Designation: A 702 – 89 (Reapproved 2006)

Standard Specification for Steel Fence Posts and Assemblies, Hot Wrought[1]

This standard is issued under the fixed designation A 702; 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.

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

1. Scope

1.1 This specification covers steel fence posts and assemblies manufactured from hot-wrought sections and intended for use in field and line fencing.

1.2 The posts are available in tee, channel, or U and Y-bar shapes or angle shapes and are furnished painted or galvanized, unless otherwise specified.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

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

A 36/A 36M Specification for Carbon Structural Steel

A 123/A 123M Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A 153/A 153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A 499 Specification for Steel Bars and Shapes, Carbon Rolled from "T" Rails

A 641/A 641M Specification for Zinc–Coated (Galvanized) Carbon Steel Wire

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

2.2 *Federal Standards:*

FED-STD-123 Marking for Shipments (Civil Agencies)[3]

2.3 *Military Standards:*

MIL-STD-129 Marking for Shipment and Storage[3]

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage[3]

3. Terminology

3.1 *Definitions:*

3.1.1 *assemblies*—angel section post components for installation of gates, fence ends or corners, and intermediate bracing.

3.1.2 *line posts*—posts that support the straight-line body of the fence.

4. Ordering Information

4.1 Orders for products under this standard should include the following information:

4.1.1 Quantity (number of pieces) of line posts, end or gate assemblies, corner or intermediate brace assemblies (it is customary to order line posts in multiples of five of the required length and the required number of end or corner assemblies),

4.1.2 Type of section (if a specific section is required) (see 5.2 and Fig. 1),

4.1.3 Length or lengths required (see 6.2),

4.1.4 Finish: galvanized or painted,

4.1.5 ASTM designation and date of issue,

4.1.6 Anchor plates, if required (see 5.4.3), and

4.1.7 Wire fasteners (state weight of zinc coating if other than Class 1) (see 5.6.2 and 5.6.3).

NOTE 1—A typical ordering description is as follows: 500 line posts; 8 ft long; painted; ASTM A 702 dated ___; omit anchor plates.

5. Materials and Manufacture

5.1 *Material*:

5.1.1 Line posts shall be fabricated from Steels A or B and assemblies from Steels A, B, or C as specified in Table 1.

5.1.2 Except as provided in 6.1.3, the finished line post and assemblies shall conform to the tensile properties specified in Table 1 for the applicable steel.

5.1.3 At the manufacturer's option, a Brinell or Rockwell B hardness test may be substituted for the tensile requirements in Table 1. In such cases the material shall conform to the Brinell or Rockwell B hardness specified in Table 2.

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.15 on Bars. This standard is a revision of Commercial Standard CS 184-51, Steel Fence Posts—Field Line Type, formerly published by the United States Department of Commerce.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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

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FIG. 1 Typical Cross Sections of Line Post Types

5.2 *Line Post Section*:

5.2.1 The posts shall be furnished as T, channel or U, or Y sections as illustrated in Fig. 1. The cross section of T posts shall be approximately 1⅜ in. (35 mm) wide, 1⅜ in. deep, and ⅛ in. (3.2 mm) thick. Unless otherwise specified by the purchaser, the line post type is at the manufacturer's option.

5.2.2 Dimensions may vary slightly in individual design in maintaining the control weight per foot.

5.3 *Wire Attachments*—Line posts shall have corrugations, knobs, notches, holes, or studs so placed and formed as to engage a substantial number of fence line wires in proper positions.

5.4 *Anchor Plates*:

5.4.1 Each line post shall be manufactured with an anchor plate, unless otherwise specified. The anchor plate shall be made from carbon steel and shall be swaged or riveted to the post in such a manner as to prevent displacement when the posts are driven.

5.4.2 The placement of the anchor plate shall be nominally 14 in. (350 mm), 16 in. (400 mm), or 18 in. (450 mm) from the bottom of the post to the uppermost portion of the anchor plate.

5.4.3 Anchor plates shall be tapered to facilitate driving, shall have a minimum area of 18 in.^{2} (11600 mm^2) and shall weigh 0.67 lb (0.3 kg) ± 5 %.

