

# FLOW / LINE HEATERS

## EC RANGE



### EC RANGE APPLICATION

The EC range is designed as a small flow heater or boiler. It is ideal for situations where it is not practical to fit a conventional immersion heater to a tank. The EC heater allows the immersion heater to be fitted externally, so that the contents of the tank can be circulated through the external EC heater thereby heating the contents of the tank. Flow heaters are ideal when used as a backup or boost for heat pumps or conventional boilers.

The unit is fitted with a WR range immersion heater screwed into the vessel body. The body is constructed from either copper, mild steel or stainless steel.

A guide to vessel material suitability is generally as follows:

**Copper:** suitable for closed and open systems and generally recommended if there is chlorine in the water. Copper also has anti-bacterial properties.

**Mild Steel:** suitable for closed systems only.

**Stainless Steel:** suitable for closed and open systems.

All models are fitted with a robust, water-tight, cast aluminium enclosure rated to IP66 suitable for indoor or outdoor applications or for use in damp or humid conditions.

Maximum kW loadings depend on application. In single phase the maximum kW load is 6kW and in three phase 24kW. Units can be linked in parallel or in series to obtain higher outputs. For higher kW loads our MH or CH/EH/FH ranges may also be suitable.

All models are fitted with a control thermostat and an over-temperature manual reset thermostat which is intended to prevent the water from overheating. PT100 (RTD) and thermocouple temperature sensors can also be fitted.

**Note:** The unit is not supplied with a pressure relief valve as standard, however, unless the system is vented with no valves or restrictions on the outlet, a pressure relief valve must be fitted as a secondary safety device.

### STANDARD RANGE

The standard EC range of circulator is designed to heat water in building service, industrial and process applications. The heater is fitted with Nicalloy 825 elements which have an average watts density of 9 W/cm<sup>2</sup> (60W/in<sup>2</sup>), offering improved resistance to hard or aggressive waters. The standard range provides list numbers for un-insulated and insulated models.

### SPECIALIST APPLICATIONS

The "EC" range is extremely flexible and our Technical Department can provide specifications suitable for a wide range of applications including those listed below. To obtain a quotation or further information please contact our Technical Department.

- Heating oil, caustics (sodium hydroxide), acids and other chemicals.
- Coolant circulation heater on engines for hot start capability.
- Boiler for radiator / central heating systems.
- Swimming pool or aquarium heating.

Units with flanged connections for the inlet, outlet and immersion heater can be supplied. Please contact our Technical Department.

### MOUNTING & CONNECTIONS

The unit is suitable for horizontal or vertical mounting and comes with support legs which can be used to attach the unit to the floor or wall. Where standard units are vertically mounted the unit must be orientated with the terminal enclosure at the bottom. Our Technical Department can provide specifications for vertical units with the terminal enclosure mounted at the top.

Inlet and outlet connections as standard are 1" BSP internal thread. A connection is provided for an optional pressure relief valve which upon request can be supplied fitted. Alternative connection sizes including flanged inlet, outlet and immersion heater connections are available. Please contact our Technical Department.

For detailed vessel dimensions please contact our Technical Department.

### TEMPERATURE CONTROL

Standard models are supplied with a factory fitted control thermostat, with a range of 37-90°C rated to 20 Amps and an over-temperature, manual reset, safety cut-out thermostat, with a range of 45-95°C rated to 16 Amps. Alternative thermostat ranges are available. Please contact our Technical Department.

Where the current consumed exceeds the thermostat rating, the heater must be wired through a contactor switch. A contactor switch must be fitted on all three phase supplies.

Control panels can be supplied incorporating all necessary controls. Please refer to our TC range.

### OPERATING TEMPERATURE & PRESSURE

The EC range has a maximum design temperature of 90°C and maximum operating temperature of 70°C due to the thermostats fitted. The maximum operating pressure is 6 Bar.

Non-standard models are available for higher operating temperatures and pressures. Please contact our Technical Department.

### VOLTAGE

Single phase heaters from our standard range are designed to operate at 230/240V and three phase heaters at 400/415V.

Non-standard models can be supplied designed to suit operating voltages from 110V to 480V AC or DC. Please contact our Technical Department.

### CONSTRUCTION

The vessel is fitted with a WR range screwed immersion heater and sealed with a WRAS approved fibre gasket. Elements are brazed to the immersion heater boss with silver solder. The average watts density of the elements is 9 W/cm<sup>2</sup> (60 W/in<sup>2</sup>). The terminal enclosure is cast aluminium, impact-resistant and rated to IP66 with two conduit entries (M20 and M25). Please refer to the WR catalogue sheet for further details on the immersion heater.

The immersion heater connection is threaded 2½" BSP thread. Flanged WF range immersion heaters can also be fitted, please contact our Technical Department.

The vessel body is manufactured to Sound Engineering Practice (SEP) and is constructed from either copper, mild steel or 316 stainless steel. Copper models are brazed. Steel and stainless steel models are welded.

Insulated models are fitted with mineral fibre insulation encased in an aluminium stucco cladding. On stainless steel models, a moisture barrier is applied to the vessel below the insulation to prevent chloride stress corrosion cracking.

### COMMON VARIATIONS

Please contact our Technical Department for further details.

- Various operating voltages in single or three phase star or delta.
- WF range flange fitted immersion heater, in place of the WR screw-in immersion heater.
- Alternative thermostat ranges, e.g. 45-120°C, 3-55°C or PT100 (RTD) or thermocouple sensors.
- Compression fitted elements.
- Alternative inlet and outlet connections.
- Alternative element sheath materials and watts densities suitable for various oils, caustic solutions, acids and other chemical solutions.
- Higher operating temperatures.
- Higher operating pressures.

### UNINSULATED VESSELS

LIST No. Un-Insulated Vessels			SUPPLY	
COPPER	MILD STEEL	STAINLESS STEEL	kW LOAD @ 240/415V	No. OF PHASES
EC101	EC201	EC301	2	1
EC102	EC202	EC302	3	1 or 3
EC103	EC203	EC303	4.5	1 or 3
EC104	EC204	EC304	6	1 or 3
EC105	EC205	EC305	9	3
EC106	EC206	EC306	12	3
EC107	EC207	EC307	15	3
EC108	EC208	EC308	18	3
EC109	EC209	EC309	24	3

### INSULATED VESSELS

LIST No. Insulated Vessels			SUPPLY	
COPPER	MILD STEEL	STAINLESS STEEL	kW LOAD @ 240/415V	No. OF PHASES
EC401	EC501	EC601	2	1
EC402	EC502	EC602	3	1 or 3
EC403	EC503	EC603	4.5	1 or 3
EC404	EC504	EC604	6	1 or 3
EC405	EC505	EC605	9	3
EC406	EC506	EC606	12	3
EC407	EC507	EC607	15	3
EC408	EC508	EC608	18	3
EC409	EC509	EC609	24	3