

# PRODUCTS and ACCESSORIES

## INFORMATION GUIDE



THERMON **The Heat Tracing Specialists®**



# PRODUCTS INFORMATION GUIDE & ACCESSORIES

## SELF-REGULATING HEATING CABLES

### Features:

- Semiconductive Self-Regulating Heating Matrix
- Cut-to-Length Parallel Circuitry
- Nickel-Plated Copper Bus Wires
- Metallic Braids for Grounding Purposes
- Polyolefin or Fluoropolymer Overjacket
- Worldwide Approvals



### **BSX™**

Freeze Protection and  
Temperature Maintenance to 65°C  
Maximum Exposure Temperature 85°C

Available Watt Densities....9, 15, 25, 32 W/m at 10°C  
Available Voltages.....230 Vac  
Available With Fluoropolymer Overjacket (FOJ)



### **RSX™**

Freeze Protection and  
Temperature Maintenance up to 65°C  
and Foundation Heating  
Maximum Exposure Temperature 85°C

Available Watt Densities ..... 48 W/m @ 10°C  
Supply Voltage ..... 230 Vac



### **KSX™**

Freeze Protection and  
Temperature Maintenance up to 121°C  
Maximum Exposure Temperature 121°C

Available Watt Densities ..... 15, 31, 48 & 64 W/m @ 10°C  
Supply Voltage ..... 230 Vac



### **HTSX™**

Freeze Protection and  
Temperature Maintenance to 121°C  
Maximum Exposure Temperature 250°C  
Withstands Temperatures Associated With Steam Purging

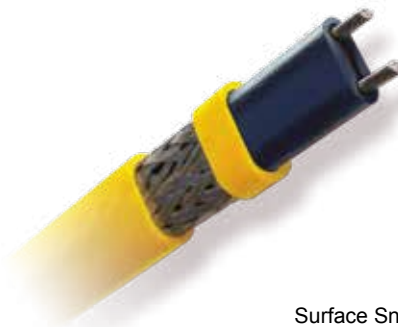
Available Watt Densities....9, 18, 27, 37, 48, 64 W/m @ 10°C  
Available Voltages.....230 Vac



### **VSX™**

Freeze Protection and  
Temperature Maintenance up to 150°C  
Maximum Exposure Temperature 250°C  
Withstands Temperatures Associated With Steam Purging

Available Watt Densities.....15, 32, 48, 64 W/m @ 10°C  
Available Voltages.....230 Vac



### **KSR™**

Surface Snow and Ice Melting  
Maximum Exposure Temperature 121°C  
Minimum Installation Temperature -60°C

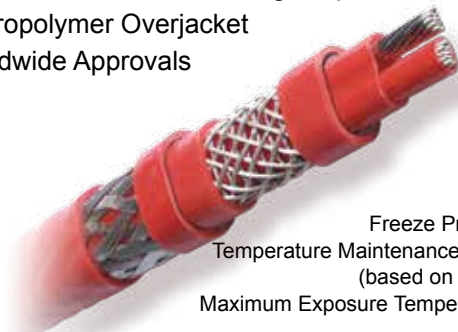
Available Voltages.....230 Vac

# ELECTRIC HEATING CABLES

## POWER-LIMITING HEATING CABLES

### Features:

- PTC Coiled Resistor Alloy Heating Element
- Cut-to-Length Parallel Circuitry
- Nickel-Plated Copper Bus Wires
- Metallic Braids for Grounding Purposes
- Fluoropolymer Overjacket
- Worldwide Approvals



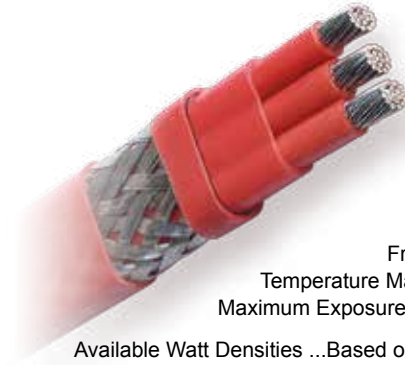
### HPT™

Freeze Protection and  
Temperature Maintenance up to 215°C  
(based on watt density)  
Maximum Exposure Temperature 260°C  
Available Watt Densities.....15, 30, 45, 60 W/m at 10°C  
Available Voltages.....230 Vac

