



Standard Specification for Steel Wire, Carbon and Alloy Specialty Spring Quality¹

This standard is issued under the fixed designation A 1000; 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.

1. Scope

1.1 This specification covers a quality of round and shaped plain carbon and alloy steel spring wire, uniform in quality and temper, intended for the manufacture of mechanical springs that can withstand moderate fatigue stresses over some relatively low number of cycles. The quality level is between the commercial quality grades of wire such as Specifications A 401, A 231 and A 229 and the valve spring quality grades such as Specifications A 230, A 232, A 877 and A 878. It is similar to the grade TD (referenced in EN 10270-2) intended for medium fatigue levels, such as required for clutch springs. This wire shall be either in the annealed and cold-drawn or oil-tempered condition as specified by purchaser.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in parentheses. 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 229 Specification for Steel Wire, Oil-Tempered for Mechanical Springs²
- A 230 Specification for Steel Wire, Oil-Tempered Carbon Valve Spring Quality²
- A 231 Specification for Chrome-Vanadium Alloy Steel Spring Quality Wire²
- A 232 Specification for Chrome-Vanadium Alloy Steel Valve Spring Quality²
- A 370 Test Methods and Definitions for Mechanical Testing of Steel Products²
- A 401 Specification for Steel Wire, Chrome-Silicon Alloy²
- 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 877 Specification for Steel Wire, Chrome-Silicon Alloy Valve Spring Quality²

A 878 Specification for Steel Wire, Modified Chrome-Vanadium Valve Spring Quality²

A 941 Terminology Relating to Steel, Stainless Steel, Related Alloys, and Ferroalloys⁴

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁵

E 45 Practice for Determining the Inclusion Content of Steel⁶

2.2 Federal Standard:

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)⁷

2.3 Military Standard:

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage⁷

2.4 AIAG Standard:

AIAG B-5 02.00 Primary Metals Identification Tag Application Standard⁸

2.5 European Standard:

EN 10270-2 Steel Wire for Mechanical Springs Part 2: Oil-Hardened and Tempered Springsteel Wire of Unalloyed and Alloyed Steels⁹

3. Terminology

3.1 Definitions:

3.1.1 For definition of terms used in this practice, see Terminology A 941.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *commercial quality wire*—a grade of wire that is fairly common quality and intended for applications that are primarily static in nature, not involving significant fatigue loading.

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 requirements may include, but are not limited to the following,

4.1.1 Quantity (mass),

⁴ Annual Book of ASTM Standards, Vol 01.01.

⁵ Annual Book of ASTM Standards, Vol 14.02.

⁶ Annual Book of ASTM Standards, Vol 03.01.

⁷ Available from Standardization Documents Order Desk, Bldg 4 Section D. 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS

⁸ Available from the Automotive Industry Action Group, 26200 Lasher, Suite 200, Southfield, MI 48034.

⁹ Available from European Committee for Standardization, rue de Stassart 36,B-1050 Brussels

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.