

TC114- The thin thermocouple wires are embedded in high purity magnesia surrounded by a precious metal sheath of Pt10%Rh. This provides exceptional accuracy, extended service life and lower temperature drift. Our precious metal insulated thermocouple offer an excellent means of controlling furnace temperatures. The low thermal mass giving an extremely quick response to temperature change. The small size of mi-cables offer unequalled advantages compared to any other methods of temperature measurement.

Key Feature:

- Bending radius down to four times the OD, allowing difficult heat zones to be measured.
- A quick response to temperature change; the high conductivity of the sheath reduces the thermal lag in temperature measurement.
- Extremely resistant to mechanical and thermal shock.
- Resistance to chemical and atmospheric attack.
- Meeting the rigorous demands of AMS 2750 standards.
- Standard sheath material Pt10%Rh, other material on request available.

Thermocouple Junction options for TC114



Ungrounded Junction: Junction is similar to grounded junction except wires are fuse welded, which is then insulated with Mgo powder and formed cap by welding without incorporating thermocouple wires. Thus, the junction is called the ungrounded junction.

Key Benefits :

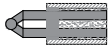
- Wires are protected from any mechanical damage
- Offers rugged construction, the same as the grounded junction.
- Strain due to differential expansion between wire and sheath is minimized with insulated wires.



Grounded Junction: In grounded junction thermocouple wires and sheath of the mineral insulated cable is welded together to form a junction. Thermocouple wires and sheath becomes an integral part of the junction. Thus, the wire is grounded to the sheath.

Key Benefits:

- Slower response than Exposed junction, but offers rugged construction.
- Can hold higher pressure than exposed junction and Ungrounded junction.



Exposed Junction: In expose junction, the sheath is removed, and thermocouple wires fuse-welded to form a junction. Tip of the MI cable is sealed with high temperature cement to protect MGO from contamination.

Key Benefits:

- Fast response time due to the less mass.

Suggested Maximum Temperature Limit

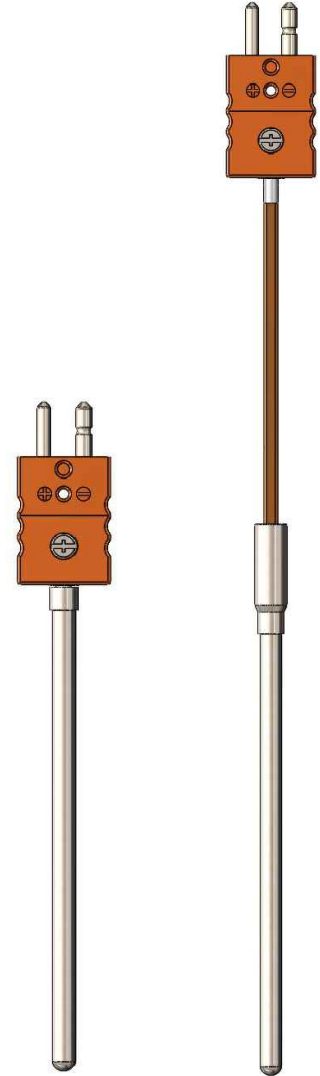
Thermocouple Type	Sheath Material	Continuous Use Temp Rating°C	Intermittent Use Temp Rating°C
S	Pt10%Rh	1300	1450
R	Pt10%Rh	1300	1450
B	Pt10%Rh	1450	1600
B	Pt20%Rh	1450	1600

