Solves the problems of: Freezing, Dew point Component drop-out, Viscosity, Personnel protection

Freezing, dew point, component drop-out and viscosity control are major considerations in instrument and small diameter process lines. A properly designed and selected pretraced tubing bundle offers an effective solution to these problems.

The economical choice to field fabrication

Maintenance free TRACEPAK not only saves money and time during the installation process, but it ensures consistent, repeatable performance. Field fabrication requires a pipe fitter to lay out, measure, cut, dress, bend and install the tubing. Next the tracer (steam or electric) has to be installed and insulation put on the tubing. Finally, a weatherproof covering needs to be applied over the insulation. Clearly the economics of the TRACEPAK system versus field fabrication are significant.

Provides predictable and repeatable performance

O’Brien Corporation, long recognized as the leader in providing reliable instrumentation protection, has simplified installation while offering predictable operation. TRACEPAK tube bundles are prefabricated, pre-engineered and preinsulated assemblies.

Installation is simplified by the unique parallel configuration, in which process and tracer lines are always parallel inside the bundle. The bundle is much easier to bend during field routing and hookup because all tubes bend together and not against one another.

Connections are easy because tubing stays round and is not work hardened

TRACEPAK’s configuration allows the tubing to stay round and malleable when used in conjunction with compression and flare fittings. The installation of process and instrument connections requires only a simple, one-plane offset bend to engage tubing and fittings.

Can be installed at temperatures as low as -40°F (-40°C)

O’Brien Corporation utilizes the highest quality materials. The tough elastomeric jacket contains no halogens, eliminating the possibility of chlorides from the jacket causing stress corrosion in stainless steel tubing. This jacket has excellent abrasion and chemical resistance along with a wide, usable temperature range. TRACEPAK can be installed in temperatures as low as -40°F.

3 Types of tubing bundles

There are three common types of pretraced lines:

▼ Single preinsulated line, TPS, primarily for steam supply and condensate return.

▼ Steam traced lines, TPL & TPH, for freeze protection and temperature maintenance.

▼ Electric traced lines, TPE, for freeze protection and maintenance of temperature.
**Systems approach**

With the advent of TRACEPAK, O’Brien Corporation has closed the loop in providing the entire instrument installation and protection needs for your plant. VIPAK®, HEATPAK® and HEATPAK® II are enclosure systems that provide protection and steam or electric heat for the instrument and manifold. SADDLEPAK® is the perfect solution to the problems of mounting instrumentation. FLEXPAK® provides a custom, flexible cover for instrumentation.

The following pages will help you decide exactly which TRACEPAK product is right for your application. Utilize TPS when insulation is required for personnel protection or when temperature loss needs to be minimized, but temperature maintenance is not necessary. Typical applications are steam supply, condensate return, water purge lines where flow is sufficient to prevent freezing, chemical additives, etc.

Use TPE, TPL or TPH when the process must be maintained within a specific temperature range or above a specific temperature.

**Typical applications**

Here are a few applications for the TRACEPAK System:

**IMPULSE LINES**
- flow transmitters
- pressure transmitters
- level transmitters
- pressure switches
- controllers

**SAMPLE LINES**
- analyzers
- chromatographs

**PROCESS LINES**
- steam supply
- condensate return
- water purge
- chemical feed
- air lines

---

**Diagram:**

- Use TPS
- Electric
- Is temperature maintenance or freeze protection required?
- No
- Yes
- Is electric or steam tracing used?
- No
- Yes
- Temperature Maintenance
- Is maintenance temperature below 150°F (65°C)?
- No
- Yes
- Use TPH
- Is the maintenance temperature over 250°F (121°C)?
- No
- Yes
- Consult factory for high temperature maintenance up to 660°F (349°C).
- Use TPE with XTV tracer and line sensing thermostat
- Is the process temperature over 420°F (216°C) during blowdown or start-up?
- No
- Yes
- Consult factory for high temperature blowdown up to 1000°F (538°C).
- Use TPE with XTV Tracer

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**SAMPLE LINES**

- analyzers
- chromatographs
A preinsulated tubing bundle with light steam tracing

The process tubes and tracer tubes are individually wrapped with insulation to purposely reduce heat transfer.

