Navigating the Tempco Catalog

NEW!! - Flip & View
PICTORIAL INDEX
A FLIP is worth a thousand words!

View Tempco’s Entire Product Line in Minutes!
800+ Pages of 15 Major Product Sections Highlighted in 27 Pages
See Pages A-8 through A-34.

Engineering & Part Number Prefixes

Section 16 contains engineering information pertaining to process heating, temperature sensing and control, plus useful reference data.

An alphabetical index of Part Number Prefixes on pages 860 and 861 identifies catalog page numbers of particular products.

Flip & View PICTORIAL Index
Band Heaters

Used to heat cylindrical surfaces and are available in several construction styles to perform under different operating environments.

Mi-Plus® (mineral insulated) Band Heaters

See Pages 1-2 through 1-27

Mineral insulated heater assembly is formed under pressure to a precise diameter with a thin low-mass cross section assuring fast heat-up rates and reduced cycle times.

PERFORMANCE RATINGS

Max. Sheath Temperature: 1400°F (760°C)
Nom. Watt Density:
Nozzle Bands
under 3” diameter: 30-100 W/in² (4.7-15.5 W/cm²)
Barrel bands
3” and greater in diameter: 20-70 W/in² (3.1-10.9 W/cm²)

Max. Watt Density: 150 W/in² (23 W/cm²)
Dependent on heater size, operating temperature and termination.

Special Features:
High Temperature and High Watt-Density Capabilities

Duraband® Mica Band Heaters

See Pages 1-28 through 1-55

A mica sheet insulated heater with a Low Thermal Expansion alloy sheath is used for the outer sheath, covering the entire width of the band heater.

PERFORMANCE RATINGS

Max. Sheath Temperature: 900°F (482°C)
Nom. Watt Density: 20-45 W/in²
(3-7 W/cm²)

Max. Watt Density: Dependent on heater size and operating temperature.

Special Features:
Most Economical, Versatile and Commonly Used Band Heater

Custom Engineered/Manufactured Mica Insulated Heaters for Specific Applications

See Page 1-43
Ceramic Band Heaters

See Pages 1-56 through 1-69
Ceramic Band Heaters consist of a helically wound resistance coil made from nickel-chrome wire precisely strung through specially designed ceramic insulating bricks, forming a flexible heating mat.

PERFORMANCE RATINGS
Max. Sheath Temperature: 1400°F (760°C)
Nom. Watt Density: 20-45 W/in² (3-7 W/cm²)
Max. Watt Density: 45 W/in²

Special Features:
Fully Flexible Ceramic Fiber Insulated Heater Conserves Electrical Energy.

Tubular Band Heaters

See Pages 1-70 and 1-71
Tubular Band Heaters are recommended for heating applications where premature nozzle band heater burn-out on plastic injection molding machines is a constant problem due to contamination from plastic overflow or other contaminants.

PERFORMANCE RATINGS
Max. Sheath Temperature: 1000°F (540°C)
Nom. Watt Density: 45 W/in² (7 W/cm²)
Max. Watt Density: 45 W/in²

Special Features:
Rugged Contamination-Proof Construction

Maxiband® Heaters

See Pages 1-72 through 1-86
The channels in the specially designed extruded aluminum track have been precisely sized to accept a .315 diameter tubular heating element, and provide an excellent heat sink for rapid heat transfer and good temperature uniformity.

PERFORMANCE RATINGS
Max. Temperature: 650°F (350°C)
Nom. Watt Density: 35 W/in² (5.4 W/cm²)
Max. Watt Density: 45 W/in²

Special Features:
Rugged Contamination-Proof Construction with Excellent Heat Transfer

Cast-In Band Heaters are in Section 3

Pictorial Index
Cartridge heaters are typically inserted into drilled holes to heat platens and molds or used as liquid immersion heaters.

