FLOW / LINE HEATERS

MH RANGE

MH RANGE APPLICATION

The MH range of flow heater or boiler is designed to heat water instantaneously in building services, industrial and process applications. The range is suitable for applications where a continuous and steady demand for heat is required. Flow heaters are ideal when used as a backup or boost for heat pumps or conventional boilers.

The vessel body can be constructed from either copper, mild steel or stainless steel, and is insulated with mineral fibre insulation encased in stucco aluminium cladding. The units are suitable for operation in vented or unvented systems. It should be noted that an unvented system requires the addition of an expansion vessel and appropriate controls.

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.

An open system is open to the atmosphere and therefore oxygen will be absorbed into the water causing corrosion of mild steel.

kW loadings are available from 12kW to 120kW in three phase configurations. Units can be linked in parallel or in series to obtain higher outputs. Our CH/EH/FH ranges provide additional options for higher kW loadings and our EC range for kW loads up to 24kW.

The MH range is suitable for either stage control or thyristor control. Temperature control can be by thermostat or a temperature sensor such as a PT100 (RTD) or thermocouple.

The unit is fitted with an FE range immersion heater. Please refer to our FE product information sheet for further details.

All units are fitted with a pressure relief valve as standard.

STANDARD RANGE

The MH range of flow heater or boiler is designed to heat water instantaneously in building services, industrial and process applications.

The Nicalloy 825 elements have an average watts density of 9W/cm^2 (60W/in^2), offering improved resistance to hard or aggressive waters. Nicalloy 825 is a "super alloy" which means it is a high nickel content stainless steel.

Where water conditions are particularly hard or corrosive our MH range can be specified with lower watts density elements or titanium elements. Please contact our Technical Department.

All units are fitted with a control thermostat and an over-temperature manual reset thermostat which prevents the water from overheating. PT100 (RTD) temperature sensors and thermocouples can also be fitted.

Standard list numbers are fitted with an IP41 painted mild steel terminal enclosure, however, IP55 terminal enclosures are available as an option.

SPECIALIST APPLICATIONS

The MH can be specified to heat swimming pools. Lower watts density or titanium element options are available where water conditions are particularly hard or corrosive. Please contact our Technical Department.

For specialist applications such as heating oils, caustics and various other liquids or chemical solutions or for operation at higher temperatures or pressures we recommend you refer to our CH/EH/FH ranges.

MOUNTING & CONNECTIONS

The vessel is suitable for horizontal mounting and has support legs to attach the unit to the floor, supporting steel framework or skid.

All connections are internally threaded BSP as standard, however, flanged connection can be supplied. The inlet and outlet connections are sized to suit the vessel. Please refer to the list number specification table overleaf. A connection is supplied for a level sensor. Additional connections can be supplied. Please contact our Technical Department.

For detailed vessel dimensions please contact our Technical Department.

TEMPERATURE CONTROL

All standard models are supplied with a control thermostat and over-temperature cut-out thermostat.

Alternatively, the heater can be fitted with a temperature sensor such as a PT100 (RTD) or thermocouple wired to a PID temperature controller outputting to a step controller or thyristor.

Where the electricity supply is three phase, the heater must be wired through a contactor switch. Howden Electric can supply control panels incorporating all necessary controls. Please refer to our TC range.

OPERATING TEMPERATURE & PRESSURE

The standard range has a maximum design temperature of 90^{o}C and maximum operating temperature of 70°C due to the thermostats fitted. The maximum operating pressure is 6 Bar. For higher operating temperatures or pressures please refer to our CH/EH/FH range.

All models are supplied complete with a pressure relief valve.

VOLTAGE

Three phase heaters from our standard range are are suitable for all 400/415 volts, 3 or 4 wire supplies.

Non-standard models can be supplied designed to suit operating voltages from 110V to 690V AC or DC. Please contact our Technical Department.

CONSTRUCTION

The vessel is fitted with an FE range flanged immersion heater and sealed with a WRAS approved gasket. Elements are brazed to the flange with silver solder. The average watts density of the elements is 9 W/cm^2 (60 W/in^2). Please refer to the FE catalogue sheet for further details on the immersion heater.

The vessel is manufactured to Sound Engineering Practice (SEP) and is constructed from either copper, mild steel or 316 stainless steel. Copper vessels are brazed. Mild steel and stainless steel vesels are welded. Vessels are insulated with mineral fibre insulation encased in stucco aluminium cladding. On stainless steel vessels, a moisture barrier is applied to the vessel below the insulation to prevent chloride stress corrosion cracking.

The standard terminal enclosure is rated to IP41 and is constructed from painted mild steel. The enclosure is supplied with a removable gland plate to be drilled on site to suit the cable glands being used. The heater is fully earth bonded and is provided with an earth bonding bar inside the terminal enclosure.

