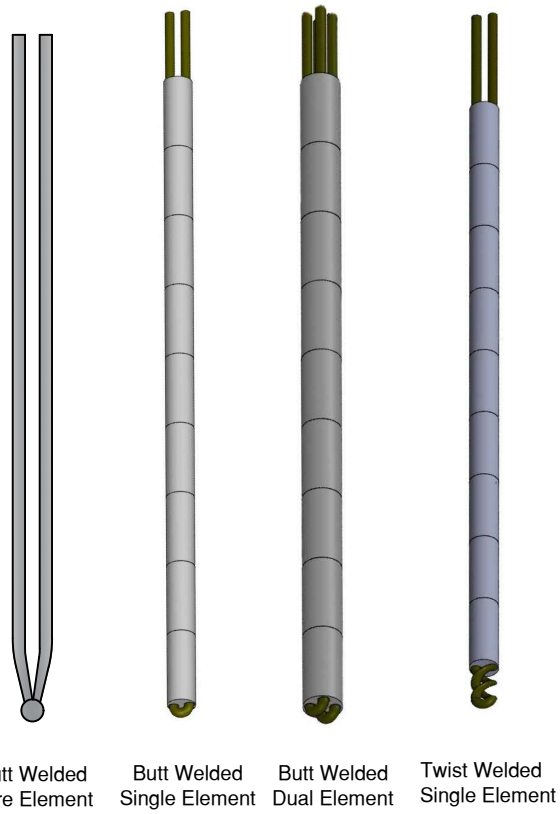
TC-111 Base Metal Replacement Thermocouple Element

TEMPERATURE SENSOR

TC111-A Base Metal Thermocouple Element comprises two dissimilar base metal conductors joined at a sensing junction, producing a voltage corresponding to temperature variations. It is used as a replacement insert in protection tubes & thermowells installed in the process or can be used directly to monitor the temperature of process. `

Key Feature:

- Available as bare wire elements, insulated wires or mineral-insulated (MI) cables for enhanced durability.
- Offered with single or duplex junctions for standard or redundant temperature readings.
- Most commonly used with thermowells or protection tubes for extended service life.
- Available with bare wire leads, connectors, or terminal blocks for easy integration into control systems.
- Available in IEC 60584 & ANSI MC 96.1 standard tolerances



Thermocouple Junction options for TC111


INSULATED JUNCTION

Insulated 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


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

Thermocouple Type	°C (F)	°C (F)	°C (F)
Wire Size	20 Awg.	14 Awg.	8 Awg.
T	370 (700)	370 (700)	370 (700)
J	620(1150)	620(1150)	720 (1330)
K	1150 (2100)	1150 (2100)	1150 (2100)

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.

Temperature Accuracy As per ASTM E608/608M/ IEC 60584 & ANSI MC 96.1 standard tolerances

Type	Temperature	Standard Limit	Special Limit
T	-200 °C to 0 °C	± 1 °C or 1.5% Whichever is greater	N/A
	0 °C to 350 °C	± 1 °C or .75% Whichever is greater	± 0.5 °C or 0.4% Whichever is greater
J	0 °C to 750 °C	± 2.2 °C or .75% Whichever is greater	± 1.1 °C or 0.4% Whichever is greater
E	-200 °C to 0 °C	± 1.7 °C or 1.0% Whichever is greater	N/A
	0 °C to 900 °C	± 1.7 °C or .5% Whichever is greater	± 1 °C or 0.4% Whichever is greater
KORN	-200 °C to 0 °C	± 2.2 °C or 2.0 % Whichever is greater	N/A
	0 °C to 1250 °C	± 2.2 °C or .75% Whichever is greater	± 1.0 °C or 0.4% Whichever is greater

Notes:
-All the thermocouples are manufactured as ASTM E608/608M
-Calibration is available as per ASTM E220 on request

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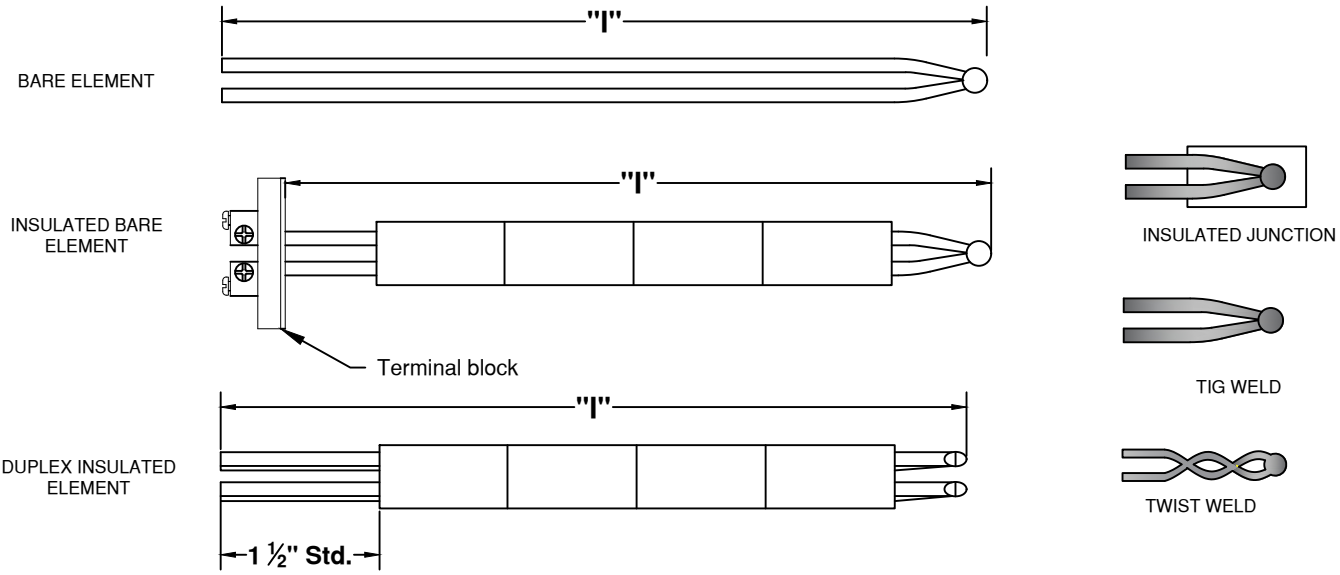

	1	2	3	4	5	6	7
TC111							

For Example- TC111-K-S-3-14-R-42i-TB

1. ELEMENT TYPE	
CODE	
J	Iron(+) vs Constantan(-)
K	Chromel(+) vs Alumel(-)
NOTE:- ADD "S" FOR SPECIAL LIMITS	

2. MEASURING JUNCTION	
CODE	
S	Single
D	Duplex

3. JUNCTION TYPE	
CODE	
1	Twist and Tig weld (Only available in single element)
2	Insulated hot junction
3	Standard Tig Weld

4. WIRE SIZE FOR BEADED ELEMENT	
CODE	
8	8 AWG
14	14 AWG
20	20 AWG

5. ELEMENT INSULATION	
CODE	
0	Bare element
C	Ceramic insulators (Oval)
R	Ceramic insulators (Round)
Note: All Duplex Tc Elements will come with Round Ceramic insulators	

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

7.CODES FOR TERMINATION	
CODE	
Z	Bare ends
TB	Ceramic Terminal block