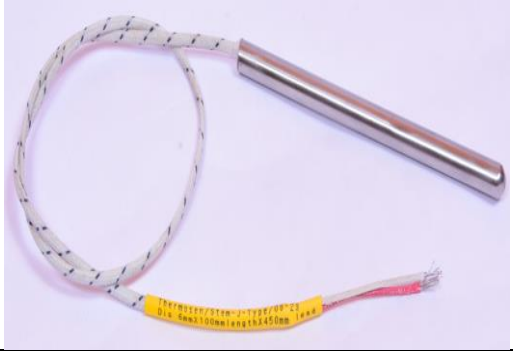
Thermocouple's are widely used temperature sensor working on ***Seebeck effect***, wherein temperature gradient along a conductor creates an electromotive force (EMF). If two conductors of different materials are joined at one point, an EMF is created between the open ends which is dependent upon the temperature of the junction.

Thermosen offers wide range of thermocouple assemblies in different construction suitable for different application & Industries; with Accuracy of Class 1 Tolerance as per ANSI/ASTM E230, IEC class EN 60584-2; JIS C 1602 for all types of Thermocouples. Here are some of our standard, yet not limited range of thermocouples:

Probe / Stem Type Temperature sensor



❖ **Properties and Advantages:**

- Vibration proof, longer service life, moisture resistant
- Sensing point probe can be customized in different shapes (Round, Flat, and angled)

❖ **Applications:**

- Packaging industries
- Plastic moldings, injection moldings,
- Battery applications
- 3D Printing
- Medical applications

TECHNICAL SPECIFICATIONS	
Probe Diameter (Tolerance±0.1mm)	Ø3.0mm, Ø3.50mm, Ø4.0mm, Ø4.50mm, Ø5.0mm, Ø6.0mm, Ø7.0mm.
Minimum probe length:	20mm (Customizable).
Extension Cable length (minimum):	100mm (Customizable).
Sheath material:	SS304, SS316 (500˚C rated).
Type of Thermocouple	J and K, (As per customer requirement).
Temperature range	0°C to 260°C, 0°C to 450°C (design as per Customer request)
Junction	Grounded / UN-Grounded.
Temperature Calibration Standard	As per ANSI and IEC STD A class Tolerance (@200°C with ±1.5°C)
IR Test	Min. 100MΩ tested at 500V-DC for 1 sec. (Ungrounded only).

Bolt type Temperature sensor

❖ **Properties and Advantages:**

- Available in Two types:

1. Rotating Bolt type sensor
2. Fixed Bolt type sensor

- Different types of fitting accessories can available.

❖ **Applications:**

- Packaging industries
- Plastic moldings, injection moldings,
- Battery applications
- Extruders
- Automation
- Plating Baths
- Medical applications

TECHNICAL SPECIFICATIONS	
Bolt Size (Metric, TH x L)	M6 x10mm, M6 x12mm, M6 x 15mm, 3/8” BSP x12.5mm, 1/8” NPT x 10mm 1/2” BSP x 20mm, (Customizable: as per customer requirement).
Tip Shape	Flat, 120°, Round.
Extension Cable length	100mm (Customizable).
Temperature range	0°C to 260°C, 0°C to 450°C (design as per Customer request)
Bolt Sheath material	SS304, SS316 (500˚C rated).
Type of Thermocouple	J and K, (As per customer requirement).
Junction	Grounded / UN-Grounded.
Temperature Calibration Standard	As per ANSI and IEC STD class Tolerance (@200°C with ±1.5°C)
IR Test	Min. 100MΩ tested at 500V-DC for 1 sec. (Ungrounded only).

THERMOSEN TECHNOLOGIES PVT. LTD.
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PHONE:+91-80-41106383 **EMAIL**: info@thermosen.com **WEBSITE**: www.thermosen.com

Washer Type Temperature sensor

❖ **Properties and Advantage:**

- Permanent fixed surface measurement of temperature where bolt, rivet or screw can be applied and easy to install.

❖ **Applications:**

- Surface mounting applications
- Packaging industries
- Plastic moldings
- Food Processing
- Extruders
- Plating Baths
- Medical applications

TECHNICAL SPECIFICATIONS	
Lug size (OD x ID x Thickness)	Ø 12mm x Ø 6.3mm x 5mm, Ø 10mm x Ø 5.3mm x 5mm, Ø 12mm x Ø 6.3mm x 3.5mm, (Customizable: as per customer requirement).
Minimum Spring Length	30mm (Customizable as per customer requirement)
Extension Cable length	100mm (Customizable).
Temperature range	0°C to 260°C, 0°C to 450°C (design as per Customer request)
Washer Sheath material	SS304, SS316 (500˚C rated), Brass (500°C)
Type of Thermocouple	J and K, (As per customer requirement).
Junction	Grounded / UN-Grounded.
Temperature Calibration Standard	As per ANSI and IEC STD class Tolerance (@200°C with ±1.5°C)
IR Test	Min. 100MΩ tested at 500V-DC for 1 sec. (Ungrounded only).

