Tried-and-True Minco Thermocouples

Simplicity, durability and universality

Overview

Thermocouples are a tried and true method of sensing temperature. All types of temperture sensors have their advantages and disadvantages and thermocouples are no different. Thermocouples are not the most accurate or elegant temperature sensors; nevertheless, their prevasiveness in many industries is a product of their simplicty, durability and universality.

- Simple because they are essentially two wires joined together to form a temperature sensor.
- Durable because they are most commonly made with large gauge wires which are difficult to damage or break.
- Universal because the common E, J, K and T thermocouple types have a well defined and understood output that many control systems accept.

Minco supplies thermocouples for use in equipment in the industrial, medical diagnostic, test and measurement, semiconductor manufacturing, aerospace, oil & gas, power generation food, beverage, pharmaceutical, and plastics industries.

Thermocouple Types

Minco packages thermocouples is many different forms. Examples are shown here but many of our products are custom designs so final form is only limited by the imagination of our customers and engineers.

Bolt-on Thermocouples (Figure A) are a easy to mount to equipment and can be easily moved to different locations. Minco offers these sensors in a wide variety of thread sizes, connectors and lead lengths to maximize their compatibility with your system.

Flexible Thermal Ribbons (Figure B) are used when space is limited or to measure surface temperatures. These are often mounted with PSA or epoxy. Thermal-Ribbons can be installed virtually anywhere, temporarily or permanently, for accurate temperature sensing and fast response in aerospace, medical, and industrial devices. Our Thermal-Ribbons are encapsulated in polyimide, silicone rubber, Mylar™, and other high performing insulation to meet the environmental requirements of your application.

Embedment Thermocouples (Figure C) are, as the name suggests, embedded inside bearings, plates or other structures and typically held in place via spring loading or epoxy potting. This ensures that the sensors maintain maximum contact between the surface being measured.

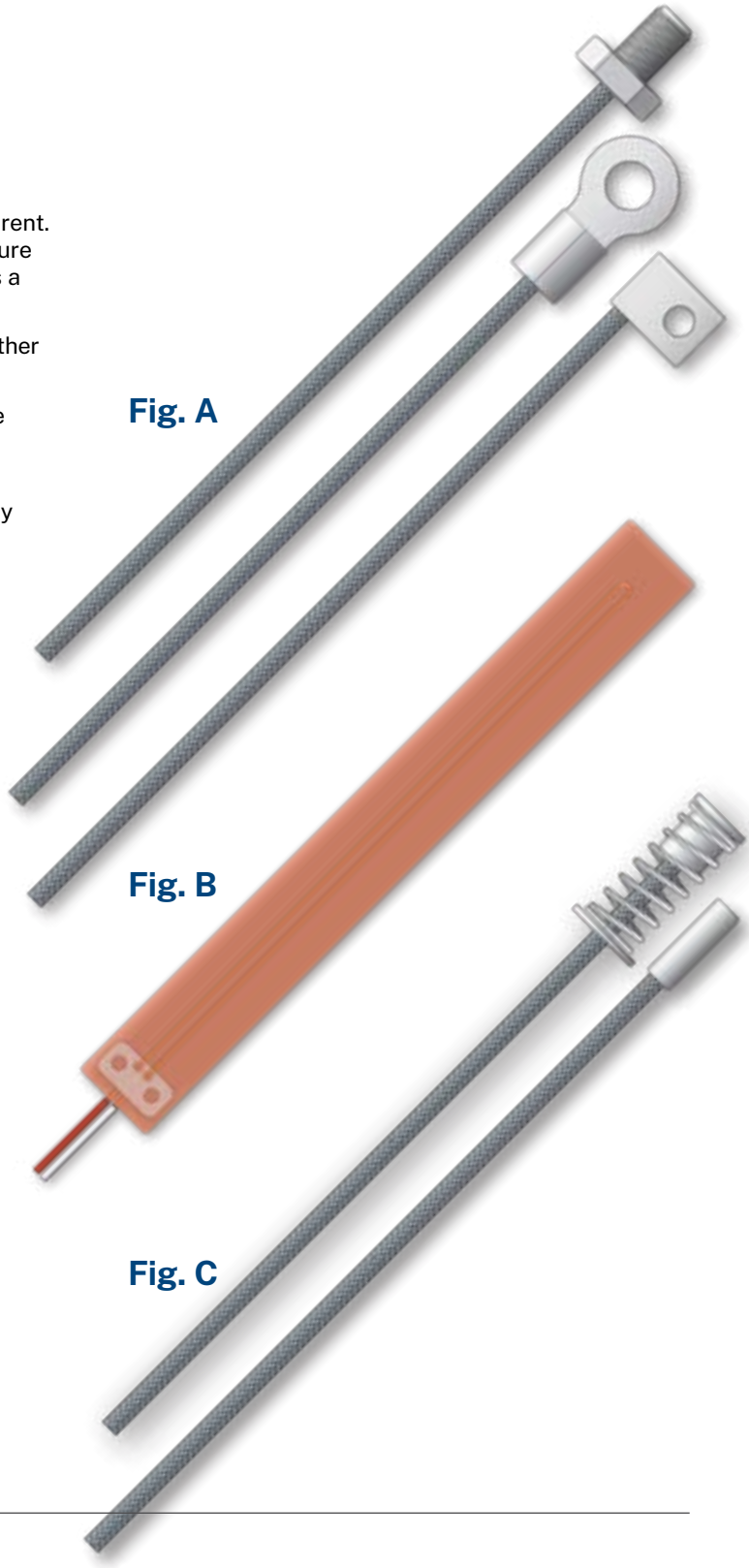

Fig. A

Fig. B

Fig. C

Thermocouple Types (continued)

Minco offers a variety of probes and probe assemblies for specialized uses.