TPL can maintain temperatures between 50°F (10°C) and 200°F (93°C). It provides a more constant tube temperature over a longer length than heavy traced designs.

It is suited for small diameter process lines such as those used for sampling and additives.

TPL is recommended for freeze protection of instrument impulse lines as well as the process lines for analyzers.

### Model Number
- **Product Family**
  - TPL1- Preinsulated Light Steam Traced Single Process Tube
  - TPL2- Preinsulated Light Steam Traced Dual Process Tubes

### Process Tube
- **A2**: 1/4” x 0.035 wall welded 316SS
- **A3**: 3/8” x 0.035 wall welded 316SS
- **A4**: 1/2” x 0.035 wall welded 316SS
- **A4**: 1/2” x 0.049 wall welded 316SS
- **B2**: 1/4” x 0.049 wall welded 316SS
- **B3**: 3/8” x 0.049 wall welded 316SS
- **B4**: 1/2” x 0.049 wall welded 316SS
- **F2**: 1/4” x 0.035 wall seamless 316SS
- **F3**: 3/8” x 0.035 wall seamless 316SS
- **F4**: 1/2” x 0.035 wall seamless 316SS
- **B4**: 1/2” x 0.049 wall seamless 316SS
- **J2**: 1/4” x 0.030 wall copper
- **C3**: 3/8” x 0.032 wall copper
- **M4**: 1/2” x 0.049 wall copper
- **N2**: 1/4” OD x 0.035 wall seamless Monel 400
- **N3**: 3/8” OD x 0.035 wall seamless Monel 400
- **P4**: 1/2” OD x 0.049 wall seamless Monel 400

### Tracer
- **A2**: 1/4” x 0.035 wall welded 316SS
- **A3**: 3/8” x 0.035 wall welded 316SS
- **A4**: 1/2” x 0.035 wall welded 316SS
- **F2**: 1/4” x 0.035 wall seamless 316SS
- **F3**: 3/8” x 0.035 wall seamless 316SS
- **B4**: 1/2” x 0.049 wall seamless 316SS
- **J2**: 1/4” x 0.030 wall copper
- **C3**: 3/8” x 0.032 wall copper
- **M4**: 1/2” x 0.049 wall copper
- **N2**: 1/4” OD x 0.035 wall seamless Monel 400
- **N3**: 3/8” OD x 0.035 wall seamless Monel 400
- **P4**: 1/2” OD x 0.049 wall seamless Monel 400

### Example:
TPL2-A4-C3 Two 1/2” x 0.035 wall 316SS welded process lines with a 3/8” x 0.032 wall copper tracer.

For specific information regarding each of these products, consult TRACEPAK SPECIFICATIONS.

### Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>WT</th>
<th>TRACER</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPL1- One 1/4” Process with 1/4” Tracer</td>
<td>0.5 (0.74)</td>
<td>0.35 (0.51)</td>
<td></td>
</tr>
<tr>
<td>TPL1- One 1/2” Process with 1/4” Tracer</td>
<td>0.6 (0.89)</td>
<td>0.35 (0.51)</td>
<td></td>
</tr>
<tr>
<td>TPL1- One 1/2” Process with 1/2” Tracer</td>
<td>0.7 (1.04)</td>
<td>0.35 (0.51)</td>
<td></td>
</tr>
<tr>
<td>TPL2- Two 1/4” Process with 1/4” Tracer</td>
<td>0.6 (0.89)</td>
<td>0.35 (0.51)</td>
<td></td>
</tr>
<tr>
<td>TPL2- Two 1/2” Process with 1/4” Tracer</td>
<td>0.8 (1.19)</td>
<td>0.35 (0.51)</td>
<td></td>
</tr>
<tr>
<td>TPL2- Two 1/2” Process with 1/2” Tracer</td>
<td>0.9 (1.34)</td>
<td>0.35 (0.51)</td>
<td></td>
</tr>
</tbody>
</table>

For specific information regarding each of these products, consult TRACEPAK SPECIFICATIONS.
TPH is recommended for use on impulse lines for instrumentation, process lines for analyzers, sampling, additives and other small process lines where higher temperature maintenance is necessary. It is especially important for viscosity control.

