

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

Pictorial Index

Band Heaters

Section 1

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



Catalog Pages
1-1
through
1-86



Mi-Plus® *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® *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:

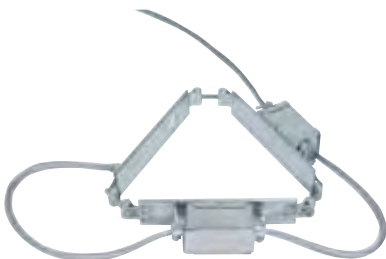
Dependent on heater size and operating temperature.

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

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

Tubular Nozzle Band Heater

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®

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



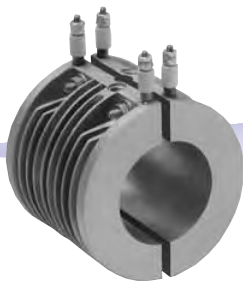
Heat Only



Heat & Cool



Cool Only



Cast-In Band Heaters are in Section 3



Pictorial Index

Cartridge Heaters

Section 2

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



Catalog Pages
2-1
through
2-62



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



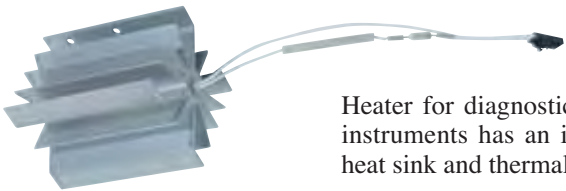
Low Density Cartridge Heaters
See Pages 2-32 through 2-36

*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

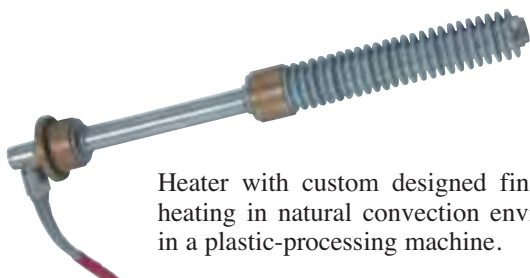
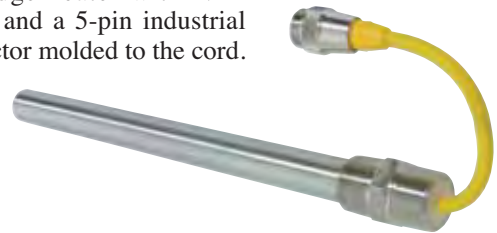
Highly Engineered Custom Manufactured Specific Use Cartridge Heaters

See Pages 2-8 and 2-9

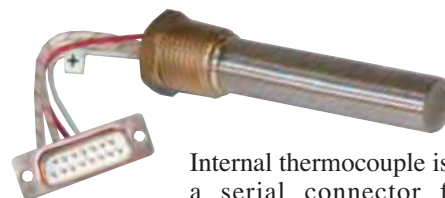


Heater for diagnostic medical instruments has an integrated heat sink and thermal fuse.

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



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



Internal thermocouple is wired to a serial connector for easy assembly to a microprocessor used in incubators.

THE TERMINATOR STOCK ADVANTAGE...



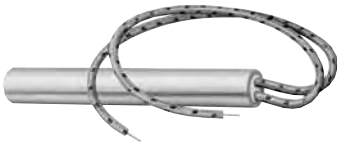
Custom Terminated Multi-Purpose Use Hi-Density Cartridge Heaters ON DEMAND!

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

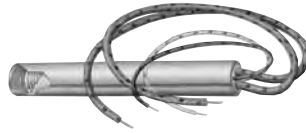
Over **1000** Standard Sizes and Electrical Ratings In Stock.
See Pages 2-10 through 2-20.

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

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Cast-In Heaters

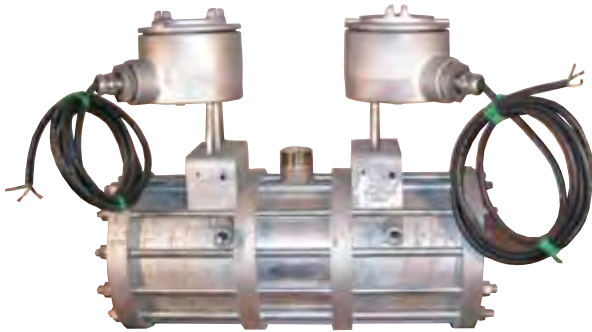
Used in plastic processing, food warming, semiconductor manufacturing and other industries. Available in aluminum and bronze alloys.



