HCS Heaters Controls & Sensors Ltd

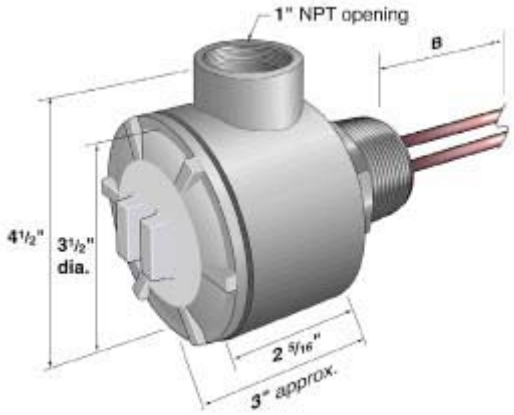
Explosion Resistant (NEMA 7) Heaters Have The Suffix ER
Moisture Resistant (Class 4, NEMA 4) Heaters Have The Suffix MR

Our terminal boxes for Explosion Resistant (ER) and Moisture Resistant (MR) environments are a similar construction and appearance. The ER boxes undergo an additional hydrostatic test to ensure they maintain the strength requirements for Hazardous Locations. All our ER boxes meet the MR specifications

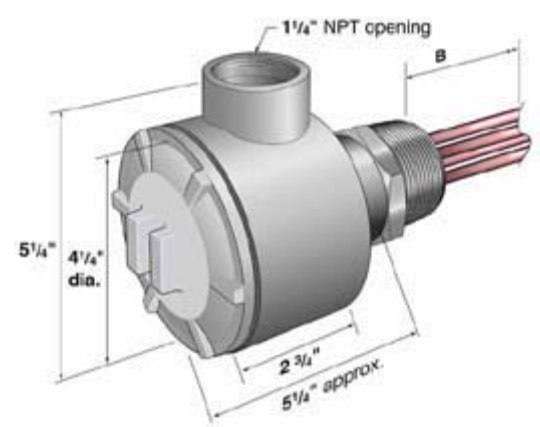
To distinguish the different approved heaters we use the suffix ER or MR.
For example:

1. SP2B12E3TSEXPMR is a Hazardous Location design meeting the CSA Hazardous Location and NEMA 7 approval. It also meets the Class 4 and NEMA 4 designation.

2. SP2B12E3TSEXP is a moisture resistant design meeting the Class 4 and NEMA 4 designation. Epoxy coating is also available.



2" & 2 1/2" NPT
(NEMA 4 and/or NEMA 7)



2" & 2 1/2 Built-In Thermostat SPST
(NEMA 4 and/or NEMA 7)

Screw Plug Immersion Heater - Features:

- National pipe thread (NPT) screw into a mating fitting in your tank
- Kilowatt range from low to medium (100 watts to 30 kw)
- Easy to install into your tank
- 1" to 2 ½" NPT available
- Metric and custom screw plugs can be made to match existing tank connections
- General purpose terminal enclosure (NEMA 1), weather resistant terminal enclosure (NEMA 4), and hazardous location terminal enclosure (NEMA 7), available
- Thermocouples, thermostats, and high limit controls can be built-in

Most Common Screw Plugs:

Brass, mild steel or 316 series stainless steel

Other materials available 1", 1 ¼", 1 ½", 2', and 2 ½" NPT are most common Sizes
Other sizes or metric and British thread sizes can be made

Most Common Sheath Material:

- Copper Steel Stainless Steel
- Incoloy 800® & Incoloy 840® Inconel 600®
- Titanium Other Sheath Material Also Offered

Most Common Terminal Enclosures

- General Purpose NEMA1 Weather Resistant NEMA 4, NEMA 4X, class 4
- Hazardous Location NEMA 7

Most Common Sheath Materials, Application, and Watt Densities

Sheath Material	Application	Watt Density Watt.in^2
Copper	To heat potable water	40-72
Steel	Oil	20-25
	Hydraulic oil	12-15
Stainless Steel	Process water, mild acid, de-ionized water	20-60
Incoloy 800®	Water, mild alkaline solutions, air and gases maximum sheath temperature 1400ºF	10-125
Incoloy 600®	Water, very alkaline solutions, high temperature air and gases Maximum sheath temperature 1500ºF	10-50

Built In Thermocouple Options:

K thermocouple for high limit protection "J" thermocouple for temperature control

Built In Thermostats:

Power Ratings

- Up to 240 volts, 25-amp single pole, single throw (SPST)
- Up to 240 volts, 25-amp double pole, single throw (DPST)
- Up to 600 volts, 15-amp triple pole, single throw (TPST)

Temperature Ranges -16 to 40°C (0-100°F) 10 to 120°C (50-250°F) 70 to 280°C (160-540°F) 160 to 370°C (320-700°F)

www.hcs77.com Tel # (519) 686 2715 Fax # (519) 686 8159

Flanged Immersion Heaters

Flanged Immersion Heaters are used in large capacity vessels, for high temperature and pressure applications.

