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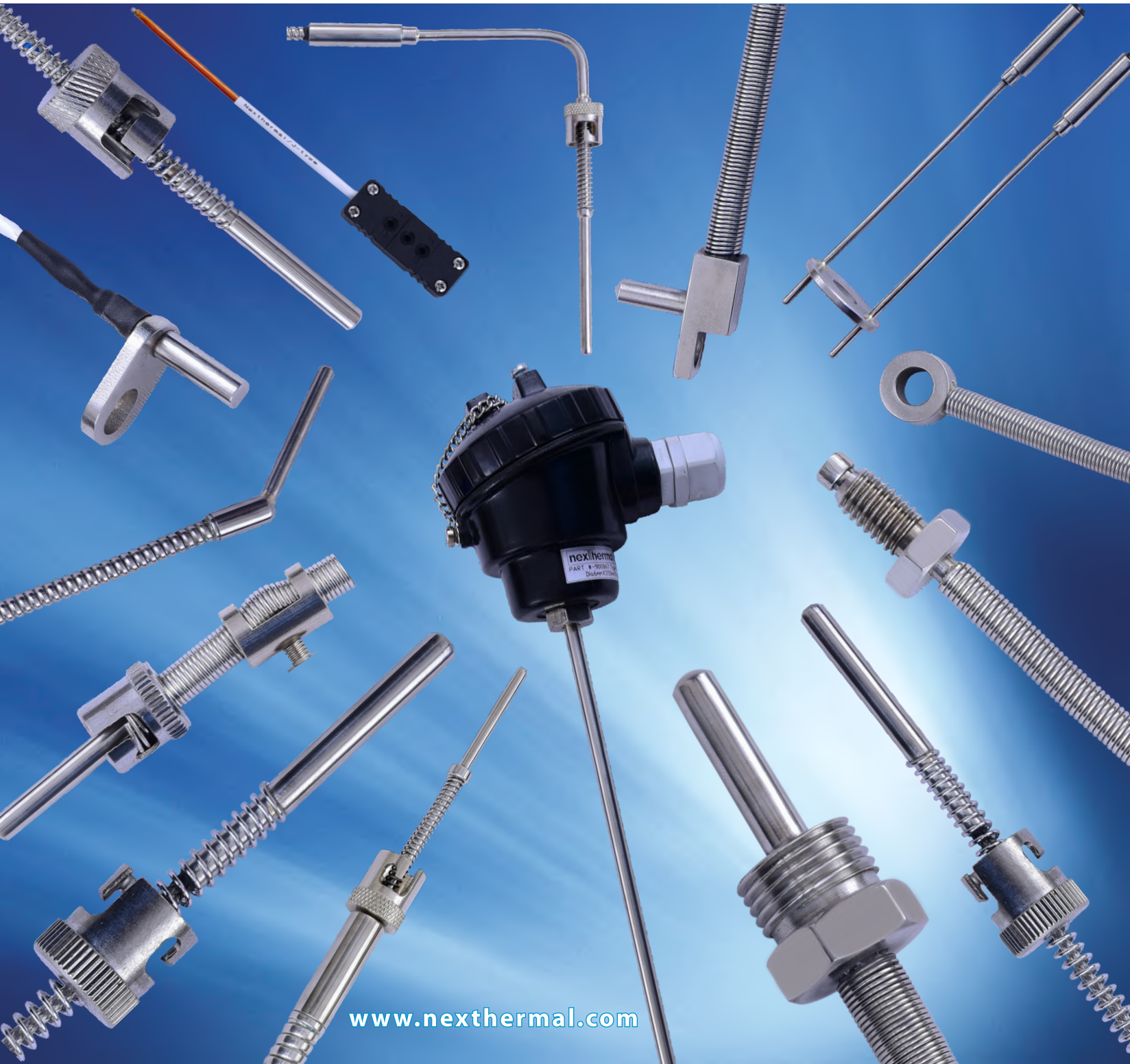
smart heat management

Build-to-Order Temperature Sensor Solutions



www.nexthermal.com

Who is Nexthermal?

Nexthermal is a solution provider where engineers design build-to-order electric heaters and temperature sensors for industrial manufacturing processes and new product development. When heat and sensing is vital to your application, the most cost-effective process improvement are heaters and temperature sensors respectively designed specifically for your operating conditions.

"Nexthermal uses the latest Technology and industry knowledge in developing Robust Sensor Solutions"

Together, we can design the right Temperature Sensors and heaters for you.

If heat sensing is vital to your process... add ***Nexthermal*** *to your team!*

Nexthermal can combine your unique process knowledge and objectives with our thermal transfer expertise. This collaboration can lead to shorter cycle times, improved product quality, and extended throughput capabilities.

1986 — Hotset Corporation established in Battle Creek, Michingan as a separate entity and strategic partner to Hotset GmbH.

1991 — Initial cartridge heater produced.

1998 — U. S. coil heater production launched.

2002 — Pressed-in-Brass coil heater introduced.

2003 — Production facility expanded.

2004 — Heat based assemblies unveiled.

2006 — Manufacturing begins in Bangalore, India. Introduced anti-seize coating and highly moisture resistant coil heater head.

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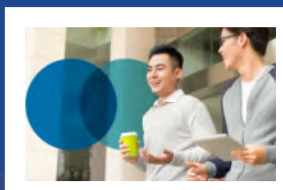
Temperature Sensors

As your partner, Nexthermal Strives to be:

Approachable — Welcoming discussions, highly interested in the details of your application. Sincerely committed to helping you succeed.

Dynamic — Responding with a sense of urgency, proactively anticipating and planning for challenges, demonstrating agility that incorporates your input and experience to accelerate the best solution.



Knowledgeable — Our application experience and ability to understand your process will generate market driven solutions, which leads you to clearly see that Nexthermal is your heat management expert.

