



Designation: A 584 – 97

Standard Specification for Aluminum-Coated Steel Woven Wire Fence Fabric¹

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1. Scope

1.1 This specification covers aluminum-coated steel fence fabric suitable for such uses as railroad and highway right-of-way and similar fencing, having a series of horizontal (line) wires with vertical (stay) wires woven or wrapped around the line wires, forming rectangular openings.

1.2 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 428/A 428M Test Method for Weight of Coating on Aluminum-Coated Iron or Steel Articles²

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

A 902 Terminology Relating to Metallic Coated Steel Products²

2.2 U.S. Federal Standard:

Federal Standard No. 123 Marking for Domestic Shipments (Civil Agencies)⁴

2.3 U.S. Military Standards:

MIL-STD-129 Marking for Shipment and Storage⁴

MIL-STD-163 Steel Mill Products, Preparation for Shipment and Storage⁴

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, see Terminology A 902.

4. Ordering Information

4.1 Orders for fence fabric under this specification shall include the following information for each design or style ordered:

4.1.1 Quantity (number of rolls),

4.1.2 Design (style) (Section 6),

4.1.3 Certification if required, and

4.1.4 ASTM A 584 and year of issue.

4.2 All rolls of fence fabric accepted by the purchaser shall be billed on the basis of the number and original length of the rolls before sampling unless changed by contractual arrangement. Fence fabric covered by this specification shall be furnished in 20-rod (101-m) rolls.

NOTE 1—A typical ordering description is as follows: 60 rolls, 1047-6-9, to ASTM A 584 – ____.

5. Materials

5.1 *Base Metal*—The base metal of the fence fabric shall be steel of such quality and purity that, when drawn to the size of wire specified and coated with aluminum the finished fence fabric shall be of uniform quality and have the properties and characteristics as prescribed in this specification.

5.2 *Aluminum-Coated Wire*—The wire shall be coated with aluminum by a hot-dip process before fabrication.

5.2.1 *Adherence of Coating*—The aluminum-coated wire shall be capable of being wrapped in a close helix at a rate not exceeding 15 turns per minute around a cylindrical steel mandrel having a diameter equal to the coated diameter of the wire, without cracking or flaking the aluminum coating to such an extent that any of the aluminum can be removed by rubbing with the bare fingers.

5.3 *Aluminum for Coating*—The ingot or pig aluminum used for coating shall conform to the following impurity limits:

Copper, max, %	0.10
Iron, max, %	0.50

6. Design

6.1 The designs of fence fabric covered by this specification shall be in accordance with those shown in Fig. 1 and Table 1.

7. Size and Permissible Variations

7.1 Wire:

7.1.1 *Size*—The size of the aluminum-coated wire, expressed in terms of steel wire gage, shall conform to the diameter given in Table 2, within the permissible variations listed therein.

7.1.2 The diameter of the coated wire shall be determined as the average of two readings taken at right angles to each other on an essentially straight portion of the wire.

NOTE 2—Due to the mechanics of the manufacturing process, a certain

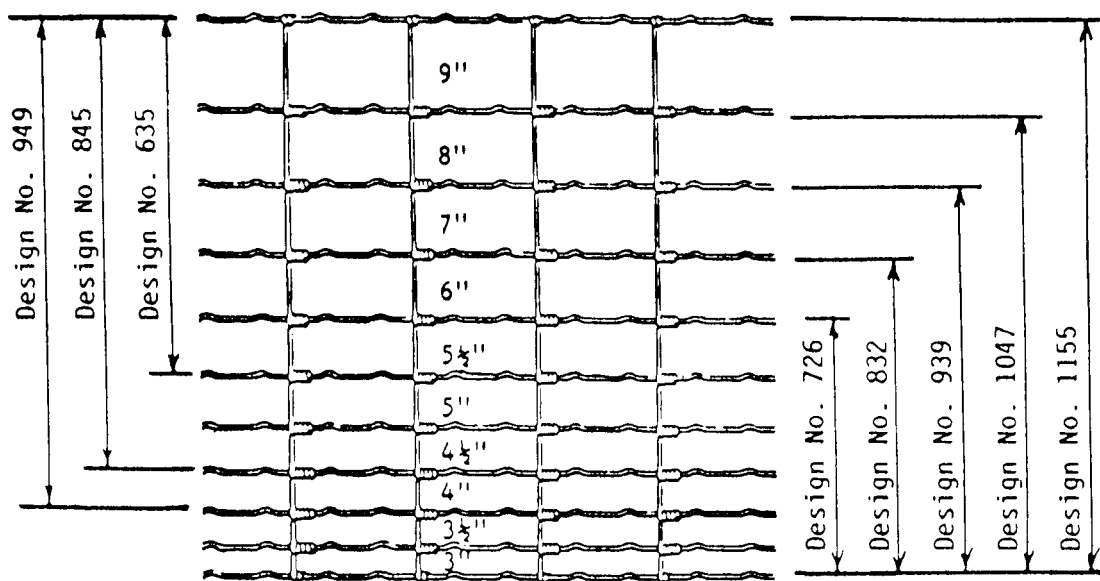
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² *Annual Book of ASTM Standards*, Vol 01.06.