Section 3

Catalog Pages
3-1
through
3-76

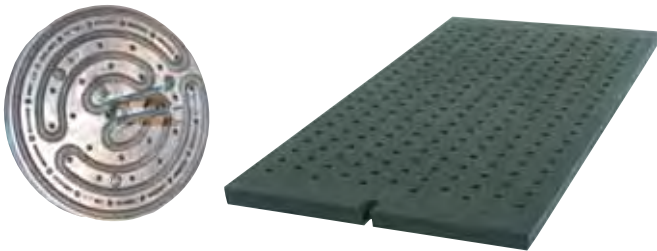
Custom Manufactured Special Purpose Cast-In Heaters



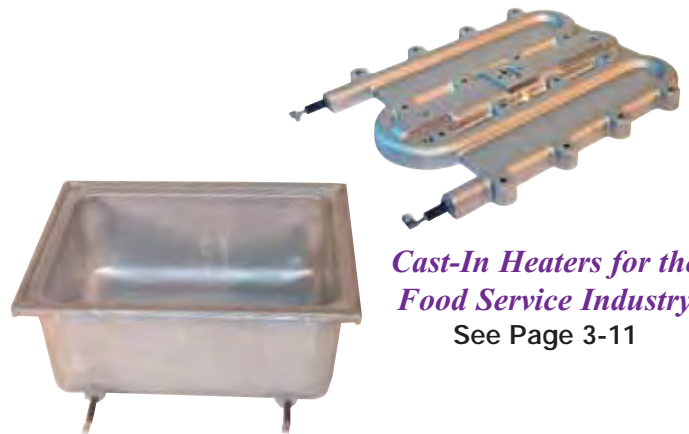
*Complex Geometric Cast-In Heaters
for Diversified Industries*
See Pages 3-2 through 3-8



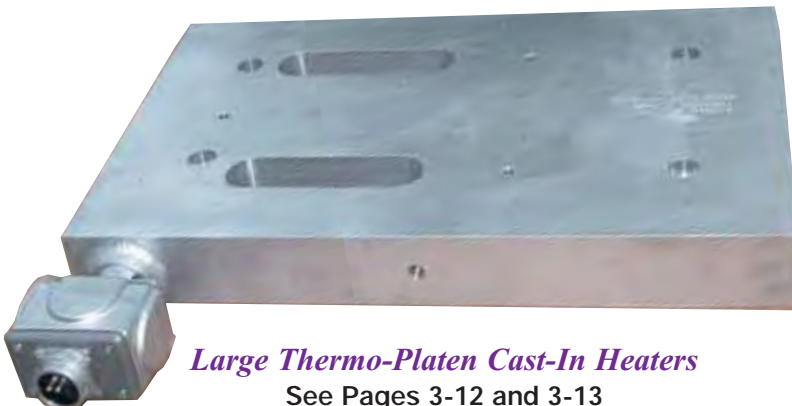
*Cast-In Heaters
for Transfer/Feed Pipes*
See Page 3-9



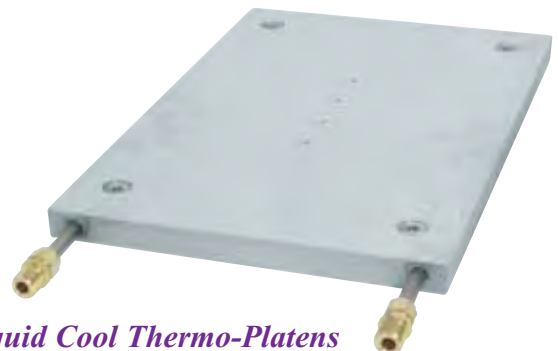
*Cast-In Heaters for
Semiconductor Manufacturing*
See Page 3-10