Heavy tracing keeps the process tubing in direct contact with the tracer and maintains higher process temperatures.

**TPH**

**A preinsulated tubing bundle with heavy steam tracing**

**Model Number**

**Product Family**

TPH1-Preinsulated Heavy Steam Traced Single Process Tube

TPH2-Preinsulated Heavy Steam Traced Dual Process Tubes

<table>
<thead>
<tr>
<th>NOMINAL DIMENSIONS - IN (CM)</th>
<th>NOMINAL WT. LB/FT (KG/M)</th>
<th>Process Tube</th>
<th>Tracer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A2</td>
<td>A2</td>
</tr>
<tr>
<td>1/4&quot; x 0.035 wall welded 316SS</td>
<td>0.7 (1.04)</td>
<td>B4</td>
<td>1/4&quot; x 0.035 wall copper</td>
</tr>
<tr>
<td>3/8&quot; x 0.035 wall welded 316SS</td>
<td>0.8 (1.19)</td>
<td>B3</td>
<td>3/8&quot; x 0.035 wall copper</td>
</tr>
<tr>
<td>1/2&quot; x 0.035 wall welded 316SS</td>
<td>0.9 (1.33)</td>
<td>B2</td>
<td>1/2&quot; x 0.035 wall copper</td>
</tr>
<tr>
<td>3/4&quot; x 0.035 wall welded 316SS</td>
<td>1.0 (1.47)</td>
<td>B1</td>
<td>3/4&quot; x 0.035 wall copper</td>
</tr>
<tr>
<td>1&quot; x 0.035 wall welded 316SS</td>
<td>1.1 (1.61)</td>
<td>A1</td>
<td>1&quot; x 0.035 wall copper</td>
</tr>
</tbody>
</table>

For specific information regarding each of these products, consult TRACEPAK SPECIFICATIONS.
TPE is designed to maintain freeze protection, close temperature tolerances or viscosity control. It provides an excellent means of maintaining very long, continuous lengths of impulse lines and piping at consistent temperatures end-to-end. TPE should be chosen when steam is not available or when the steam supply could be interrupted such as during shutdowns.

Use TPE if the allowable temperature ranges from 50°F (10°C) to 250°F (121°C). Because it is self regulating, this system will lower its heat output as the material gets warmer. When close temperature control is necessary, TPE can be utilized with an optional line sensing thermostat.

**Electric tracer**

Standard TPE-Self Regulating products utilize Chemelex® electric tracers. They are FM approved and CSA certified for use in hazardous areas when used with the recommended power connection kits.

CENELEC accepted approvals for Zone 1 and 2 heaters with T3 temperature limits are available.

The high temperature, Self Regulating XTV Tracer:
1. Withstands 420°F (215°C) intermittent blowdown temperatures.
2. Can maintain temperatures up to 250°F (121°C).

The low temperature Self Regulating BTV Tracer:
1. Withstands up to 185°F (85°C) blowdown temperatures.
2. Can maintain temperatures up to 150°F (65°C).

The choice between XTV and BTV must be made based on the desired performance and the conditions of the application. XTV and BTV are backed by a 10 year performance guarantee.

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### Dimensions

<table>
<thead>
<tr>
<th></th>
<th>Nominal WT.</th>
<th>Nominal Dimensions - in (cm)</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TPE1 - One ¼” Process Tubes</strong></td>
<td>0.3 (0.45)</td>
<td>1.1 (2.8)</td>
<td>1.0 (2.5)</td>
<td></td>
</tr>
<tr>
<td><strong>TPE1 - One ⅜” Process Tubes</strong></td>
<td>0.4 (0.60)</td>
<td>1.3 (3.3)</td>
<td>1.0 (2.5)</td>
<td></td>
</tr>
<tr>
<td><strong>TPE1 - One ½” Process Tubes</strong></td>
<td>0.5 (0.74)</td>
<td>1.4 (3.6)</td>
<td>1.1 (2.8)</td>
<td></td>
</tr>
<tr>
<td><strong>TPE2 - Two ¼” Process Tubes</strong></td>
<td>0.4 (0.60)</td>
<td>1.3 (3.3)</td>
<td>1.1 (2.8)</td>
<td></td>
</tr>
<tr>
<td><strong>TPE2 - Two ⅜” Process Tubes</strong></td>
<td>0.6 (0.89)</td>
<td>1.5 (3.8)</td>
<td>1.2 (3.0)</td>
<td></td>
</tr>
<tr>
<td><strong>TPE2 - Two ½” Process Tubes</strong></td>
<td>0.8 (1.19)</td>
<td>1.7 (4.3)</td>
<td>1.4 (3.6)</td>
<td></td>
</tr>
</tbody>
</table>

