



Standard Specification for Tungsten Wire for Electron Devices and Lamps¹

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This standard has been approved for use by agencies of the Department of Defense. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

1. Scope

1.1 This specification covers three types of drawn wire suitable for fabrication into parts for electron tubes, lamps, and other devices; and one type of rod for metal-to-glass sealing (grid wire is excepted):

1.1.1 *Type 1A*—Commercially pure nonsag wire (Note 2 and Note 3).

1.1.2 *Type 1B*—Commercially pure rod suitable for metal-to-glass sealing.

1.1.3 *Type 2A*—Thoriated filament wire containing 1 % thoria.

1.1.4 *Type 2B*—Thoriated filament wire containing 2 % thoria.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 Types 1A and 1B are designated as UNS R07005. Type 2A is designated as UNS R07911. Type 2B is designated as UNS R07912.

1.4 The following precautionary caveat pertains only to the Chemical Analysis, Section 12 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.*

NOTE 1—A dimensional measurement method for testing nonsag tungsten wire above 0.030 in. (0.76 mm) in diameter is provided in Test Method F 269.

NOTE 2—Acceptance of nonsag wire characteristics for particular applications of size shall be by agreement between producer and consumer based on either a flashed microstructure as shown by photomicrographs, or on dimensional measurement limits determined in accordance with Test Method F 269.

2. Referenced Documents

2.1 ASTM Standards:

¹ This specification is under the jurisdiction of ASTM Committee F-1 on Electronics and is the direct responsibility of Subcommittee F01.03 on Metallic Materials.

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F 16 Test Methods for Measuring Diameter or Thickness of Wire and Ribbon for Electronic Devices and Lamps²

F 204 Test Method for Surface Flaws in Tungsten Seal Rod and Wire²

F 205 Test Method for Measuring Diameter of Fine Wire by Weighing²

F 219 Test Methods of Testing Fine Round and Flat Wire for Electron Devices and Lamps²

F 269 Test Method for Sag of Tungsten Wire²

2.2 Military Standards:

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes³

MIL-STD-129 Marking for Shipment and Storage³

3. Terminology

3.1 Definition of Terms Specific to This Standard:

3.1.1 *wire*—The term wire as used in this specification applies to all drawn material that is spooled or coiled, and to short cut lengths 0.020 in. (0.51 mm) or less in diameter.

3.1.2 *nonsag or doped tungsten wire*—This term designates a wire which, when recrystallized, shows elongated interlocking grains.

3.1.3 *rod*—The term rod as used in this specification applies to centerless ground material 0.020 in. (0.51 mm) or larger in diameter, in short cut lengths or random cut lengths.

4. Ordering Information

4.1 Orders for wire and rod furnished to this specification shall include the following information:

4.1.1 Length in metres, or quantity of short cut lengths,

4.1.2 Type and UNS No. (Section 1),

4.1.3 Straightness (Section 10),

4.1.4 Finish (Section 8),

4.1.5 Weight or size (Section 7) and tolerance, and

4.1.6 Specification number.

NOTE 3—A typical ordering description for straight chemically cleaned wire is as follows: xxxx metres, tungsten wire, Type 1A UNS R07005, straightened, Finish 2; 280.8 mg/200 mm (± 3 %), to ASTM F288 – XX.

² Annual Book of ASTM Standards, Vol 10.04.

³ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.