

## **The Mikrofill<sup>®</sup> Electronic Filling Device. (EFD)**

The Mikrofill<sup>®</sup> EFD is a fully automatic sealed system filling device, and is suitable for the water management in all domestic and commercial heating and cooling systems. It is supplied as a fully commissioned unit and should require no "on site" commissioning.

### **INSTALLATION**

**All Mikrofill<sup>®</sup> products should be installed by a competent person with regard to the relevant requirements of the Health and Safety Regulations, Building Regulations, IEE Regulations, Water Supply (water fittings) Regulations, Water Byelaws (Scotland) and any other local bye-laws or planning requirements, the Mikrofill EFD is Wras approved - certificate No 0201032.**

The Mikrofill<sup>®</sup> EFD is intended for wall mounting and there are four mounting holes on the backplate for this purpose, the unit should be mounted at such a height as to enable the Liquid crystal display to be easily read,

#### **Water connections - Mains cold water inlet**

The Mikrofill<sup>®</sup> EFD is designed to be connected directly to the mains cold water supply, or a boosted cold water supply, the unit is supplied complete with all necessary isolating valves, and incorporates a basket filter in the inlet ball valve. The water inlet is 15mm compression and should be connected to the mains cold water supply by 15mm copper tube or equivalent approved plastic pipework. If the Mikrofill<sup>®</sup> EFD is sited some distance from the mains cold water supply it may be advisable to install a single check valve adjacent to the mains cold water supply.

To reduce the pressure drop on very long supply routes then 22mm supply pipework is recommended.

#### **Dimensions**

The size of the EFD is 260w x 270h x 150d and the weight is 8kg

## **System pipework - Outlet**

The Mikrofill<sup>®</sup> EFD is connected to the system by way of the integral 15mm outlet valve, the pipework from the unit should be made in 15mm copper or similarly approved plastic pipework. A suitably sized expansion vessel should be incorporated into the system at this point. If you require any assistance regarding vessel sizing please contact our technical sales department. The final connection into the heating (or cooling ) system should be sized accordingly, recommendations are shown below:

Vessel size up to 100L    ½" (15mm) expansion pipework.

Vessel size up to 300L    ¾" (22mm) expansion pipework

Vessel size up to 750L    1" (28mm) expansion pipework.

For vessel sizes in excess of 750L capacity please contact our technical sales department.

### **IMPORTANT NOTE 1**

The Mikrofill<sup>®</sup> EFD is supplied fitted with a ¾" tundish, which must be connected to a suitable drain.

### **IMPORTANT NOTE 2**

The expansion vessel Nitrogen/air charge must be set at the same pressure as the cold fill pressure of the system. All Mikrofill<sup>®</sup> vessels are factory commissioned to the correct pressure

## **Electrical connections**

The Mikrofill<sup>®</sup> EFD requires a permanent 240V 50 Hz 1 phase supply rated at 3 amp, the unit is internally fused at 3 amp see electrical installation diagram.

The EFD also incorporates two BMS relays offering volt free contacts for the remote indication of high or low pressure conditions within the heating or cooling system. These relays are also independently fused at 5 amp to protect the Mikrofill<sup>®</sup> EFD from external electrical faults. A further volt free relay is included in the EFD this is to interlock the boiler or chiller control circuits, should either of the alarm relays operate then the boiler/chiller relay will shut down the boiler or chiller, indication of any alarm situation will be indicated on the display the relays are suitable for use all control voltages up to 240V

Once the Mikrofill<sup>®</sup> EFD has been connected as above the unit is ready for use, ensure that the EFD has a water supply, the EFD service valve is open. Check for water leaks, switch on electrical supply to the unit and the illuminated on/off switch to the left hand side of the unit, the unit will start to fill the system.

### **Alarm Conditions**

Please note the EFD is a factory pre-commissioned product, should you require to change any of the preset parameters when the unit is installed please contact our technical dept.

**System inhibited** The EFD continuously monitors the inlet water pressure, if this pressure falls to below an acceptable level then the unit will operate a safety shut down. When water pressure is reinstated the unit will automatically reset. If water pressure remains low clean the inlet filter and check the incoming water supply.

**Flood alert** The EFD can differentiate between normal system fill rates and excessive water demand usually due to a flood condition. If this situation occurs the EFD will shut down, and issue a flood alert warning on the LCD.

### **Flood alert reset**

This alert must be reset manually, by switching off the EFD waiting 30 seconds and switching back on, if the leak has been rectified the unit will then operate as normal.

### **High or low pressure alarms**

If, for any reason the system water pressure reaches a high or low condition, as determined by the preset parameters the EFD will show the alarm message the relevant BMS relay will operate and the Boiler/chiller control relay will operate, shutting down the boiler or chiller, when normal operating pressure is resumed the unit will automatically reset,

### **Frequent use alarm**

This alarm is to assist in diagnosing any leaks that may be present in the heating (or cooling system). If in any 24 hr period the EFD operates more than a preset limit i.e. 5, then a frequent use alarm will show, (the operation of the system will not be affected, this function is for information only).

**Frequent use reset** – this is achieved by switching the power supply to the unit off and on again

**Hours run facility**, this is accessed by scrolling the system data button

**Hours run reset** – this is achieved by depressing the ↓↑ simultaneously

The EFD has a predetermined fill rate of 14 litres per minute, therefore, by multiplying the fill rate by the hours run the water usage can be calculated.

### **Fault Diagnosis**

System faults will be apparent from the alarm message displayed, the EFD itself has a full self diagnostic microprocessor unit which continually self checks the operation, if an internal fault is diagnosed then the fault will be displayed on the screen, e.g. sensor disconnected

In the unlikely event of a unit fault, please contact our technical department.

### **MAINTENANCE**

**EFD** - The inlet filter which is housed in the service valve should be checked and cleaned annually.

**EXPANSION VESSELS** – Charge pressure should be checked annually when the system is cold (the charge must equal the cold fill pressure of the EFD).

# Electrical Installation

