must be accessible and labelled "Safety Electrical Connection - Do Not Remove"

### **Dont's:**

- Magnets may affect or interfere with sensitive mechanical and electronic instruments such as heart pacemakers, computers/ magnetic media and watches. Always keep magnets at least 300mm (1ft) away from such equipment.
- NEVER close the INLET or OUTLET isolation valves, or UNDO the lid when the pump is running!
- Don't fit the device too close to the boiler, allow at least 1m.

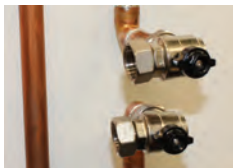
Release system pressure then drain the pipe run where the device is to be located (it may be necessary to drain the whole system). When installing below a boiler or other object, allow 250mm clearance from the top of the canister to beneath the object, to enable the lid assembly to be removed when servicing.

The device has been designed to facilitate various inlet and outlet configurations. Most configurations will require Elbows. For soldering we recommend 28x Yorkshire Solder Ring Elbow YP1222mm (code08290), or for compression we recommend 2 Yorkshire copper KS61522mm (code 61124K) and the fitting instructions (which follow) are based around dimensions of these elbows. For clarity the recommended solder and compression fittings require the same dimension of cutout.

**Vertical pipe run:** Measure and mark a 110mm section for a 22mm unit, as shown below. Remove this marked section using a pipe cutter as shown. Now create 64mm and 106mm of 22mm copper pipe to attach between the respective elbow and compression fitting on the inlet/outlet. Tip: Reuse the cut out section.

**Horizontal pipe runs:** Measure and mark 73mm section and remove the marked section with a rotary tube cutter. Create 64mm and 134mm lengths of 22mm copper pip to attach between the respective elbow and compression fitting on the inlet/outlet. **Tip:** Reuse the cut out section.

- 1 Prepare the pipe and fittings, lubricate the olives and connect the valves on the pipe work, please only hand tighten the connections at first.





- 2 Now Loosen off the valve flange nuts and insert the rubber washers provided. (There are 2 supplied with this product).



- 3 Loosely secure the Mag Defender to the valves. Grip the Mag Defender and tighten the compression fittings being careful not to over tighten as this may cause damage.





**NOTE:** Drain valve closed



- 4 Now the heating system is ready to be filled, ensure the inlet and outlet valves are both in the open position, with the drain valve in the closed position, and then run the central heating system.
- 5 Have a bucket ready to collect spillage and partially open the drain valve (using the cap as a tool) to purge air from the device. Close the drain valve once water starts to flow. Bleed the device again after the system has reached temperature. Take care as the water will be hot. Replace drain cap.

**Always service the filter before leaving the premises. The Mag Defender spanner can be left with the customer.**

## SERVICING



- 1 Important – Before carrying out any servicing work, turn off electrical supply to the boiler and let the water cool down to a safe working temperature. Using the Mag Defender spanner provided turn both isolation valves to the OFF position.



- 2 Using the Mag Defender spanner provided, carefully unscrew the lid.







- 3 Remove the inner lid and magnet assembly.



- 4 Withdraw the snorkel and mesh filter. Some debris may stick to the snorkel, however the majority will fall to the bottom of the canister.



- 5 Rinse snorkel and mesh filter under the tap.



- 6 Remove the drain valve cap as shown.



- 7 Use the drain valve cap key to open the valve. Ensure you have a bucket underneath to collect the spillage.



- 8 Open the drain valve fully and drain the Mag Defender into a bucket. Rinse the canister with fresh water.



- 9 Insert snorkel and mesh filter.



- 10 Insert magnet.



- 11 Now replace the lid onto the canister and tighten with the Mag Defender spanner. (Do not over tighten).



- 12 Close drain valve and replace cap.



- 13 Open the isolation valves and start the heating system.



- 14 Have a bucket ready to collect spillage and partially open the drain valve (using the cap as a tool) to purge air from the device. Close the drain valve once water starts to flow. Bleed the device again after the system has reached temperature. Take care as the water will be hot. Replace drain cap.



## Chemical Dosing



- 1 After step 9 in servicing, pour a bottle of water treatment corrosion and scale inhibitor, we suggest SALUS SYSTEM GUARD Inhibitor. The canister will hold 500ml and the inhibitor should be poured down the outer edge of the snorkel.

### **DO NOT POUR DOWN CENTRE OF THE SNORKEL**

Tip: Cover the centre hole of the snorkel temporarily with the inhibitor lid.

- 2 Continue with step 10 of servicing.
- 3 Once you reach step 13 allow the system to circulate for 5 minutes before moving on to step 14.
- 4 Chemical dosing is now complete.

## QUESTIONS AND ANSWERS

- Q** Where can I fit the Mag Defender?
- A** In order to achieve the best protection for the boiler, it is recommended that the Mag Defender is fitted between the last radiator and the boiler (see diagram on P3).
- Q** Which connection on the Mag Defender is the flow and which is the return?
- A** The inlet and outlet on Mag Defender are reversible and there is no flow restriction.
- Q** How often do I service the Mag Defender?
- A** Servicing is required once a year with the annual boiler service.
- Q** Can I use chemicals with the Mag Defender?
- A** Yes, you can use any chemical on the market with Mag Defender, however we recommend you use SALUS SYSTEM GUARD products with the Mag Defender.

**Q** How long will the Mag Defender last?

**A** Mag Defender has been developed to last for the lifetime of the boiler, normally ten years. It provides continuous protection and comes with a five year warranty.

**Q** How do I isolate the valves?

**A** Simply turn the valves to the marked OFF position using the spanner provided. Important: Remember to switch off the electrical supply to the boiler when servicing the Mag Defender.

**Q** Will the Mag Defender affect my pacemaker?

**A** As with all magnetic products, if you have a pacemaker caution should be taken when handling the Mag Defender at all times. When the Mag Defender is installed, the magnetic field outside the canister is approximately one tenth of an average fridge magnet.





## WARRANTY

SALUS Controls warrants that this product will be free from any defect in materials or workmanship, and shall perform in accordance with its specification, for a period of five years from the date of installation. SALUS Controls sole liability for breach of this warranty will be (at its option) to repair or replace the defective product.



Customer Name: .....

Customer Address: .....

.....

..... Post Code: .....

Tel No: ..... Email: .....

Engineers Company: .....

Tel No: ..... Email: .....

Installation Date: .....

Engineers Name: .....

Engineers Signature: .....

# SALUS recommends the use of SALUS SYSTEM GUARD products with the MAG DEFENDER.



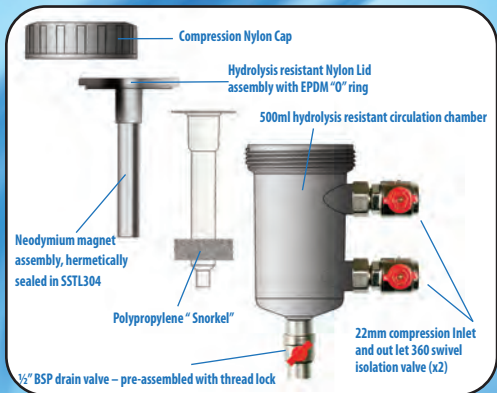
For more products in the  
SALUS range visit...



[www.salus-tech.com](http://www.salus-tech.com)



# Specification and contents



## Also Supplied:

**Mag Defender Spanner**

**Instruction manual including warranty form**

**Servicing Kit - 1 x 'O' EPDM ring, 2 inlet/outlet washers**

[www.salus-tech.com](http://www.salus-tech.com)

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**Technical:** Email: tech@salus-tech.com Tel: 01226 323961

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