International — HQ in the United States, we have a global reach. With customers and strategic partners worldwide, Nexthermal has the resources to generate the right solution delivering world class benefits well beyond your investment in our products and services.

Innovative — Delivering application-based solutions with your requirements in mind. Developing new product capabilities to address emerging needs.

2008 — Selected as the exclusive Elstein marketing agent in the United States.

2009 — Hotflow circulation heater invented, targeting electric vehicle, medical and food production markets.

2010 — Renamed **Nexthermal** to emphasize commitment to heat management solutions worldwide. Introduced eheat energy efficient cartridge heaters.

2012 — **Nexthermal** Thermal Solution team created, providing customers with the option of adding advanced thermal modeling and design capabilities to important development projects.

2014 — **Nexthermal** proudly becomes a 100% U.S. owned company. Introduced new Nextflex ® Flexible Tubular Heater and began manufacturing Thermocouples

2015 — Received certified minority owned business certification.

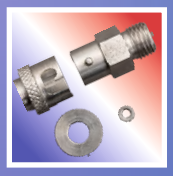
Production expansion of U.S. manufacturing facility.

2018 — **Nexthermal** begins intial planning stage for another production expansion.

Temperature Sensor Performance Options

Moisture Resistance:
For applications that require wash down, have high amounts of humidity in the ambient air or have machining oil nearby, Nexthermal offers build-to-order options to deliver moisture resistance at your operating temperature.

Accuracy:
Nexthermal provides Class 1 Tolerance accuracy as per IEC Tolerance Class EN 60584-2; JIS C 1602 for all the J, K & E type Thermocouples. For RTD Sensors we provide Class A accuracy as per IEC 60 751/EN 60 751 standard.



Standard Accessories:
For applications requiring a specific insertion depth or where the sensor must be held in it's place, Nexthermal offers standard flanges, stoppers, Bayonets or Bolts for most sizes. We can also design customized accessories suitable to your application.

Thermocouple Junction Purity:
The presence of additional material at Thermocouple junction creates a secondary junction & leads to error. Nexthermal Thermocouples are free from any secondary junction through its robust manufacturing process and controlled environment, which further improves the accuracy, longevity & stability of the Thermocouple reading.

Customized Design:
Nexthermal uses state-of-the-art technology and industry standards in developing Temperature Sensors to meet unique specification standards to ensure superior performance.

Special Critical Tolerance:
Nexthermal provides custom tolerances as per application requirements.

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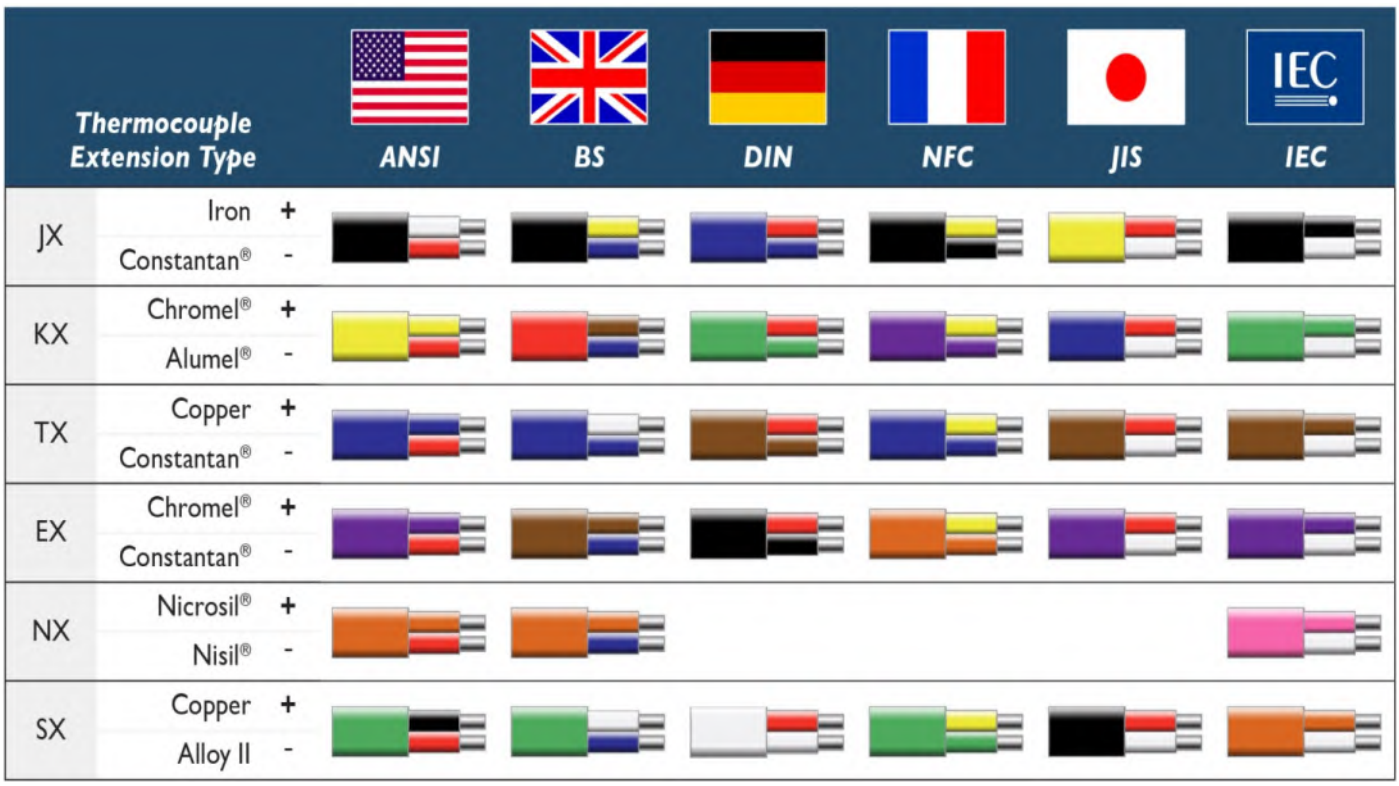
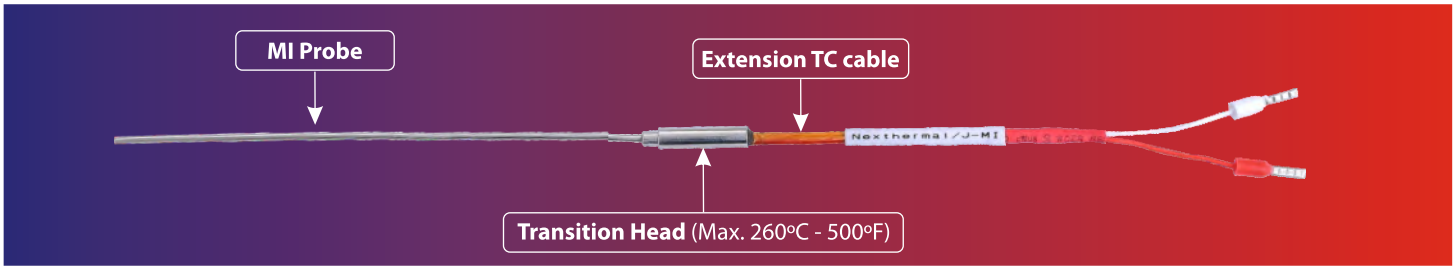
Thermocouple Color Code