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

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



NOTE 1—Numbers indicate spacing of horizontal wires in inches. One inch is equal to 25.4 mm.

FIG. 1 Fence Fabric Dimensions and Design Numbers

amount of out-of-roundness can be expected on stay wires of the finished fence fabric. No limits are placed on out-of-roundness of wire in the fence fabric.

7.2 Fabric:

7.2.1 The height of the fence fabric (center-to-center distance between top and bottom wires) shall not vary more than ± 1 in. The height of woven wire fence fabric is based on the sum of the line wire spacing shown in Fig. 1 and not the height as designated in the tables.

7.2.2 The tolerance for line and stay wire spacing shall be $\pm 3/8$ in. (10 mm). This does not alter the overall height of the fence as designated in 7.2.1.

7.2.3 The length of fence fabric in a roll shall be 20 rods (101 m) $-0, +3\%$.

8. Joints and Workmanship

8.1 Splicing of individual line wires by means of a wrap joint or an electric butt weld is permitted. The maximum number of line wire splices or joints shall not exceed one-half of the number of line wires in any 20-rod (101-m) roll of fence fabric. Such splices or joints shall be made in a workmanlike manner.

8.2 The woven wire fence fabric shall have uniformly wrapped joints, and all stay wires shall be properly spaced and substantially perpendicular to the line wires.

9. Weight of Coating

9.1 The aluminum-coated wire as represented by the test specimens tested in accordance with Section 9 and Test Method A 428/A 428M shall conform to the requirements of Table 2 for minimum weight of aluminum coating.

10. Sampling

10.1 *Samples*—For the purpose of tests, one roll from every 50 rolls or fraction thereof in a lot shall be selected at random, or a total of seven rolls, whichever is less. A lot shall consist of

all the rolls of a single design of fence fabric offered for delivery at the same time.

10.2 *Test Specimens for Weight of Coating*—A length of fence fabric (approximately 3 ft or 1 m long) shall be cut from the end of the sample roll to include at least three of the vertical (stay) wires. The test specimens for weight of coating determination shall consist of a number of lengths cut from a single wire, excluding all wire knots, wraps, and welded sections, such that the total length of wire tested is at least 6 in. (152 mm) but preferably about 12 in. (305 mm). At least six test specimens shall be tested for weight of coating in accordance with 9.1, selected as follows:

10.2.1 One specimen from the top or bottom wires,

10.2.2 Three specimens from horizontal (line) wires other than the top or bottom wires, and

10.2.3 Two specimens from vertical (stay) wires.

10.3 Instead of testing wire from the completed fence fabric in accordance with 10.2, the manufacturer may elect to establish compliance with Section 9 of this specification by tests made on wire prior to fabrication. If the manufacturer makes this election, the purchaser still reserves the right to test wire from the completed fence fabric.

11. Number of Tests and Retests

11.1 If one or more of the six test specimens from a sample roll of fence fabric fail the weight of coating test, the lot shall be subjected to retests. For retest purposes, four additional rolls from each 50 rolls shall be sampled. The lot size then becomes 50. Test specimens shall be cut in accordance with 10.2.

11.2 If more than 4 of the 24 retest specimens fail to meet the requirements of Table 2, or if any of the retest specimens has less than 75 % of the specified coating weight, the entire lot represented by the retest specimens may be rejected.