**Hi-Density Cartridge Heaters**
See Pages 2-2 through 2-25

**Swaged Construction**
for Applications up to 1400°F (760°C)

**Hi-Density Cartridge Heaters in Metric Sizes**
See Pages 2-26 through 2-31

**Low Density Cartridge Heaters**
See Pages 2-32 through 2-36

**A Quality and Economical Heater, Used in Applications Requiring Lower Operating Temperatures and Watt Densities**

**Cartridge Heater Terminations & Options** are on pages 2-37 through 2-53

**Highly Engineered Custom Manufactured Specific Use Cartridge Heaters**
See Pages 2-8 and 2-9

Heater for diagnostic medical instruments has an integrated heat sink and thermal fuse.

Heater with custom designed fins for air heating in natural convection environment in a plastic-processing machine.

Cartridge heater with NPT fitting and a 5-pin industrial connector molded to the cord.

Internal thermocouple is wired to a serial connector for easy assembly to a microprocessor used in incubators.
**THE STOCK ADVANTAGE…**

**Custom Terminated Multi-Purpose Use**

**Hi-Density Cartridge Heaters ON DEMAND!**

Tempco’s Terminator Lead Conversion Program guarantees 1 to 2 days shipping on custom terminated Hi-Density Cartridge Heaters.

Over 1000 Standard Sizes and Electrical Ratings In Stock.  
See Pages 2-10 through 2-20.

Select from 22 Lead Terminations.  
See Quick Reference Charts on Pages 2-11 and 2-12.

---

- **Stock Cartridge Heaters with Flexible Leads**  
  See page 2-21

- **Stock Hi-Density Pennybottom Cartridge Heaters with Type J Thermocouple and Flexible Leads**  
  See pages 2-22 and 2-23

- **OEM Replacement Cartridge Heaters**  
  See pages 2-24 and 2-25

- **LDA and HAC Forced Air Process Cartridge Heaters**  
  See page 2-53

- **Hi-Density Cartridge Immersion Heaters**  
  See pages 2-54 through 2-57

- **Hi-Density Bolt Heaters**  
  See pages 2-58 and 2-59

- **Square Cartridge Heaters**  
  See pages 2-60 through 2-62

- **BNS Anti-Seize Cartridge Heater Coating**  
  See page 2-7
Cast-In Heaters

Used in plastic processing, food warming, semiconductor manufacturing and other industries. Available in aluminum and bronze alloys.

Custom Manufactured Special Purpose Cast-In Heaters

Complex Geometric Cast-In Heaters for Diversified Industries
See Pages 3-2 through 3-8

Cast-In Heaters for Transfer/Feed Pipes
See Page 3-9

Cast-In Heaters for Semiconductor Manufacturing
See Page 3-10

Large Thermo-Platen Cast-In Heaters
See Pages 3-12 and 3-13

Liquid Cool Thermo-Platens
See Pages 3-14 and 3-17

Catalog Pages
3-1 through 3-76
Cast-In Heaters for Plastics Processing Equipment
See Pages 3-18 through 3-76

Cool to-the Touch™
Hi-Efficiency Extruder
Heating & Cooling Systems
See Pages 3-20 through 3-45

Air Cooled Finned
Cast-In Heaters
See Pages 3-46 through 3-49

Liquid Cooled Cast-In Heaters
See Pages 3-50 through 3-65

“L” Shaped Cast-In Heaters for
Square & Rectangular Extruder Barrels
See Pages 3-66 through 3-65

Cast-In Ring Heaters
See Page 3-70

Cross Head Die Heaters
See Page 3-71

Cast-In Aluminum Die Heaters
See Page 3-72

Irregular Shapes
See Pages 3-74 and 3-75

Brass Cast-In Nozzle Heater Bushing
for Runnerless Molding
See Section 5, page 5-18
Ceramic Fiber Heaters

Heat source combined with a high temperature insulation for operating temperatures up to 2012°F/1100°C.