TC Type	ANSI Std	BS Std	DIN Std	JIS Std	IEC Std
J Type	White(+ve) Red (-ve)	Yellow (+ve) Blue (-ve)	Red (+ve) Blue (-ve)	Red (+ve) White (-ve)	Black (+ve) White (-ve)
K Type	Yellow (+ve) Red (-ve)	Brown (+ve) Blue (-ve)	Red (+ve) Green (-ve)	Red (+ve) White (-ve)	Green (+ve) White (-ve)

Mineral Insulated Thermocouple (MI TC)



MI TC Specialities:

- Nexthermal delivers Mineral Insulated thermocouples. They can be straight or preformed shapes as required by the application.
- The miniature type Mineral insulated thermocouple with its transition head diameter of only 4mm makes the installation easier in applications having space restrictions.
- A fully annealed thermocouple body provides ultimate flexibility to route through grooves easily without breaking or damaging the sheath (preferred minimum bending radius = 3 x Diameter of the MI TC).
- Different types of fitting accessories are available. Nexthermal can build custom designs as well.

MI TC Application:

- Plastic Molding (Nozzle, Hot runner)
- Injection Molding
- Lead melting
- Testing Equipment
- Extrusion
- Heat treating
- Furnaces/Kilns
- Turbines
- Bearing
- Power stations
- Diesel engines
- Refineries/Oil processing
- Food processing

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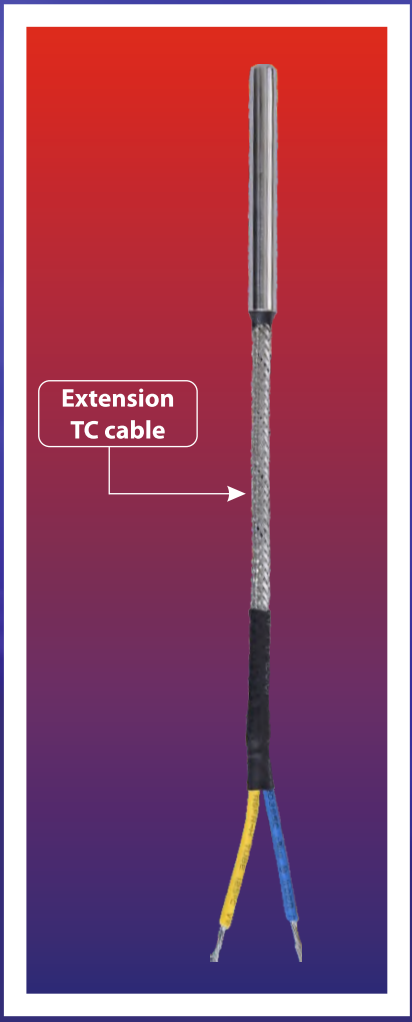
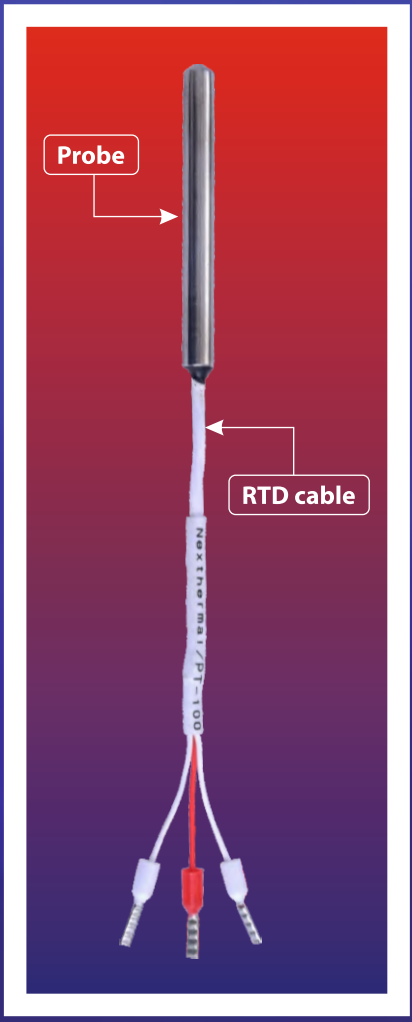
Technical Data:

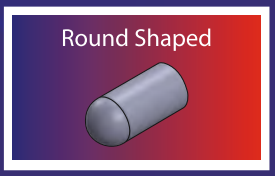
Dimensional	
MI probe Diameter (Tolerance)	Ø1.0mm±0.05, Ø1.5mm±0.1, Ø1.6mm±0.1, Ø2.0mm±0.1, Ø3.0mm±0.1, Ø3.2mm±0.1, Ø4.5mm±0.1, Ø6.0mm±0.1
Minimum probe length	30mm
Transition Head (Diameter x Length)	Ø4mm x 20mm, Ø4mm x 25mm, Ø6mm x 30mm, Ø6mm x 35mm, Ø8mm x 35mm, Ø10mm x 30mm, Ø9.5mm x 44mm
Type of Thermocouples	J & K
Maximum MI probe length	1000mm (Please use this as reference. Nexthermal is capable of customer specific MI probe lengths)
Minimum Extension TC Lead length	100mm (Please use this as reference. Nexthermal is capable of customer specific extension lead lengths)
Material	
MI probe Sheath Materials	SS316 (rated 932°F / 500°C) Inconel 600 (rated 1292°F / 700°C)
Electrical	
Junction	Grounded/Ungrounded
Insulation Resistance	Min. 100MΩ tested at 500V-DC for 1sec. (For Ungrounded only)
Premium Insulation Resistance	Upon request (Min. 1GΩ tested at 500V-DC for 1sec.) (For Ungrounded only)

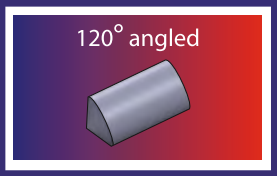
Probe type Temperature Sensors

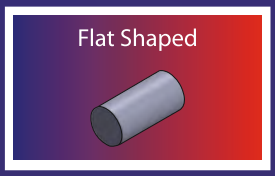




Probe Tip Profiles







Probe type Temperature Sensor Features:

- Vibration proof design to ensure longer service life and avoid temperature reading fluctuations.
- Available in three different tip profiles for increased positive surface contact.
- Different types of fitting accessories available. Nexthermal can build custom designs as well.

Probe type Temperature Sensor Application:

- Packaging industries
- Plastic Molding
- Injection Molding
- Battery Applications
- Glue melting applications
- Medical applications
- Extruders
- Testing Equipment's
- Defrosting
- Refrigerators & Air Driers
- Plating baths
- Heat treating
- Furnaces/Kilns
- Oven Temperature control
- 3D printing
- Automation

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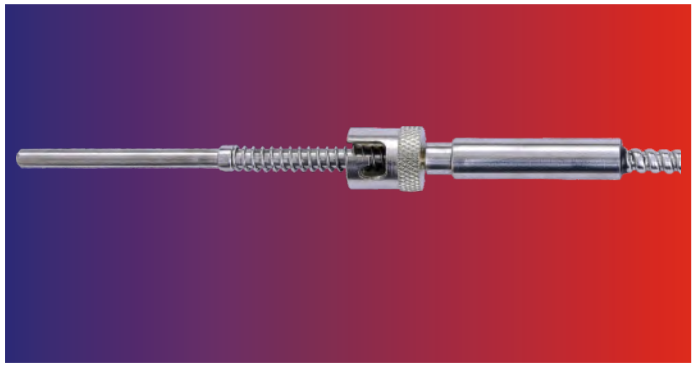
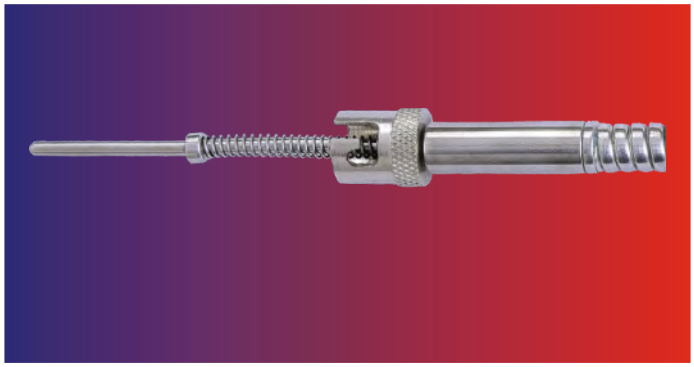
Technical Data:

Dimensional	
Probe Diameter	Ø2.5mm, Ø3.2mm, Ø3.5mm, Ø4mm, Ø4.5mm, Ø4.7mm, Ø4.8mm, Ø5mm, Ø6mm, Ø6.35mm, Ø8mm
Diameter Tolerance	± 0.1 (Please use this as reference. Nexthermal is capable of customer specific tolerance)
Minimum Probe length	15mm (Please use this as reference. Nexthermal is capable of customer specific Probe length)
Type of Thermocouples	J & K
Maximum Probe length	500mm (Please use this as reference. Nexthermal is capable of customer specific Probe length)
Minimum Extension TC Cable length	500mm (Please use this as reference. Nexthermal is capable of customer specific extension cable length)
Material	
Sheath Materials	SS304 (rated 932°F / 500°C), SS316 (rated 932°F / 500°C)
Electrical	
Junction	Grounded/Ungrounded
RTD Sensors	PT100 (Measures 100Ω @ 0°C), Working Range: -70°C to 600°C PT1000 (Measures 1000Ω @ 0°C), Working Range: -70°C to 500°C Ni120 (Measures 120Ω @ 0°C), Working Range: 0°C to 180°C
Insulation Resistance	Min. 100MΩ tested at 500V-DC for 1sec. (For Ungrounded only)
Premium Insulation Resistance	Upon request (Min. 1GΩ tested at 500V-DC for 1sec.) (For Ungrounded only)

