Installation Recommendations

1. Sliding mounting bolts (1-3/4" long, 3/8-16 thread) slide along the length of the aluminum housing for mounting the heater to common structural framing materials, creating multiple heater installations accommodating flat, rectangular, polygonal, cylindrical or any other shape arrays. **Minimum distance of 3-3/4" on center for heaters mounted side-by-side. Do not exceed 42" between sliding mounting bolts.**

2. To reduce heat losses, heat deflector shields up to 14 gauge thick are recommended between heaters. Fiber insulation can also be placed behind the heater housing.

3. In applications where water or solvents are being evaporated, proper ventilation is required to expel vapors or fumes.

4. Standard NEMA 1 electrical enclosures located at opposite ends of the heater housing with standard 7/8" diameter knockouts and a 1/2" NPT conduit threaded opening out the top of the housing facilitate single or double end wiring. Heaters with NEMA 3-4 boxes have dual 1/2" trade size hubs oriented 90° to each other. Openings accept standard electrical fittings.

5. Hold the tubular heater terminal tabs with pliers when tightening the screws to ensure secure electrical connections. Use only high temperature hook-up lead wire and nickel-plated steel or monel lugs — Available from Tempco; see page 7-23 and Section 15.

**Notes:**

Electrical wiring should be done by a qualified electrician with full knowledge of the installation and in accordance with local codes and the National Electrical Code.

High temperature hook-up wire and terminal lugs are available from stock. See page 7-23 and Section 15.

---

**TRH1 (page 7-76) Standard Double-End Wiring**

**NOTE:** Allow for element movement when wiring inside this end.

Attach properly rated line input wires to both element ends using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.

Attach properly rated line input wires to both element ends using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.

---

**TRH1 (page 7-76) Optional Single End-Wiring**

**CAUTION:** Do not cut or connect to this wire inside TRH housing. For connection to field wiring within external junction box only.

Wireway conductor extends 12" from unit.

**NOTE:** To convert optional single-end wiring to standard double-end wiring, remove high temperature wire from wireway; cut into two pieces. Strip 1/4" insulation off one end of cut-off piece and reconnect end with ring terminal to one element end; crimp 2nd wire into ring at opposite end.

---

**Wiring Hints –** Wire selection depends on the requirements of the installation.

**Wire Temperature Rating** for inside the heater housing should be 482°F (250°C) or higher depending on the installation.

**Voltage Rating** should be equal to the operating voltage of the installation.

**Wire Conductors** should be nickel, nickel plated copper or nickel clad copper.

**Do not use silver plated or unplated copper wire conductors.**

**Amperage Rating** (wire gauge) should be 12 gauge for units drawing over 20 Amps of current. Use 14 gauge for units drawing under 20 Amps of current.

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**Maintenance**

1. **Never perform any type of service prior to disconnecting all electrical power to the heater installation.**

2. To maintain reflector efficiency, clean periodically with mild soap and water. Do not use alkali or other strong cleaners. They will dull the aluminum reflector finish.

3. **Replacement of elements, support brackets and reflectors.**
   - (A) Remove terminal enclosure covers.
   - (B) Disconnect power wires from element terminals.
   - (C) Snap out support brackets.
   - (D) Remove elements and old reflectors from front of unit.

   When replacing elements, reflectors should be replaced. Install new reflectors by snapping edges into housing grooves and reassemble other parts in reverse order.

   Replacement parts are available from stock; see pages 7-86 and 7-87.

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**View Product Inventory @ www.tempco.com**
**Universal 2000 TRH Wiring Options**

**TRH2 (page 7-77) Standard Double-End Wiring**

Attach properly rated line input wires to both element ends using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.

**TRH2 (page 7-77) Optional Single-End Wiring**

Single return wire rated for 450°C; 600V is supplied in internal wireway for line input at ground lug end. Wireway conductor extends 12’ from unit. External wiring connection in remote junction box in area not exceeding 300°F (for copper wire) wire.

**TRH2 (page 7-77) Multiple Heat/Dual Voltage Wiring**

Attach properly rated line input wires to the end of the dual element assembly using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.

**TABLE 1**

<table>
<thead>
<tr>
<th>Heat Range</th>
<th>Line Input Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Heat</td>
<td>L1 to L2A &amp; L2B in parallel</td>
</tr>
<tr>
<td>Medium Heat</td>
<td>L1 to L2A or L2B only</td>
</tr>
<tr>
<td>Low Heat</td>
<td>L2A to L2B (L1 not used)</td>
</tr>
</tbody>
</table>

**TABLE 2**

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>Line Input Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (480 or 240V)</td>
<td>L2A to L2B (L1 not used)</td>
</tr>
<tr>
<td>Low (240 or 120V)</td>
<td>L1 to L2A &amp; L2B in parallel</td>
</tr>
</tbody>
</table>

**DANGER: Fire Hazard.** Radiant Process Heaters with NEMA 1 electrical housings are not to be used in applications where flammable vapors, gases or liquids are present as defined in the National Electrical Code.