## SERIES RESISTANCE HEATING CABLES

### Features:

- Long Circuit Lengths with Fewer Power Points
- Stabilised Designs Possible Using Thermon Software
- Metallic Braids for Earthing Purposes



### TEK™

Freeze Protection and  
Temperature Maintenance to 101°C  
Maximum Exposure Temperature 232°C  
Available Watt Densities ...Based on length and voltage  
Available Voltages ..... Rated up to 600 Vac

## CONSTANT WATT HEATING CABLES

### Features:

- Nichrome Heating Element
- Cut-to-Length Parallel Circuitry
- Copper bus wires (3,3 mm<sup>2</sup>)
- Metallic Braids for Grounding Purposes
- Fluoropolymer Overjacket
- Worldwide Approvals



### FP

Freeze Protection and  
Temperature Maintenance to 65°C  
and Foundation Heating  
Maximum Exposure Temperature 200°C  
Available Watt Density .....up to 33 W/m  
Available Voltages ..... 575 Vac



### TESH™

Long Line Freeze Protection and  
Temperature Maintenance  
Maximum Exposure Temperature 260°C  
Available Watt Densities ..... Designs up to 25 W/m  
Supply Voltage ..... Rated up to 750 Vac

## SKIN EFFECT HEATING SYSTEMS

### Features:

- Rugged Heat Tube to Generate Heat
- Circuit Lengths up to 25 Kilometers
- Each System Fully Factory-Engineered



### THERMTRAC™

Power Outputs ..... up to 165 W/m  
Operating Voltages ..... up to 5.0 kV  
Maintenance Temperatures .....up to 200°C  
Exposure Temperatures .....up to 260°C

## MINERAL INSULATED HEATING CABLES

### Features:

- High Temperature Magnesium Oxide Dielectric
- Seamless Alloy 825 Sheath
- Worldwide Approvals



### MIQ™

Freeze Protection and  
Temperature Maintenance to 500°C  
Maximum Exposure Temperature 600°C  
Maximum Watt Density ..... 260 W/m  
Available Voltages ..... 300 and 600 Vac



# PRODUCTS INFORMATION GUIDE & ACCESSORIES

## ELECTRICALLY HEATED INSTRUMENT TUBING FOR FREEZE PROTECTION AND TEMPERATURE MAINTENANCE

### TubeTrace® TYPE SE/ME

Approved for use in ordinary (nonclassified) areas and in potentially explosive atmospheres in accordance with the ATEX Directive and the IEC Ex Scheme.

### TubeTrace with HTSX™

Self-Regulating Heat Trace  
Use where temperature exposure to steam purge is expected.

Tube Temperature Range:  
5°C to 121°C

Maximum Exposure Temperature: 250°C

### TubeTrace with BSX™ Self-Regulating Heat Trace

Use for water freeze protection and low temperature maintenance.

Tube Temperature Range: 5°C to 65°C  
Maximum Exposure Temperature: 85°C

### TubeTrace with VSX™ Self-Regulating Heat Trace

Use where high temperature exposure is a consideration.

Tube Temperature Range: 5°C to 150°C  
Maximum Exposure Temperature: 250°C

### TubeTrace with HPT™

Power-Limiting Heat Trace

A “cut-to-length” heat tracing for higher temperature maintenance. Also used for freeze protection where high temperature exposure is a factor.

HPT power-limiting cables represent the best choice for maintaining temperatures up to 204°C that can be “cut-to-length” in the field.

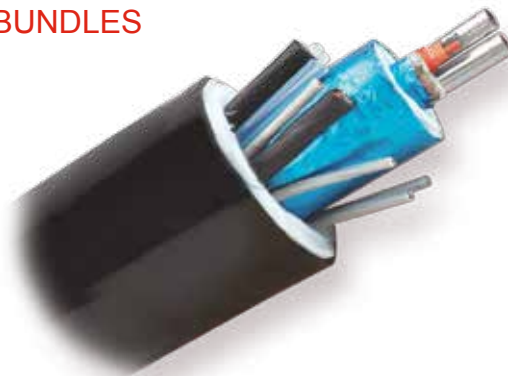
Tube Temperature Range: 5°C to 204°C  
Maximum Exposure Temperature: 260°C

