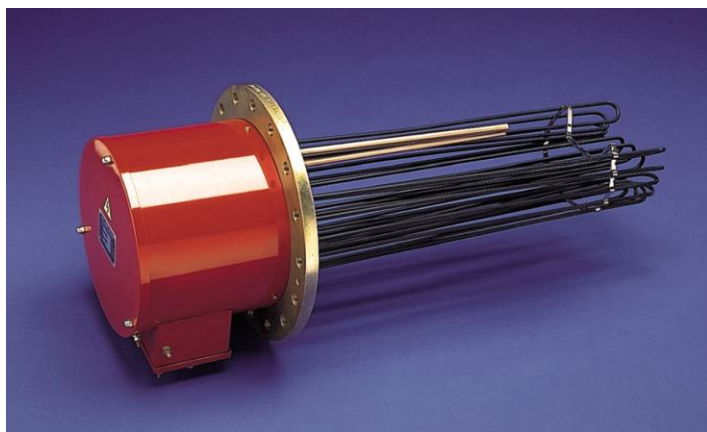


# IMMERSION HEATERS

## GE RANGE



### GE RANGE APPLICATION

The GE range of immersion heater is designed to heat water in building service applications or heat water and other liquids in industrial, process, pharmaceutical and marine applications. The heaters can be fitted to calorifiers, flow vessels, 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 bolted to the element plate by means of a special gland. This allows the elements to be inspected or replaced once the vessel has been drained and the heater battery removed. Where the application requires the elements to be replaced without draining the vessel, please refer to our RE range.

### STANDARD RANGE

The standard GE range of immersion heaters is designed to heat water in building service, industrial and process applications. kW loadings between 12kW and 1000kW are available in three phase star or delta configurations.

The Nicalloy 825 elements have an average watts density of 9W/cm<sup>2</sup> (60W/in<sup>2</sup>), 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 GE 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. Please contact our Technical Department.

A choice of IP41 or IP65 rated terminal enclosures are available constructed from mild steel with a painted finish.

### SPECIALIST APPLICATIONS

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

### 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) PN6. Alternative flange specifications and pressure ratings 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°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.

Alternatively, the heater can be operated through a single thermostat or temperature sensor such as a PT100 (RTD) or thermocouple by means of a multi-stage controller.

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

Standard models have 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.

Models suitable for higher operating temperatures and pressures are available. Please contact our Technical Department.

### 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.

### CONSTRUCTION

Immersion heaters are manufactured generally to BS7798.

Elements are brazed into special brass glands using silver solder and the assembly is bolted to the element plate. Individual elements can therefore be replaced once the vessel has been drained and the heater removed. Alternatively elements can be fitted using compression glands without silver solder being used.

The flange material on standard models is 316L stainless steel, however, other material can be supplied such as brass, mild steel or brass faced mild steel. Brass faced mild steel delivers the economy of a mild steel flange but with all wetted surfaces being brass.

The standard terminal enclosures offered are rated to either IP41 or IP65 and are 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.

Stainless Steel or other enclosure specifications can be supplied on request. Please contact our Technical Department.

### COMMON VARIATIONS

Please contact our Technical Department for further details.

