thermo sensors corporation

A Leading Manufacturer of Quality Thermocouple and RTD Assemblies Since 1972

Address: P.O. Box 461947 Garland, TX 75046
Phone: 972-494-1566 **Toll Free:** 1-800-889-5478
Website: www.thermosensors.com

Industrial Thermocouples

Thermo Sensors Industrial thermocouples are widely used in process industry applications. Thermocouples are generally selected by determining the particular conditions under which it must perform. These conditions which have recommended wire and material selections and are grouped in types.

Thermo Sensors thermocouple element types include:

- Type E Chromel-Constantan Thermocouple
- Type J Iron-Constantan Thermocouple
- Type K Chromel-Alumel Thermocouple
- Type N Nicrosil-Nisil Thermocouple
- Type R Platinum-Platinum 13% Rhodium Thermocouple
- Type S Platinum-Platinum 10% Rhodium Thermocouple
- Type B Platinum 6% Rhodium-Platinum 30% Rhodium Thermocouple
- Type T Copper- Constantan Thermocouple

The wire gauge and recommended temperature ranges are of various sizes as well.

Please refer to our order guide to assist in determining your needs. We can also provide technical design assistance and application suggestions. Give us a call.

Ceramic Protecting Tube Characteristics

Thermo Sensors Corporation ceramic tubes are high quality, fine grained, * non-porous tubes. They are impervious to gases at temperatures near their melting point. Materials available range from mullite (C3 Ceramic) to high purity alumina (C98 Ceramic). Material selection depends upon operating conditions and performance requirements such as temperature, atmosphere, sensitivity to contamination and others.

C30 Ceramic (Mullite)

Maximum operating temperature of 2900° F (1600° C). Impervious to air to 3000° F, to dry hydrogen and carbon monoxide to 2550° F. Low rate of thermal expansion (2.8 x 10-6/° F) enhances thermal shock resistance. Resistance to acid slag is good. Basic slag is fair. Recommended for J, K, N, and E type thermocouples.

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C98 Ceramic (99.8% alumina)

Maximum operating temperature 3450° F (1900° C) in both oxidizing and reducing atmospheres. Inert to hydrogen, carbon, platinum, rhodium and refractory metals under most conditions. High thermal conductivity for fast temperature response. Being more dense than C30, affords longer life in acids, alkalis, molten metals, molten salts and slags. Impervious to most industrial furnace gases even at high temperatures. Recommended for R, S and B type thermocouples.

MCT Metal - Ceramic (LT-1)

Maximum operating temperature of 2800° F (1538° C). This tube is a combination of aluminum oxide and chromium. Stable in oxidizing atmospheres to 2200° F. Thermal and mechanical shock characteristics are better than pure ceramic tubes, but an extreme temperature span requires a slow insertion time to allow tube to preheat. Sulphur dioxide, sulphur trioxide and concentrated sulphuric acids have little effect on MCT tubes. Since copper, zinc, lead, brass and ferrous alloys do not "wet" MCT tubes their life is longer in such melts, abrasive resistance even at 2200° F. Do not use in acid or carbide slags or molten aluminum.

SCT (Silicon Carbide)

Maximum operating temperature of 3000° F (1649° C). Suggested as primary tube in molten aluminum. Porous* and affords protection from flame cutting. a secondary tube to provide thermal and mechanical shock resistance in assemblies using C30 and C98 as a primary.