The following are also available:

TubeTrace with mineral insulated **MIQ** heat trace

TubeTrace with parallel constant watt **FP** heat trace

## CUSTOM CEMS AND ANALYZER BUNDLES

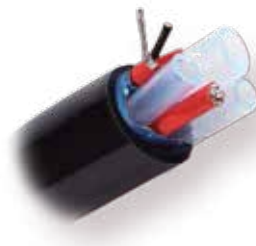


Many analyzer applications have specialty tubing requirements, all of which Thermon can provide within our instrument tubing bundles. Examples of tube materials and finishes that are available include:

- Fluoropolymer tubing, 316 and 304 stainless, welded or seamless, Monel\*, titanium, Inconel\* 825, and Alloy 20 are readily available.
- Optional Electropolished (EP), Chemical Passivation (CP), and performance coatings such as SilcoNert\* are also available on stainless steel tubing.
- Double containment tubing or multiple tube materials can be provided in a common bundle.

### “NI” Non-insulated (and non-heated) Bundle Other TubeTrace options can include:

- Auxiliary conductors
- Unheated tubes
- Factory installed temperature sensor(s)
- Special markings and identification as required



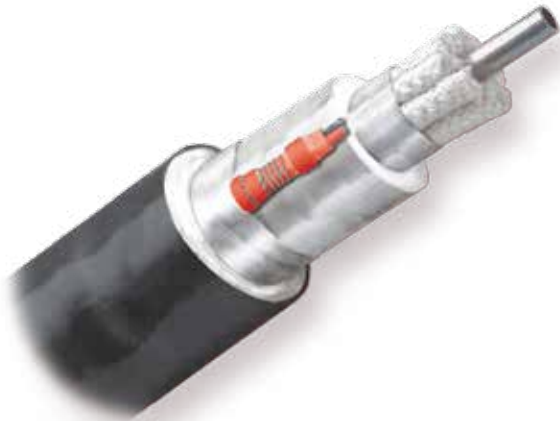
\* Monel and Inconel are trademarks of Inco Alloys International., Inc.  
Trade name of SilcoTek™, formerly a division of Restek Performance Coatings. SilcoNert™ 1000 replaces Silcosteel®. SilcoNert™ 2000 replaces Sulfinert®/Siltek®.

# INSTRUMENT TUBING BUNDLES

## ELECTRICALLY HEATED INSTRUMENT TUBING FOR FREEZE PROTECTION OF HIGH TEMPERATURE STEAM LINES

### **TubeTrace®** TYPE SEI/MEI - HT, HTX & HTX2

Isolated “cut-to-length” heat trace for high temperature exposure, suitable for ambient sensing control.



### **TubeTrace®** Type SEI/MEI - HT

Maintain: 5°C

Continuous Exposure: 399°C

### **TubeTrace®** Type SEI/MEI - HTX

Maintain: 5°C

Continuous Exposure: 593°C

### **TubeTrace®** Type SEI/MEI - HTX2

Maintain: 5°C

Intermittent Exposure: 593°C

## INSTRUMENT TUBING ACCESSORIES

(See Pages 10 and 11)

Every type of tubing bundle requires proper termination to ensure reliable performance and Thermon offers a complete range of termination kits. Because Thermon manufactures the electrical heat tracing as well, all of the power connection and termination accessories are designed and approved for the specific application.



## STEAM HEATED INSTRUMENT TUBING FOR FREEZE PROTECTION AND TEMPERATURE MAINTENANCE

### **TubeTrace®** TYPE TYPE SI/MI & SP/MP



### **Steam or Fluid “Light Traced” (SI/MI)**

For freeze protection and lower temperature maintenance. The tracer tube is isolated from the process tube(s), so process tube temperatures will be significantly lower than the tracer tube temperature.

Tube Temperature Range: 5°C to 121°C

Maximum Exposure: 205°C\*



### **Steam or Fluid “Heavy Traced” (SP/MP)**

For freeze protection and process maintenance. The tracer tube is in direct contact with the process tube(s), so process tube temperatures will be very close to the tracer tube temperature.

