

Thermocouples

General Applications

Over 90 years of manufacturing, research and design makes Watlow a world class supplier of temperature measurement products. We have designed and manufactured millions of thermocouples for industrial and commercial equipment. People involved in critical process control of food, plastics and metal rely on our sensors.

We are ready to meet your sensing needs with our extensive offering of thermocouples. However, if the variations listed in this catalog are unable to satisfy your requirements, Watlow can custom manufacture sensors to your exacting specifications. Contact your Watlow representative for details.

Performance Capabilities

- Fiberglass insulated thermocouples are capable of temperatures up to 480°C (900°F) 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



Custom manufactured thermocouples

- Units designed and built to your specifications

Applications

- Plastic injection molding machinery
- Food processing equipment
- Deicing
- Plating baths
- Industrial processing
- Medical equipment
- Pipe tracing control
- Industrial heat treating

- Packaging equipment
- Liquid temperature measurement
- Refrigerator temperature control
- Oven temperature control

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Construction and Tolerances

Construction

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 E 230 color-coding identifies standard catalog

thermocouple types (see reference chart on inside back cover).

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.

How to Order

- Determine style of thermocouple required
- Complete the eleven digit part number as determined by the following parameters:
 - Construction
 - Diameter
 - Calibration
 - Lead protection
 - Junction
 - Sheath length
 - Lead length
 - Terminations/options

Note: All eleven spaces must be filled in.

Availability

Rapid Ship sensors are available for same or next day shipment.

Preferred sensor options are available for shipment in approximately three days.

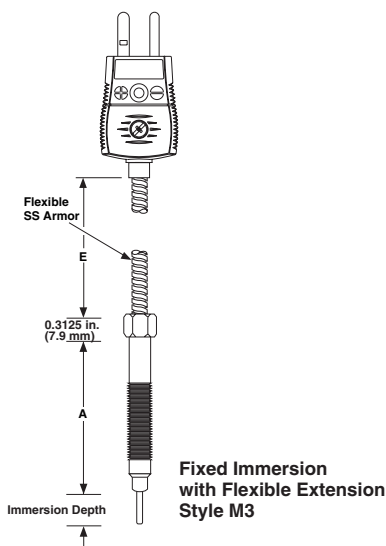
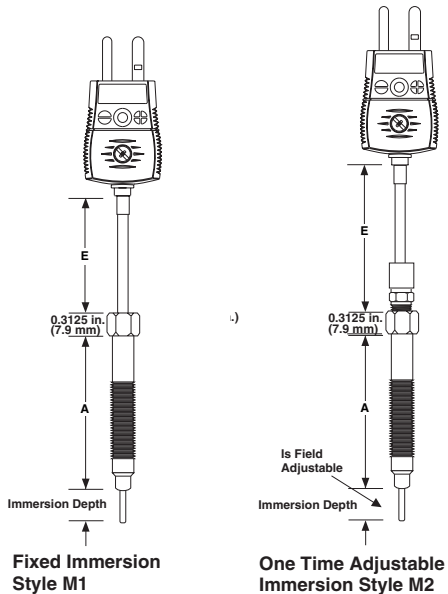
For **custom built** products consult factory for approximate shipment time.

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Melt Bolt Thermocouple

Watlow plastic melt bolt thermocouples are designed so that the sensitive closed end portion of the tip can be inserted directly into the plastic stream of an extruder or injection molding machine. The measuring junction is thermally isolated from the metal bolt mass, assuring accurate reading of the melt temperature up to 260°C (500°F) continuous. Bolt is 300 series stainless steel.



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
M						A	0							

2. Style _____

1 = Fixed immersion
 2 = Adjustable immersion
 3 = Fixed immersion with flex armor

3. Sheath O.D. (inch) _____

G = 0.125

4. Lead Wire Construction _____

O = No flex armor (M1 and M2)
 R = S.S. flex armor (M3 only)

5. Melt Bolt Length "A" (inch) _____

1 = 3
 2 = 6

6. Cold End Terminations _____

A = Standard male plug
 B = Standard female jack
 C = Standard plug with mating connector
 T = Standard 1 ½ inch split leads (Style M3 only)
 U = 1 ½ inch split leads with spade lugs (Style M3 only)
 W = 1 ½ inch split leads with BX connector and spade lugs (Style M3 only)

7. Probe Construction _____

A = Mineral insulated with 304 SS sheath

8. Enter "0" _____

9. Immersion Length "I" (inch) _____

1 = 1

10. Immersion Length "I" (fractional inch) _____

1 = 1/8 5 = 5/8
2 = 1/4 6 = 3/4
 3 = 3/8 7 = 7/8
 4 = 1/2 0 = Flush

11. Junction _____

U = Ungrounded
 G = Grounded

12. Calibration _____

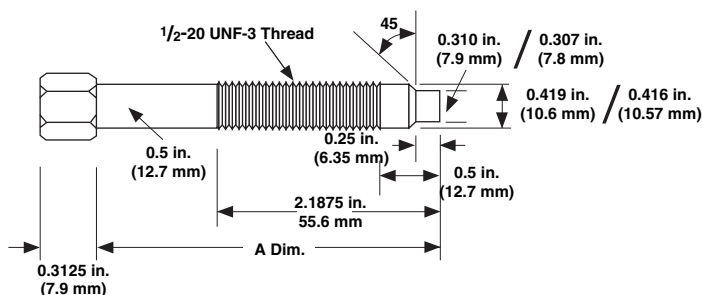
Standard limits **J** K
 Special limits 3 4

13-14. Extension Length "E" _____

03, 06
 Whole inches: 02 to 99

15. Special Requirements _____

If none, enter "0". If required, consult factory



Standard Dimensions For M1, M2, and M3 Melt Bolts