IP55 terminal enclosures are available as an option.

COMMON VARIATIONS

Please contact our Technical Department for further details.

- IP55 rated terminal enclosure.
- Lower watts density elements and titanium elements for prolonged element life in particularly corrosive or hard waters.
- Alternative thermostat ranges, e.g. 60-120oC, 0-40oC, or PT100 (RTD) or thermocouple sensors.
- Alternative inlet and outlet connections.
- Various operating voltages in three phase star or delta.
- Heater loading can be stepped in up to 4 stages.
- Compression fitted elements.

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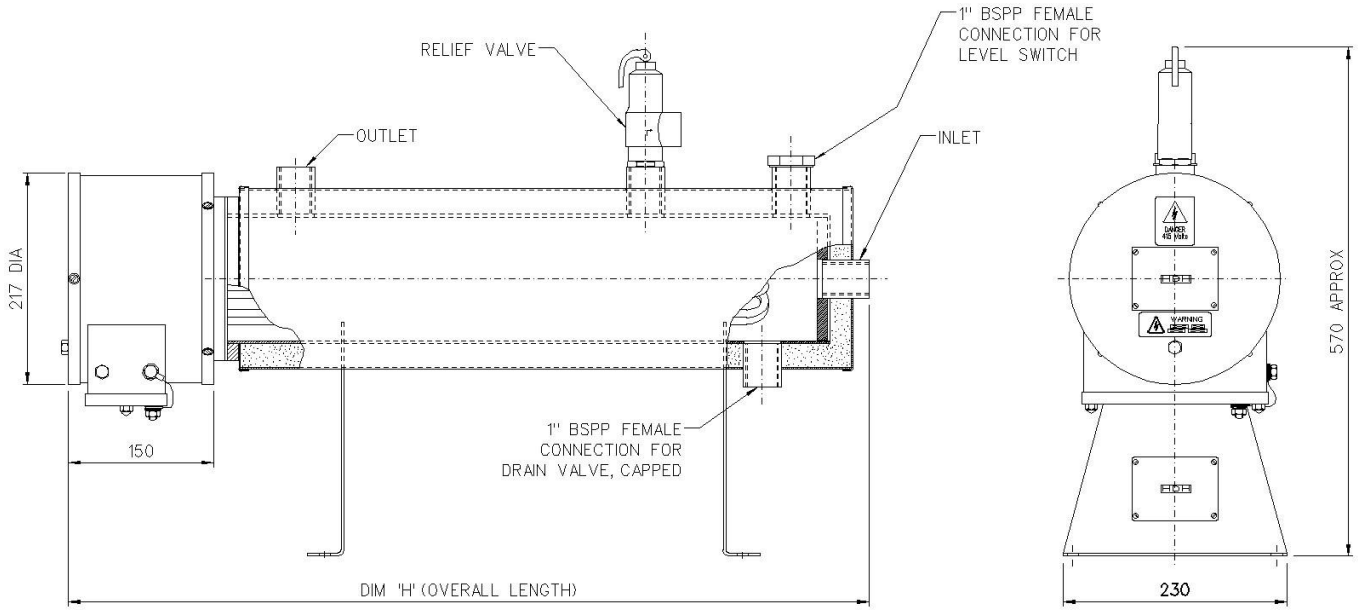
STANDARD LIST NUMBERS

List No's			kW Loading @ 415V	No of Circuits	Connections (" BSP)	Total. Length mm	Heater Fitted
Copper	Mild Steel	Stainless Steel					
MH101	MH201	MH301	12	1	1	830	FE215
MH102	MH202	MH302	18	1	1	830	FE216
MH103	MH203	MH303	24	1	1	830	FE217
MH108	MH208	MH308	24	2	1	830	FE219
MH104	MH204	MH304	30	1	1 ½	955	FE218
MH109	MH209	MH309	30	2	1 ½	955	FE220
MH105	MH205	MH305	36	1	1 ½	1,300	FE212
MH110	MH210	MH310	36	2	1 ½	1,300	FE221
MH106	MH206	MH306	48	2	1 ½	1,300	FE213
MH111	MH211	MH311	48	4	1 ½	1,300	FE222
MH107	MH207	MH307	60	2	1 ½	1,500	FE214
MH112	MH212	MH312	60	4	1 ½	1,500	FE223
MH113	MH213	MH313	72	2	1 ½	1,300	FE224
MH114	MH214	MH314	72	3	1 ½	1,300	FE225
MH115	MH215	MH315	90	3	1 ½	1,500	FE226
MH115	MH215	MH315	120	3	2	1,630	FE226

MH General Arrangement



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