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Chemelex® is a registered trademark of Raychem Corporation
Model Number
Product Family
TPE1 - Preinsulated Electrically Traced Single Process Tube
TPE2 - Preinsulated Electrically Traced Dual Process Tubes

Process Tube
A2 1/4" x 0.035 wall welded 316SS
A3 3/8" x 0.035 wall welded 316SS
A4 1/2" x 0.035 wall welded 316SS
E1 1/4" x 0.049 wall seamless 316SS
E2 3/8" x 0.049 wall seamless 316SS
F1 1/2" x 0.035 wall seamless 316SS
F2 3/8" x 0.035 wall seamless 316SS
F3 1/2" x 0.035 wall seamless 316SS
F4 1/2" x 0.049 wall seamless 316SS
B2 1/4" x 0.049 wall seamless 316SS
B3 3/8" x 0.049 wall seamless 316SS
B4 1/2" x 0.049 wall seamless 316SS
J2 1/4" x 0.030 wall copper
C3 3/8" x 0.032 wall copper
D4 1/2" x 0.035 wall copper
M4 1/2" x 0.049 wall copper
G2 1/4" OD x 0.030 wall PFA Teflon®
G3 3/8" OD x 0.030 wall PFA Teflon®
H4 1/2" OD x 0.062 wall PFA Teflon®
N2 1/4" OD x 0.035 wall seamless Monel® 400
N3 3/8" OD x 0.035 wall seamless Monel 400
P4 1/2" OD x 0.049 wall seamless Monel 400
MF6, 8, 10, 12 - 6, 8 or 10mm OD x 1mm or 12mm OD x 1.5mm wall seamless 316SS
MD6, 8, 10, 12 - 6, 8, 10 or 12mm OD x 1mm wall copper
MG6, 8, 10, 12 - 6, 8, 10 or 12mm OD x 1mm wall PFA Teflon®

Tracer
XTV
B5-5 watt per foot self-regulating heater @ 50°F (10°C), 120 vac
B10- 10 watt per foot self-regulating heater @ 50°F (10°C), 120 vac
B20- 20 watt per foot self-regulating heater @ 50°F (10°C), 120 vac
N5-5 watt per foot self-regulating heater @ 50°F (10°C), 240 vac
N10- 10 watt per foot self-regulating heater @ 50°F (10°C), 240 vac
N20- 20 watt per foot self-regulating heater @ 50°F (10°C), 240 vac
MN4, 8, 12- 12, 25, 35 watt per meter self-regulating heater @ 10°C, 220 vac

BTV
J5- 5 watt per foot self-regulating heater @ 50°F (10°C), 120 vac
J8- 8 watt per foot self-regulating heater @ 50°F (10°C), 120 vac
P5- 5 watt per foot self-regulating heater @ 50°F (10°C), 240 vac
P8- 8 watt per foot self-regulating heater @ 50°F, 240 vac
15 watt per meter self-regulating heater @ 10°C, 220 vac
P10- 32 watt per meter self-regulating heater @ 10°C, 220 vac

All tracers have a tinned copper shield and fluoropolymer outer jacket.
FM approved for Class I, II, III Div. 2
Gr. B, C, D, F, G.
CSA Certified for Class I, II Div. 1, 2
Gr. A, B, C, D, E, F, G.
CSA Certified for Class III Div. 2
MN and P designated tracers are approved by CENELEC accepted agencies.

