Miniature FIREROD® Provides Maximum Performance Where Space is Limited

When an application requires heat delivered into a small space with minimum weight, the 1/8-inch diameter FIREROD® cartridge heater from Watlow® is the ideal solution. This swaged constructed miniature cartridge heater features high watt density, high operating temperature capability and provides long life in applications where it is essential to have a very small size.

Like all Watlow FIRERODs, the 1/8-inch maximizes heat transfer utilizing resistance wiring close to the heater sheath, isolated by a thin layer of compacted MgO insulation.

For this and other Watlow heaters, customers can also specify lead length and choose from a variety of lead options. Leads can be insulated with fiberglass or PTFE or protected by stainless steel braid or hose.

Watlow’s 1/8-inch FIRERODs also have an option many others lack: the ability to have an internal J or K-type thermocouple located near the tip of the heater.

**Typical Applications**
- Burn-in chip test system
- Mass spectrometry
- High-definition ink jet printers
- 3D printing, fused deposition modeling
- Gas chromatography
- Respiratory equipment
- Gas analyzers
- Freeze protection
- Packaging equipment

**Features and Benefits**

**Miniature size**
- Delivers high performance in a small package
- Supports a wide variety of application requirements

**Low mass**
- Provides quicker response time
- Increases heater life
- Lowers internal temperature

**Swaged construction**
- Provides higher watt density and higher temperature capabilities
- Allows maximum heat transfer
- Increases safety due to low leakage current

**Optional internal thermocouple**
- Reduces system footprint
- Measures temperature at point of application

**Manufactured to the highest quality standards**
- Outlasts competitors in life testing
- Backed by over 50 years of industry expertise

**Numerous lead options available**
- Designed for flexibility and performance
Specifications

Sheath
- Alloy 600 is standard
- 304 stainless steel is available

Maximum application temperature
- 1400°F (760°C)

Maximum voltage
- 240V

Maximum wattage at 240V
- 744 W

Maximum amperage
- 3.1 amp

Wattage tolerances
- +10 percent, -15 percent

Dimensions
- Actual diameter is 0.122 in. (3.10 mm) ± 0.002 in. (0.05 mm)
- Minimum overall length is 0.875 in. (22.22 mm)
(Minimum length may change based on lead construction, volts and watts, please consult factory.)
- Maximum overall length is 12 in. (304.8 mm)
- Length tolerance 3.5 in. (89 mm) and less ± 1/32 in. (2.4 mm)
- Length tolerance greater than 3.5 in. (89 mm) ± 3 percent

Construction
- Solid lead wire is standard, but stranded is available
- Lead options (see illustrations):
  - Crimped-on
  - Swaged-in
- Lead types are:
  - Fiberglass 482°F (250°C)
  - High temperature fiberglass 842°F (450°C)
  - PTFE 392°F (200°C)
- Moisture resistant option: Welded end-disk is standard with PTFE seal and leads available
- Internal thermocouple available
  - Thermocouple embedded in the end-disc “C” location
  - Thermocouple junction is grounded
  - Type J or K available (solid lead wire)
  - Swaged-in, fiberglass 482°F (250°C)
  - Swaged-in PTFE 392°F (200°C)
- For available lengths, consult factory
- Lead protection options
  - Stainless steel braid crimped over lead end
  - Stainless steel flexible hose crimped over lead end
- Other options
  - Bent heaters, in no-heat section, up to 90° angle
  - One inch diameter mounting flange (FS flange)

Average Hours of Operation During Stress Test Failure

<table>
<thead>
<tr>
<th></th>
<th>Watlow 1/8&quot; FIREROD Cartridge Heater</th>
<th>Competitor #1 1/8&quot; Cartridge Heater</th>
<th>Competitor #2 1/8&quot; Cartridge Heater</th>
<th>Competitor #3 1/8&quot; Split-Sheath Heater</th>
<th>Competitor #4 1/8&quot; Mini Coil Heater</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lead Options

- Insulated Flexible Leads
  - Swaged-In Leads
  - Silicone Fiberglass Sleeve Secured In The Lead End Over Solid Conductor Pins
- Crimped-On Leads
  - Silicone Fiberglass Sleeve Covering Crimp For Insulated Flexible Leads
- Insulated Flexible Leads

Internal Construction

- End Piece
- Compacted MgO Insulation
- Pins
- Sheath
- Thermocouple Junction
- Resistance Wire
- No-Heat Section
- Lead Wires

Watlow® and FIREROD® are registered trademarks of Watlow Electric Manufacturing Company.

To be automatically connected to the nearest North American Technical Sales Office: 1-800-WATLOW2 • www.watlow.com inquiry@watlow.com

International Technical Sales Offices:

<table>
<thead>
<tr>
<th>Country</th>
<th>Phone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>+86 21 3532 8532</td>
</tr>
<tr>
<td>France</td>
<td>+33 1 41 32 79 70</td>
</tr>
<tr>
<td>Germany</td>
<td>+49 7253 9400 0</td>
</tr>
<tr>
<td>India</td>
<td>+91 40 6661 2700</td>
</tr>
<tr>
<td>Italy</td>
<td>+39 02 4588841</td>
</tr>
<tr>
<td>Japan</td>
<td>+81 3 3518 6630</td>
</tr>
<tr>
<td>Korea</td>
<td>+82 2 2169 2600</td>
</tr>
<tr>
<td>Mexico</td>
<td>+52 442 256 2200</td>
</tr>
<tr>
<td>Singapore</td>
<td>+65 6773 9488</td>
</tr>
<tr>
<td>Spain</td>
<td>+34 91 675 1292</td>
</tr>
<tr>
<td>Taiwan</td>
<td>+886 7 288 5168</td>
</tr>
<tr>
<td>UK</td>
<td>+44 115 964 0777</td>
</tr>
</tbody>
</table>

©2016 Watlow Electric Manufacturing Company all rights reserved.

Powered by Possibility