



Designation: F1183 – 96 (Reapproved 2022)

# Standard Specification for Aluminum Alloy Chain Link Fence Fabric<sup>1</sup>

This standard is issued under the fixed designation F1183; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This specification covers aluminum alloy chain link fence fabric for commercial, industrial, and residential uses.

1.2 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.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

A700 Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment

B211 Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire (Metric) B0211\_B0211M

2.2 *Federal Standards:*<sup>3</sup>

Fed. Std. No. 123 Marking for Shipment, Civil Agencies

2.3 *Military Standards:*<sup>3</sup>

MIL-STD-129 Marking for Shipment and Storage

## 3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee F14 on Fences and is the direct responsibility of Subcommittee F14.40 on Chain Link Fence and Wire Accessories.

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<sup>2</sup> 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.

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

3.1.1 *chain link fence fabric*—a fencing material made from wire helically wound and interwoven in such a manner as to provide a continuous mesh without knots or ties, except in the form of knuckling or of twisting the ends of the wires to form the selvage of the fabric.

3.1.2 *diamond count*—the number of diamond openings from one edge of the fabric to the other. The diamond count of a given fabric shall begin at the first completed diamond at one edge and continue to the unfinished (one-half) of full opening at the other edge.

3.1.3 *knuckling*—a term used to describe the type of selvage obtained by interlocking adjacent pairs of wire ends and then bending the wire ends back into a loop. The loop shall be closed or nearly closed to a measurement less than the diameter of the wire.

3.1.4 *twisting*—a term used to describe the type of selvage obtained by twisting adjacent pairs of wire ends together in a close helix of 1½ machine turns, which is equivalent to three full twists, and cutting the wire ends at an angle. The wire ends beyond the twist shall be at least ¼ in. (6.35 mm) long. This type of selvage is not used on fabric with a mesh size of less than 2 in.

## 4. Ordering Information

4.1 Orders for chain link fence fabric purchased to this specification shall include the information given in 4.1.1 through 4.1.8.

4.1.1 Quantity (Section 13),

4.1.2 Size of mesh (Section 7),

4.1.3 Size of wire (Section 8),

4.1.4 Height of fabric (Section 9),

4.1.5 Diamond count, if specified (Section 6),

4.1.6 Type of selvage (Section 10),

4.1.7 Certification, if required (Section 16), and

4.1.8 ASTM designation and year of issue.

4.2 All rolls of fencing accepted by the purchaser shall be billed on the basis of the original footage of the rolls prior to sampling, unless changed by contractual arrangement.

NOTE 1—An example of a typical ordering description is as follows: 25 rolls, 50 ft each, chain link fence fabric, aluminum alloy, 2 in. (50.8 mm) mesh, 0.148 in. (3.76 mm) wire, 60 in. high, knuckled both selvages, to ASTM F1183 – \_\_\_\_\_.

**5. Materials**

5.1 The wire from which the fabric is woven shall conform to all requirements of alloy 6061, temper T94 described in Specification B211.

**6. Weave**

6.1 The wire shall be woven throughout in the form of approximately uniform square mesh, having parallel sides and horizontal and vertical diagonals of approximately uniform dimensions. The top and bottom of the fabric shall be knuckled or twisted as specified in Section 10.

6.2 A typical diamond count for each standard height is shown in Table 1. Other diamond counts are permissible provided that they are consistent within a lot. The purchaser has the option to specify the diamond count (4.1.5).

**7. Size of Mesh**

7.1 The size of mesh shall be as indicated in Table 2.

7.2 The permissible variation from the specified size of mesh shall be  $\pm 1/8$  in. (3.175 mm) for all mesh sizes except 1 in. (25.4 mm), and  $\pm 1/16$  in. (1.5875 mm) for 1-in. (25.4 mm) mesh size.

7.3 The size of mesh shall be determined by measuring the minimum clear distance between the wires forming the parallel sides of the mesh, and calculated as the average of two readings taken at right angles to each other.

**8. Size of Wire**

8.1 Chain link fabric shall be fabricated from wire diameters as listed in Table 2, with a permissible variation from the specified diameter of  $\pm 0.005$  in. (0.127 mm).

**9. Height of Fabric**

9.1 Chain link fabric shall be furnished in the standard heights shown in Table 2. The height of fabric shall be the overall dimension from ends of twists or knuckles. Permissible variation from the specified height shall be  $\pm 1$  in. (25.4 mm) for 1 3/4 in. (44.45 mm) and 2 in. (50.8 mm) mesh and  $\pm 1/2$  in. (12.7 mm) for 1 in. (25.4 mm) mesh.

**10. Selvage**

10.1 Unless otherwise specified by the purchaser, fabrics with 2 in. (50.8 mm) mesh used in heights 60 in. (1524 mm) and under shall be knuckled at both selvages. Fabric of heights 72 in. (1830 mm) and above shall be knuckled at one selvage and twisted at the other.