Thermocouple Probes and Thermocouple Probe Assemblies (Figure D) are frequently used for process control or over-temperature protection in equipment and processes. Minco offers not only standard assemblies plus certified assemblies for use in hazardous area applications.

Minco's straight thermocouple probes feature a sensing tip constructed of copper alloy. The copper alloy tip is twenty times more conductive than stainless steel, providing increased sensitivity and rapid response to changes in temperature. The tip sensitive design also focuses the temperature sensitive portion of the sensor near the tip of the probe, providing improved accuracy in thermowells, bearings and other installations. Hazardous area assemblies are certified as an entire assembly for most comprehensive protection.

Whether you need to monitor bearing temperature, process temperature, or virtually any temperature in a hazardous area, Minco's temperature sensor assemblies can be configured to fit your application, and is certified to satisfy your requirements.

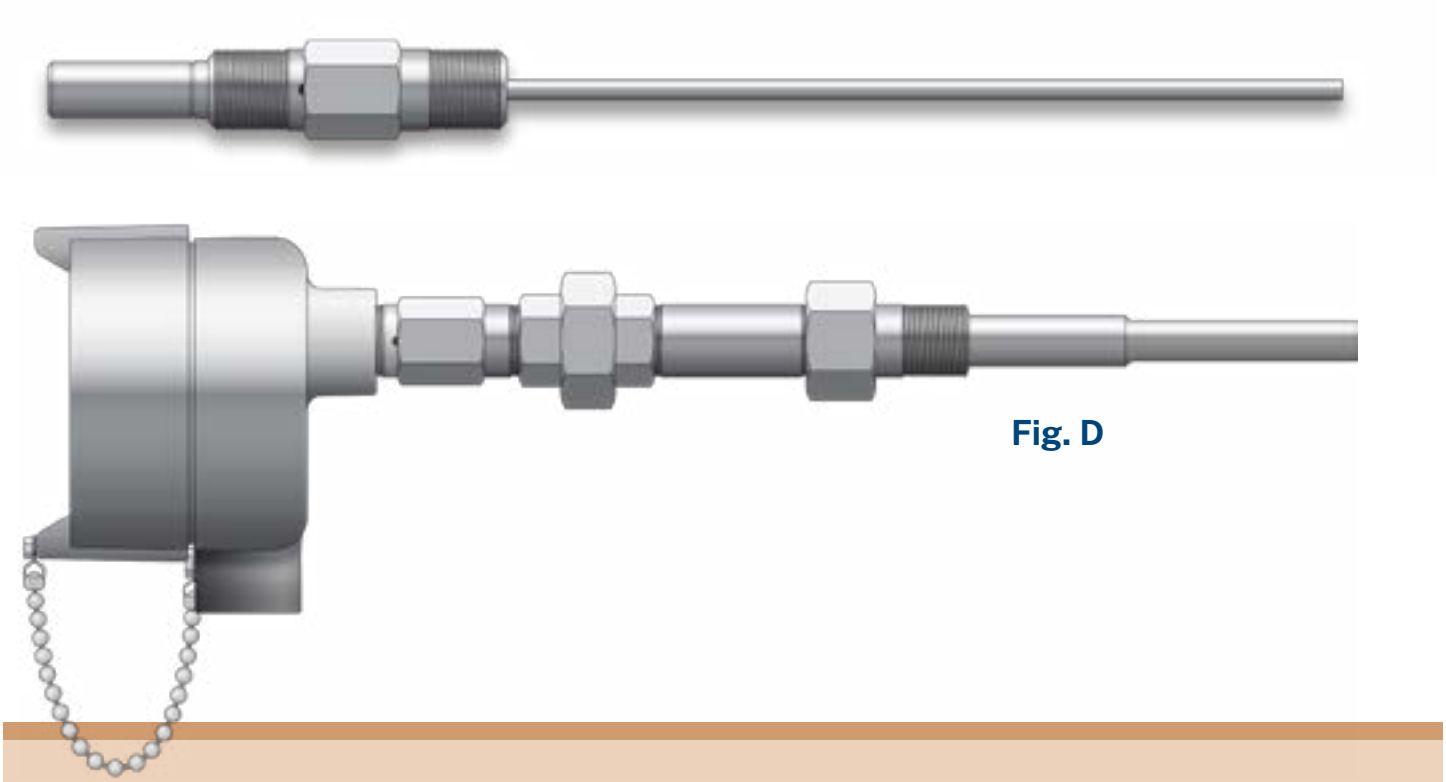

Fig. D

Choosing a Thermocouple Type

Minco thermocouples can be ordered with the common E, J, K or T thermocouple types or with the more exotic B, N, R and S types. High temperature thermocouples are available as well as thermocouple arrays with multiple thermocouples pre-mounted across a surface.

For those that prefer resistance temperature detectors (RTDs), thermistors or integrated circuit (IC) sensors, Minco supplies these devices in many of the same physical configurations. Minco also provides complimentary products that include 4-20 mA transmitters, monitors, controllers, hand-held temperature displays as well as a complete line of flexible heaters.

Contact the Minco sales team for all your thermal sensing and control needs.