Typical Performance
Each graph shows typical performance splitting summer/winter ambients. Each line is separated at 60°F (16°C) to designate the seasonal differences.

Winter ambients, below 60°F (16°C), assume a 25 mph (40 Km/H) wind and summer ambients, above 60°F (16°C), assume a 10 mph (16 Km/H) wind. For freeze protection, use 50°F (10°C) as the minimum allowable process tube temperature. This will provide a sufficient factor of safety.

Example:
TPE2-A4-B5
Two 1/4" x 0.035 wall 316SS welded process lines with a 5 watt/foot tracer.

For specific information regarding each of these products, consult TRACEPAK SPECIFICATIONS.
S-LINE is designed specifically for liquid and gas transport lines where heat loss and personnel protection are important. S-LINE offers an inexpensive alternative to field insulation and weatherproofing of small lines.

S-LINE - One ¼" Process Line
- WT. DIMENSIONS: 0.2 (0.30) lb/ft (0.30 kg/m)
- NOMINAL A - IN: 1.0 (2.5)

S-LINE - One ⅜" Process Line
- WT. DIMENSIONS: 0.3 (0.45) lb/ft (0.45 kg/m)
- NOMINAL A - IN: 1.1 (2.8)

S-LINE - One ½" Process Line
- WT. DIMENSIONS: 0.4 (0.60) lb/ft (0.60 kg/m)
- NOMINAL A - IN: 1.2 (3.0)

Model Number
- Product Family: S-Preinsulated Single Process Tube

Process Tube
- A2 ¼" x 0.035 wall welded 316SS
- A3 ½" x 0.035 wall welded 316SS
- A4 ⅜" x 0.035 wall welded 316SS
- E4 ⅜" x 0.049 wall welded 316SS
- F1 ⅛" x 0.035 wall seamless 316SS
- F2 ⅛" x 0.035 wall seamless 316SS
- F3 ⅛" x 0.035 wall seamless 316SS
- F4 ⅛" x 0.035 wall seamless 316SS
- B2 ¼" x 0.049 wall seamless 316SS
- B3 ¼" x 0.049 wall seamless 316SS
- B4 ¼" x 0.049 wall seamless 316SS
- J2 ¼" x 0.030 wall copper
- C3 ⅜" x 0.032 wall copper
- D4 ⅜" x 0.035 wall copper
- M4 ⅛" x 0.049 wall copper
- H4 ⅛" OD x 0.062 wall PFA Teflon
- N2 ⅛" OD x 0.035 wall seamless Monel® 400
- N3 ⅛" OD x 0.035 wall seamless Monel 400
- P4 ⅛" OD x 0.049 wall seamless Monel 400
- M810, 12 - 10 or 12mm OD x 1.5mm copper
- M6, 8, 10, 12 - 6, 8 or 10mm OD x 1mm or 12mm OD x 1.5mm wall seamless 316SS
- MD6, 8, 10, 12 - 6, 8, 10 or 12mm OD x 1mm wall copper

Example:
SC3 - One preinsulated ¼" x 0.032 wall copper process line.

For specific information regarding each of these products, consult TRACEPAK SPECIFICATIONS.

### Dimensions

<table>
<thead>
<tr>
<th>Product Family</th>
<th>NOMINAL WT. LB/FT (KG/M)</th>
<th>NOMINAL DIMENSIONS A - IN (CM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-LINE- One ¼&quot; Process Line</td>
<td>0.2 (0.30)</td>
<td>1.0 (2.5)</td>
</tr>
<tr>
<td>S-LINE- One ⅜&quot; Process Line</td>
<td>0.3 (0.45)</td>
<td>1.1 (2.8)</td>
</tr>
<tr>
<td>S-LINE- One ½&quot; Process Line</td>
<td>0.4 (0.60)</td>
<td>1.2 (3.0)</td>
</tr>
</tbody>
</table>