Flanged Immersion Heaters are installed by bolting the unit to a matching flange welded to the vessel. Watt densities from 90 Watts/sq inch, Explosion Proof (NEMA 7), Corrosion Resistant (NEMA 4X), General Purpose and Standoff Terminal housings are available. A number of sheath materials like Titanium, Incoloy, Stainless Steel, Steel, and Copper can be used as required for specific applications.

Standard Flanged Immersion Heaters have a 150 lbs flanges but 300 lbs flanges are also available. To guarantee sheath material and watt density compatibility with material or process being heated consult HCS.

Flanged Immersion Heaters Feature

- High watt densities, wattage's in smaller areas
- Passivated 316 stainless steel option
- Sheath temperatures to 1200ºF
- Low watt densities possible for delicate applications
- ANSI flanges from 2" to 24"
- High pressure flanges 300 lbs
- Applications solids, liquids, gases.

Flanged Immersion Heaters Specifications / Options

Voltages. . . . . .120 to 600 Volts Single or Three Phase
Wattage's. . . . . Varied from 150 watts to 1 Megawatt
Sheath Materials. . . . . Titanium, Monel, Incoloy, 316/304 Stainless, Steel Copper, Carbon Steel
Max Temperatures. . . . . Incoloy 1600 degrees F (870 C)
304 / 316 Stainless Steel 1200 degrees F (650)
Steel 750 degrees F (400 C)
Copper 350 degree F (175 C)
Flanges. . . . . ANSI or ASA 2, 21 /2, 3 4, 5, 6, 8,10,12,14, 16,18, 20, 24, or over 24 consult HCS
Pressure Rating. . . . . 150, 300 or 600 Ibs
Flange Materials. . . . . .Standard Carbon Steel or 316/304 Stainless
Gaskets. . . . . Rubber, Asbestos Free, or Spiral wound
Terminal Enclosures. . . . . General Purpose (NEMA 1), Moisture Resistant (NEMA 4), Corrosion Resistant (NEMA 4X), Explosion Resistant (NEMA 7), Explosion Moisture Resistant (NEMA 7/4)
Temperature control. . . . . .Thermocouple, RTD, or Thermostat
High Limit. . . . . High Limit Thermocouple, Hi Limit Tstat,
Approvals. . . . . ..CSA, UL
Certification. . . . . .ASME, CRR

HCS ***Heaters Controls & Sensors Ltd*** **HCS**

60- Meg Dr Unit 13

London Ont N6E 3T6Ph (519) 686 2715 Fax (519) 686 8159

SCREW PLUG HEATERS

Screw Plug Immersion Heaters are ideal for immersion min liquids, where space and connections are a problem. These Heaters are installed in medium to small size containers at pressures up to 3000 PSI. Watt densities from 90 Watts/sq. inch, Explosion Proof (NEMA 7), Corrosion Resistant (NEMA 4X), and General Purpose Terminal housings are available.
A number of sheath materials like Titanium, Incoloy, Stainless Steel, Steel, and Copper can be used as required for specific applications. To guarantee sheath material and watt density compatibility with material or process being heated consult HCS.

High watt densities, wattage's in smaller areas
Passivated 316 Stainless Steel option
Sheath temperatures to 1200ºF
Low watt densities possible for delicate applications
NPT sizes from 1 " to 21 /2"
Applications solids, liquids, gases.