---

**Flat Panel Heaters**
See Page 4-2

**Flat Panels**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Range</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>4&quot;, 6&quot;, 8&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>10&quot; through 32&quot;</td>
<td>± 1/4&quot;</td>
</tr>
<tr>
<td>Length</td>
<td>6&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot; through 44&quot;</td>
<td>± 1/4&quot;</td>
</tr>
<tr>
<td>Thickness</td>
<td>1&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>2&quot; through 4&quot;</td>
<td>± 1/4&quot;</td>
</tr>
</tbody>
</table>

**Ceramic Fiber Cylindrical Heaters**
See Page 4-7

**Full Cylindrical**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Range</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.D.</td>
<td>0.75&quot; through 4&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>5&quot; through 18&quot;</td>
<td>± 1/4&quot;</td>
</tr>
<tr>
<td>O.D.</td>
<td>3&quot; and 3.5&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>5&quot; through 24&quot;</td>
<td>± 1/4&quot;</td>
</tr>
<tr>
<td>Length</td>
<td>6&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot; and 18&quot;</td>
<td>± 1/4&quot;</td>
</tr>
</tbody>
</table>

**Ceramic Fiber Semi-Cylindrical Heaters**
See Page 4-8

**Semi-Cylindrical**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Range</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.D.</td>
<td>1&quot;, 2&quot; and 3.5&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>5&quot; through 18&quot;</td>
<td>± 1/4&quot;</td>
</tr>
<tr>
<td>O.D.</td>
<td>5&quot; through 22&quot;</td>
<td>± 1/4&quot;</td>
</tr>
<tr>
<td>Length</td>
<td>6&quot;</td>
<td>± 1/8&quot;</td>
</tr>
<tr>
<td></td>
<td>12&quot; through 36&quot;</td>
<td>± 1/4&quot;</td>
</tr>
</tbody>
</table>
The flexibility of mineral insulated cable allows the Mightyband™ heater to be coiled, formed, wrapped around pipes or used straight. It can also be cast-in to metal or welded onto machine component parts.

**Mightyband Coil Heaters with Built-in Thermocouple**

See Pages 5-2 through 5-9

Tempco’s introduction of the Mightyband Heater in 1977 offered the plastic injection molding industry a more effective heating system to be placed in their products. Today, Tempco offers many options to meet customer specifications.

**Mightyband Coil Heaters with Square MI Cable**

See Page 5-10

This mineral insulated square-sheathed nozzle heater with built-in thermocouple offers a larger sheath contact area than its round counterpart, allowing for faster start-up cycles and supplying a full 360° of heat to the distributed wattage coil.

**OEM Replacement Heaters for Hot Runner Systems**

See Pages 5-11 through 5-14

Direct Replacement square and rectangular cable heaters.

**Mini Coil Band Heaters** are designed and manufactured under the tightest tolerances so that they may be used in hot runner/runnerless injection mold tooling with complete confidence on maintaining the manufacturer’s original balanced heating.

**Gamma Series Dual Sleeve Mini Coil Heater**

See Page 5-17

**Gamma Series mini coil heaters** for hot runner tooling are constructed with the heating element tightly sandwiched between a nickel plated copper inner sleeve and a stainless steel outer sleeve.

CONTINUED
Tempco-Pak Cable Heaters

See Pages 5-21 through 5-25
The densely compacted MgO insulation used in Tempco-Pak heaters produces excellent high temperature insulation resistance and dielectric strength.

Cast Brass and Aluminum Nozzle Heater Bushings
See Pages 5-18 and 5-19
Cast bronze nozzle heater bushings eliminate uneven temperature profiles and short heater life, and with their precision machining, also eliminate poor fit and the need for clamping bands while providing maximum heat transfer.