11.3 Instead of rejecting the entire lot as provided for in 11.2, the purchaser may elect as agreed to by the producer, to test specimens from every roll as provided in 10.2 and reject

TABLE 1 Design Numbers for Woven Wire Fence Fabric

NOTE 1—Height is nominal, see 7.2.1 for actual height determination.

Design Numbers	Number of Horizontal Wires	Height, in. (cm)	Spacing of Stay Wires, in. (cm)	Size Steel Wire Gage	
				Intermediate Line and Stay Wires	Top and Bottom Wires
No. 9					
1155-12-9	11	55 (140)	12 (30)	9	9
1047-12-9	10	47 (119)	12 (30)	9	9
939-12-9	9	39 (99)	12 (30)	9	9
832-12-9	8	32 (81)	12 (30)	9	9
726-12-9	7	26 (66)	12 (30)	9	9
949-12-9	9	49 (124)	12 (30)	9	9
845-12-9	8	45 (114)	12 (30)	9	9
635-12-9	6	35 (88)	12 (30)	9	9
1047-6-9	10	47 (119)	6 (15)	9	9
726-6-9	7	26 (66)	6 (15)	9	9
1155-6-9	11	55 (140)	6 (15)	9	9
No. 11					
1047-12-11	10	47 (119)	12 (30)	11	9
939-12-11	9	39 (99)	12 (30)	11	9
832-12-11	8	32 (81)	12 (30)	11	9
726-12-11	7	26 (66)	12 (30)	11	9
845-12-11	8	45 (114)	12 (30)	11	9
635-12-11	6	35 (89)	12 (30)	11	9
1047-6-11	10	47 (119)	6 (15)	11	9
939-6-11	9	39 (99)	6 (15)	11	9
832-6-11	8	32 (81)	6 (15)	11	9
726-6-11	7	26 (66)	6 (15)	11	9
No. 12½					
1047-12-12½	10	47 (119)	12 (30)	12½	10
939-12-12½	9	39 (99)	12 (30)	12½	10
832-12-12½	8	32 (81)	12 (30)	12½	10
726-12-12½	7	26 (66)	12 (30)	12½	10
845-12-12½	8	45 (114)	12 (30)	12½	10
635-12-12½	6	35 (89)	12 (30)	12½	10
1047-6-12½	10	47 (119)	6 (30)	12½	10
939-6-12½	9	39 (99)	6 (15)	12½	10
832-6-12½	8	32 (81)	6 (15)	12½	10
726-6-12½	7	26 (66)	6 (15)	12½	10
No. 14½					
939-6-14½	9	39 (99)	6 (15)	14½	11
832-6-14½	8	32 (81)	6 (15)	14½	11

the order is placed. The purchaser shall have the right to perform any of the inspection and tests stated in this specification when such inspections and tests are necessary to assure that the material conforms to prescribed requirements.

TABLE 2 Permissible Variations in Diameter of Individual Aluminum-Coated Wires and Minimum Weight of Coating

Size Coated Wire, Gage	Nominal Diameter of Coated Wire, in. (mm)	Permissible Variation, ±in. (mm)	Minimum Weight of Coating, oz/ft ² (g/m ²)
9	0.148 (3.76)	0.005 (0.13)	0.40 (120)
10	0.135 (3.43)	0.005 (0.13)	0.35 (105)
11	0.120 (3.05)	0.005 (0.13)	0.35 (105)
12½	0.099 (2.51)	0.004 (0.10)	0.30 (90)
14½	0.076 (1.93)	0.004 (0.10)	0.25 (75)

13. Rejection and Rehearing

13.1 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.

14. Certification

14.1 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, sampled, tested, and inspected in accordance with this specification and has been found to meet the requirements. When specified in the purchase order or contract, a report of the test results shall be furnished.

15. Packaging and Marking

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, when Level A is specified, preservations, packaging, and packing shall be in accordance with the Level A requirement 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 Federal Standard No. 123 for U.S. Government civil agencies.

16. Keywords

16.1 fence fabric; fencing material; metallic coated steel wire; steel wire; wire

only those rolls failing the weight of coating requirement.

12. Inspection

12.1 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

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