Standard Tracer Temperature Range: 5°C to 205°C

Maximum Exposure: 205°C\*

\* Higher tube temperatures are possible with XINS-extra insulation, HT and HTX type designs.



# PRODUCTS INFORMATION GUIDE & ACCESSORIES

## HEAT TRANSFER COMPOUNDS TO MAINTAIN HIGH TEMPERATURES

### Thermon Heat Transfer Compounds

- Consistent Heat Transfer Properties
- Less Than 20% of Cost for Steam Jacketing

### SnapTrace®

#### Preformed Extrusions for Straight Piping

Available in 1.22 m lengths

- Significantly Reduces Installation Time
- No Surface Preparation Required
- Use With Up to 208°C Fluid/Steam



SnapTrace™  
Pre-formed Extrusion Installation

### HT Compounds for Piping, Valves and Irregular Surfaces

(Maximum temperature ratings shown)

**T-3:** 371°C

**T-99:** 1.000°C

**T-80:** 163°C

**T-85:** 190°C

**T-802:** 135°C Two part compound



T-3 ChannelTrace™ Installation

T-85 "Fillet" Installation



## ISOLATED STEAM TRACERS FOR LOWER MAINTAIN TEMPERATURES

**SafeTrace™ SLS-IT:** 24°C to 93°C

**SafeTrace™ DLS-IT:** 5°C to 54°C



SLS-IT Isolated Tracing  
Secured with Fastening Tape

### SafeTrace™ Provides Increased Safety

- SafeTrace Tracers Comply With Tests for Skin Exposure (per ASTM Std C-1005/1057)
- Safety Yellow Jacket Alerts Plant Personnel to Potentially Dangerous Conditions

### SafeTrace™ Provides Predictable Heat Transfer

- Permits Winterization for Any Size Pipe
- Eliminates Hot/Cold Spots Associated With Bare Tubing and Spacer Blocks
- Suitable for Temperature-Sensitive Processes

### Medium Maintain Temperatures

**SafeTrace™ BTS:** 38°C to 121°C

## STEAM SUPPLY/CONDENSATE RETURN LINES

### ThermoTube® Pre-Insulated Tubing

- Ideally Suited to Transport Liquids, Gases or Refrigerants
- Non-hygroscopic Glass Fiber Insulation for Efficiency
- Protective Extruded Outer Jacket Resists Weather and Moisture
- ThermoTube Can be Installed in Cable Trays, Angles, Channels, Struts and on I-Beams
- All Tubing Types Available



**Continuous Temp. Range:** Service to 205°C\*  
ThermoTube ratings to 593°C also available\*.

\* Higher tube temperatures are possible with XINS-extra insulation HT and HTX type designs.

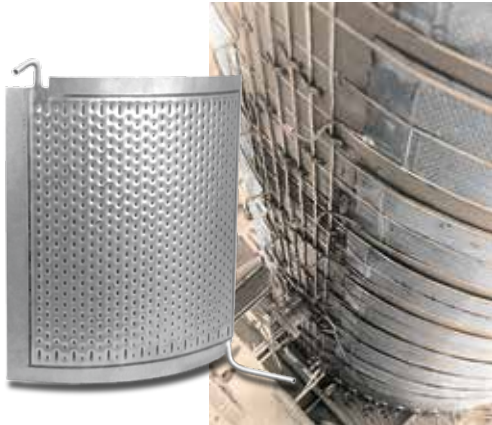
For steam heated instrument tubing, see Instrument Tubing Bundles.

# STEAM TRACING AND TANK/HOPPER HEATING

## TANK AND VESSEL HEATING

### HeatSheet® Tank and Vessel Heating Units \*\*

- Provides Predictable and Reliable Heating (or Cooling)
- Factory-Applied Non-hardening Heat Transfer Compound Ensures Maximum Heat Transfer
- Waffle Pattern Permits Multiple Flow Paths for Heating and Cooling Media
- Provides 2 to 3 Times the Heat Transfer of Plate-Type Coils
- No Risk of Cross-Contamination with Process
- Light-weight Stainless Steel Construction for Easy Installation
- Stainless Steel Inlet and Outlet Tubing Provided from Factory



\*\* For electrically heated tank application consider Thermon electric heating cables.