Sinuated (Formed) Tempco-Pak Heater Cables
See Page 5-20

Forced Gas or Air Tempco-Pak Heaters
See Page 5-20

Star Wound Coil Tempco-Pak Heaters
See Page 5-20

Bulk Round Heater Cables
See Pages 5-26 and 5-27
Typical Applications
- Blown Film Die Heaters
- Heat Tracing
- De-icing Car Wash Door Rails
- De-icing Outside Stairways

Oxygen Analyzer Heaters
See Page 5-28
Inconel® 600 Seamless Nickel Alloy Sheath Material for process temperatures up to 1400°F (760°C).
Heat Trace Cable

Heat trace cables are used to counteract the effects of heat loss from process piping systems.

**Constant Wattage Heating Cables** are all parallel resistance, low watt density electrical heaters designed to be cut to the desired lengths in the field, eliminating the need for prefabrications and reducing or eliminating many design and installation costs.

**KE Style Constant Wattage Heat Trace Cable**  
Maximum Temperature: 500°F (260°C)  
See Page 6-9

**FE Style Constant Wattage Heat Trace Cable**  
Maximum Temperature: 400°F (204°C)  
See Pages 6-10 and 6-11

**Self Limiting Heating Cable** is a low watt density parallel circuit electrical heater. The multi-stranded bus wires are extruded in an irradiated self-regulating conductive polyolefin that increases and decreases its heat output with changes in the ambient temperature.

**SL Style Self-Limiting Heat Trace Cable**  
Maintains Temperatures up to 150°F (65°C)  
See Pages 6-12 and 6-13

**Heat Trace Temperature Controls**  
See Page 6-14
Infrared Heaters

Infrared radiant heat energy can be delivered to concentrated areas at a very fast rate with individual heaters or arrays.

ARA Arrays Assemblies
See Pages 7-2 through 7-13

Design Features
- Custom array housings and large multiple panel arrays designed to fit your thermoforming or wide area infrared heating application
- For use with any style ceramic E-Mitter, quartz mini-tube E-Mitter or quartz tubular elements
- Heater wattage, voltage and column/row spacing customized to meet your specifications
- Can be factory wired with companion control panels for ease of installation
- Suitable for use in horizontal or vertical orientations

CRA Linear Structural Housings
See Pages 7-14 through 7-17

E-Mitter Accessories
See Pages 7-18 through 7-21 and 7-39
Solid Curved Face Ceramic Infrared E-Mitters® Series CRB, CRC, CRM and CRL

Series CRS
60 mm × 60 mm (2.36" × 2.36")
See Page 7-22

Series CRB
60 mm × 245 mm (2.36" × 9.65")
See Pages 7-23 through 7-25

Series CRC
60 mm × 122 mm (2.36" × 4.80")
See Pages 7-26 and 7-27

Series CRL
95 mm × 295 mm (3.72" × 11.63")
See Pages 7-29 and 7-30

Solid Flat Face Ceramic Infrared E-Mitters® Series CRG
122 mm × 122 mm (4.80" square)
See Page 7-31

Flat Face Short Neck Ceramic Infrared E-Mitters® Series CRH, CRN and CRZ

Series CRH
122 mm × 122 mm (4.80" × 4.80")
See Page 7-34

Series CRN
60 mm × 245 mm (2.36" × 9.65")
See Page 7-35

Series CRZ
60 mm × 122 mm (2.36" × 4.80")
See Page 7-36

Flat Face Long Neck Ceramic Infrared E-Mitters® Series CRD
See Pages 7-37 and 7-38

Series CRD - 122 mm wide × 122 mm long (4.80" × 4.80")

CONTINUED
Section 7 (continued)

**CRP 12" x 12" Modular Panels**
See Pages 7-40 through 7-43

**Design Features**
- Standard colors are metamorphing yellow and traditional white.
- Low noise type K thermocouple mounted internally in center heater.
- Standard operating temp range: 750 to 1300°F
- 2.5 to 6μm infrared radiation wavelength

