



Standard Specification for Steel Screw Spikes¹

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

1. Scope

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

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

1.3 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 ASTM Standards:

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

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

3. Ordering Information

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

3.1.1 *Quantity* (weight),

3.1.2 *Style of Head*—A, B, or C⁴ or other, including drawings if necessary,

3.1.3 *Type of Point*—pilot point or not pointed,

3.1.4 *Dimensions*—diameter and length, under head,

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

3.1.6 *Certification and Test Report* (see 11.1).

4. Manufacture

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

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

4.3 The heads and threads of the spikes may be formed by hot- or cold-forming methods.

5. Mechanical Requirements

5.1 Tensile Requirements:

5.1.1 The material as represented by a tension test of a full-size finished spike, or a specimen machined from a finished spike, shall conform to the requirements prescribed in Table 1.

5.1.2 Tension tests of full-size spikes shall be performed using a 10° wedge as described in Test Methods A 370, Supplement S11.1.5.

5.1.3 Where the design of the spike is such that full-size testing is impracticable, the tension test may be made on a specimen machined from a finished spike. Dimensions of the test specimen shall conform to the requirements of Test Methods A 370.

5.1.4 When a machined specimen test is performed, the elongation requirement prescribed in Table 1 shall apply.

5.1.5 The yield point shall be determined by the drop of the beam or halt in the gage of the testing machine.

5.2 *Bend Requirement*—The body of a full-size finished spike shall withstand the bend test described in Table 2 without cracking on the outside of the bent portion.

6. Dimensions and Permissible Variations

6.1 The finished spikes shall conform to the dimensions specified by the purchaser, subject to the permissible variations prescribed in Table 3.

6.2 The threads shall be sharp and true to gage and of the design specified by the purchaser.

7. Workmanship, Finish, and Appearance

7.1 The head of the finished spikes shall be concentric with and firmly joined to the body.

7.2 The material shall be free of injurious imperfections and shall have a workmanlike finish.

8. Number of Tests and Retests

8.1 One tension test and one bend test shall be made from each lot of 100 kegs or fraction thereof.

8.2 If the percentage of elongation of a machined tension test specimen is less than that specified in Table 1 and any part of the fracture is more than ¾ in. (19 mm) from the center of

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² *Annual Book of ASTM Standards*, Vol 01.03.

³ *Annual Book of ASTM Standards*, Vol 01.05.

⁴ Consult manufacturer's literature for design details for A, B, and C-style heads.