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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Specification for Steel Track Spikes¹

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1. Scope

1.1 This specification covers steel track spikes used as fastenings between railroad rails, tie plates, and ties.

1.2 Two grades of spikes are described, Grades 1 and 2, previously known as “soft” and “high carbon” steel.

1.3 Supplementary Requirement (S1) specifying copper content is provided. It shall apply only when specified by the purchaser.

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

2. Referenced Documents

2.1 ASTM Standards:

A 29/A 29M Specification for Steel Bars, Carbon and Alloy, Hot-Wrought and Cold-Finished, General Requirements for²

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

2.2 *American Railway Engineering Association Manual*⁴ Design of Cut Track Spike (1963), Chapter 5, Part 2, Page 6

2.3 Military Standards:

MIL-STD-129 Marking for Shipment and Storage⁵

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage⁵

2.4 Federal Standard:

Federal Standard No. 123 Marking for Shipments (Civil Agencies)⁵

3. Ordering Information

3.1 Orders for spikes under this specification shall include the following information as appropriate:

3.1.1 *Quantity* (weight),

3.1.2 *Grade* in accordance with 1.2 and Tables 1-4,

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 A01.01 on Steel Rails and Accessories.

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² *Annual Book of ASTM Standards*, Vol 01.05.

³ *Annual Book of ASTM Standards*, Vol 01.03.

⁴ Available from American Railway Engineering Assn., 2000 L St., NW, Washington, DC 20036.

⁵ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

TABLE 1 Chemical Requirements

	Grade 1 ("soft steel")	Grade 2 ("high-carbon steel")
Carbon, min, %	0.12	0.30
Copper, min, % when specified	0.20	0.20

3.1.3 *Design*—AREA design (see 2.2), or other, including drawings if required,

3.1.4 *Dimensions*—cross section and length,

3.1.5 *Supplementary Requirement* if to apply (see S1), and

3.1.6 *Certification* (see 12.1).

4. Manufacture

4.1 The steel shall be made by any of the following processes: open-hearth, electric-furnace, or basic-oxygen.

4.2 The steel may be cast by a continuous process, or in ingots.

TABLE 2 Tension Test Requirements

	Grade 1 ("soft steel")	Grade 2 ("high-carbon steel")
Yield point, min	0.5 × tensile strength	0.5 × tensile strength
Tensile strength, min, psi	55 000	70 000
MPa	380	485
Elongation in 2 in. or 50 mm, min %	25	25

TABLE 3 Bend Test Requirements

	Grade 1	Grade 2
Body bend, cold	180°—flat on itself	120°—around pin of diameter not greater than spike thickness
Head bend, cold	backward to the line of the face	backward to an angle of 55° with face

TABLE 4 Markings

	Grade 1	Grade 2
Steel, copper not specified	manufacturer's symbol	manufacturer's symbol and HC
Steel, copper specified	manufacturer's symbol and CU	manufacturer's symbol and HC and CU