*Cast-In Heaters for the
Food Service Industry*
See Page 3-11



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



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

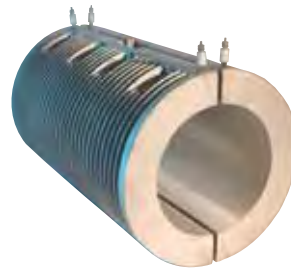
Pictorial Index



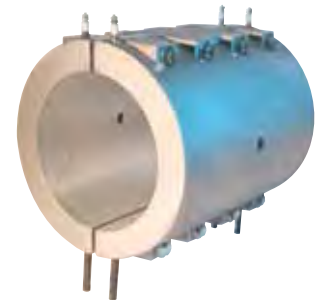
Cast-In Heaters for Plastics Processing Equipment
See Pages 3-18 through 3-76



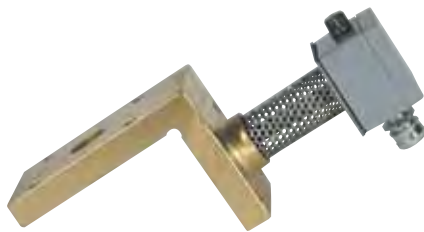
*Cool to the Touch™
Hi-Efficiency Extruder
Heating & Cooling Systems*
See Pages 3-20 through 3-45



*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



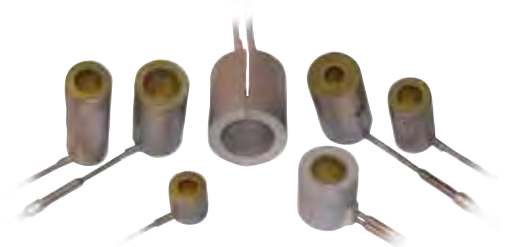
Cross Head Die Heaters
See Page 3-71



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

Pictorial Index

Ceramic Fiber Heaters

Section 4

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



Catalog Pages
4-1
through
4-8



Flat Panel Heaters

See Page 4-2

Flat Panels

Width:	4", 6", 8"	± 1/8"
	10" through 32"	± 1/4"
Length:	6"	± 1/8"
	12" through 44"	± 1/4"
Thickness:	1"	± 1/8"
	2" through 4"	± 1/4"

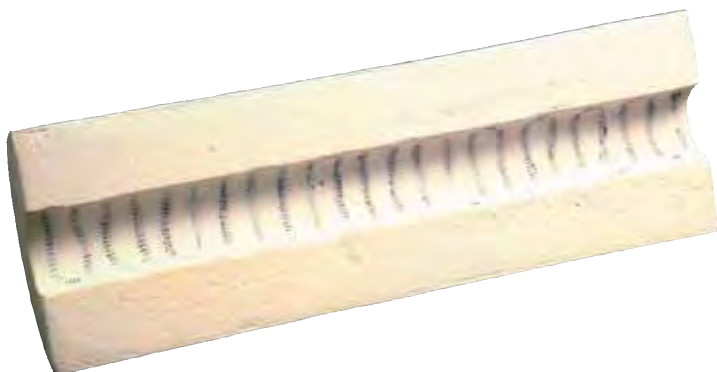


Ceramic Fiber Cylindrical Heaters

See Page 4-7

Full Cylindrical

I.D.:	0.75" through 4"	± 1/8"
	5" through 18"	± 1/4"
O.D.:	3" and 3.5"	± 1/8"
	5" through 24"	± 1/4"
Length:	6"	± 1/8"
	12" and 18"	± 1/4"



Ceramic Fiber Semi-Cylindrical Heaters

See Page 4-8

Semi-Cylindrical

I.D.:	1", 2" and 3.5"	± 1/8"
	5" through 18"	± 1/4"
O.D.:	5" through 22"	± 1/4"
Length:	6"	± 1/8"
	12" through 36"	± 1/4"

Pictorial Index

Coil & Cable Heaters

Section 5

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



Catalog Pages
5-1
through
5-28



Mightyband Coil Heaters with Built-in Thermocouple

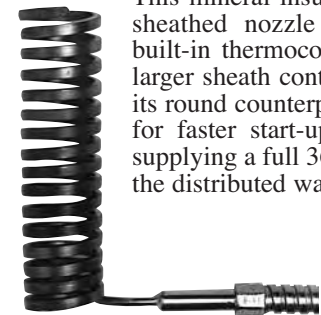
See Pages 5-2 through 5-9

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.

