



Standard Specification for Thermocouple Connectors¹

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1. Scope

1.1 This specification covers separable single-circuit thermocouple connectors with two round pins. Connectors covered by this specification must be rated for continuous use to at least 300°F (150°C), but they may optionally be rated to a higher temperature.

1.2 This specification does not cover multiple-circuit connectors, multi-pin connectors, miniature connectors, or connectors intended primarily for panel mounting. High temperature connectors (for example, those designed for continuous use at temperatures above approximately 500°F (260°C)) are not intended to be covered by this specification.

1.3 The values stated in either inch-pound units or SI units are to be regarded separately as standard.

1.4 The following precautionary statement pertains only to the test methods portion, Section 9, of this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 The following documents of the latest issue form a part of this specification to the extent referenced herein. In case of conflict between this specification and another referenced document, this specification shall take precedence.

2.2 *ASTM Standards*:²

E230/E230M Specification and Temperature-Electromotive Force (EMF) Tables for Standardized Thermocouples
E344 Terminology Relating to Thermometry and Hydrometry

¹ This specification is under the jurisdiction of ASTM Committee E20 on Temperature Measurement and is the direct responsibility of Subcommittee E20.04 on Thermocouples.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

E608/E608M Specification for Mineral-Insulated, Metal-Sheathed Base Metal Thermocouples
E2820 Test Method for Evaluating Thermal EMF Properties of Base-Metal Thermocouple Connectors

3. Terminology

3.1 *Definitions*—The definitions given in Terminology E344 shall apply.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *connector pair, n*—an assembly consisting of a plug and a jack, each having both positive and negative contact inserts, that will connect two parts of an electrical circuit and provide a means of physically disconnecting the two parts without the use of a tool.

3.2.2 *contact insert, n*—metallic conductor assembly that, when installed in a connector body, provides a connection between two parts of an electrical circuit. Plug connectors will contain projecting prong contacts, while jack connectors will contain recessed sockets or receptacle contacts.

3.2.3 *service life, n*—period of time that a connector assembly can be put to use and retain all physical and thermoelectric properties.

3.2.4 *test difference, n*—thermoelectric emf value attributable to mated connectors observed by the test procedure of this specification.

4. Significance and Use

4.1 The widespread use of thermocouple connectors requires standardization of mating dimensions and performance characteristics.

4.2 This specification describes standardized thermocouple connector dimensions and capabilities and includes test procedures suitable for evaluating the performance of a particular specimen or design. The tests described are not intended for routine inspection or rapid testing of large groups of connectors or for quality control purposes.

5. Classification

5.1 *Plugs or Jacks*:

5.1.1 Connectors shall be constructed as either plugs or jacks, and these two forms shall be designed to connect with each other.