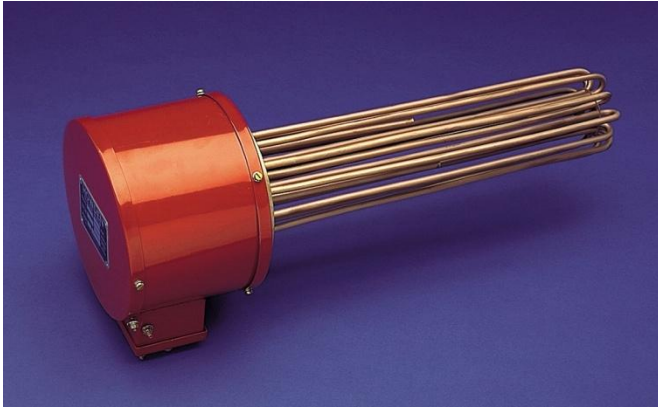


IMMERSION HEATERS

FE RANGE



FE RANGE APPLICATION

The FE range is primarily designed for heating water in cylinders and calorifiers in building service applications. The heaters can be fitted to calorifiers, hot water cylinders, water heaters, water tanks, buffer vessels, etc.

Immersion heaters are ideal as a backup or boost for heat pumps, other renewables or conventional boilers.

The range is fitted with metal sheathed, rod elements which are brazed to the flange. It is necessary to drain the vessel to inspect the elements. Individual elements cannot be replaced. For applications that require the elements to be replaceable please refer to our GE range.

This range features an industry standard flange which is equivalent to Santon "DQ" and Heatrae "1RB" heaters.

STANDARD RANGE

The standard FE range of immersion heaters is designed to heat water in building service applications. kW loadings between 6kW and 120kW are available in three phase configurations.

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.

All units are fitted with a control thermostat and an over-temperature manual reset thermostat which prevents the water from overheating.

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

SPECIALIST APPLICATIONS

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

For applications requiring higher temperatures or operating pressures or for heating oil, caustics or other liquids or chemical solutions, we recommend you refer to our GE and RE ranges of immersion heater.

MOUNTING

Heaters are suitable for horizontal flanged mounting, however, heaters for vertical mounting can be supplied. Please contact our Technical Department.

To avoid localised boiling or air locks, care should be taken to ensure the cold zone extends beyond any neck piece. Longer cold zones are available. Please contact our Technical Department.

The standard fixing flange is 168mm diameter to suit a 124mm clear bore. The flange has 8 - 9.5mm diameter bolt holes equispaced on a 146mm PCD, off-centre. Alternative flange dimensions are available. Please contact our Technical Department.

The heater is supplied with a WRAS approved EPDM gasket.

TEMPERATURE CONTROL

Our general recommendation for heaters above 6kW is that temperature control devices should be mounted away from the heater to avoid interference. Further guidance is given in the Technical Section of our website.

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.

OPERATING TEMPERATURE & PRESSURE

The FE 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.

For heaters with higher operating temperatures and pressures, please refer to our GE range.

VOLTAGE

Three phase heaters from our standard range 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.

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.

CONSTRUCTION

Immersion heaters are manufactured generally to BS7798.

Elements are brazed into the flange. Individual elements cannot be replaced. For elements that can be replaced please refer to our BF, GE and RE ranges.

The flange material on standard models is brass, however, mild steel and 316 stainless steel flanges can be supplied. Please contact our Technical Department.

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.

COMMON VARIATIONS

Please contact our Technical Department for further details.

- IP55 rated terminal enclosure.
- Various operating voltages in three phase star or delta.
- Heater loading can be stepped in up to 4 stages (circuits).
- Lower watts density elements and titanium elements for prolonged element life in particularly corrosive or hard waters.
- Alternative flange materials and fixing hole configurations.

STANDARD LIST NUMBERS

LIST No	kW LOAD @ 415V	No. OF CIRCUITS	COLD ZONE mm (in)	IMMERSED LENGTH mm(in)	ELEMENT BENDING
NICALLOY 825 ELEMENTS					
FE201	6	1	25 (1")	380 (15")	Double
FE202	9	1	25 (1")	380 (15")	Double
FE203	12	1	25 (1")	460 (18")	Double
FE215	12	1	100 (4")	560 (22")	Single
FE204	12	1	100 (4")	585 (23")	Double
FE205	18	1	25 (1")	460 (18")	Double
FE216	18	1	100 (4")	560 (22")	Single
FE206	18	1	100 (4")	585 (23")	Double
FE217	24	1	100 (4")	560 (22")	Single
FE219	24	2 Equal	100 (4")	560 (22")	Single
FE207	24	1	100 (4")	585 (23")	Double
FE208	24	1	100 (4")	760 (30")	Double
FE218	30	1	100 (4")	675 (27")	Single
FE220	30	2 Equal	100 (4")	675 (27")	Single
FE209	30	1	100 (4")	685 (27")	Double
FE210	30	1	100 (4")	915 (36")	Double
FE211	36	1	100 (4")	585 (23")	Double
FE212	36	1	100 (4")	1020 (40")	Single
FE221	36	2 Equal	100 (4")	915 (36")	Single
FE213	48	2 Equal	100 (4")	1020 (40")	Single
FE222	48	4 Equal	100 (4")	1020 (40")	Single
FE214	60	2 Equal	100 (4")	1220 (48")	Single
FE223	60	4 Equal	100 (4")	1220 (48")	Single
FE224	72	2 Equal	100 (4")	1020 (40")	Single
FE225	72	3 Equal	100 (4")	1020 (40")	Single
FE226	90	3 Equal	100 (4")	1220 (48")	Single
FE227	120	3 Equal	100 (4")	1350 (53")	Single

FE Range General Arrangement