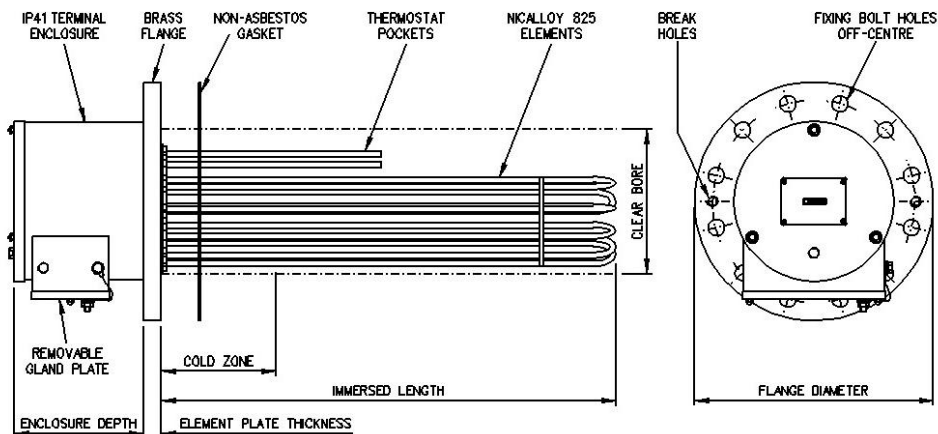
- Various operating voltages in three phase star or delta.
- Alternative circuit configurations.
- Alternative flange standards, e.g. ANSI, JIS, etc.
- Alternative flange material, e.g. mild steel, brass faced mild steel.
- Higher operating pressures.
- Higher operating temperatures. The terminal enclosure can be stood off to allow for higher operating temperatures.
- Alternative element sheath materials, e.g. copper, titanium.
- Alternative thermostat ranges or PT100 (RTD) or thermocouple sensors.
- 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.
- Baffles can be fitted for flow heater applications.
- Low water level indication thermostat.
- Longer cold zones.
- Vertical mounting heaters.
- Compression fitted element glands to avoid silver solder. Compression fittings can be brass, stainless steel 316, etc.
- A terminal rail can be supplied to ease wiring (IP65 terminal enclosures only).
- Stainless steel 304 or 316 enclosures.
- Anti-condensation heater fitted inside the enclosure.

### STANDARD LIST NUMBERS

LIST No		SUPPLY		DIMENSIONS		ENCLOSURE DETAILS		FLANGE DETAILS to BS EN 1092-1 PN6				
IP41 ENCLOSURE	IP65 ENCLOSURE	KW LOAD @ 415V	No. OF CIRCUITS*	COLD ZONE mm	IMMERSED LENGTH* mm	IP41 Diameter x Depth mm	IP65 H x W x D mm	NOMINAL BORE	FLANGE DIA.	No. OF BOLT HOLES	DIA. OF BOLT HOLES	PCD OF BOLT HOLES
GE201	GE301	15	1 @ 15	100	660	168 Dia x 150	220 x 220 x 100	150	265	8	18	225
GE202	GE302	18	1 @ 18	100	870	168 Dia x 150	220 x 220 x 100	150	265	8	18	225
GE203	GE303	24	1 @ 24	100	980	168 Dia x 150	220 x 220 x 100	150	265	8	18	225
GE204	GE304	30	2 @ 15	250	1400	168 Dia x 150	220 x 220 x 100	150	265	8	18	225
GE205	GE305	45	1 @ 30 / 1 @ 15	250	1400	222 Dia x 180	400 x 300 x 210	200	320	8	18	280
GE206	GE306	60	2 @ 30	250	1400	222 Dia x 180	400 x 300 x 210	200	320	8	18	280
GE207	GE307	75	2 @ 30 / 1 @ 15	250	1400	292 Dia x 255	500 x 400 x 210	250	375	12	18	335
GE208	GE308	90	3 @ 30	250	1400	292 Dia x 255	500 x 400 x 210	250	375	12	18	335
GE209	GE309	105	3 @ 30 / 1 @ 15	250	1400	292 Dia x 255	500 x 400 x 210	250	375	12	18	335
GE210	GE310	120	4 @ 30	250	1400	330 Dia x 255	500 x 400 x 210	300	440	12	22	395
GE211	GE311	150	5 @ 30	250	1400	330 Dia x 255	500 x 400 x 210	300	440	12	22	395
GE212	GE312	180	6 @ 30	250	1400	392 Dia x 350	600 x 500 x 210	350	490	12	22	445
GE213	GE313	210	7 @ 30	250	1400	392 Dia x 350	600 x 500 x 210	350	490	12	22	445
GE214	GE314	240	8 @ 30	250	1400	417 Dia x 350	600 x 500 x 210	400	540	16	22	495
GE215	GE315	300	10 @ 30	250	1400	482 Dia x 350	800 x 600 x 210	450	595	16	22	550
GE216	GE316	360	8 @ 45	250	1400	482 Dia x 350	800 x 600 x 210	450	595	16	22	550
GE217	GE317	450	10 @ 45	250	1400	Not Available	800 x 600 x 210	500	645	20	22	600

\* Alternative immersed lengths & circuit configurations can be supplied.

#### GE Range General Arrangement with IP41 Terminal Enclosure



#### GE Range General Arrangement with IP65 Terminal Enclosure