---

**Edison Style Screw-In Bulb Ceramic Infrared E-Mitters Series CRE, CRR and CRT**

**CRE Series**
See Page 7-44 and 7-45

**CRR Series**
See Page 7-46

**CRT Series**
See Page 7-47

---

**KTE & KTG Series High Intensity Quartz Mini-Tube Infrared E-Mitters & Assemblies**
See Pages 7-48 through 7-59

**Series KTE**
Translucent Tubes

**Series KTG**
Clear Tubes with Gold Coated Ceramic Backing

**Design Features**
- Standard industry sizes and ratings up to 60wsi.
  (interchangeable with CRC, CRB, CRN, CRZ ceramic heaters)
**VS Glow Infrared Heater Technology**
See Pages 7-60 through 7-71

**Design Features**
* Good Radiant Efficiency – up to 79%
* Very Rapid Heat-up, Cool-down Time – 30 to 60 seconds

**Gemini Twin Bore Infrared Heater Technology**
See Pages 7-72 through 7-79

**Design Features**
* Industry Standard Twin Bore Quartz Tube Formats
* 24-karat Gold Back Coating for Targeted Infrared Applications
* White Ceramic Reflective Back Coating for Extreme Temperature Requirements

**Quartz Tubular Elements and Assemblies**
See Pages 7-80 and 7-81

**Design Features**
* Watt Density up to 40w/in²
* Infrared Wavelength Range from 2.5 to 6μm

**Infrared Radiant Panels**
See Pages 7-82 through 7-87

**Design Features**
* High Radiant Efficiency – up to 89%
* Watt Density up to 40w/in²
* Heat-up, Cool-down Time – 7 minutes
* Infrared Wavelength Range from 2.5 to 6μm

**Universal 2000 Series Metal Sheathed Tubular Radiant Heaters**
See Pages 7-88 through 7-101

**Design Features**
* Radiant Efficiency – 65%
* Rapid Heat-up – 1.5 minutes
* Infrared Wavelength Range from 3.0 to 6μm
* Good Contamination Resistance

**Useful Technical Information On Infrared Heating**
See Pages 7-102 through 7-108
Strip Heaters

Used in the surface heating of tanks, as the heat source in industrial ovens and for heating air and other inert gases.

Section 8

Catalog Pages 8-1 through 8-26

Channel Strip Heaters
See Pages 8-2 through 8-11

Maxistrip Strip Heaters
See Pages 8-16 through 8-19

Finned Channel Strip Heaters
See Pages 8-12 through 8-15

Mica Insulated Strip Heaters
See Pages 8-20 through 8-24

Custom Engineered/Designed Mica Insulated Strip Heaters
See Page 8-26

Non-Metal Sheath Custom Mica Heaters
See Page 8-26
Flexible Heaters

Used in food service equipment, guidance systems, laminators and many other applications.

Catalog Pages 9-1 through 9-30

Flexible Heating Tapes
See Pages 9-26 through 9-30

Foil Heaters
See Pages 9-25

Silicone Rubber Heaters
See Pages 9-2 through 9-17

PVC Pipe/Conduit Bending Heaters
See Page 9-16

Printed Thick Film Heating Elements
See Pages 9-20 and 9-21

Kapton® Heaters
See Pages 9-4 and 9-18

Enclosure Heater
See Page 9-16

Fiberglass Insulated and Tubular Sheathed Rope Heaters
See Pages 9-22 through 9-24

A-23
**Tubular Heaters**

Available in several diameters, lengths and sheath materials; can be formed into virtually any shape, brazed or welded to any metal surface.

Section 10

Catalog Pages
10-1 through 10-16

- Tubular Heaters
  See pages 10-2 through 10-14
- Tubular Heaters for Runnerless Molds
  See page 10-14
- Finned Tubular Heaters & Single-Ended Tubular Heaters
  See page 10-15

**Process Heaters**

Basic liquid immersion heaters to highly engineered turnkey process circulation heating systems.

Section 11

Catalog Pages
11-1 through 11-76

- Screw Plug Immersion Heaters
  See pages 11-2 through 11-13
- Flanged Immersion Heaters
  See pages 11-14 through 11-27
Circulation Heaters
See pages 11-28 through 11-46
Mightybooster™ In-Line Heaters
Mightybooster™ in-line heaters consist of a thermostatically controlled 1-1/4" steel or brass screw plug heater mounted in a pressure vessel and are ideal for low kilowatt applications.

