

## Thermocouple Designs Ideal For Medium Duty Processes

Watlow® is a world class supplier of temperature measurement products, with more than 90 years of manufacturing, research and design expertise.

Companies engaged in critical process control of food and metals rely on Watlow thermocouples. Watlow designs and manufactures sensors to meet customers' industrial and commercial equipment needs.

Watlow has developed an extensive line of thermocouples to meet a broad range of sensing needs.

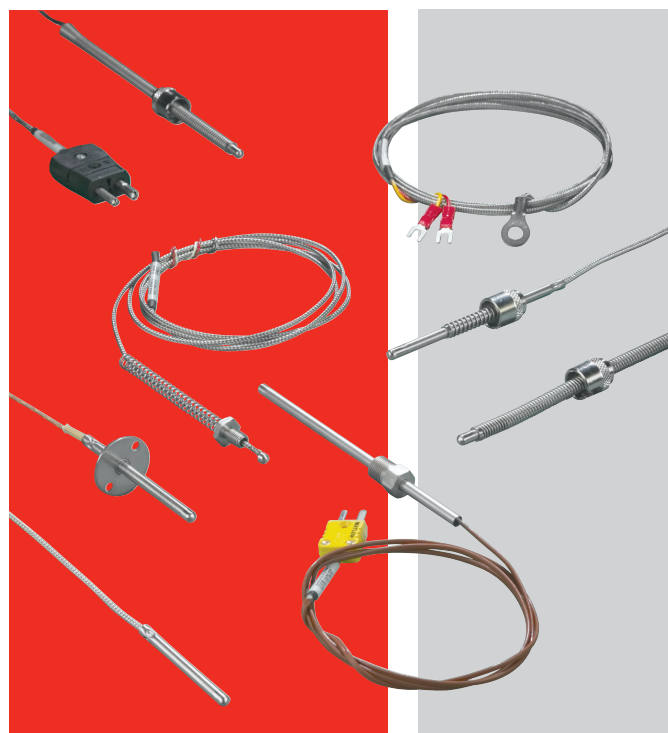
### Performance Capabilities

- Fiberglass insulated thermocouples can reach temperatures up to 900°F (480°C) for continuous operation.

### Features and Benefits

“Custom-tailored” standard products including:

- 32 standard sheath lengths
- Lead lengths from six to 360 inches
- Stainless steel braid or hose protection
- J, K, T and E calibrations
- Grounded, ungrounded and exposed junctions
- Flat and drill point
- Epoxy sealed cold ends
- Adjustable depths
- Flexible extensions
- Washers, nozzles and clamp bands
- Custom diameters
- PFA coated and stainless steel sheaths
- Straight, 45° bend or 90° bend
- Locking bayonet caps in standard, 12 mm and 15 mm



### Typical Applications

- Food processing equipment
- De-icing
- Plating baths
- Industrial processing
- Medical equipment
- Pipe tracing control
- Industrial heat treating
- Packaging equipment
- Liquid temperature measurement
- Refrigerator temperature control
- Oven temperature control

## Construction and Tolerances

Thermocouples feature flexible SERV-RITE® wire insulated with woven fiberglass or high temperature engineered resins. For added protection against abrasion, products can be provided with stainless steel wire braid and flexible armor. ASTM E230 color-coding identifies standard catalog thermocouple types.

The addition of a metal sheath over the thermocouple provides rigidity for accurate placement and added protection of the sensing junction. Mounting options include springs, ring terminals, specialized bolts, pipe style clamps and shims.

## Options

### • Adjustable Spring Style

Adjustable spring style thermocouples bend to any angle to fit a wide range of hole depths, eliminating the need to stock numerous styles.

### • Adjustable Armor Style

Adjustable armor thermocouples bend to any angle to fit a wide range of hole depths, eliminating the need to stock numerous styles. A stainless steel hose offers additional lead protection in demanding applications.