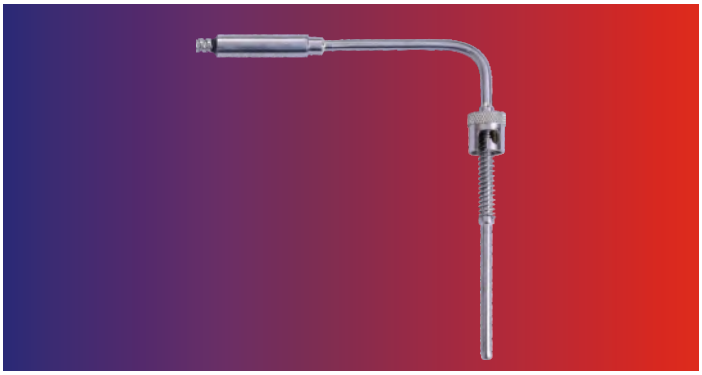
Customized Probe Type Thermocouple with Special Accessories

Mineral Insulated Thermocouple with Spring Loaded Bayonet Cap

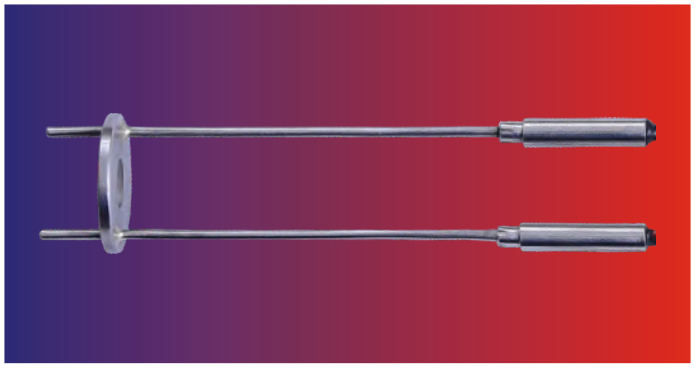




Mineral Insulated Thermocouple with L shape Spring Loaded Bayonet Cap



Mineral Insulated Thermocouple with Customized Flange



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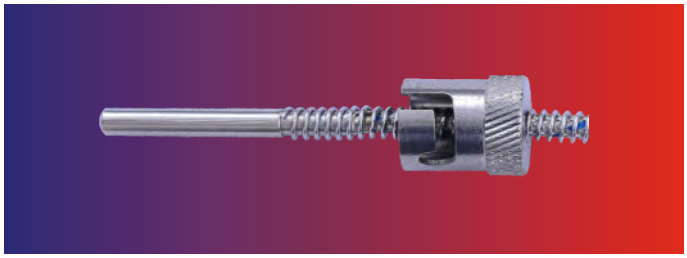
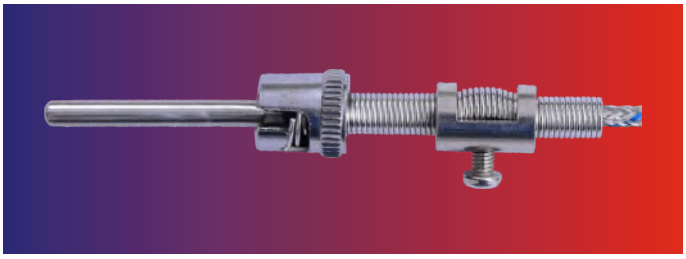
Customized Stem Type Temperature Sensors with Special Accessories

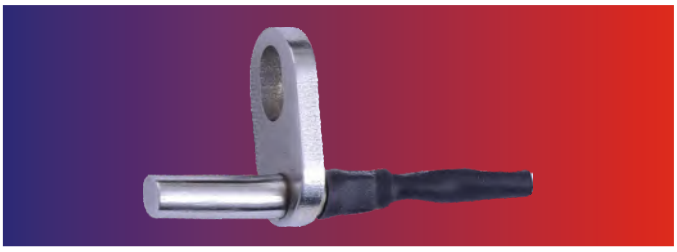
Spring Movable assembly with Bayonet Temperature sensor



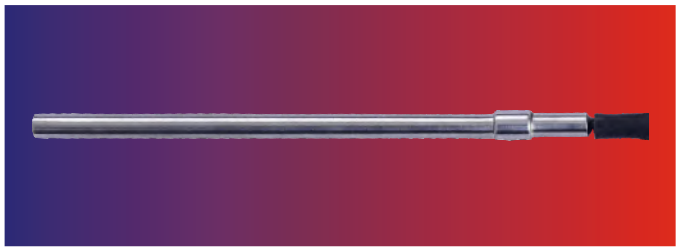
Fully Adjustable Bayonet with Spring assembly Temperature Sensor



