



# Standard Specification for Carbon Steel Wire for Wire Rope<sup>1</sup>

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## 1. Scope

1.1 This specification covers uncoated and four classes of round, metallic coated, cold-drawn, carbon steel wire for wire rope in five strength levels. This specification specifies:

- 1.1.1 Dimensional tolerances,
- 1.1.2 Mechanical characteristics,
- 1.1.3 Chemical composition requirements,
- 1.1.4 Coating requirements (if applicable), and
- 1.1.5 Packaging requirements.

1.2 The values stated for metric equivalents are provided for informational purposes only.

## 2. Referenced Documents

2.1 This specification incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at their appropriate place in the text and the publications are listed. For dated references, subsequent amendments to or revisions of any of these publications apply to this specification only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to would apply.

### 2.2 ASTM Standards:<sup>2</sup>

A90/A90M Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings  
A510 Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel  
A938 Test Method for Torsion Testing of Wire  
B6 Specification for Zinc  
B750 Specification for GALFAN (Zinc-5 % Aluminum-Mischmetal) Alloy in Ingot Form for Hot-Dip Coatings  
E8 Test Methods for Tension Testing of Metallic Materials  
IEEE/ASTM-SI-10 Standard for Use of the International System of Units (SI): The Modern Metric System

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A01 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

### 2.3 ISO/EN Standards:<sup>3</sup>

EN 10264-1.2 Steel Wire and Wire Products—Steel Wire for Wire Rope

### 2.4 Industry Standard:

API 9A Specification for Wire Rope<sup>4</sup>

### 2.5 Industry References:<sup>5</sup>

AIME/ISS Carbon Steel, Wire and Rods

AIAG 02.00 Primary Metals Identification Tag Application<sup>5</sup>

### 2.6 Non-Referenced Industry Applicable Standard:

ISO Std. 2232 Drawn Wire for General Purpose Non-Alloy Steel Wire Ropes<sup>3</sup>

## 3. Terminology

### 3.1 Definitions:

3.1.1 *actual diameter, n*—the arithmetic mean of the minimum and maximum diameter measurements in one location on the wire.

3.1.2 *breaking force level (Levels 1,2,3,4 or 5), n*—a wire strength based on the minimum load carrying capability of a designated wire.

3.1.3 *drawn-galvanized, n*—a zinc coating that is applied to the wire prior to the final cold drawing operation by either an electro-deposition or hot-galvanizing process.

3.1.4 *drawn-Zn5 Al-MM, n*—a zinc-aluminum alloy (misch-metal) coating that is applied to the wire prior to the final cold drawing operation by a molten coating process.

3.1.5 *final-coated Zn5 Al-MM, n*—a zinc-aluminum alloy (misch-metal) coating that is applied to the wire after the final cold drawing operation by a molten coating process.

3.1.6 *final-galvanized, n*—a zinc coating that is applied to the wire after the final cold drawing operation by either an electro-deposition or hot-galvanizing process.

3.1.7 *nominal diameter, n*—the diameter of the wire expressed in inches (millimetres) and specified by the user to

<sup>3</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

<sup>4</sup> Available from American Petroleum Institute (API), 1220 L. St., NW, Washington, DC 20005-4070, <http://api-ec.api.org>.

<sup>5</sup> Available from Automotive Industry Action Group (AIAG), 26200 Lahser Rd., Suite 200, Southfield, MI 48033, <http://www.aiag.org>.