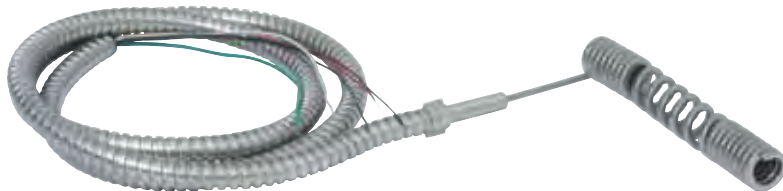


Mightyband Coil Heaters with Square MI Cable

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 Heaters for OEM Hot Runner Systems

See Page 5-15 and 5-16

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.

Clamp Screw
Clamping



Cam Operated Clamping

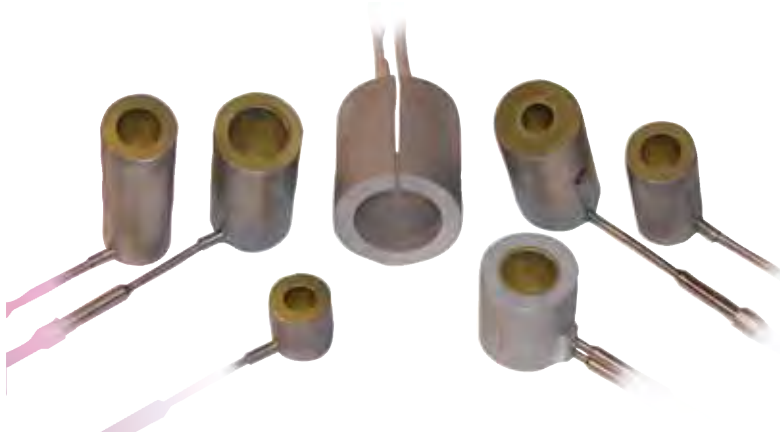


Gamma Series Dual Sleeve Mini Coil Heater

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



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.

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.

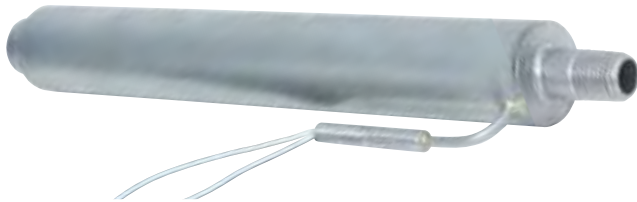


Sinuated (Formed) Tempco-Pak Heater Cables

See Page 5-20

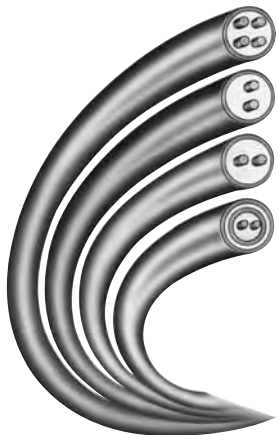
Forced Gas or Air Tempco-Pak Heaters

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).



Pictorial Index

Heat Trace Cable

Section 6

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



Catalog Pages
6-1
through
6-14

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



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Infrared Heaters

Section 7

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



Catalog Pages
7-1
through
7-108

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



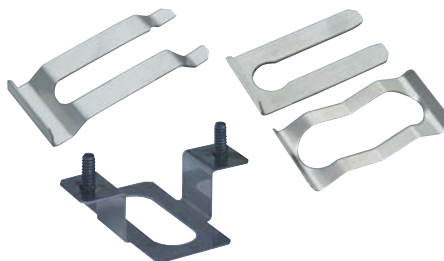
CRA Linear Structural Housings

See Pages 7-14 through 7-17



E-Mitter Accessories

See Pages 7-18 through 7-21 and 7-39



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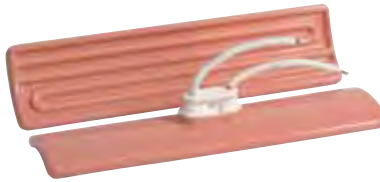
Solid Curved Face Ceramic Infrared E-Mitters® Series CRB, CRC, CRM and CRL



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")

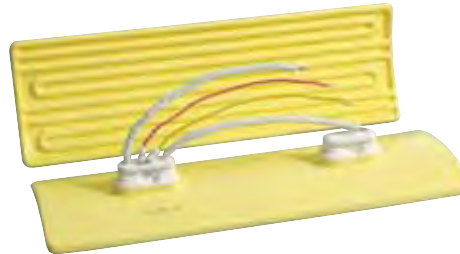
See Pages 7-26 and 7-27



Series CRM

60 mm × 163 mm (2.36" × 6.41")