## HOPPER AND CHUTE HEATING

### HT Module Hopper Heater

- Fluoropolymer Insulated High Temperature 1.3 mm<sup>2</sup> Lead Wires (with stress relief at connection)
- Parallel Circuit High Temperature Alloy Heating Element
- Temperature-Rated Insulation (directs energy towards surface to be heated)
- Aluminized Steel Protective Enclosure and Cover



Hopper and Chute Heating  
 Temperature Maintenance up to 427°C  
 Maximum Exposure Temperature 538°C  
 Maximum Watt Density ..... 4.650 W/m<sup>2</sup>  
 Supply Voltages ..... 120-600 Vac



# PRODUCTS INFORMATION GUIDE & ACCESSORIES

## POWER CONNECTION KITS



**Terminator ZP** nonmetallic kits are designed to fabricate power connections of an electric heat trace circuit.



**Terminator ZL** nonmetallic kits are designed to fabricate power connections and provide visual indication of an energized heat trace circuit.

## IN-LINE SPLICE KITS



**Terminator ZS/ZE** nonmetallic kits are designed to fabricate in-line splices of an electric heat trace circuit.

## T-SPLICE KITS



**Terminator ZP** nonmetallic kits are designed to fabricate T-splice connections of an electric heat trace circuit.

## END TERMINATION KITS



**Terminator ZS/ZE** nonmetallic kits are designed to fabricate an end termination of an electric heat trace circuit.



**Terminator ZE-B Beacon** nonmetallic LED end of circuit light provides visual indication of an energized heat trace circuit.

## MISCELLANEOUS



**PETK** power and end termination kits are required for use with all Thermon parallel heating cables connection kits.

**SCTK** Splice connection kits are required when preparing splices with all Thermon parallel heating cables connection kits.



**FT-1L, FT-1H** fixing tapes for attaching heating cable to piping every 300 mm or as required by code or specification.



**AL-20L, AL-20H, AL-30L, AL-30H** aluminum tape for continuous (longitudinal) covering.



**XP-1** predrilled stainless steel (type 304) mounting bracket designed for mounting Thermon junction boxes and thermostats directly to the pipework.



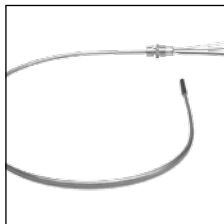
**IEK-SX** Insulation entry kit for use in (non) hazardous locations.



**M20 and M25** power glands and plugs are designed for entry of an electric heat trace circuit into a Thermon approved junction box.



**Brass Glands** power glands and plugs are designed for entry of an electric heat trace circuit into a Thermon approved junction box.



**PTD-100** probe is specially designed to improve the measuring accuracy between control input sensors and controllers.



# CONTROL AND MONITORING

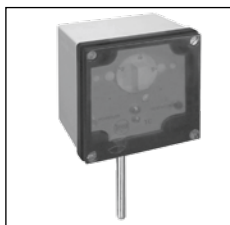
## MECHANICAL THERMOSTATS



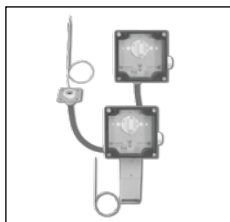
**Terminator ZP Ambient** is designed to provide ambient sensing control of electric heat trace circuits.



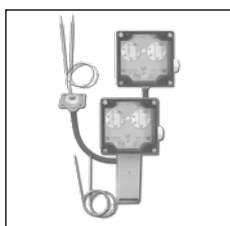
**Terminator ZT** is designed to provide pipewall or tankwall sensing control of electric heat trace circuits.



**TC-Ambient** is designed to provide ambient sensing control of electric heat trace circuits with visual indication of an energized circuit.



**TC1 and TC1/XP Plus** are designed to provide pipewall or tankwall sensing control of electric heat trace circuits with visual indication of an energized circuit.



**TC2 and TC2/XP Plus with Limiter** are designed to provide pipewall or tankwall sensing control of electric heat trace circuits with visual indication of an energized circuit.

## ELECTRONIC THERMOSTATS



**Terminator ECM Ambient** is designed to provide ambient sensing electronic control of electric heat trace circuits.



**Terminator ECM** is an electronic control module specifically designed for controlling electric heat trace circuits. Serves as both the temperature control as well as the sensor and power connection for a heat trace circuit.