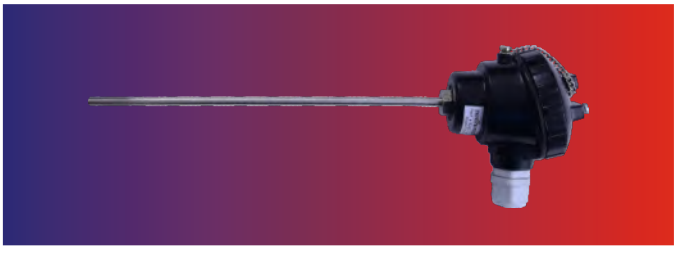
RTD Sensor with Customized Flange



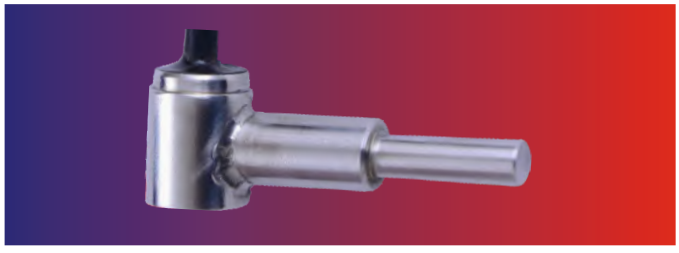
RTD Sensor with Stopper



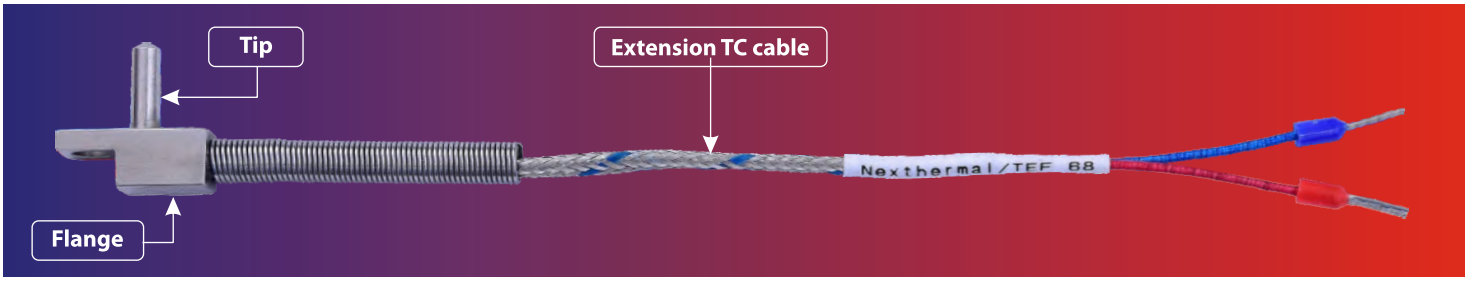
Bulkhead type Temperature Sensor



Customized Probe Type Temperature Sensor



Manifold Thermocouple (TEF68)



Manifold Thermocouple (TEF68) Specialities:

- Nexthermal ensures positive contact of the tip through its design tolerance and manufacturing process.
- Available up to 400°C/750°F temperature for Hot runner manifolds.
- Its ready to install design comes with spring attachment for additional protection against bending.

Manifold Thermocouple (TEF68) Application:

- Plastic Mold Hot Runner systems
- Injection Molding
- Extrusion Molding
- Tool Design & Mold building industries

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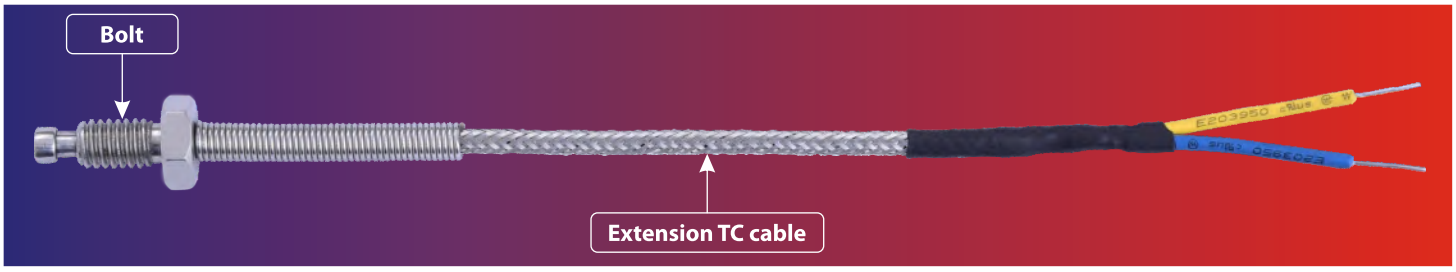
Technical Data:

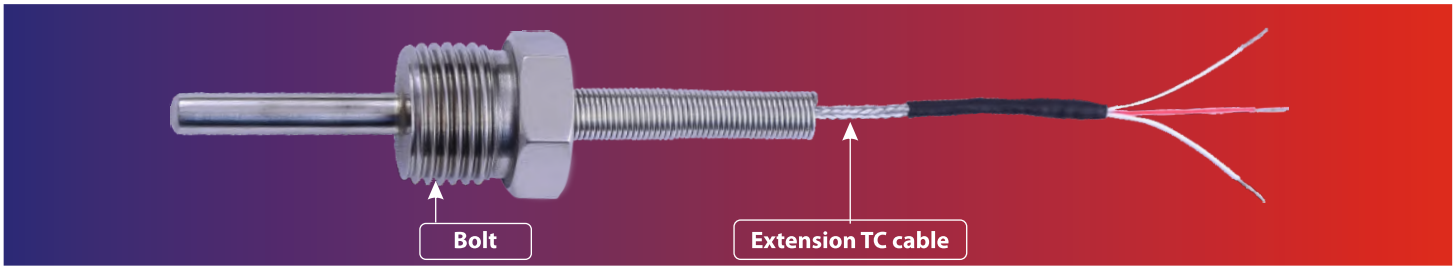
Dimensional	
Tip Diameter	Ø4mm
Tip length	12mm
Tip Shape	120° angled
Type of Thermocouples	J & K
Minimum Extension TC Cable length	100mm (Please use this as reference. Nexthermal is capable of customer specific extension cable length)
Material	
Tip & Flange Sheath Materials	SS304/SS303 (rated 932°F / 500°C)
Electrical	
Junction	Grounded/Ungrounded
Insulation Resistance	Min. 100MΩ tested at 500V-DC for 1sec. (For Ungrounded only)

Bolt type Temperature Sensors

Rotating Bolt type Temperature Sensors:



Fixed Bolt type Temperature Sensor



Rotating & Fixed Bolt type Temperature Sensors Specialities:

- Available in three different tip profiles for increased surface contact.
- Available in both Rotating and Fixed bolt type design.