### Heat Loss

#### ⅜" Tube

- Ambient Temperature vs. Heat Loss (Btu/Hr - Ft)
- Ambient Temperature vs. Heat Loss (Kcal/Hr - M)
- Heat Loss for various steam pressures at different temperatures
  - 200 psig (14.8 BAR) steam 388°F (198°C)
  - 125 psig (9.6 BAR) steam 353°F (178°C)
  - 50 psig (4.4 BAR) steam 299°F (148°C)
  - 15 psig (2.0 BAR) steam 250°F (121°C)

#### ½" Tube

- Ambient Temperature vs. Heat Loss (Btu/Hr - Ft)
- Ambient Temperature vs. Heat Loss (Kcal/Hr - M)
- Heat Loss for various steam pressures at different temperatures
  - 200 psig (14.8 BAR) steam 388°F (198°C)
  - 125 psig (9.6 BAR) steam 353°F (178°C)
  - 50 psig (4.4 BAR) steam 299°F (148°C)
  - 15 psig (2.0 BAR) steam 250°F (121°C)
In addition to conventional TRACEPAK designs, O'Brien can satisfy your special needs with custom solutions. These designs are verified in our environmental chamber under conditions that insure a tubing bundle that meets your exact requirements, with reliability and accuracy you can depend on.

**Custom Capabilities**
- Indoor & Outdoor Jackets
- Operating Temperatures to 600°F
- Custom Lengths
- Choice of Process Connection Fittings
- Pre-terminated and Fitted Ends
- Factory Installed Temperature Sensors
- Communication, Monitor and Power Wires
- Alternate Jacket Colors

**Unusual Tube Material Nonstandard Sizes**
TRACEPAK can be manufactured with a wide range of uncommon materials and sizes to conform to your unique material requirements, including:
- Teflon® variations such as PTFE, PFA, TFE, and nylon.
- Hastelloy
- Incoloy
- Titanium
- Duplex
- 6% Moly
- Oxygen Cleaned Tubes
- Silica-Lined Stainless Steel

**Multi-Component Bundles**
Complex designs incorporate factory installed temperature sensors such as RTD’s, thermocouples and thermistors with multiple process tubes, calibration gas supply tubes, tracers, communication wires, power wiring, and heat tracing.

**High Temperature Heaters**
Specialty tracers such as CPD, MI and resistance wires can be used to provide temperature maintenance up to 600°F and to withstand a high temperature blowdown of 1000°F.

**Jacket Materials for Diverse Applications**
Jacket materials are available to withstand high operating temperatures, permit installation at low ambient temperatures or stand up to constant flexing. Materials include polyurethane, polyethylene or PVC for outdoor applications, and polyethylene braid or stainless steel braid for indoor applications.

**Performance Enhancing Designs**
Special buffered designs are available for applications with high intermittent process temperatures. These designs buffer the standard self-limiting tracer from the process tube to allow higher maximum exposure temperatures while still providing freeze protection.

**Typical Applications**
- **Sampling Systems**
  - Automotive Emissions Testing
  - Stack Gas Sampling
  - Process and Portable Analyzers
- **Viscosity Control**
  - Petroleum products, Asphalt, Tar, Paint Systems, Printing Ink, Coatings, Spray Foam Insulation
- **Product Transfer**
  - Polymers, Oil, Urethanes, Wax, Chemicals, Food Products, Fat or Freeze Protection, Hot Melt Adhesives, Sanitary Applications.
Sealing the bundle
Although TRACEPAK products use a non-hygrosopic, non-wicking insulation, all bundle ends must be sealed to prevent any possible moisture contamination.

**TPKES - Heat Shrink Entry Seal**
This option is used to seal both ends of the tubing bundle from moisture. It is a black silicone RTV sealant. Cure time is approximately 24 hours at 77°F (25°C). Service temperature ranges from -50°F (-45°C) to 400°F (205°C). TPKES offers excellent resistance to weather, oil and many chemicals.

**TPKSK - Silicone Sealant**
This option is used to seal both ends of the tubing bundle from moisture. It is a black silicone RTV sealant. Cure time is approximately 24 hours at 77°F (25°C). Service temperature ranges from -50°F (-45°C) to 400°F (205°C). TPKSK offers excellent resistance to weather, oil and many chemicals.