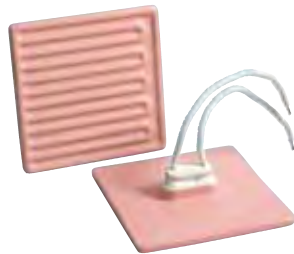
See Page 7-28



Series CRL

95 mm × 295 mm (3.72" × 11.63")

See Pages 7-29 and 7-30

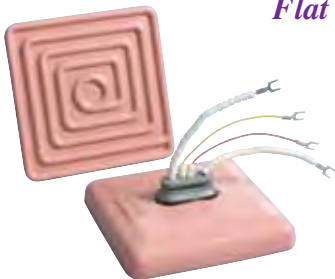


Solid Flat Face Ceramic Infrared E-Mitters® Series CRG

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 



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



Patent Pending

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)

Pictorial Index



VS Glow Infrared Heater Technology

See Pages 7-60 through 7-71

Design Features

- * All Ceramic Construction
- * Precision Wavelength
- * White Ceramic Reflective Back Coating for Extreme Temperature Requirements
- * Optional Gold Coated Ceramic Reflective Surface



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

- * Good Radiant Efficiency – up to 79%
- * Very Rapid Heat-up, Cool-down Time – 30 to 60 seconds
- * Watt Density up to 40w/in²
- * Infrared Wavelength Range from 2.5 to 6 μ m

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 6 μ m



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 6 μ m
- * Good Contamination Resistance

Useful Technical Information On Infrared Heating

See Pages 7-102 through 7-108

Pictorial Index

Strip Heaters

Section 8

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



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



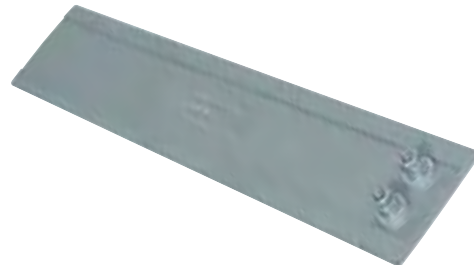
Finned Channel Strip Heaters

See Pages 8-12 through 8-15



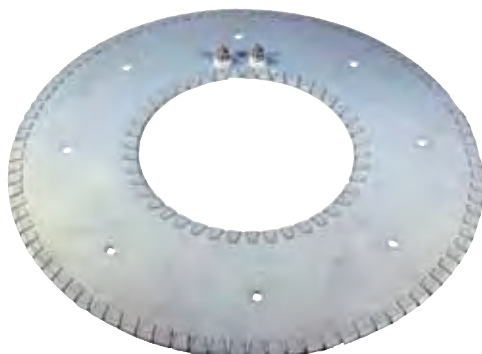
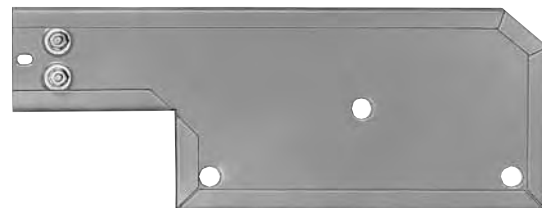
Mica Insulated Strip Heaters

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



Pictorial Index

Flexible Heaters

Section 9

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

Catalog Pages
9-1
through
9-30



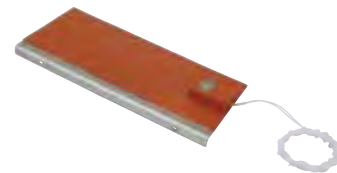
Silicone Rubber Heaters
See Pages 9-2 through 9-17



