

## 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