

Thermocouples

Mineral Insulated (MI)

Watlow's mineral insulated (MI) thermocouples are fast-responding, durable and capable of handling high temperatures.

Manufactured with best-in-class XACTPAK®, Watlow's trademark for metal sheathed, mineral insulated (MI) thermocouple material, XACTPAK responds fast because the protective metal outer sheath allows use of smaller diameter thermocouple conductors. The rock hard compacted MgO insulation further enhances the sensor's ability to "read" temperature by transferring heat quickly to the measuring junction.

The XACTPAK protecting sheath and compacted insulation outperform bare wire thermocouples in most applications.

Performance Capabilities

- Easily handles temperatures up to 2200°F (1200°C)
- Meets or exceeds initial calibration tolerances per ASTM E 230

Features and Benefits

Special mineral insulation

- Protects thermocouple from moisture and thermal shock
- Permits operation in high temperature, high pressure environments

Diameters as small as 0.020 in. (0.50 mm)

- Ideal when physical space or extremely fast response are critical

Flexibility of the XACTPAK material

- Allows forming and bending of the thermocouple, without risk of cracking, to meet design requirements

Outer sheath

- Protects wires from oxidation and hostile environments

Wide range of sheath materials, diameters, and calibrations

- Meet specific requirements

In-house manufacturing of XACTPAK material

- Rigid quality control procedures
- Ensures high standards are met
- Single source reliability

Custom capabilities

- Include options such as special lead lengths, lead wires and terminations



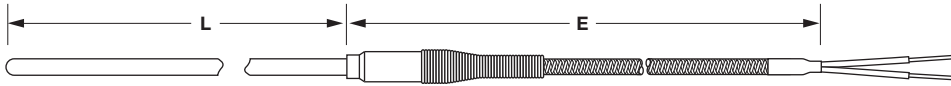
Typical Applications

- Heat treating
- Furnaces/kilns
- Turbines
- Bearing temperature
- Power stations
- Steam generators
- Diesel engines
- Nuclear reactors
- Atomic research
- Jet engines and test cells
- Rocket engines
- Semiconductor manufacturing
- Refineries/oil processing
- Catalytic reformers
- Food processing

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Metal Transitions with Spring Strain Relief Style AF



Ordering Information

Part Number

①	②	③	④	⑤	⑥	⑦	⑧ ⑨	⑩	⑪	⑫	⑬ ⑭	⑮
A	Style	Sheath O.D.	Lead Wire Const.	Fittings, Weld Pads	Lead Wire Term.	Sheath Material	Sheath Length "L" (whole in.)	Sheath Length "L" (fract. in.)	Junction	Calibration	Lead Wire Length "E" (whole ft)	Special Rqmts.
A	F											

②	Style
F =	Metal transition with strain relief and 300°F (149°C)

③	Sheath O.D. (in.)
B =	0.020
C =	0.032
D =	0.040
E =	0.063
G =	0.125
H =	0.188
J =	0.250

④ Lead Wire Construction				
		Standard	Overbraid	Flex Armor
Fiberglass	Solid	A	J	R
FEP	Solid	C	L	T
Fiberglass	Stranded*	B	K	S
FEP	Stranded*	D	M	U

*Stranded lead wire available only for sheath O.D. 0.063 and larger.

⑤	Fittings, Weld Pads
0 =	None

Notes: If required, enter code from pages 53 to 54. If none, enter "0". Weld pads available for 0.063 and larger.

⑥	Lead Wire Termination
A =	Standard male plug
B =	Standard female jack
C =	Standard plug with mating connector
F =	Miniature male plug
G =	Miniature female jack
H =	Miniature plug with mating connector
T =	Standard, 1 1/2 in. split leads
U =	1 1/2 in. split leads with #8 spade lugs

⑦	Sheath Material
A =	304/304L SS
F =	316/316L SS
C =	PFA coated over 304/304L SS (available on G, H and J diameter)
Q =	Alloy 600 (Type K)

⑧ ⑨	Sheath Length "L" (whole in.)
Available lengths: 01 to 99, for lengths over 99 inches contact factory. Maximum length for PFA coating is 48 in.	

⑩	Sheath Length "L" (fractional in.)
0 =	0
4 =	1/2

⑪ Junction			
	Grounded	Ungrounded	Exposed
Single	G	U	E
Dual*	H	W (isolated)	D (isolated)

*Only available for 0.063 diameter and larger.

⑫ Calibration				
	E	J	K	T
Standard limits	E	J	K	T
Special limits	2	3	4	8

⑬ ⑭	Lead Wire Length "E" (whole feet)
Available lengths: 01 to 30, for lengths over 30 contact factory	

⑮ Special Requirements	
0 =	Standard 300°F (149°C)
H =	High temperature 1000°F (538°C) potting
M =	500°F (260°C)