Circulation Heaters
Circulation Heaters consist of Screw Plug or Flanged Immersion Heaters, depending on kilowatt rating and size, mated to a pressure vessel.

See page 11-47
TEMPCO Circulation Systems include a circulation heater and power control panel skid mounted in a compact package to use minimal floor space. Heater can be vertical mounted or horizontal (shown) mounted.

The pre-wired panel contains a process temperature control and a manual reset overtemperature control. The Zero Voltage Fired SCR power controller provides proportional power to the heater load for precise temperature control.

LDA and HAC In-Line Forced Air Process Heaters
See pages 11-48 through 11-51

Flanged Immersion Heaters for Plastics Processing and Other Industries
See pages 11-52 through 11-55
The various style heaters listed in stock are direct replacements for heaters in many OEM applications.
Process Tubular Forced Air Duct Heaters
See pages 11-56 through 11-63

Cabinet Enclosure Heaters See pages 11-64 through 11-67

Drum Heaters See pages 11-70 through 11-72

Heated Hose See pages 11-68 and 11-69

Patent Pending
**Tank Heaters** See pages 11-73 through 11-76

**Chemical Bath Immersion Heaters**

**TEMPCO Over-the-Side Chemical Bath Immersion Heaters** are available in a variety of sheath materials and heater configurations to cover the widest possible spectrum of chemical heating applications. From plain steel to Teflon® covered, Tempco is sure to have the correct heater for even the most difficult application.

Built-in thermal overload protection prevents premature heater burnout in low liquid level conditions. This thermal protection also guards against a potentially hazardous situation should the heater be in close proximity to combustibles such as a plastic tank, or the medium being heated.

See www.tempco.com for complete information including a Chemical Compatibility Guide

Tempco Over-the-Side Chemical Bath Immersion Heaters
are UL listed (except plain steel) under
Classification KQGV, File Number E176527.
All catalog heaters are CSA certified under
File Number LR 701748.
Instrumentation

Instruments for temperature measurement and recording. Current indicators, variable voltage transformers and multimeters.

Section 12

Catalog Pages 12-1 through 12-52

Videographic Data Logger and Paper Chart Recorders
See Pages 12-2 through 12-11

- Videographic Data Logger
- Up to 18 Channels
- 180 mm Paper Format
- Up to 30 Channels
- 100 mm Paper Format
- 6 Channel Dotting Recorder

Rotating Multi-Pin Electrical Connectors
See Pages 12-12 through 12-17

- Models with one through eight conductors
- Amperage Ratings: 4, 30, 125 Amps

Melt Pressure Gauges
See Pages 12-24 and 12-25

Melt Pressure Displays
See Pages 12-26 through 12-28

Rupture Discs
See Page 12-29
Electronic Test Instruments
See Pages 12-50 and 12-51

Portable Infrared Thermometers
See Pages 12-30 through 12-33

Noncontact Infrared Temperature Measurement
See Pages 12-34 through 12-39

Temperature Transmitters
See Pages 12-40 through 12-42

Current Indicators
See Page 12-48

Current Sensing Relays
See Page 12-49

Temperature Monitors
See Pages 12-44 and 12-45

Bimetal Dial Thermometers
See Pages 12-46 and 12-47

Digital Thermometers
See Page 12-43

Temperature Transmitters
See Pages 12-40 through 12-42

Electronic Test Instruments
See Pages 12-50 and 12-51

Variable Voltage Transformers
See Page 12-52

- Laser Sighting on All Models
- Optical Resolution from 12:1 up to 60:1
- Compact and Panel Mount Systems
- Optical Resolution from 2:1 up to 50:1
- Laser Sighting on All Models
- Optical Resolution from 12:1 up to 60:1
- Optical Resolution from 2:1 up to 50:1
- Head and Panel Mount
- Isolated and Non-Isolated Models
- PC Programmed for Input and Range
- Single or Dual Input Models
- AC and Battery Powered Models
- Fixed Back and Adjustable Angle Models
- Red and Green LED Models Available
- Separate Current Transformer and Panel Mount LEDs
- Monitors Currents from 10mA to 100AC Amps
- Variable Trip Point
- Multimeter
- Megohmmeter
- Amp Clamp
- Digital Temperature Displays
- 120V and 240V Models
- Panel Mount and Portable Versions
Temperature Control