### • Rigid Sheath Style (1/8 and 3/16 in. Diameter)

The rigid sheath provides protection and accurate placement through bulkheads or platens. Use with a compression fitting for water tight immersion application.

The bent rigid tube offers protection and accurate lead placement around machinery.

### • Rigid Sheath with Threaded Fitting Style

Rigid sheath with threaded fitting provides accurate placement in process applications.

### • Flange Style

The flanged thermocouple allows rapid assembly and low profile when going through bulkheads.

### • Rigid Sheath Fixed Bayonet Style

Bayonet fittings allow rapid attachment. Spring pressure on the junction tip assures fast response time. This style of bayonet fitting connects quickly and allows leads to exit with a protective sheath.

### • Large Diameter Rigid Sheath Style

The rigid sheath provides protection and accurate placement through bulkheads or platens. Use with a compression fitting for water tight immersion application.

### • Flexible Extensions Style

Flexible extensions allow thermocouples to be disconnected from a system without disturbing the remaining wiring.

### • Insulated Wire, Styles 61 and 62

Constructed with SERV-RITE insulated thermocouple wire, Styles 61 and 62, are economical and versatile and can be ordered with an exposed or protected measuring junction.

### • Perfluoroalkoxy (PFA) Encapsulated Style

The rigid sheath is covered with a 0.010 in. (0.25 mm) wall of PFA for corrosion resistance in acid environments. An epoxy seal improves moisture resistance of the sensor and provides a barrier for migrating fumes in corrosive applications.

### • Ring Terminal Style

The nickel terminal can be placed beneath existing screws or bolts to permit surface temperature measurement.

### • Nozzle Style

The nozzle thermocouple has a short installation depth and a low profile to allow control of thin platen sections.

### • Pipe Clamp Style

The stainless steel clamp allows temperature measurement without drilling or tapping which is ideal for measuring pipe temperatures.

### • Grommet Style

The extremely low profile of the stainless steel grommet provides fast response time.

### • Brass Shim Style

The shim stock thermocouple has a low profile and can be placed between components for surface temperature measurement.

### • Stainless Steel Shim

The shim stock thermocouple has a low profile and can be placed between components for surface temperature measurement.

### • Polyimide Bracket Style

The polyimide thermocouple, when used with the aluminum bracket, is designed primarily to measure roller temperature. Light pressure on the roller enables the polyimide thermocouple to measure roller surface temperature without using slip rings. This type of set-up greatly reduces lag time and eliminates slip rings cost and maintenance. It can also be used to measure conveyor belt temperatures and any other moving part by riding gently on the part surface.

- Continuous use at 400°F (200°C), 500°F (260°C) for limited periods

- Low mass

- Fast response

- Totally insulated construction

- Available in Type J or K

### • Low Profile Polyimide Peel and Stick Style

When used without the bracket it can be placed between heated parts for accurate temperature measurement. At the thermocouple junction, the overall thickness is only 0.016 in. (0.4 mm), so that it does not interfere with fit or thermo conductivity.

### • Polyimide Peel and Stick Style

This sensor requires no bracket or special mounting. Simply peel away the backing and this self-adhesive film will bond to almost any surface. Temperature ratings for continuous use is 400°F (200°C)

Watlow® and SERV-RITE® are registered trademarks of Watlow Electric Manufacturing Company.

To be automatically connected to the nearest North American Technical Sales Office:

**1-800-WATLOW2 • www.watlow.com • inquiry@watlow.com**

International Technical Sales Offices: Australia, +61 3 9335 6449 • China, +86 21 3532 8532 • France, +33 1 41 32 79 70  
Germany, +49 (0) 72 53 / 94 00-0 • India, +91 40 6661 2700 • Italy, +39 024588841 • Japan, +81 3 3518 6630 • Korea, +82 2 2628 5770  
Malaysia, +60 3 8076 8745 • Mexico, +52 442 217 6235 • Singapore, +65 6773 9488 • Spain, +34 91 675 12 92  
Taiwan, +886 7 288 5168 • United Kingdom, +44 (0) 115 964 0777