Lug Type Temperature sensor

❖ **Properties and Advantage:**

- Permanent fixed surface measurement of temperature where bolt, rivet or screw can be applied and easy to install.

❖ **Applications:**

- Surface mounting applications
- Packaging industries
- Plastic moldings
- Food Processing
- Plating Baths
- Medical applications

TECHNICAL SPECIFICATIONS	
Lug size (OD x ID x Length)	Ø 10mm x Ø 5.1mm x 19.0mm, Ø 12mm x Ø 6.4mm x 25.4mm (Customizable: as per customer requirement).
Extension Cable length	100mm (Customizable).
Lug Sheath material with plating	SS304, SS316 (500˚C rated), Nickel Plated.
Temperature range	0°C to 260°C, 0°C to 450°C (design as per Customer request)
Type of Thermocouple	J and K, (As per customer requirement)
Junction	Grounded / UN-Grounded.
Temperature Calibration Standard	As per ANSI and IEC STD class Tolerance (@200°C with ±1.5°C)
IR Test	Min. 100MΩ tested at 500V-DC for 1 sec. (Ungrounded only).

Exposed Type Temperature sensor

❖ **Properties and Advantage:**

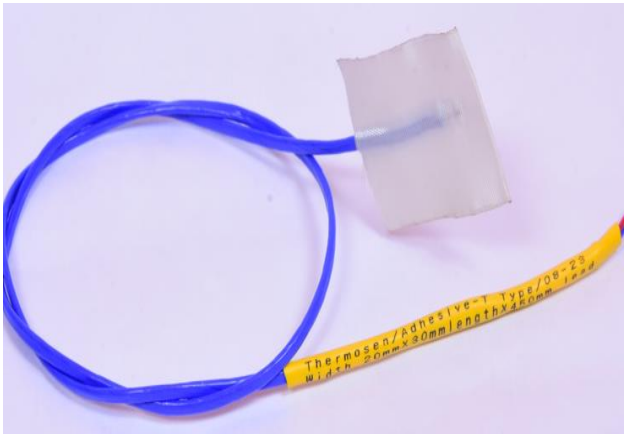
- Exposed junction thermocouples are best suited for air measurement, to get accurate measurement area of sensor must be in contact with the surface.

❖ **Applications:**

- Surface contact applications
- Hot plate control
- Plastic moldings
- Food Processing
- Extruders
- Plating Baths

TECHNICAL SPECIFICATIONS	
Availability of TC at End Connection	Open strip lead, Big Connectors, Miniature Connector, PVC Pin type lug, (As per customer requirement).
Cable length	100mm (Customizable).
Temperature range	0°C to 260°C, (As per customer request).
Type of Thermocouple	T, J and K, (As per customer requirement)
Junction	Exposed
Temperature Calibration Standard	As per ANSI and IEC STD class Tolerance (@200°C with ±1.5°C)

Surface Thermocouple with adhesive backing Type Temperature sensor



❖ **Properties and Advantages:**

- Surface thermocouples are flat, flexible, rectangular, and laminated,
- Fast Response and Noninvasive, easy installation

❖ **Applications:**

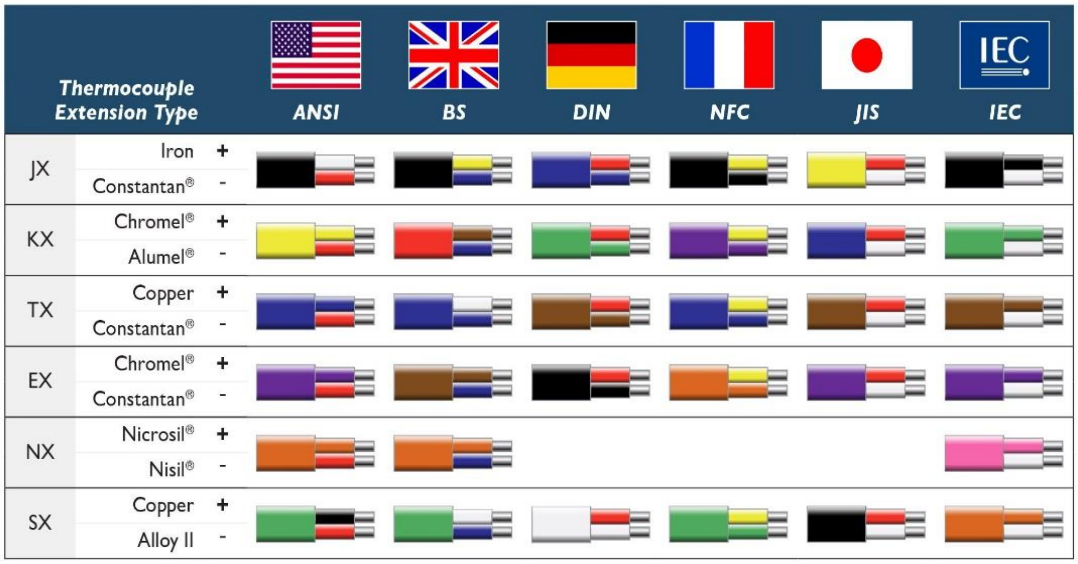
- Surface contact applications
- Hot plate control
- Generators
- Furnace monitoring and controlling
- Plating Baths
- Medical applications