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



PVC Pipe/Conduit Bending Heaters
See Page 9-16



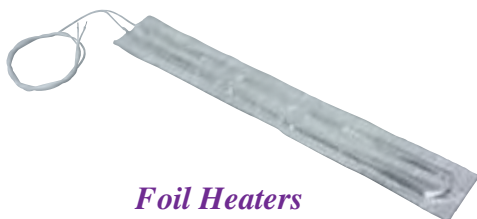
Enclosure Heater
See Page 9-16



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



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



Foil Heaters
See Pages 9-25



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

Pictorial Index

Tubular Heaters

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



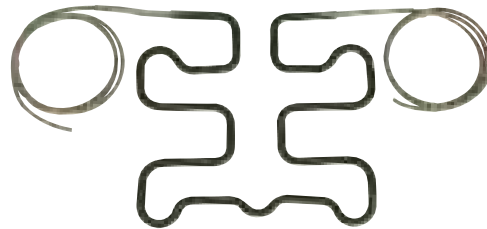
Section 10

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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
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11-76



Screw Plug Immersion Heaters

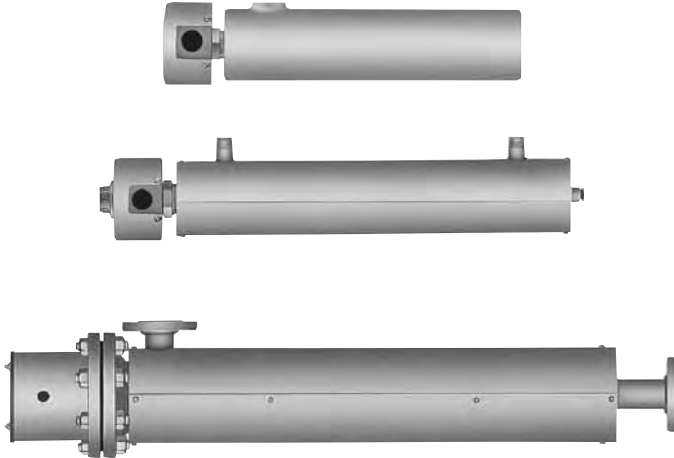
See pages 11-2 through 11-13



Flanged Immersion Heaters

See pages 11-14 through 11-27

Pictorial Index



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.



◀ **FULL
SYSTEM**

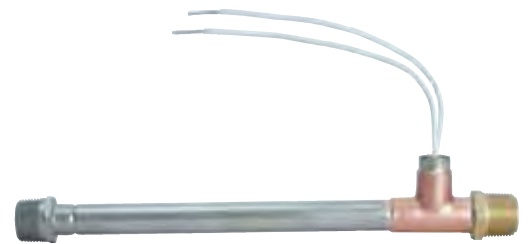
See page 11-47

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.

