

## Compact Unit Gives Versatility in Designing a Heating System

FIREROD® immersion heaters package up to 300 W/in<sup>2</sup> (46.5 W/cm<sup>2</sup>) in a compact unit, giving you greater versatility in designing your heating system. This design solution is ideal for replacing large screw-plug immersion heaters.

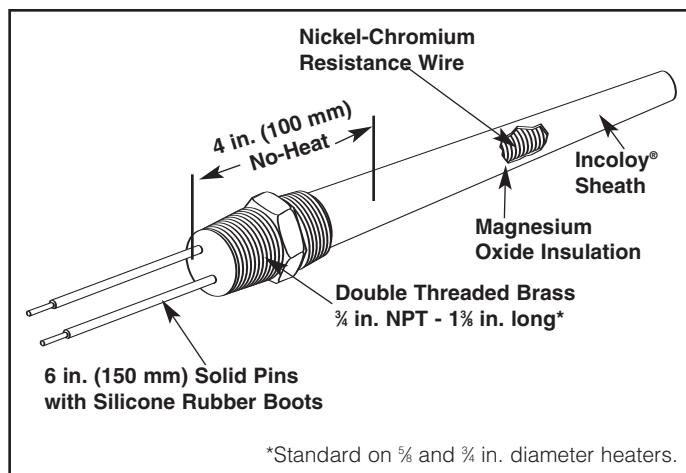
Aside from its versatile design, these heaters come complete with a brass ¾ (19 mm) NPT double threaded screw plug, which allows you to add conduit boxes. Also, FIREROD immersion heaters are sealed at the lead end with a silicone rubber seal. Solid copper leads, with silicone rubber sleeve, are provided for unconfined wiring. These units are recommended for immersion in water or 90+ percent water soluble solutions.

### Performance Capabilities

- Maximum operating temperature in water to 100°C (212°F) at 14.7 psi
- Maximum watt density to 300 W/in<sup>2</sup> (46.5 W/cm<sup>2</sup>)
- Maximum voltage to 480V~(ac)

### Applications

- Plastic reclamation
- Food preparation
- Lab equipment



Incoloy is a registered trademark of Special Metals Corporation.



### Features and Benefits

#### Nickel-chromium resistance wire

- Precisely centered in the unit assures even, efficient distribution of heat to the sheath

#### Magnesium oxide insulation

- Compacted to the proper density, results in high dielectric strength and contributes to faster heat-up

#### Incoloy® sheath

- Resists corrosion from water

#### Metallurgically-bonded conductor pins

- Ensures a trouble-free electrical continuity

#### Lead end with silicone rubber seal

- Protects the heater against moisture contamination

#### Optional stainless steel fittings

- Available for use in corrosive applications

#### Horizontal through the wall tank mounting

- Makes setup faster

#### 240 and 480V~(ac)

- Provides wiring flexibility

#### Stock availability

- Same day shipment on various ½ in. diameter heaters with ¾ in. NPT



## WATLOW

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STL-FRI-0505

The small size and big capacity of FIREROD cartridge heating units make them ideal immersion heaters in cramped quarters. When heating liquids of low viscosity, FIRERODs have the high watt density to pack more heat into tight spots. For water heating applications a rating of 150 to 300 W/in<sup>2</sup> is recommended. (Laboratory test show that under certain conditions ratings as high as 700 W/in<sup>2</sup> are safe.) For longer life at high watt densities:

- The FIREROD unit should be in the main body of the liquid and not in a restricted space.
- The FIREROD heater should be covered with liquids at **all** times.
- The heater should not be allowed to cycle on and off too frequently.
- Scale should not be allowed to form on the sheath.

When heating viscous liquids, such as oils, watt densities must be kept low to prevent carbonization at the heater sheath. FIREROD cartridges offer advantages for heating viscous materials where long life and high quality outweigh the usual economic considerations. As in all immersion applications, scale build-up on the sheath and sludge on the bottom of the tank must be carefully controlled to assure long heater life.

Equipped with smaller threaded fittings than conventional immersion heaters, FIRERODs leave room for more units in the same space. Replacement of single FIREROD units in multiheater assemblies is fast and easy and avoids discarding the complete assembly.

Moisture resistant seals are available to give protection from damp atmospheres outside the tank.

Built for sustained operation at high temperatures, the FIREROD is especially valuable in heat-transfer applications with liquid metals. This factor alone has made the FIREROD heater a widely used component in the development of nuclear power systems.

Threaded fittings are furnished in either stainless steel or brass. FIRERODs with Incoloy® or 304 stainless steel sheaths are standard but other sheath materials can be provided. Headers and sheath material should be suited to the material being heated.

## Ordering Information

**To order stock FIREROD immersion heaters, specify Watlow code number (from Watlow Heater's catalog) and quantity.**

For **made-to-order** units, please specify:

- Diameter
- Overall length
- Immersed length
- Heated length
- Watts
- Volts
- Threaded fitting material and size

## Availability

**Stock:** Same day shipment

**Made-to-Order:** Consult Watlow

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To be automatically connected to the nearest North American Technical and Sales Office call:

# 1-800-WATLOW2

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