Tempco-Pak Cable Heaters

The densely compacted MgO insulation used in Tempco-Pak heaters produces excellent high temperature insulation resistance and dielectric strength. Heaters can be manufactured with the optional cold nickel leads internally spliced to the heating element wires within the same continuous sheath.

Generally speaking, there is very little temperature difference between the sheath and heater wires. Tempco recommends not exceeding 150 watts per square inch of sheath surface area with the sheath operating temperature at 1000°F (537°C) or less. As temperature increases above 1000°F, the maximum watt density should be decreased.

**Heater length tolerance:**

<table>
<thead>
<tr>
<th>Dimensional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater cable diameters:</td>
</tr>
<tr>
<td>Cable diameter tolerance:</td>
</tr>
<tr>
<td>Heater length tolerance:</td>
</tr>
</tbody>
</table>

**Performance Ratings**

- **Watt Density:** 75 watts per square inch of sheath area maximum with factory approval
- **Maximum temperature:** 1500°F (815°C) for 304 stainless steel sheath
  1800°F (982°C) for Inconel® 600 sheath

**Specifications**

**Electrical**

- **Resistance:** ±10% unless otherwise specified
- **Voltage:** 120V and 240V standard
- **Thermocouples:** ANSI Type J to 1500°F (815°C) Type K to 1800°F (982°C)

All thermocouples and their junctions are internal to the heater sheath. A grounded junction at the heater tip is standard. An ungrounded junction anywhere along the heater’s length is optional. Available in sheath diameters .125" and larger.

**Transition (potting) adapters:** 5/16" O.D. x 1-1/2" long for heater cable 0.163" diameter and smaller. 1/2" O.D. x 1-1/2" long for heater cable diameters above 0.163".

**Transition Temperature Rating:** Standard transition is rated to 482°F (250°C).

Optional High Temperature Transition is rated to 842°F (450°C).

Standard lead wire insulation is TGGT (Teflon®, double fiberglass, Teflon® impregnation), which is rated to 482°F (250°C).

Optional high temperature insulation is MGT (mica, fiberglass, Teflon® impregnation) which is rated to 842°F (450°C).

**Thermocouple:** Standard leads use a fiberglass insulation rated to 900°F (482°C). Teflon® insulation is available upon request.

**Optional lead protection:** Stainless steel overbraid or galvanized armor cable.

**Ordering Information**

**Standard Heaters**

Order by Part Number for standard heaters listed in Tables on pages 5-21 through 5-23.

Part Numbers are for heaters with standard lead length of 24" unless otherwise specified. Longer lead length as well as stainless steel wire braid protection or armored cable protection are available upon request. Heaters under 72" (1829 mm) will be shipped straight; longer heaters will be shipped in coils a minimum of 24" (610 mm) in diameter.

**Custom Engineered/Manufactured Heaters**

For sizes, ratings and terminations not listed, TEMPCO will design and manufacture a Tempco-Pak heater to meet your requirements. **Standard lead time is 3-4 weeks.**

**Please Specify** the following:

- Wattage and Voltage
- Sheath Diameter
- Heater length
- Sheath material — 304 stainless steel or Inconel® 600
- Length of internal nickel cold, or if a neck down design, length of cold section. See page 5-5.
- Thermocouple if required — Type J or K
- Thermocouple Junction— Grounded or Ungrounded. If ungrounded, specify location (.115" and larger).
- Transition type: M1, M2, M3, A1, A2, A3, B1, B2, B3, C1, C2, C3, S1, S2 or S3. See page 5-5.
- Lead length if other than 24".
- Supply a sketch or drawing.

**Warnings**

**WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

(800) 323-6859 • Email: sales@tempco.com

5-19