**TPKHS - Heat Shrink Boots**
The heat-shrinkable boots provide a weatherproof end seal for TRACEPAK tubing bundles. They are made of thermally stabilized, modified polyolefin. Using a heat shrink end seal boot is recommended for all exposed ends. This installation will provide the best weather seal protection. The silicone end seal alone may be used to seal the end of the bundle inside of a VIPAK enclosure.
**TPKJP - Jacket Patch**

The jacket patch kits are used to seal a splice in a bundle or to extend the insulation and weatherproof jacket should the bundle be cut back too far during installation. They are used as a repair patch for any incidental field damage to bundles. The jacket patch kit is required with the optional line temperature sensing thermostat. Each kit contains thermal insulation, fiberglass tape and a self-sealing patch.

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**THERMOSTATS**

When used with electrically traced tubing bundles, optional thermostats are used to control the temperature of the process tube or to turn on the heater at a specified ambient temperature.

**Line Sensing**

The TPKTS-B-7 line sensing thermostat controls the temperature of the process tubes. It has an adjustable set point of 25°F to 325°F (-4°C to 163°C) and can withstand process temperatures from -65°F to 500°F (-54°C to 260°C). The fluid filled stainless steel bulb has a 10’ capillary. The SPDT switch is rated for 22A at 125/250/480 VAC. It is UL and FM listed for Class I & II, Division 1 & 2, Groups B, C, D, E, F & G areas. It is CSA certified for Class I, II & III, Division 1 & 2, Groups C, D, E, F & G areas.

**Ambient Sensing**

The TPKTS-A-7 ambient sensing thermostat has an adjustable set point of 14°F to 140°F (-10°C to 60°C) and can withstand ambient temperatures of -40°F to 160°F (-40°C to 71°C). It has a fluid filled stainless steel probe and the SPDT switch is rated for 22A at 125/250/480 VAC. It is UL listed and CSA certified for Class I, II & II, Division 1 & 2, Group B, C, D, E, F & G areas.

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*Note: Models shown are typical of thermostats supplied. Units received may differ.*
POWER CONNECTION AND TERMINATION KITS

**T210-PC**

FM Approved and CSA Certified Class I Div. 2 power connection kit for use with any wattage B, N, J, or P tracer. Includes junction box and bundle mounting bracket with adjustable straps. Junction box also includes surface mounting feet.

**TPC1**

CSA Certified Class I Div. 1 power connection or end termination kit for use with any wattage B, N, J or P tracer. Installs in customer supplied junction box with 1/2" npt hub.

**T210-ET**

FM Approved and CSA Certified Class I Div. 2 termination kit for use with any wattage B, N, J or P tracer.
**Installation Tools**

TRACEPAK is designed to be installed using standard bending tools. We have designed two special tools that make installation of TRACEPAK tube bundles easier and more compact.

**Bundle Bending Tool**

Similar to a common electrical conduit bender, this tool is compact and easy to use. It eliminates the need for larger and heavier benders that have the required 8” minimum bending radius.

**2’/8” Centerline Tool**

A replacement for the standard tube bender, it brings the process tubes to the correct centerline for connecting to typical transmitters. This tool makes back-to-back bends easier accomplishing the bends in a much shorter distance than possible with a standard tube bender.

**Installation Video**

Helpful information on the installation of TRACEPAK tubing bundles. The video deals with general installation procedures and gives a good overview of the products and accessories available to complement and complete the total package.
**SITE CONDITIONS**
- Outdoor : ☐
- Indoor : ☐
- Low Ambient: ____________°F/C
- High Ambient: ____________°F/C
- Wind: 25mph

**HEATING CONDITIONS**
- Desired Maintenance Temperature: ____________°F/C
- Minimum Maintain : ____________°F/C
- Maximum Maintain: ____________°F/C
- If an Analyzer Line what is the inlet temperature of gas?: ____________°F/C

**PROCESS TUBING**
- Quantity: ____________ ft.
- Are Exact Cut Lengths Required?: ____________ ft.
- Number of Process Tubes: ____________
- O.D. of #1 Process Tube: ____________ in.
- Welded or Seamless?: ____________
- Wall Thickness: ____________ in.
- Material of Construction: ____________
- Welded or Seamless?: ____________
- Wall Thickness: ____________ in.
- Material of Construction: ____________