Rotating & Fixed Bolt type Temperature Sensor Application:

- Packaging industries
- Plastic Molding
- Injection Molding
- Battery Applications
- Medical applications
- Extruders
- Testing Equipment
- Plating baths
- Automation

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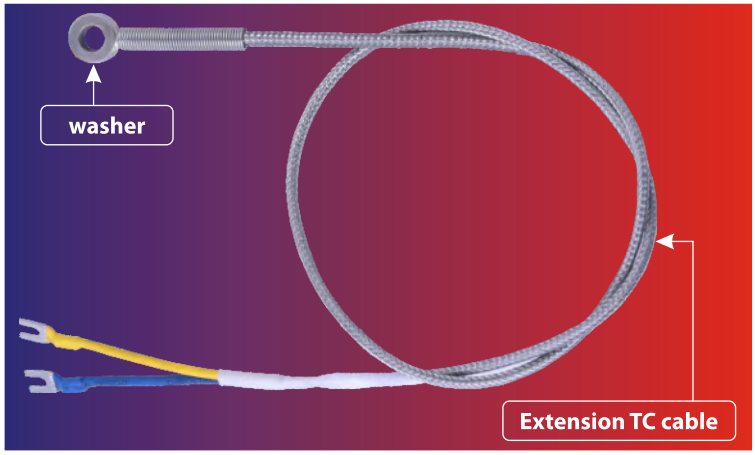
Technical Data:

Dimensional	
Bolt Thread sizes (TH x L)	M5 x 8mm, M6 x 8mm, M6 x 8.5mm, M6 x 10mm, M6 x 11mm, M6 x 12mm, M6 x 15mm, M8 x 10mm, M8 x 15mm, 1/4" BSW x 20mm, 3/8" BSP x 12.5mm, 1/8" NPT x 10mm, M12 x 10mm, 1/2" BSP x 7mm, 1/2" BSP x 15mm, 1/2" BSP x 20mm, 1/4" BSP x 12mm
Tip Shape	Round, Flat, 120° angled
Maximum Spring length	30mm (Please use this as reference. Nexthermal is capable of customer specific Spring length)
Type of Thermocouples	J & K
Minimum Extension TC Cable length	100mm (Please use this as reference. Nexthermal is capable of customer specific extension cable length)
Material	
Bolt Sheath Materials	SS304 (rated 932°F / 500°C), SS316 (rated 932°F / 500°C)
Electrical	
Junction	Grounded/Ungrounded
RTD Sensors	PT100 (Measures 100Ω @ 0°C), Working Range: -70°C to 600°C PT1000 (Measures 1000Ω @ 0°C), Working Range: -70°C to 500°C Ni120 (Measures 120Ω @ 0°C), Working Range: 0°C to 180°C
Insulation Resistance	Min. 5MΩ tested at 500V-DC for 1sec. (For Ungrounded only)

Washer type Temperature Sensors

Washer type Temperature Sensors:



Washer type Temperature Sensor Specialities:

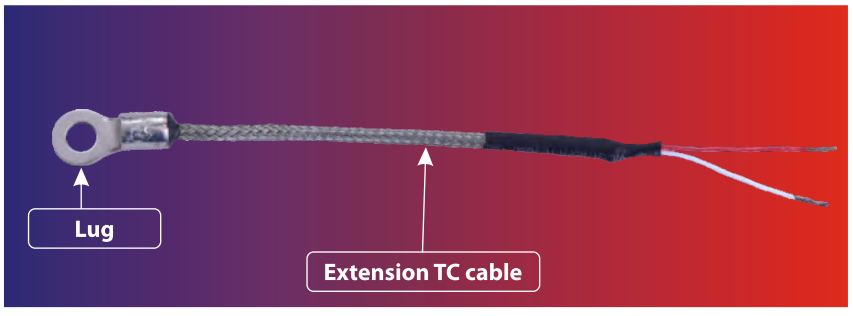
- Nexthermal design ensures closest sensing tip position at the washer for faster sensing and increasing stability of the temperature profile.
- Close tolerances maintained to create maximum surface contact for faster sensing.

Washer type Temperature Sensor Application:

- Packaging equipment
- Plastic Molding
- Food processing
- Industrial Processing
- Heating Plate
- Glass Preforming process
- Other surface mounting applications

Other Surface mounting type Temperature Sensor

Lug type Thermocouple:



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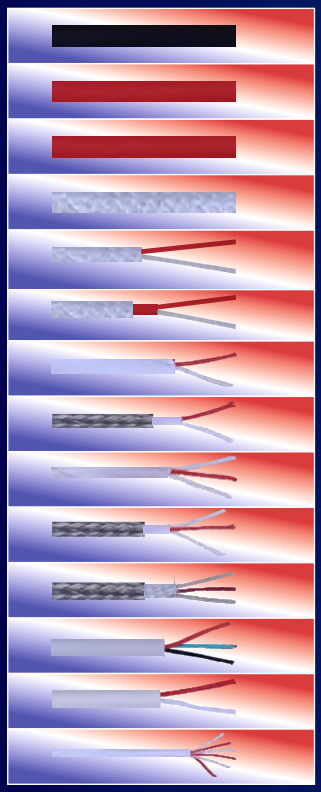
Technical Data:

Dimensional	
Washer Inner Diameter x Outer Diameter x Thickness	Ø4.5mm x Ø11mm x 4mm, Ø6.3mm x Ø12mm x 3.5mm, Ø6.3mm x Ø12mm x 5mm, Ø5.3mm x Ø10mm x 5mm
Minimum Spring length	30mm (Please use this as reference. Nexthermal is capable of customer specific spring length)
Type of Thermocouples	J & K
Minimum Extension TC Cable length	100mm (Please use this as reference. Nexthermal is capable of customer specific extension cable length)
Material	
Washer Sheath Materials	SS304 (rated 932°F / 500°C) Brass (rated 932°F / 500°C)
Electrical	
Junction	Grounded/Ungrounded
RTD Sensors	PT100 (Measures 100Ω @ 0°C), Working Range: -70°C to 600°C PT1000 (Measures 1000Ω @ 0°C), Working Range: -70°C to 500°C Ni120 (Measures 120Ω @ 0°C), Working Range: 0°C to 180°C
Insulation Resistance	Min. 5MΩ tested at 500V-DC for 1sec. (For Ungrounded only)