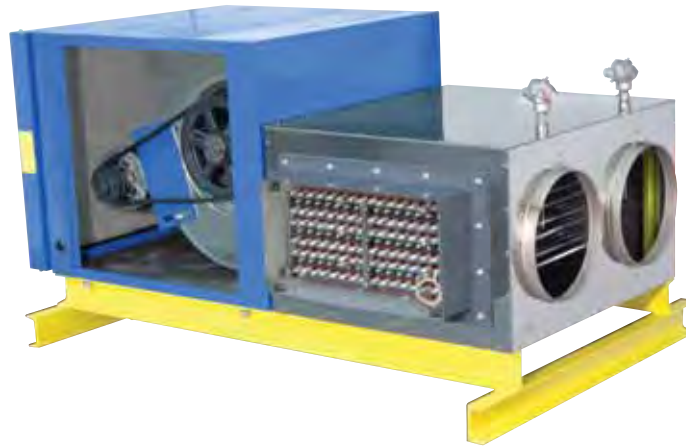


▶ **CONTINUED**

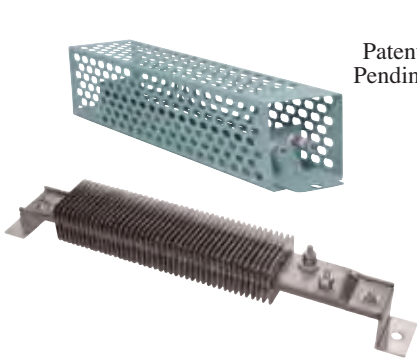


Process Tubular Forced Air Duct Heaters

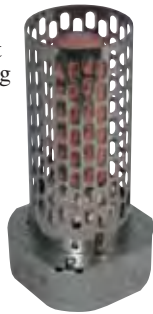
See pages 11-56 through 11-63



◀ FULL SYSTEM



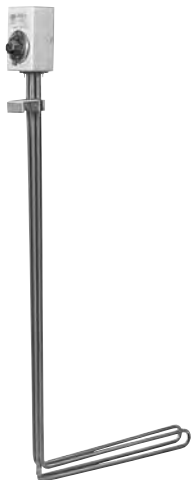
Patent Pending



Heated Hose

See pages 11-68 and 11-69

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

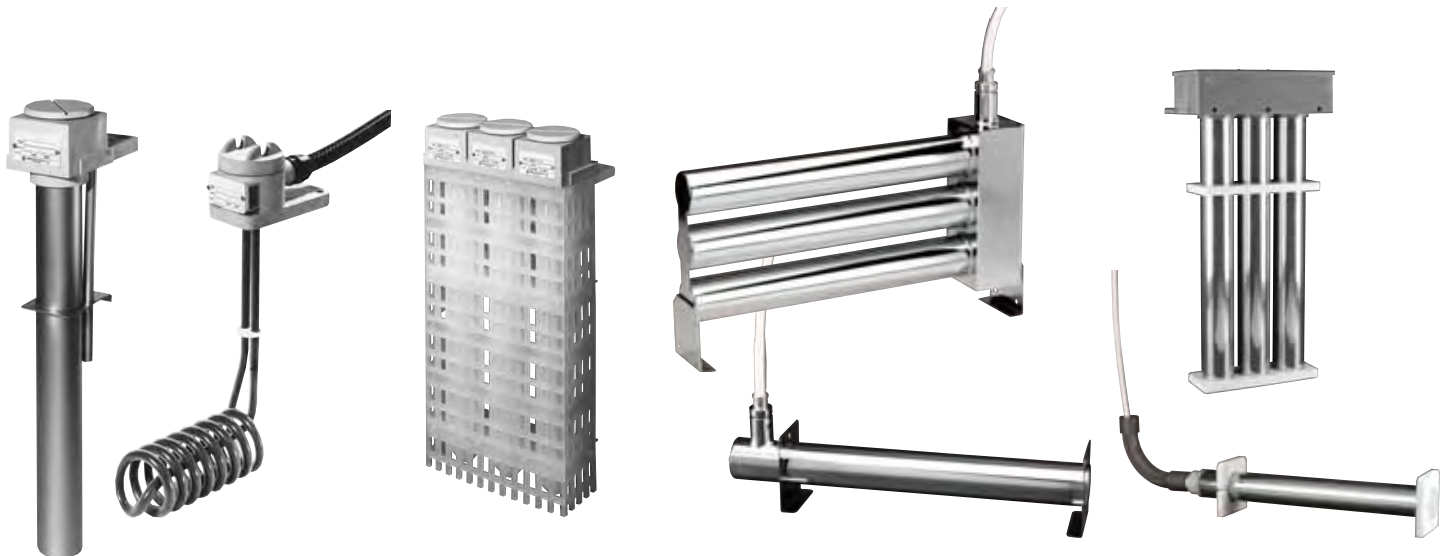


Drum Heaters See pages 11-70 through 11-72

Pictorial Index



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.



Pictorial Index

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 Transducers

See Pages 12-18 through 12-23

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



Pictorial Index

Portable Infrared Thermometers

See Pages 12-30 through 12-33



- * Laser Sighting on All Models
- * Optical Resolution from 12:1 up to 60:1

Noncontact Infrared Temperature Measurement

See Pages 12-34 through 12-39



- * Compact and Panel Mount Systems
- * Optical Resolution from 2:1 up to 50:1

Temperature Transmitters

See Pages 12-40 through 12-42



- * Head and Panel Mount
- * Isolated and Non-Isolated Models
- * PC Programmed for Input and Range

Digital Thermometers

See Page 12-43



- * Single or Dual Input Models

Temperature Monitors

See Pages 12-44 and 12-45



- * AC and Battery Powered Models

Bimetal Dial Thermometers

See Pages 12-46 and 12-47



- * Fixed Back and Adjustable Angle Models

Electronic Test Instruments

See Pages 12-50 and 12-51



- * Multimeter
- * Megohmmeter
- * Amp Clamp
- * Digital Temperature Displays

Variable Voltage Transformers

See Page 12-52



- * 120V and 240V Models
- * Panel Mount and Portable Versions

Current Indicators

See Page 12-48



- * Red and Green LED Models Available
- * Separate Current Transformer and Panel Mount LEDs

Current Sensing Relays

See Page 12-49



- * Monitors Currents from 10mA to 100AC Amps
- * Variable Trip Point

Pictorial Index

Temperature Control

Section 13

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



Catalog Pages
13-1
through
13-78



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

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.



