

## Thermocouples

### Mineral Insulated

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

These thermocouples are 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 the 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 outperforms bare wire thermocouples in most applications.

#### Performance Capabilities

- Easily handles temperatures up to 1200°C (2200°F)
- 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 0.010 in. (0.25 mm)

- Ideal when physical space or extremely fast response are critical

##### Flexibility of the XACTPAK material

- Allows you to form and bend the thermocouple, without risk of cracking, to meet your design requirements



##### Outer sheath

- Protects the 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
- Assures high standards are met
- Single source reliability

##### Custom capabilities

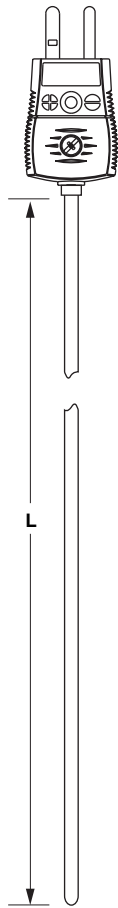
- Include options such as special lead lengths, lead wires and terminations

##### 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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## Mineral Insulated Standard Plug or Jack Termination Style AC



### Rapid Ship Sensors

Rapid Ship sensors come with standard male thermocouple connector directly attached to sheath, Type J or K, ungrounded junction, 0.125, 0.188 or 0.250 inch diameter and six or 12 inch sheath length.

Calibration	Sheath Material	Sheath Diameter in. (mm)	Sheath Length in. (mm)	
			6 (152)	12 (305)
J	316 SS	0.125 (3.2)	ACGA00F060UJ000	ACGA00F120UJ000
		0.188 (4.8)	ACHA00F060UJ000	ACHA00F120UJ000
		0.250 (6.4)	ACJA00F060UJ000	ACJA00F120UJ000
K	Alloy 600	0.125 (3.2)	ACGA00Q060UK000	ACGA00Q120UK000
		0.188 (4.8)	ACHA00Q060UK000	ACHA00Q120UK000
		0.250 (6.4)	ACJA00Q060UK000	ACJA00Q120UK000

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

**A C** **0** **0 0**

**3. Sheath O.D. (inch)** \_\_\_\_\_  
 D = 0.040 **H = 0.188**  
**E = 0.063 J = 0.250**  
**G = 0.125**

**4. Connector Type** \_\_\_\_\_  
 Standard Plugs and Jacks 218°C (425°F)  
**A = Standard plug**  
 B = Standard jack  
 C = Standard plug with mating connector  
 High Temperature Plugs and Jacks 540°C (1000°F)  
 (0.250 inch maximum O.D.)  
 L = High temperature plug  
 M = High temperature jack  
 N = High temperature plug with mating connector

**5. Fittings, Weld Pads** \_\_\_\_\_  
 If required, enter order code from pages 39-40.  
 If none, enter "0".

**6. Enter "0"** \_\_\_\_\_

**7. Sheath Material** \_\_\_\_\_  
 A = 304 SS **Q = Alloy 600 (Type K)**  
**F = 316 SS**  
 C = PFA coated over SS (available on G, H, J diameters)

**8-9. Sheath Length "L" (whole inches)** \_\_\_\_\_  
**04, 06, 12, 18, 24**  
 Available lengths: 01 to 99, over 99 consult factory  
 Maximum length for PFA coating is 48 inches.

**10. Sheath Length "L" (fractional inch)** \_\_\_\_\_  
**0 = 0** 2 = ¼ 4 = ½ 6 = ¾  
 1 = ⅙ 3 = ⅓ 5 = ⅕ 7 = ⅞

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

**12. Calibration** \_\_\_\_\_  
 Standard limits E J K N T  
 Special limits E **J** **K** N **T**  
 2 3 4 — 8

**13-14. Enter "00"** \_\_\_\_\_

**15. Special Requirements** \_\_\_\_\_  
**0 = None**  
 X = Special requirements, consult factory