TEC Temperature Controllers and other components required to complete your thermal loop system.

Section 13

Catalog Pages 13-1 through 13-78

**Temperature Control Panel Console Systems**
See Page 13-40 and 13-41
Tempco’s consoles are offered in models from 1 to 4 zones, completely wired.

**Series TKZ Encapsulated Temperature Controller**
See Page 13-38
The encapsulated design allows for use in areas of high humidity and components are less likely to be damaged in handling.

**TEC Temperature Controls**
See Pages 13-2 through 13-37

**Economical Temperature Control for Thermostat Replacement**
See Page 13-39

**Power Control Panels**
See Pages 13-42 through 13-49
All Control Consoles and Power Control Panels are manufactured in our UL Certified Panel Shop.

**Hot Runner Injection Molding Temperature Control Systems**
See Pages 13-50 through 13-52
**Solid State Variable Power Controllers**  
See Page 13-53  
Compact 2" cube style

**Contract Manufacturing**  
See Pages 13-54 and 13-55  
Electronic control systems from Printed Circuit Board Assemblies to full assemblies including brackets, wiring and connectors

**SCR Power Controls**  
See Pages 13-56 through 13-61  
- Single phase 10 through 1200 Amp  
- Three phase 10 through 1200 Amp  
- Zero cross and phase angle firing

**Bulb & Capillary Thermostats**  
See Pages 13-62 and 13-63  
- Single pole  
- Double pole  
- Double pole with high limit  
- Thermostat kits, enclosures and thermowells

**Surface Mount Thermostats**  
See Page 13-64  
- Adjustable and pre-set setpoints  
- Ranges from 50 to 570°F (10 to 300°C)

**1/2" Disc Thermostats**  
See Pages 13-65 and 13-66  
- Pre-set snap action  
- High limit with manual reset  
- Setpoints from 50 to 300°F (10 to 149°C)

**One Shot Thermal Cutoffs**  
See Page 13-66  
- Small size: 0.55" long x 0.16" dia.  
- Cutoff temperatures from 151 to 464°F (66 to 240°C)

**Cartridge Type Thermostats**  
See Pages 13-67 through 13-69  
- Diameters include 1/4", 1/2" and 5/8"  
- Adjustable range from -100 to 600°F (-73 to 260°C)  
- Styles include: straight cartridge, block head, pipe thread, coupling head and flange

**Single Phase Solid State Relays**  
See Pages 13-70 through 13-72  
- Single phase – Load current from 10 to 75 Amps  
- Three phase – Load current from 10 to 45 Amps  
- AC and DC control inputs

**Solid State DIN Rail Relay Modules**  
See Pages 13-72 and 13-73  
- With built-in heat sink, AC and DC control inputs  
- Single phase models – Load current from 12 to 35 Amps  
- Three phase models – Load current: 25 Amps

**Mercury Relays**  
See Pages 13-74 through 13-76

**Definite Purpose Magnetic Contactors**  
See Page 13-78

**DIN Rail Mounted Mechanical Relays**  
See Page 13-77
Temperature Sensors

Thermocouples, RTDs, Thermistors and related accessories.

General Purpose Thermocouples
See Pages 14-2 through 14-11
Tempco has a wide variety of standard designs and a large stock of thermocouples specifically manufactured for the plastics and commercial industry as well as light to medium duty applications where more costly types of thermocouples are not necessary. All thermocouples are available in ANSI Type J (Standard), K, T and E calibrations.

