TC-113 Noble Metal Replacement Thermocouple Element Type R,S,B and C

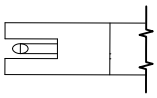
TEMPERATURE SENSOR

TC113- A Noble Metal replacement elemnt for Industrial Thermocouple with Protection Tube. It is a highly accurate temperature sensor engineered for extreme heat and demanding industrial conditions. It features noble metal thermocouple elements (Types R, S,B, and C) enclosed within a protective tube, providing exceptional durability and longevity in high-temperature applications. These thermocouples are widely used in industries that require precise temperature control, stability, and resistance to oxidation and corrosion.

Key Feature:

- Available in different thermocouple types & Temperature Ranges as below:
- Type R (Platinum-Rhodium 13% / Platinum): Up to 1600°C (2912°F)
- Type S (Platinum-Rhodium 10% / Platinum): Up to 1600°C (2912°F)
- Type B (Platinum-Rhodium 30% / Platinum-Rhodium 6%): Up to 1700°C (3092°F)
- Type C (Tungsten5%Rehnium -Tungston26%Rehnium Alloy) Up to 2315°C (3092°F)
- Noble metal thermocouples provide superior stability and minimal drift over time.
- Available in different protection tube materials like Ceramic (Alumina, , Hafnia)

Thermocouple Junction options for TC111



RECESSED

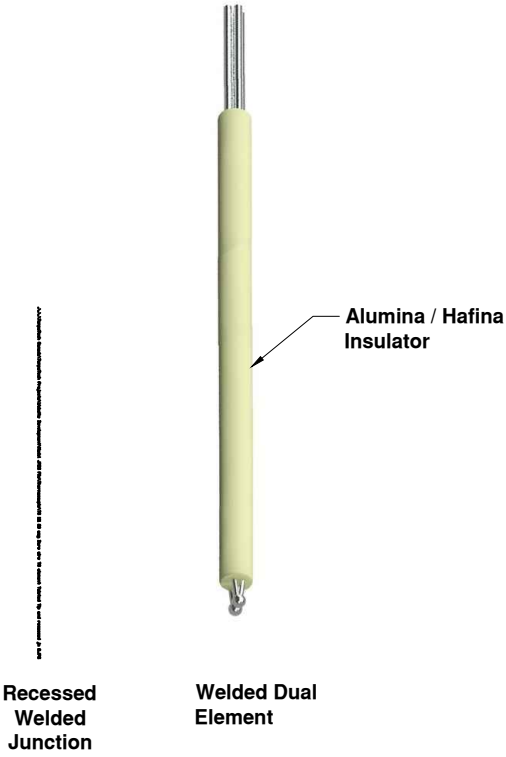
Recessed Junction: The thermocouple wires are placed end-to-end (butted against each other), and a precise welding process fuses them together. And then Insulated with Ceramic insulator. It protects the junction homogeneity from contamination

BUTT WELD

Butt Welded Junction: The thermocouple wires are placed end-to-end (butted against each other), and a precise welding process fuses them together.

TWIST WELD

Twisted Welded Junction: The thermocouple wires are twisted together placed end-to-end (butted against each other), and a precise welding process fuses them together. Twisted wires add mechanical strength to the junction and avoids premature cracking of thermocouple junction..



Suggested Maximum Temperature Limit

- Type R (Platinum-Rhodium 13% / Platinum): Up to 1600°C (2912°F)
- Type S (Platinum-Rhodium 10% / Platinum): Up to 1600°C (2912°F)
- Type B (Platinum-Rhodium 30% / Platinum-Rhodium 6%): Up to 1700°C (3092°F)
- Type C (Tungsten5%Rehnium -Tungston26%Rehnium Alloy) Up to 2315°C (3092°F)

The suggested maximum temperature limit is based on information available in the ASTM standard and test performed in our facility. The maximum temperature limit may change based on the type of process and material/ liquid it is going to be used in. These limits apply to protected thermocouples.

Continous temperature rating for wire gauge smaller than 26 Awg. is lower due to the less mass. Please check with factory for more information.

Temperature Accuracy & Tolerance

Thermocouple Type	Temperature Range	Accuracy Standard	Accuracy SpecialLimits
	0°C to 1480°C	The greater of ±1.5 °C or ±0.25 %	The greater of ±0.6 °C or ±0.1 %
	0°C to 1480°C	The greater of ±1.5 °C or ±0.25 %	The greater of ±0.6 °C or ±0.1 %
B	870°C to 1700°C	±0.50 %	±0.25 %
	0°C to 2315°C	The greater of ±1.5 °C or ±1 %	NA

Notes:
-All the thermocouples meets the requirement of ASTM E230/E230M
-Calibration is available as per ASTM E220 on request

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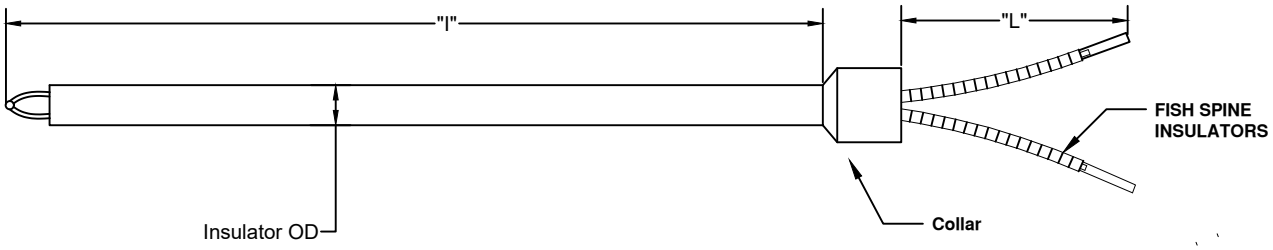

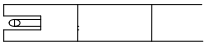

RECESSED JUNCTION

	1	2	3	4	5	6	7	8	9
TC113	R	S	E	24	R	01	12i	T	6i

1. THERMOCOUPLE TYPE	
CODE	
R	Platinum 13 % Rhodium (+) Platinum (-)
S	Platinum 10 % Rhodium (+) Platinum (-)
B	Platinum 30 % Rhodium (+) Platinum 6% Rhodium (-)
NOTE:- ADD "S" FOR SPECIAL LIMITS	

2. MEASURING JUCTION	
CODE	
S	Single
D	Duplex

3. JUNCTION TYPE	
CODE	
E	Exposed
R	Recessed

4. ELEMENT SIZE	
CODE	
20	20 Awg
24	24 Awg
26	26 Awg
28	28 Awg
30	30 Awg

5. INSULATOR MATERIAL		
CODE	IMPERIAL SIZE	METRIC SIZE
01	High Purity Alumina 99.5%	
02	Hafnia	

6. INSULATOR (Round) (OD)		
CODE	IMPERIAL SIZE	METRIC SIZE
2	18"	3.25 mm
3	3/16"	4.76 mm
4	1/4"	6.35 mm

7. IMMERSION LENGTH (I)
Immersion length - use "I" for inches and "M" for millimetre

8. CODES FOR TERMINATION	
CODE	
F	Fish Spine Insulators With Copper Sleeve

9. LEAD LENGTH ("L")
Lead length - use "I" for inches and "M" for millimetre