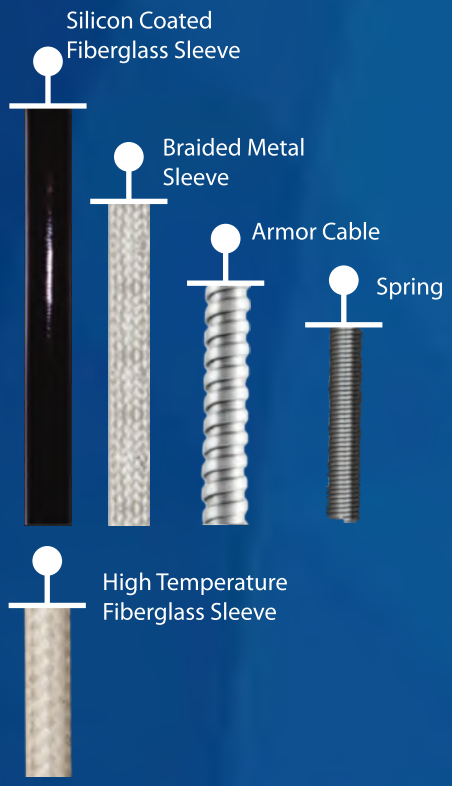
Options for RTD Sensor Cable, Thermocouple Cable, Lead Protection, Terminals, Connectors and Sealing

RTD Sensor Cables



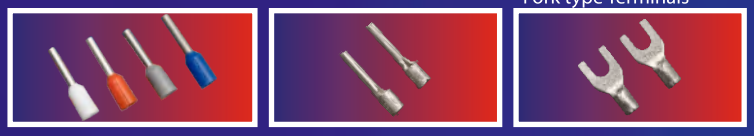
Single Core Teflon lead Temperature Rating: 260°C / 500°F
Single Core Silicon lead Temperature Rating: 180°C / 356°F
Single Core Fiberglass lead Temperature Rating: 260°C / 500°F
Single Core HT Fiberglass lead Temperature Rating: 450°C / 842°F
2 Core Teflon insulated Teflon Cable Temperature Rating: 260°C / 500°F
2 Core Teflon insulated Teflon Shielded Cable Temperature Rating: 260°C / 500°F
2 Core Fiberglass Insulated Fiberglass Cable Temperature Rating: 260°C / 500°F
2 Core Teflon Insulated Teflon lead with SS braided Cable Temperature Rating: 260°C / 500°F
3 Core Teflon Insulated Teflon Cable Temperature Rating: 260°C / 500°F
3 Core Teflon Insulated Teflon leads with SS braided Cable Temperature Rating: 260°C / 500°F
3 Core HT Fiberglass Insulated Fiberglass leads with SS braided Cable Temperature Rating: 450°C / 842°F
3 Core Silicon insulated Teflon leads Temperature Rating: 180°C / 356°F
2 Core Silicon insulated Teflon leads Temperature Rating: 180°C / 356°F
6 Core Teflon insulated Teflon Cable Temperature Rating: 260°C / 500°F

Lead Protection



Terminals:

- PVC pin type Terminals
- Copper pin type Terminals
- Copper U type / Fork type Terminals



Connectors:

- Miniature Connectors:

- Big Connectors:

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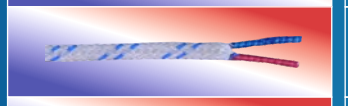
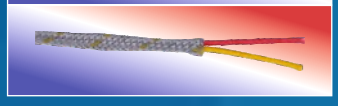
Thermocouple Cables

Available color codes

	J Type		K Type
 Kapton insulated Teflon TC cable: 260°C / 500°F	White + Red -	Red + Blue -	Yellow + Red -
 Teflon insulated Teflon TC cable: 260°C / 500°F	White + Red -		Yellow + Red -
 Silicone insulated Teflon TC cable: 180°C / 356°F	White + Red -		Yellow + Red -
 Teflon insulated Teflon leads with SS braided TC cable: 260°C / 500°F	White + Red -	Red + Blue -	Yellow + Red -
 Fiberglass insulated Fiberglass TC cable: 450°C / 842°F	White + Red -	Red + Blue -	Yellow + Red -
 Fiberglass insulated Fiberglass leads with SS braided TC cable: 260°C / 500°F	White + Red -	Yellow + Blue -	Yellow + Red -
 Fiberglass insulated Fiberglass leads with SS braided TC cable: 450°C / 842°F	White + Red -	Red + Blue -	Yellow + Red -
 Fiberglass insulated leads with SS braided TC cable: 450°C / 842°F	White + Red -		Red + White -

**For other color codes contact Nexthermal.

Potting Options

Ceramic
Temperature Rating
1000°F | 538°C

Epoxy
Temperature Rating
600°F | 315°C

Silicone
Temperature Rating
500°F | 260°C

HT Silicone
(High-Temp) Rating
650°F | 343°C

Teflon Plug
Temperature Rating
500°F | 260°C

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Nexthermal Success Stories

nexthermal's combination of EXPERIENCE and INNOVATION can help you achieve amazing results and a competitive advantage

- Helped make disease detection of Malaria, Bird Flu and more than 2000 other diseases faster, more affordable and portable.
- Improved effectiveness and life of electric vehicle batteries
- Extended the capabilities of existing hot runner injection molding designs and assisted new product development
- Participated in the 2010 Olympics testing for controlled substances and creating snow
- Improved aerospace hydraulic system responsiveness and energy efficiency
- Helped enable mass spectrometry systems to detect parts per billion
- Created energy saving opportunities and a more hygienic design for food production companies