



Heat transfer systems for responsive hot water supply.

LOCATION

The unit should be located in a clean dry, accessible position with adequate ventilation and lifting facilities. A substantial foundation should be provided to give rigid support at all points under the unit.

PIPEWORK

Suitably sized and supported pipework should be connected to the unit. Connection pipework should be correctly aligned so that it does not induce any strain on the unit.

Ensure all connections are clearly identified prior to piping.

It is recommended that the unit has isolating valves fitted to all connections to aid service and maintenance.

! CAUTION - During venting / draining of primary pipework proceed with extreme caution - Do not vent nor drain whilst hot.

ELECTRICAL

A four wire 415/3/50 electrical supply should be provided at the unit control panel - check that the overloads are in accordance with the full load current on the pump nameplate.

STARTING

Check that the pump is free to turn by hand. Rotation should be checked by operating the pump for a few seconds. Ensure primary pump is fully vented prior to start up.

DO NOT RUN PUMP DRY.

DIRECT-ON-LINE STARTERS

A suitably rated MCB and a direct-on-line contactor starter with thermal overload, (set to the motor full load current), is included for each primary pump motor.

If the motor current exceeds the set value for any length of time the overload will operate and 'trip' out the starter to disconnect the supply to the motor.

At the same time a 'trip' lamp is illuminated on the panel front. Before the motor can be re-started it is necessary to manually reset the overload unit by pressing the blue RESET button on the left hand side of the unit inside the panel (or on the front of the door where external reset buttons are fitted - optional).

Persistent tripping of the starter should be closely investigated to determine the cause of the fault, otherwise the motor could be seriously damaged.

MAINS ISOLATOR

The electrical supply to the panel is connected to an isolating switch which is interlocked with the panel door so that the door can only be opened when the isolator is 'off'.

A 'PANEL ALIVE' lamp on the panel front indicates when the isolator is switched 'on'.

MICRONIK TEMPERATURE CONTROLLER

The control system includes a proportional + integral temperature set-point controller to adjust a four-port motorised control valve to suit the secondary hot-water requirements determined by a temperature sensor located in the secondary flow pipework.

The motorised valve and primary pump allow responsive adjustment of the heat input to match the changes in hot-water demand. The valve mixes cooled primary leaving the heat-exchanger with fresh hot water from the boiler to give a controlled primary. This avoids overheating of the secondary even at zero demand.

CONTROL PRINCIPLES

The system includes a temperature sensor and a high limit thermostat located in the secondary flow pipework, an actuator controlled valve to modulate the flow of primary hot water (from the heat source) to the unit heat-exchanger, and a single or twin primary pump to circulate primary hot water through the unit.

A temperature controller is integral to the control panel - this will maintain a near constant temperature in the secondary pipework at all times of operation, whatever the demand, by modulating the flow of primary hot water through the unit.

The aim is to achieve a floating position of the modulating valve on the primary side of the unit, while a load is on the system, without 'hunting' of the boiler and associated controls.

Both the primary and secondary pump/s (if fitted) are normally continuously running.

HIGH LIMIT STAT

A high limit stat is fitted in the secondary pipework which is a 'back-up' if the main sensor fails. In the event of a high temperature situation this sensor will power the valve actuator into the bypass position, hence closing off the boiler (heat) source to the unit. It also cuts out the primary pump and illuminates a warning lamp on the control panel fascia.

Once the high temperature is cleared, the high limit stat must be manually reset, locally at the sensor. The red button on the top of the stat should be depressed which will reset the system and allow the primary pump and control valve to operate normally.

MICRONIK R7426A CONTROL AND CONFIGURATION PARAMETERS

The controller parameters will be factory set and tested, however any initial settings will be typical and may need to be adjusted during commissioning to suit the actual system conditions. Parameters other than those detailed are unused for the application and are therefore unchanged from the default settings.

Control Parameter	Description	Setting on High range 50 - 130 C
P01	W1 Main setpoint for input T1	60 C
P08	Xp1 Throttling range (main control loop) T1	6 C
P12	tr1 Reset time (main control loop) T1	4.5 min
P21	RuntimeY1 Actuator run time for Y1 (from VMM30)	140 sec

Config. Parameter	Values
C04	Ctrltyp Hi = 0.....130 C
C08	Y1Mode 0 = Floating
C14	Senstyp 0 = Auto detection
C15	Y1CTRF 1 = Heating

P08 - Xp1 PROPORTIONAL BAND THROTTLING RANGE

This is the differential temperature in deg. C around the set-point temperature, for example if Xp1 is set at 6 it will equate to a + or - 3 deg C band about the Main set-point.

The aim is to maintain the slowest cycle possible for opening and closing the control valve, when responding to secondary temperature changes. For instance if the valve reponds too quickly at setting 6 adjust P08 to 8 for example.

P12 - tR RESET TIME

The cycle or reset time is the period that the valve requires to go through a complete cycle.
i.e. open/shut/open, or close/open/close.

If the typical factory setting does not give a mid-valve position, adjust P12 to achieve a steady state and an optimum control valve response.
(the factory setting is typical but every system varies).

HEATFLO COMMISSIONING

DESCRIPTION

Installation and pipework connections checked.

Secondary pump correctly installed.

Electrical wiring checked.

Verify Temperature setpoint - 60 degrees C.

Verify Hi limit setting - 75 degrees C.

Verify Primary pump/s overload setting.

Vent & prime unit.

Set current time - if fitted.

Verify pump rotation.

Set pump speed - if applicable.

Verify Micronik settings -

- Main setpoint - 60
- Proportional band Xp - 6
- Rest time tR - 4.5
- Settings are typical as systems vary.
- Record any adjusted settings.

Verify Four port valve orientation,

Verify controller functions, thus -

- Test for manual operation of valve
- Actuator response to set-point setting
- Actuator response to secondary water temperature
- Actuator and pump response to Hi limit
- Test Hi limit reset

Verify standby pump auto-changeover-if fitted

With all the responses satisfactory verify that the secondary temperature regulates at 60 degrees C.