



Standard Specification for Metallic Coated Carbon Steel Wire, Coated at Size and Drawn to Size for Mechanical Springs¹

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1. Scope

1.1 This specification covers two finishes of round, metallic coated, hard-drawn, carbon steel spring wire having properties and quality for the manufacture of mechanical springs and wire forms that are not subject to high stress or require high fatigue properties.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values stated in SI units are for information purposes only. Tables 1-9

2. Referenced Documents

2.1 ASTM Standards:

A 90 Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles²

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products³

A 428 Test Method for Weight of Coating on Aluminum-Coated Iron or Steel Articles²

A 510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel³

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment⁴

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products³

B 6 Specification for Zinc (Slab Zinc)⁵

B 750 Specification for Zinc-5 % Aluminum-Mischmetal Alloy (UNS Z 38510) in Ingot Form for Hot-Dip Coatings⁵

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁶

2.2 U.S. Government Standards:⁷

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

TABLE 1 Chemical Requirements

Element	Composition, %
Carbon	0.45–0.85 ^A
Manganese	0.30–1.30 ^B
Phosphorus, max	0.040
Sulfur, max	0.050
Silicon	0.10–0.35

^A Carbon in any one lot shall not vary by more than 0.13 %.

^B Manganese in any one lot shall not vary by more than 0.30 %.

MIL-STD-129 Marking for Shipment and Storage

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

2.3 Automotive Industry Action Group Standard:

AIAG B-5 02.00 Primary Metals Identification Tag Application Standard⁸

3. Terminology

3.1 Definitions:

3.1.1 *coating class (regular, 1, or 3)*—specifies the minimum coating weight per unit area of uncoated wire surface. Aluminum coated wire is only specified in one class.

3.1.2 *coating finish (1 or 2)*—specifies whether a coating is applied prior to or after the final cold drawing operation.

3.1.3 *coating type (A, B, or C)*—specifies the required alloy content of the coating.

3.1.4 *tensile class (I or II)*—specifies the tensile range to which the wire is to conform.

4. Ordering Information

4.1 Orders for material under this specification should include the following information:

4.1.1 Quantity (weight),

4.1.2 Diameter, finish, class of coating if applicable, type of metallic coating, class of tensile strength, name of material,

4.1.3 ASTM designation and date of issue,

4.1.4 Packaging (Section 15),

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

4.1.6 Test report, if desired (Section 14).

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

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² Annual Book of ASTM Standards, Vol 01.06.

³ Annual Book of ASTM Standards, Vol 01.03.

⁴ Annual Book of ASTM Standards, Vol 01.05.

⁵ Annual Book of ASTM Standards, Vol 02.04.

⁶ Annual Book of ASTM Standards, Vol 14.02.

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

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