**IF ELECTRIC TRACING**
- Electrical Voltage: ____________ VAC
- Area Classification: ____________ Division: ____________
- Will Steam be used to blow down this bundle?: ____________
- What Temperature or bar?: ____________°F/C

**IF STEAM TRACING**
- Steam Pressure: ____________ psig
- Temperature: ____________°F/C
- Maximum Blow Down Temperature: ____________°F/C
- O.D. Tracer Tube: ____________ in.
- Welded or Seamless?: ____________
- Wall Thickness: ____________ in.
- Material of Construction: ____________

**ACCESSORIES**
- ☐ Heat Shrink Boots
- ☐ Entry Fittings
- ☐ Thermostats
- ☐ Power Kits
- ☐ Termination Kits
- ☐ Splice Kits
- ☐ Jacket Patch Kit
- ☐ Silicone End Sealant

**OTHER TRACING LIQUIDS - Flow must be turbulent**
- Flow Rate: ____________ lbs/hr
- Specific Heat: ____________ Btu/lb°F
- Minimum Inlet Temperature (for heating): ____________°F/C
- Maximum Inlet Temperature (for cooling): ____________°F/C
- Density: ____________ lb/ft³
- Viscosity: ____________ centipoise

**HEAT EXCHANGER APPLICATIONS - Flow must be turbulent**
- LIQUID OR GAS
- Flow Rate: ____________ lb/hr
- Temperature at inlet: ____________°F/C
- Desired Temperature at Outlet: ____________°F/C
- Density: ____________ lb/ft³
- Maximum allowable outlet temp: ____________°F/C
- Viscosity: ____________ centipoise
- Minimum allowable outlet temp: ____________°F/C
- Specific Heat: ____________ Btu/hr°F
- Thermal Conductivity: ____________ Btu.hr ft²°F

(O’Brien will determine minimum length for heat exchanger applications)

**NOTES:**
**MATERIAL SPECIFICATIONS**
The following specifications apply to all members of the TRACEPAK family.

**JACKET**
Thermoplastic Polyether Urethane Elastomer

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<th>ASTM</th>
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**INSULATION**
Fibrous Glass

- Water Soluble Chlorides less than 100 ppm.
- Non-hygroscopic

**TUBING**
CONSTRUCTION AND OD WALL MATERIAL ASTM

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**TEMPERATURE LIMITS**
Minimum installation temperature
-40°F (-40°C)

Maximum jacket surface temperature
140°F (60°C) at ambient temperature of
80°F (27°C) with maximum process or
tracer tube temperature.

TPH, TPL and TPS
Maximum process tube temperature
400°F (204°C)*

TPE
Continuous exposure power on.
- XTV 250°F (121°C)*
- BTV 150°F (65°C)*

Intermittent exposure power on or off.
- XTV 420°F (215°C)*
- BTV 185°F (85°C)*

Maximum tracer temperature
- XTV T-rating T2C, 446°F (230°C)
- BTV T-rating T6, 185°F (85°C)

*Tubes meeting NACE MR-01-75-90 and ASTM A-213-EAW specifications are also stocked.
Consult factory for the availability of these as well as other materials and specifications.
**Customer Service**
Customer service takes on a whole new meaning at O’Brien Corporation. Our reputation as a customer-oriented problem solver has been long recognized.

O’Brien’s customer-oriented approach offers these benefits:
- responsive, knowledgeable personnel
- unparalleled delivery service
- dependable, tested results of all product lines
- in-house stock of hard-to-find materials

**ISO 9002 Unparalleled Quality**
Certified to current ISO 9002 standards. Our adherence to recognized international quality standards provides one of the strongest assurances of product and service quality available.

**Total Solution**
From Instrument to Process Line: Working together, we can develop installation details. Our total engineering package will reduce field installation costs and provide a dependable solution for your needs.

Process accuracy through heat transfer expertise.

TRACEPAK  VIPAK  HEATPAK  SADDLEPAK  FLEXPAK