Do not mount the heater closer than 6 inches to any structural or surrounding material that does not have a minimum temperature rating of continuous operation at 395°F (200°C).

Proper ventilation is required to expel vapors or fumes away from the process and personnel.
Universal 2000 TRH Wiring Options

TRH3 (page 7-78) and TRH5 (page 7-80) Standard Single-End Wiring

Attach properly rated line input wires to all terminals of the element using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.

NOTE: This is the only option available for TRH 6 series.

TRH4 (page 7-79) and TRH6 (page 7-81) Standard Double-End Wiring

Attach properly rated line input wires to all terminals of the element using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.

Wiring Options

Prewired with Plain Leads, Armor Cable or Wire Braid (includes ground wire)

- Stainless steel armor cable — 18" armor cable over 24" leads
- Galvanized armor cable — 18" armor cable over 24" leads
- Stainless steel wire braid — 18" wire braid over 24" leads
- Fiberglass leads (450°C rating) — 12" long plain leads

If longer leads and/or longer armor cable are required, specify when ordering.

Prewired with 24" SJO Cable (includes ground wire)

- 16 ga. cable (Up to 15 Amps)
- 14 ga. cable (Up to 22 Amps Max.)
- 12 ga. cable (Up to 28 Amps Max.)
- Max. terminal box temperature 194°F (90°C)
- If longer cable is required, specify when ordering.

Stock Heavy Duty Quick Disconnect Plugs and Connectors

<table>
<thead>
<tr>
<th>Reference</th>
<th>NEMA P or R</th>
<th>Max. Amps</th>
<th>Volts</th>
<th>Plug Part Number</th>
<th>Connectors (Female) Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3 straight</td>
<td>L5-15</td>
<td>5A</td>
<td>125V</td>
<td>EHD-102-103</td>
<td>EHD-103-102</td>
</tr>
<tr>
<td>P4 twist lock</td>
<td>L5-15</td>
<td>15A</td>
<td>125V</td>
<td>EHD-102-113</td>
<td>EHD-103-104</td>
</tr>
<tr>
<td>P6 twist lock</td>
<td>L6-20</td>
<td>20A</td>
<td>250V</td>
<td>EHD-102-122</td>
<td>EHD-103-105</td>
</tr>
<tr>
<td>P7 twist lock</td>
<td>L6-30</td>
<td>30A</td>
<td>250V</td>
<td>EHD-102-126</td>
<td>EHD-103-125</td>
</tr>
</tbody>
</table>

Notes: Optional Electrical Plugs listed can be attached to armor cable or SJO cord described under wiring options above. Connectors listed are cable mount matching units for the plugs listed and are ordered separately.

All Items Available from Stock

View Product Inventory @ www.tempco.com
**TRH4 (page 7-79) Optional Single-End Wiring**

CAUTION: Do not cut or connect to these wires inside the TRH housings. For connection to field wiring within external junction box only.

External wiring connections in remote junction box in area not exceeding 300°F (for copper wire)

Wireway conductor extends 12" from unit

Dual return wires rated for 842°F (450°C), 600V are supplied in internal wireways for line input at ground lug end

1 Phase line voltage input w/ground (elements parallel connected)

**TRH4 (page 7-79) Multiple Heat/Dual Voltage Wiring**

Dual return wires rated for 842°F (450°C), 600V are supplied in internal wireways for line input at ground lug end

12" Wireway conductors extending from unit

External wiring connections in remote junction box in area not exceeding 300°F (for copper wire)

**TABLE 1**

Multiple Heat Connections (Single Input Voltage)

<table>
<thead>
<tr>
<th>Heat Range</th>
<th>Line Input Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Heat</td>
<td>L1A &amp; L1B to L2A &amp; L2B in parallel</td>
</tr>
<tr>
<td>Medium Heat</td>
<td>L1A to L1B or L2A to L2B only</td>
</tr>
<tr>
<td>Low Heat</td>
<td>L1A to L1B, input L2A to L2B</td>
</tr>
</tbody>
</table>

**TABLE 2**

Dual Voltage Connections (for 240/480V or 120/240V rated units)

<table>
<thead>
<tr>
<th>Input Voltage</th>
<th>Line Input Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (480 or 240V)</td>
<td>L1A to L1B, input L2A to L2B</td>
</tr>
<tr>
<td>Low (240 or 120V)</td>
<td>L1A &amp; L1B to L2A &amp; L2B in parallel</td>
</tr>
</tbody>
</table>

**Type ART Tubular Radiant Heater Arrays**

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