



Standard Specification for Steel Wire, Cold-Drawn for Mechanical Springs¹

This standard is issued under the fixed designation A 227/A 227M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers two classes of round cold-drawn steel spring wire having properties and quality for the manufacture of mechanical springs that are not subject to high stress or requiring high fatigue properties and wire forms.

1.2 The values stated in either SI (metric) units or inch-pound units are to be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, each system must be used independent of the other.

2. Referenced Documents

2.1 ASTM Standards:

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products²

A 510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel²

A 510M Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel [Metric]²

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment³

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products²

A 941 Terminology Relating to Steel, Stainless Steel, Related Alloys and Ferroalloys²

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁴

2.2 American National Standard:

B 32.4M Preferred Metric Sizes for Round, Square, Rectangle, and Hexagon Metal Products⁵

2.3 Military Standard:

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage⁶

2.4 Federal Standard:

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)⁶

2.5 AIAG Standard:

AIAG B-5 02.00 Primary Metals Identification Tag Application Standard⁷

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 For definition of terms used in this specification, refer to Terminology A 941.

4. Ordering Information

4.1 It shall be the responsibility of the purchaser to specify all requirements that are necessary for material under this specification. Such requirement may include, but are not limited to, the following:

4.1.1 Quantity (mass),

4.1.2 Name of material (cold-drawn steel mechanical spring wire) and class (Table 1 or Table 2),

4.1.3 Wire diameter (Table 1 or Table 2),

4.1.4 Packaging (Section 15),

4.1.5 Cast or heat analysis report, if requested (Section 6),

4.1.6 Certification or test report, or both, if specified (Section 14), and

4.1.7 ASTM designation and date of issue.

NOTE 1—A typical ordering description is as follows: 15 000 kg Cold-Drawn Mechanical Spring Wire, Class I, Size 5.00 mm in 700-kg coils to ASTM A 227M dated_____, or for non-SI units, 30 000 lb Cold-Drawn Mechanical Spring Wire, Class I, Size 0.207 in. diameter in 500-lb coils to ASTM A 227 dated_____.

5. Manufacture

5.1 The steel may be made by any commercially accepted steel-making process. The steel may be either ingot cast or strand cast.

¹ This specification is under the jurisdiction of ASTM committee A-1 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.03 on Steel Rod and Wire.

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 01.05.

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Available from American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036.

⁶ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

⁷ Available from the Automotive Industry Action Group, 26200 Lahser, Suite 200, Southfield, MI 48034.