**TABLE 2 Sizes of Wire and Mesh<sup>A</sup>**

Specified Diameter of Wire, in.	Wire Gauge Size	Size of Mesh, in.	Height of Fabric, in.
0.192	6	2	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	2	36, 42, 48, 60, 72, 84, 96, 108, 120, 144
0.148	9	1 3/4	... .. 96, 108, 120, 144
0.148	9	1	36, 42, 48, 60, 72, 84, 96, 108, 120, 144

<sup>A</sup> See Table X1.1 for metric equivalents.

10.2 The selvages of all fabrics with meshes of less than 2 in. shall be knuckled.

NOTE 2—Use of twisted selvages for fence fabric under 72 in. (1830 mm) in height are not recommended because of consumer safety considerations.

**11. Breaking Strength**

11.1 The wire constituting the fabric shall meet the minimum breaking strength requirements shown in Table 3.

**12. Finish**

12.1 Unless otherwise specified, the fabric shall have a mill finish. The purchaser may specify a caustic-cleaned, or etched finish, derived by chemical removal of the wire drawing and weaving lubricants after the fabric is woven.

**13. Standard Length of Rolls**

13.1 The standard length of roll shall be 50 ft (15.24 m)  $\pm 1$  %, except as otherwise agreed upon at the time of purchase.

13.2 The length of roll shall be determined by unrolling a roll of fabric onto a flat surface and then exerting tension by appropriate means to remove all slack. The tension applied shall not reduce the actual height of the fabric by more than 1/16 in./ft (1.5875 mm/m) of height or by more than 1/2 in. (12.7 mm) total, whichever is less.

**14. Sampling and Number of Tests**

14.1 One roll of every 50 rolls, or fraction thereof, in a lot shall be taken at random as a sample for test purposes. In no case shall less than two samples be tested, except when the lot is less than 10 rolls, when only one roll shall be selected for the sample.

**TABLE 1 Typical Diamond Count<sup>A,B</sup>**

Diameter of Wire, in.	Size of Mesh, in.	Height of Fabric, in.									
		36	42	48	60	72	84	96	108	120	144
0.192	2	10 1/2	12 1/2	13 1/2	17 1/2	20 1/2	24 1/2	27 1/2	31 1/2	34 1/2	41 1/2
0.148	2	10 1/2	12 1/2	13 1/2	17 1/2	20 1/2	24 1/2	27 1/2	31 1/2	34 1/2	41 1/2
0.148	1 3/4							31 1/2	35 1/2	39 1/2	47 1/2
0.148	1	20	23	27	33	39	45	53	61	67	79

<sup>A</sup> Other diamond counts are permitted. Refer to 6.2 of this specification.

<sup>B</sup> See Table X1.1 for metric equivalents.

**TABLE 3 Breaking Strength of Wire**

Specified Diameter of Wire, in. (mm)	Minimum Breaking Strength, lbf (N)
0.192 (4.88)	1560 (6939)
0.148 (3.76)	925 (4114)

14.2 Sample rolls selected shall be inspected for uniformity of weave (6.1), diamond count (6.2), size of mesh (Section 7), size of wire (Section 8), height of fabric (Section 9), selvage (Section 10), tensile strength (Section 11), and length (Section 13).

14.3 If any specimen fails to meet the requirements of this specification, the roll represented by the specimen shall be rejected. Two additional rolls shall be inspected, both of which shall meet the requirements in every respect; otherwise, the lot represented by the samples may be rejected.

**15. Inspection**

15.1 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 disapproval is expressed 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 inspections and tests are deemed necessary to assure that the material conforms to prescribed requirements.

**16. Certification**

16.1 When specified in the purchase order or contract, a producer’s or supplier’s certification shall be furnished to the purchaser stating 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.

**17. Packaging, Marking, and Loading**

17.1 Each length of chain link fence fabric shall be tightly rolled and firmly tied. Each roll shall carry a tag describing the type of material, the specified wire size and mesh size, and the specified length and height of fabric in the roll. Compliance of the fence fabric with Specification F1183 shall be marked, as well as the name or mark of the manufacturer.

17.2 Unless otherwise specified, packaging, marking, and loading for shipment shall be in accordance with Practices A700.

17.3 When specified in the contract or order, and for fence fabric being directly procured by or directly shipped to the U.S. government, marking for shipment, in addition to the 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. No. 123 for civil agencies.

**18. Keywords**

18.1 aluminum alloy chain link fence fabric; chain link fence, aluminum alloy; fence/fencing materials, chain link

**APPENDIX**

*ASTM F1183-96(2022)*

(Nonmandatory Information)

**X1. METRIC EQUIVALENTS**

X1.1 Approximate metric equivalents are given in **Table X1.1**.

**TABLE X1.1 Approximate Metric Equivalents for Tables 1 and 2**

Diameters of Wire and Sizes of Mesh		Height of Fence Fabric	
in.	mm	in.	mm
0.192	4.88	36	910
0.148	3.76	42	1070
		48	1220
		60	1520
1	25	72	1830
1¾	44	84	2130
2	50	96	2440
		108	2740
		120	3050
		144	3660