TECHNICAL SPECIFICATIONS	
Availability of TC at End Connection	Open strip lead, Big Connectors, Miniature Connector, PVC Pin type lug, (As per customer requirement).
Cable length	100mm (Customizable).
Temperature range	0°C to 260°C, (Design as per customer request).
Type of Thermocouple	T, J and K, (As per customer requirement)
Junction	Un-grounded /Exposed.
Temperature Calibration Standard	As per ANSI and IEC STD class Tolerance (@200°C with ±1.5°C)
IR Test	Min. 100MΩ tested at 500V-DC for 1 sec. (Ungrounded only).

CABLE TYPES DESCRIPTION

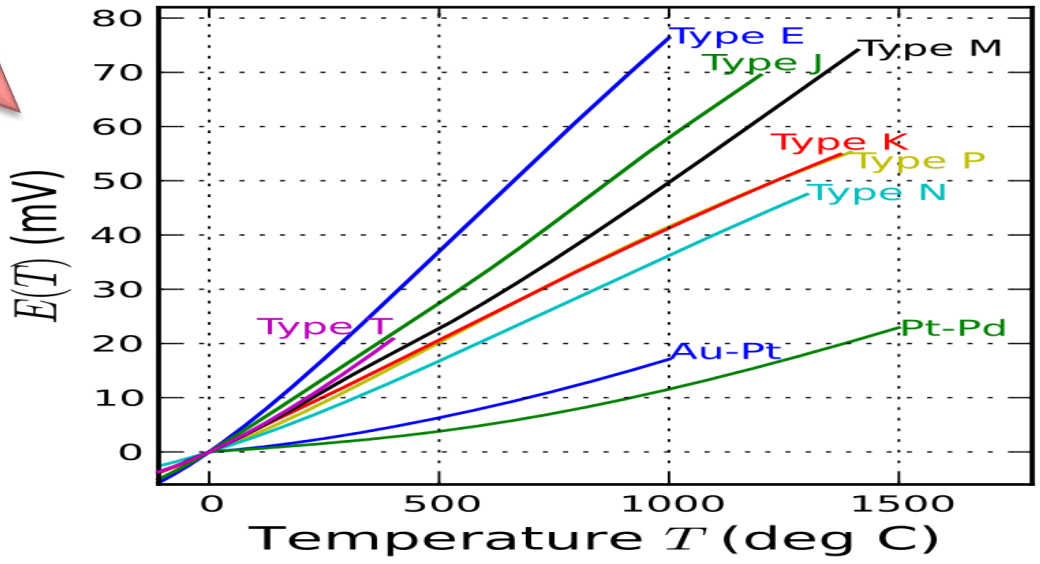
Type of Cable	Description	Temperature details
KAPTON	Kapton insulated Teflon TC cable	260°C / 500°F
TEFLON	Teflon insulated Teflon TC cable	260°C / 500°F
TEFLON	Teflon insulated Teflon leads with SS braided TC cable	260°C / 500°F
FIBERGLASS	Fiberglass insulated lead TC cable	450°C / 842°F
FIBERGLASS	Fiberglass insulated Fiberglass lead TC cable	450°C / 842°F
FIBERGLASS WITH SS	Fiberglass insulated fiberglass lead with SS braided TC cable	450°C / 842°F
FIBERGLASS WITH SS	Fiberglass insulated leads with SS braided TC cable	450°C / 842°F
FIBERGLASS WITH SS	Fiberglass insulated fiberglass lead with SS braided TC cable	450°C / 842°F

Wire Color Codes



THERMOCOUPLE
Extension cable color codes

THERMOCOUPLE
Temperature v/s Voltage chart



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