5.4.4 When specified, line posts may be furnished without anchor plates.

5.4.5 Anchor plates shall be manufactured from Type A or B materials.

5.5 *Post Assemblies*:

5.5.1 Uprights shall consist of angles with a nominal size 2½ by 2½ by ¼ in. (65 by 65 by 6.4 mm) weighing approximately 4.10 lb/ft (6.1 kg/m) prior to fabrication.

5.5.2 Braces shall consist of angles with a nominal size 2 by 2 by ¼ in. (50 by 50 by 6.4 mm) weighing approximately 3.19 lb/ft (4.75 kg/m) prior to fabrication, or an alternative angle of equivalent weight.

5.5.3 Uprights and braces shall be furnished with the necessary holes and galvanized hardware for the required assembly.

5.5.4 All assemblies shall be furnished with one upright. End and gate assemblies shall be furnished with one brace, and corner and intermediate braces with two braces.

5.6 *Wire Fasteners*:

5.6.1 Unless otherwise specified by the purchaser, each line post shall be provided with not less than five suitable fasteners for attaching fence wire to the posts.

5.6.2 The fasteners shall be formed from zinc-coated steel wire not less than 0.120 in. (3.05 mm) diameter zinc coated in accordance with Specification A 641/A 641M. Class 1 coating shall be furnished unless otherwise specified by purchaser.

5.6.3 When line posts are intended for range type western fencing using three line wires, it is satisfactory to provide only three fasteners for each post.

6. Dimensions, Mass and Permissible Variations

6.1 *Nominal Weights and Tolerances*:

6.1.1 *Nominal Weight*—Prior to fabrication by punching, drilling, attaching anchors, or finish coating, the line post sections shall have a nominal weight of 1.33 lb/ft of the length.

6.1.2 The weight of line posts plus anchor plates (if specified), prior to fabrication, drilling, or finish coating shall not vary from nominal weights specified in Table 3 by more than ±5 %. Weight shall be determined in lots of five line posts.

6.1.3 The weight of assembly components prior to fabrication, drilling, or finish coating shall not vary from the nominal weights specified in Table 4 by more than ±5 %. Single assembly components shall be used to determine weight.

6.2 *Standard Lengths and Tolerances*:

6.2.1 Line posts shall be furnished in standard lengths of 5 to 10 ft (1525 to 3050 mm) inclusive, as specified by the purchaser. Standard length increments are shown in Table 3.

6.2.2 The length of line posts, uprights, and braces shall not vary from that specified more than −1.0 in. (−25 mm) or +2 in. (+50 mm).

6.2.3 The placement of the anchor plate shall not vary from the nominal by more than ±3 in. (±76 mm).

7. Workmanship, Finish, and Appearance

7.1 Line posts, uprights, and braces shall be furnished painted, or galvanized as specified by the purchaser.

7.2 When specified to be painted, the posts shall be cleaned of all loose scale prior to finishing, and painted with one or more coats of weather resistant, air drying or baking paint or enamel.

7.3 When specified to be galvanized, the posts and post assemblies shall be zinc coated by the hot-dip process in accordance with Specification A 123/A 123M. The assembly hardware (see 5.5.3) shall be zinc coated in accordance with Specification A 153/A 153M.

8. General Requirements

8.1 Material furnished under this specification shall conform to the general requirements of the current edition of Specification A 29/A 29M unless otherwise provided herein.

9. Sampling

9.1 One item from each lot shall be selected at random for testing. A lot shall consist of all posts or assemblies or both, of the same length offered for delivery at the same time.

9.2 The post or assembly selected in accordance with 7.1 shall be tested for tensile strength or hardness, weight, and zinc coating, if applicable.

9.3 For purposes of visual inspection, length determinations, and dimensional examination, one post or assembly from each 400, or a total of seven, or whichever is less, shall be selected at random.

9.4 Visual inspection shall include examination for such features as excessive bow, camber, twist, or other injurious

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TABLE 1 Materials for Line Posts and Assemblies

Steel	Steel Description	Line Posts		Assemblies	
		Yield Point, min, ksi (MPa)	Tensile Strength, min, ksi (MPa)	Yield Point, min, ksi (MPa)	Tensile Strength, min, ksi (MPa)
A	hot-wrought carbon steel, 0.35 % carbon, min	40 (275)	70 (485)	40 (275)	70 (485)
B	hot-wrought carbon steel, or hot-wrought rail steel[A]	50 (345)	80 (550)	50 (345)	80 (550)
C	structural steel[B]	...	...	36 (250)	58 (400)

[A] Hot wrought rail steel in accordance with Specification A 499.
[B] In accordance with Specification A 36/A 36M.