Heaters Specifications / Options:

Voltages. . . . . 120 to 600 Volts Single or Three Phase
Wattage's. . . . . Varied from 150 watts to 50 Kilowatts
Sheath Materials. . . . . .Titanium, Monel, Incoloy, 316/304 Stainless, Steel Copper, Carbon Steel
Max Temperatures. . . . . Incoloy 1600 degrees F (870 C)
Screw Plug Sizes NPT. . . . . 1 ",1 1 /4", 2", and 21 /2" BSP sizes call HCS
Terminal Enclosures. . . . . .General Purpose (NEMA 1), Moisture Resistant (NEMA 4), Corrosion Resistant (NEMA 4X), Explosion Resistant (NEMA 7), Explosion Moisture Resistant (NEMA 7/4)
Temperature control. . . . . Thermocouple, RTD, or Thermostat
High Limit. . . . . .High Limit Thermocouple, Hi Limit Tstat,
Approvals CSA, UL Certification. . . . . ASME, CRR

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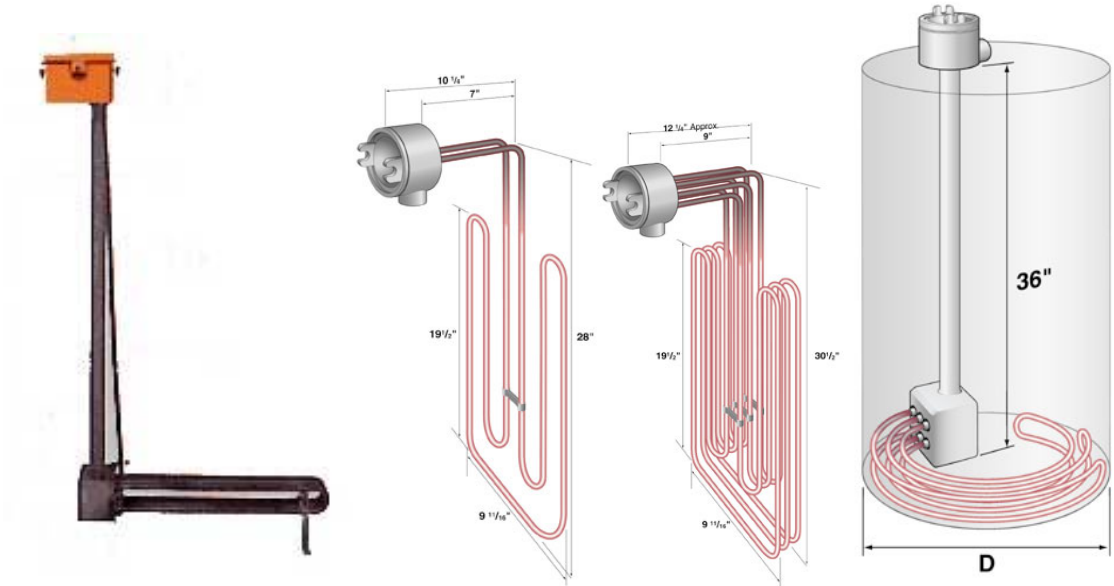

Features:

Portable and easily removable

Lightweight in construction

Variety of shapes available "Z" "O" "L" inverted "T" "M"

Immersed along the side or the bottom of tank

Self contained with built in thermostat or temperature sensors

NEMA 4/4X enclosures for moisture protection

Sheath materials for corrosive liquids, acids, caustic etc.

Over-the Side Immersion Heater elements are designed for installation from the top of tanks where through-the-wall heaters cannot be installed. These Heaters are available in many configurations, with partially unheated sections, thermostats, wash down or corrosion resistant enclosures. Available with various sheath materials like 316 SS, Titanium, Copper, Steel, Incolloy, Teflon Coated or Quartz for acids. Can be made in various shapes and sizes and are normally designed for particular applications, however certain sizes are also available from stock.

Specifications Design Capabilities:

Voltages. . . . . 120, 208, 240, 377, 480, 575, 600 volts

Phase. . . . . Single and three phase

Enclosures. . . . . NEMA 12, NEMA 4, NEMA 4X, NEMA 7,

Wattage's. . . . . .1 to 150 Kilowatts

Watt Densities. . . . . 7 to 60 watts/inch

Passivation. . . . . .Provided for critical applications

Sludge Legs. . . . . Available 4" normal height

Sensors. . . . . .Thermostats, RTD's, Thermocouples

Hi Limit. . . . . Thermocouple, Bulb & capillary

Multiple circuits. . . . . .Possible with certain designs

Materials. . . . . .Copper, Incoloy, 304/316 Stainless,

Titanium Teflon Coated, Steel

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