Economical Temperature Control for Thermostat Replacement
See Page 13-39



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.

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

Pictorial Index

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



DIN Rail Mounted Mechanical Relays

See Page 13-77

Definite Purpose Magnetic Contactors

See Page 13-78



Pictorial Index

Temperature Sensors

Section 14

Thermocouples, RTDs, Thermistors and related accessories.



Catalog Pages
14-1
through
14-126



General Purpose Thermocouples

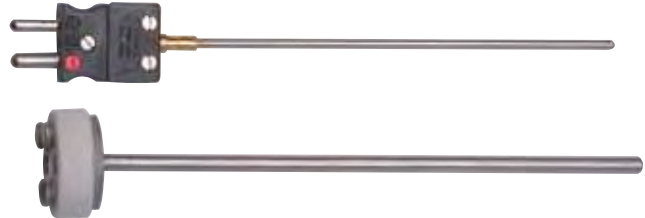
See Pages 14-2 through 14-11

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

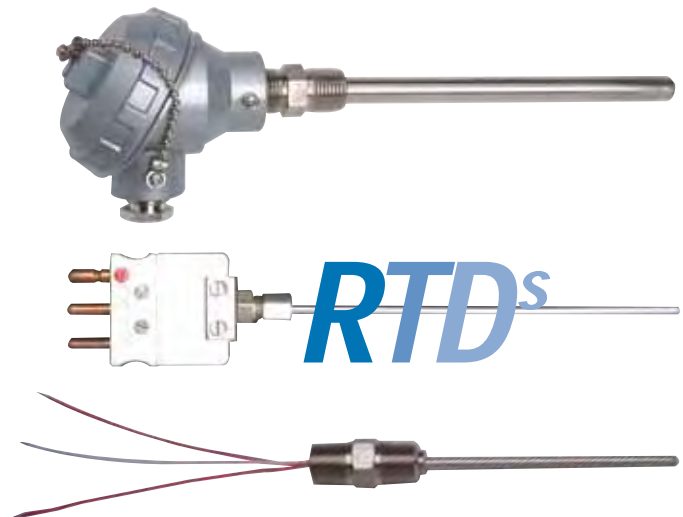
See Pages 14-32 through 14-45

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).



Pictorial Index

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.



Thermowells, Ceramic and Metal Protection Tubes

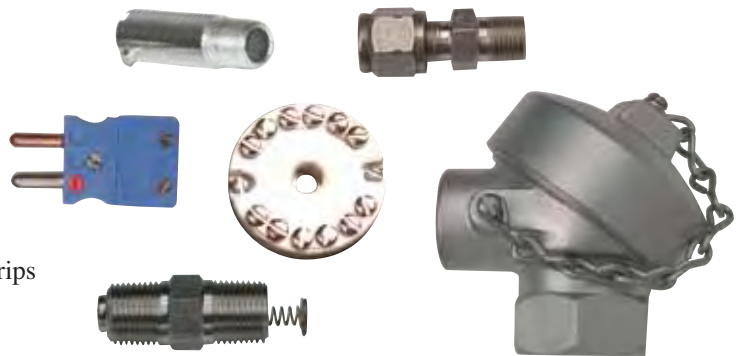
See Pages 14-76 through 14-86

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.

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

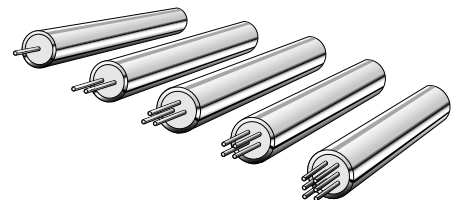
See Pages 14-102 through 14-113

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.

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.



Pictorial Index

Accessories

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



Section 15

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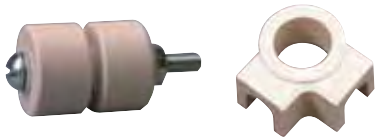
High Temperature Lead Wire
See Pages 15-2 through 15-3



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



Housings
See Page 15-13

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.



Section 16

Catalog Pages
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