## ELECTRONIC CONTROLLERS



**TraceNet TN Series** provides control and monitoring for up to 180 electric heat trace circuits within one Can bus network.

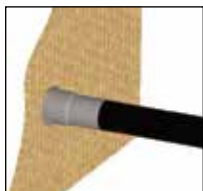


**TraceNet TC Series** provides control and monitoring for up to 18 electric heat trace circuits with input from single or dual RTD inputs.



# PRODUCTS INFORMATION GUIDE & ACCESSORIES

## ENCLOSURE/SHELTER ENTRY KITS



**FAK-9 Bulkhead Entry Heat Shrink Seal** provides an effective transition and strain-relief when bundle passes through a wall 25mm thick or less.



**FAK-1 Kit** for bulkhead entry of TubeTrace bundles. The kit is designed to make a waterproof seal around the bundle.



**Terminator ZP / FAK-1 Kit** for bulkhead entry of electrically heated TubeTrace bundles. The kit is designed to make a waterproof seal over the end of TubeTrace and terminate Thermon electric heat tracing.



**Terminator ECM / FAK-1 Kit** is an electronic control module specifically designed for controlling electric heat trace circuits. Serves as both the temperature control as well as the sensor and power connection for a heat trace circuit.



**Terminator ZE-B / FAK-1 Kit** for bulkhead entry of electrically heated TubeTrace bundles. The kit is designed to make a waterproof seal over the end of TubeTrace and provide visual indication of and energized heat trace circuit.

## T-SPLICE KITS



**FAK-5 (5L) T-Splice Kits** designed to make a waterproof seal over TubeTrace splices.



**Terminator ZP / FAK-5 (5L) Kits** for tee splice of electrically heated TubeTrace bundles. These kits are designed to make a waterproof seal at tee splice connections of Thermon TubeTrace bundle with electric heat tracing.

## IN-LINE SPLICE KITS



**FAK-4 (4L) In-line Splice Kits** are designed to make a waterproof seal over TubeTrace splices.



**Terminator ZP / FAK-4 (4L) Kits** are designed for an in-line splice of electrically heated TubeTrace bundles.



**Terminator ZS / FAK-4 (4L) Kits** are designed to fabricate outside in-line splices on insulated TubeTrace with electric heat tracing.



**FAK-8 Kits** are designed to make a waterproof seal over TubeTrace splices.

## 90° ELBOW TRANSITION KITS



**90° Elbow Transition Kits** are designed to make a waterproof seal over TubeTrace splices.



**Terminator ZP/FAK-2 (2L) Kits** are designed to fabricate outside the insulation power connection, in-line splices or end terminations on TubeTrace with electric heat tracing.



**Terminator ZS/FAK-2 (2L) Kits** are designed to fabricate accessible outside the insulation in-line splices or end terminations on TubeTrace with electric heat tracing.

- High temperature kits are designed so that the outer jacket will not exceed 60°C for high temperature bundles up to 593°C.

# INSTRUMENT TUBING ACCESSORIES

## TERMINATION/SEAL KITS



**FAK-7 Seal Kits** are designed to make a waterproof seal over the end of TubeTrace.



**FAK-10 Kits** are designed to make a waterproof seal over the end of TubeTrace tubing bundles.

## HIGH TEMPERATURE SEAL KIT



**FAK-SSHT** is designed to make a seal over the end of TubeTrace for high temperature applications.

## ACCESSORIES FOR ELECTRIC HEAT TRACE TERMINATION



**PETK** power and end termination kits are required for use with all Thermon parallel heating cables connection kits.

**SCKT** Splice connection kits are required when preparing splices with all Thermon parallel heating cables connection kits.

## FIELD INSTALLED CONTROL SENSOR KITS



**Terminator ZP / FAK-4L Kits** provide a waterproof seal over TubeTrace for field installed sensor.

## OFFICES WORLDWIDE

UNITED STATES CANADA MEXICO NETHERLANDS UNITED KINGDOM  
FRANCE SPAIN GERMANY RUSSIA AUSTRALIA MALAYSIA CHINA  
INDIA JAPAN SOUTH KOREA BAHRAIN BRAZIL

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