Mineral Insulated Thermocouple Assemblies
See Pages 14-12 through 14-31
Tempco manufactures a wide variety of standard and custom designs for many diverse industries and applications in temperature ranges from cryogenic –200°C (–328°F) to 2315°C (4200°F). When you have a special requirement or a difficult application, consult Tempco.

Industrial Process Thermocouples
See Pages 14-32 through 14-45
Tempco manufactures many styles of industrial thermocouple assemblies for a wide range of industries, from petrochemical to textile applications, where one or more protection tubes may be necessary to protect the thermocouple; available with Base Metal and Noble Metal thermocouples.

Accu-Ohm RTDs and Thermistors for Industrial, Plastics and Medium and Light Duty Applications
See Pages 14-46 through 14-66
Tempco’s RTDs (Resistance Temperature Detectors) are designed to meet IEC Publication 751, DIN43760, JIS1604-1989 and BS1904-1984. They are normally supplied to Class B, but can be manufactured to Class A as an option. RTDs offer greater repeatability and interchangeability than thermocouples or thermistors over the standard temperature scale from –260°C to 630°C (–436 to 1166°F).
Jack Panels and Accessories
See Pages 14-69 through 14-75
Tempco’s Jack Panels are made from rugged, .090” thick aluminum and allow for easy installation of multi-circuit thermocouple or RTD Quick Disconnect Jacks in your panel or housing.

Hardware and Accessories
See Pages 14-87 through 14-101
- Bayonet Type Adaptors
- Compression Fittings
- Protection Tube Mounting Parts
- Plugs and Jacks
- Terminal Blocks
- Thermocouple Heads
- Thermocouple Terminal Strips
- Plastic Melt Bolts

Insulated Thermocouple and Extension Wire
See Pages 14-102 through 14-113
This section presents the most commonly used insulated thermocouple and thermocouple extension wire available from stock in all the ANSI recognized calibrations. All thermocouple and thermocouple extension wires are supplied to meet Standard Tolerances of ANSI Circular MC96.1-1982. Special tolerances to ANSI MC96.1 are available at an extra charge.

Thermowells, Ceramic and Metal Protection Tubes
See Pages 14-76 through 14-86
Tempco offers standard and custom manufactured Thermowells and Protection Tubes that give you an excellent variety of ways to protect your temperature sensor from high velocity, high pressure and corrosive and harsh environments.

Metal Sheathed Mineral Insulated Thermocouple Cable (MI T/C Cable)
See Pages 14-114 through 14-126
Tempco offers a wide variety of sheathed, mineral insulated thermocouple cable. We stock many varieties of sheath diameters and materials in ANSI recognized thermocouple types and can manufacture a multitude of non-stock combinations of sheath materials, O.D.s, insulations, wire types and wire configurations on special request; consult Tempco with your specific requirements.
Catalog Pages
15-1 through 15-16

**Accessories**

High temperature lead wire, ceramic terminal blocks and wire nuts, sleeving, electrical plugs and other items.

- **High Temperature Lead Wire**
  See Pages 15-2 through 15-3

- **Resistance Wire**
  See Pages 15-4 through 15-7

- **Ceramic Terminal Blocks and Wire Nuts**
  See Pages 15-8 through 15-10

- **Lead Wire Protection**
  See Page 15-12

- **Stock Ceramic Accessory Items**
  See Page 15-11

- **High Temperature Plugs**
  See Page 15-12

- **Heavy Duty Plugs**
  See Page 15-13

- **High Temperature Terminal Lugs**
  See Page 15-14

- **Irreversible Temperature Strips**
  See Page 15-14

- **Insulation Blankets**
  See Pages 15-15 and 15-16

**Engineering**

Formulas for calculating required wattage, sheath selection material tables and other useful data. Need additional help? Please contact our rock-solid engineering team at 800-323-6859.

Catalog Pages
16-1 through 16-23