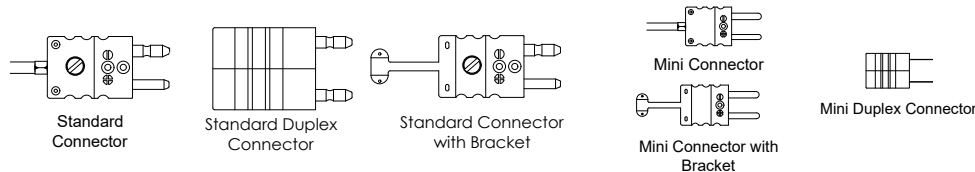
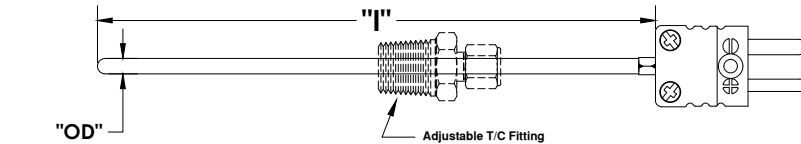
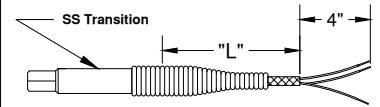
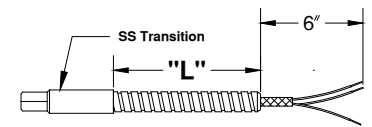
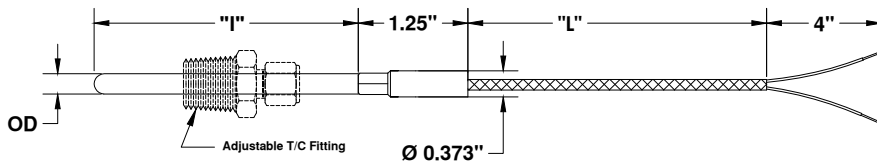
The suggested maximum temperature limit is based on information available in the ASTM standard and test performed in our facility. The maximum temperature limit may change based on the type of process and material/ liquid it is going to be used in. These limits apply to protected thermocouples.

Continuous 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

Type	Temperature	Standard Limit	Special Limit
R	0°C to 1480°C	The greater of $\pm 1.5^\circ\text{C}$ or $\pm 0.25\%$	The greater of $\pm 0.6^\circ\text{C}$ or $\pm 0.1\%$
S	0°C to 1480°C	The greater of $\pm 1.5^\circ\text{C}$ or $\pm 0.25\%$	The greater of $\pm 0.6^\circ\text{C}$ or $\pm 0.1\%$
B	870°C to 1700°C	$\pm 0.50\%$	$\pm 0.25\%$





1	2	3	4	5	6	7	8	9	10	11	12	13
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TC114												
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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	

6. SHEAT MATERIAL		
CODE	IMPERIAL SIZE	METRIC SIZE
01	Platinum 10% Rohdium	
02	Platinum 20% Rohdium	
03	Inconel 600	
10	Inconel 800	

9. LEAD WIRE TYPE	
CODE	
0	No Lead Wire Required
1	PVC (105° C)
2	TEFLON (200° C)
3	FIBRE GLASS (480° C)
4	High Temp Fiberglass (600° C)
NOTE:- Add "O" for no jacketing. Add "X" for SS braiding & "Z" for Armour	

2. NO. OF ELEMENTS	
CODE	
S	Single
D	Duplex

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

10. LEAD LENGTH ("L")	
0	No Lead Wire Required
Lead length - use "I" for inches and "M" for millimetre	

3. MEASURING JUNCTION	
CODE	
G	Simplex / Grounded Junction
UG	Simplex / Un- Grounded Junction
E	Simplex / Exposed
Duplex Junction Only Available for OD 3 mm and above	

8. PROCESS FITTING	
CODE	
0	Not Required
7-1. MATERIAL	
S	Stainless Steel
7-2. SIZE	
1	1/16"
2	1/8"
4	1/4"
6	3/8"
8	1/2"
18	M18 X 1.5
20	M20 X 1.5

11. CODES FOR TERMINATION	
CODE	
Z	Bare ends (1 " Stripped leads)
STP	Standard Plug
MP	Miniature Plug
HTP	High Temperature Plug
UTP	Ultra Temperature Plug
SCP	Standard Ceramic Plug

5.SHEATH OD		
CODE	IMPERIAL SIZE	METRIC SIZE
25	1/25"	1.0mm
1	1/16"	1.5 mm
2	1/8"	3.2 mm
3	3/16"	4.76 mm
4	1/4"	6.35 mm
2M	0.079	3.0mm
3M	0.197"	5.0mm
4M	0.236"	6.0 mm

7-3. THREAD TYPE	
N	NPT
B	BSP
Leave blank for metric thread	
7-4. FERRULE MATERIAL	
Leave Blank for SS	
T	Teflon

12. CODES FOR TERMINATION (JACK)	
CODE	
Leave blank if not required	
STJ	Standard Jack
MJ	Miniature Jack
HTJ	High Temperature Jack
UTJ	Ultra Temperature Jack
SCJ	Standard Ceramic Jack

13. OPTIONAL ACCESSORY	
CODE	
Leave blank if not required	
WC	Wire clamp
TA	Tube Adapter
BT	Silicon rubber boot for connector
Only choose when ordering with connector	