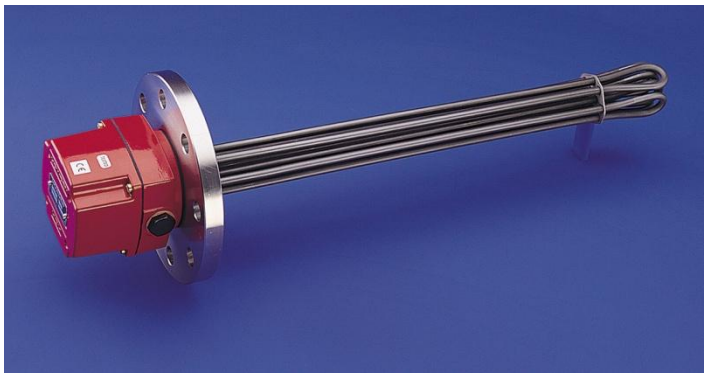
IMMERIONS HEATERS

WF RANGE



WF RANGE APPLICATION

The WF range of immersion heater is used to heat water in building service applications or heat water and other liquids in industrial, process, pharmaceutical and marine applications. The robust IP65 terminal enclosure makes the WF range an excellent choice for indoor or outdoor use. The heaters can be fitted to calorifiers, flow vessels, hot water cylinders, water heaters, water tanks, buffer vessels, etc.

Immersion heaters are ideal when fitted to calorifiers, buffer vessels or heat stores to be used as a backup or boost for heat pumps or conventional boilers.

Flanges are available to all common standards.

The metal sheathed rod elements are fixed to the flange. If an element were to fail, the entire heater requires to be replaced. For heaters with replaceable elements please refer to our GE and RE ranges.

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.

STANDARD RANGE

The standard WF range of immersion heaters is designed to heat water in building service, industrial and process applications.

kW loadings are available in single phase up to 6kW and three phase up to 24kW. The flange is 316 stainless steel supplied to BS EN 1092-1 (replaces BS 4504) PN16, 80 bore dimensions.

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 WF range can be specified with lower watts density elements or titanium elements. Please contact our Technical Department.

SPECIALIST APPLICATIONS

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

- Oil heating.
- Heating caustics (sodium hydroxide), acids and other chemicals.
- Anti-frost applications.

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 flange specification is to BS EN 1092-1 (replaces BS 4504) PN16, 80 bore and is manufactured from 316 stainless steel. Alternative flange specifications, pressure ratings and materials are available. Please contact our Technical Department.

The heater is supplied with a WRAS approved fibre 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^{o}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 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 16 Bar.

Models suitable for higher operating temperatures and pressures are available. 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 690V AC or DC. Please contact our Technical Department.

CONSTRUCTION

Immersion heaters are manufactured generally to BS7798.

Elements on standard models are brazed into the flange using silver solder. Individual elements cannot be replaced. Please refer to our GE and RE ranges for elements that can be replaced. Alternatively elements can be fitted using compression glands without silver solder being used.

The flange material on the standard range is 316 stainless steel. Alternative flange materials are available e.g. mild steel, brass.

The terminal enclosure is painted cast aluminium, impact-resistant and rated to IP66 with two conduit entries (M20 and M25).

COMMON VARIATIONS

Please contact our Technical Department for further details.

- Various operating voltages in single or three phase star or delta.
- Alternative fixing flanges, e.g. ANSI, DIN, etc.
- Flanges material in mild steel or brass.
- Alternative element sheath materials such as copper and titanium.
- Lower watts density elements for prolonged element life in particularly corrosive or hard waters, or for use with oils, caustics, acids or other chemical solutions.
- Polished elements for catering and food applications
- Compression fitted elements to avoid the use of silver solder. Compression fittings can be brass, stainless steel 316, etc.
- Longer cold zones.
- Vertical mounting heaters.
- Alternative thermostat ranges or PT100 (RTD) or thermocouple sensors.
- Low water level indication thermostat.
- Higher operating temperatures. The terminal enclosure can be stood off to allow for higher operating temperatures.

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STANDARD LIST NUMBERS

LIST No	kW LOAD @ 240/415V	No. OF PHASES	IMMERSED LENGTH mm (in)	COLD ZONE mm
WF101	1	1	350 (14")	100
WF102	2	1	350 (14")	100
WF103	3	1 or 3	350 (14")	100
WF104	4.5	1 or 3	380 (15")	25
WF105	6	1 or 3	420 (17")	100
WF106	6	1 or 3	760 (30")	100
WF107	7.5	3	380 (15")	100
WF108	7.5	3	670 (26")	100
WF109	9	3	495 (20")	100
WF110	9	3	885 (35")	100
WF111	12	3	550 (22")	100
WF112	12	3	1000 (39")	100
WF113	15	3	645 (25")	100
WF114	15	3	1190 (47")	100
WF115	18	3	885 (35")	100
WF116	24	3	1000 (39")	100

WF Range General Arrangement