TABLE 2 Brinell Hardness

Steel	Steel Description	Brinell Hardness, min	Rockwell B Hardness, min
A	hot-wrought carbon steel, 0.35 %, carbon, min	143	79
B	hot-wrought carbon steel or rail steel[A]	156	83
C	structural steel[B]	116	68

[A] Hot wrought rail steel in accordance with Specification A 499.
[B] In accordance with Specification A 36/A 36M.

TABLE 3 Nominal Weights of (Raw) Line Posts

Post Length		Weight[A]	
ft	m	lb	kg
5	1.52	7.32	3.32
5½	1.68	7.99	3.61
6	1.83	8.65	3.92
6½	1.98	9.32	4.22
7	2.13	9.98	4.53
7½	2.28	10.64	4.83
8	2.44	11.31	5.13
9	2.74	12.64	5.74
10	3.05	13.97	6.34

[A] Includes weight of anchor plate.

TABLE 4 Nominal Weights of (Raw) Assemblies

	Length		Weight[A]	
	ft	m	lb	kg
Upright and one brace, each (end or gate)	7	2.13	51	23
Upright and two braces, each (corner or intermediate brace)	7	2.13	73	33
Upright and one brace, each	8	2.44	58	26
Upright and two braces, each	8	2.44	84	38
Upright and one brace, each	9	2.74	66	30
Upright and two braces, each	9	2.74	94	43

[A] Includes weight of bolts.

imperfections in surface or coating. Such imperfections may be considered cause for rejection of individual posts or assemblies.

10. Rejection and Retests

10.1 Should the post or assembly fail to meet any of the requirements of 10.2, the lot size shall become 400. One test shall be selected from each lot, and failure of the test shall result in rejection of that particular lot.

10.2 Should two or more posts or assemblies fail to meet any of the requirements of 10.3, the lot size shall become 400. Seven items shall be examined from each lot for compliance to the requirements of 10.3 causing initial failure. If two of more items fail, the entire lot shall be rejected.

10.3 Any individual post or assembly failing to meet the requirements of 10.2 or 10.3 shall be rejected.

11. Inspection

11.1 Unless otherwise specified in the purchase order or contract, the manufacturer is responsible for the performance of all inspection and test requirements specified in this specification. Except as otherwise specified in the purchase order or contract, the manufacturer may use his own or any other suitable facilities for the performance of the inspection and test requirements unless disapproved by the purchaser at the time the order is placed. The purchaser shall have the right to perform any of the inspection and tests set forth in this specification when such inspection and tests are deemed necessary to ensure that the material conforms to prescribed requirements.

12. Rejection and Rehearing

12.1 Material that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the producer or supplier promptly and in writing. In case of dissatisfaction with the results of the test, the producer or supplier may make claim for a rehearing.

13. Certification

13.1 When specified in the purchase order or contract, a producer's or supplier's certification shall be furnished to the purchaser that the material was manufactured in accordance with this specification and has been found to meet the requirements.

14. Packaging

14.1 Line posts shall be bound in bundles of 5 posts, and by agreement with the purchaser, may be supplied in master bundles containing up to 250 posts.

14.2 Orders are customarily on piece count rather than on weight of posts or assembles. The nominal weights establish the basis for weight tolerance and transportation data (see Table 3 and Table 4 for nominal weights).

15. Packaging, Marking, and Loading for Shipment

15.1 Unless otherwise specified, packaging, marking, and loading for shipment shall be in accordance with Practices A 700.

15.2 When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. Government,

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when Level A is specified, preservation, packaging, and packing shall be in accordance with Level A requirements of MIL-STD-163.

15.3 When specified in the contract or order, and for direct procurement by or direct shipment to the U.S. Government, marking for shipment, in addition to requirements specified in the contract or order, shall be in accordance with MIL-STD-129 for U.S. Military agencies and in accordance with FED-STD-123 for U.S. Government civil agencies.

16. Keywords

16.1 hot wrought steel bars; steel bars

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