



Designation: F 1043 – 03

Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework¹

This standard is issued under the fixed designation F 1043; 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.

1. Scope

1.1 This specification covers the strength and protective coating requirements for industrial steel chain link fence framework. Maximum allowable heights of framework and post spacing are to be based on chain link fence fabric mesh size and gages, and specified wind loads. Post spacings are not to exceed 10 ft. (For additional information, see CLFMI Guide WLG2445).

1.1.1 *Caution Regarding Windload*—If additives to the fence, such as windscreens, inserts or signage, are required, it is advisable to use stronger framework and fittings, to reduce the on-center spacing of posts or to add back bracing. Factors to consider when determining windload include the type of screening material to be used, area of fence to be covered, and local wind conditions.

1.2 Posts and rails may have any cross-sectional shape meeting the requirements herein. The shapes may be formed and welded, cold formed, hot rolled, or extruded.

1.3 The values in inch-pound units are to be regarded as the standard. The values stated in SI units are for information purposes only.

NOTE 1—For aluminum-alloy extruded structural pipe and tube please refer to Specification B 429.

2. Referenced Documents

2.1 ASTM Standards:

- A 90/A 90M Test Method for Weight [Mass] of Coating on Iron or Steel Articles with Zinc or Zinc Alloy Coatings²
- A 123/A 123M Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron or Steel Products²
- A 653/A 653M Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process²
- A 875/A 875M Specification for Steel Sheet, Zinc-5 % Aluminum Alloy Metallic-Coated by the Hot-Dip Process²

¹ 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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² Annual Book of ASTM Standards, Vol 01.06.

A 1011 Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low Alloy with Improved Formability³

B 6 Specification for Zinc (Slab Zinc)⁴

B 308/B 308M Specification for Aluminum Alloy 6061 T6 Standard Structural Steel⁵

B 429 Specification for Aluminum-Alloy Extruded Structural Pipe and Tube⁴

B 750 Specification for Zinc-5 % Aluminum-Mischmetal; Alloy in Ingot Form for Hot-Dip Coatings⁶

D 1499 Practice for Filtered Open-Flame Carbon-Arc Exposures of Plastics⁷

D 3359 Test Methods for Measuring Adhesion by Tape Tests⁸

E 8 Test Methods for Tension Testing of Metallic Materials⁹

E 376 Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Test Methods¹⁰

F 552 Terminology Relating to Chain Link Fencing²

F 934 Specification for Standard Colors for Polymer Coated Chain Link Fence²

F 1083 Specification for Pipe, Steel, Hot-Dipped Zinc Coated (Galvanized), Welded, for Fence Structures²

F 1553 Guide for Specifying Industrial and Commercial Chain Link Fence²

G 23 Practice for Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials¹¹

G 26 Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials¹²

³ Annual Book of ASTM Standards, Vol 01.03.

⁴ Annual Book of ASTM Standards, Vol 02.03.

⁵ Annual Book of ASTM Standards, Vol 02.02.

⁶ Annual Book of ASTM Standards, Vol 02.04.

⁷ Annual Book of ASTM Standards, Vol 08.01.

⁸ Annual Book of ASTM Standards, Vol 06.01.

⁹ Annual Book of ASTM Standards, Vol 03.01.

¹⁰ Annual Book of ASTM Standards, Vol 03.03.

¹¹ Discontinued. See 1997 Annual Book of ASTM Standards, Vol 14.02. Replaced by Practices G 152 and G 153.

¹² Discontinued. See 1997 Annual Book of ASTM Standards, Vol 14.02. Replaced by Practice G 155.

2.2 CLFMI Guide:

WLG2445 Guide for the Selection of Line Post Spacings¹³

3. Terminology

3.1 Definitions:

3.1.1 *posts*—vertical members of the fence.

3.1.1.1 *Discussion*—End, corner, and pull posts are posts at which chain link fabric terminates. Gateposts are posts to which gates are either attached or latched. Line posts are posts that occur in a line of fence in which the chain link fabric passes and to which it is tied.

3.1.2 *rails*—horizontal members of the fence.

3.1.2.1 *Discussion*—May be top, bottom, intermediate or brace rails.

3.1.3 The dimensional terminology is shown in Fig. 1.

3.1.4 The relationship of measured dimension (used throughout) to trade and industry usage is shown in Table 1.

3.1.5 *open sections*—non-tubular framework sections (such as H-posts, C-posts, roll-formed top rail, and terminal posts).

3.1.6 *polymer coatings*—examples of some polymer coatings are acrylic urethane, polyurethane, polyvinyl chloride (PVC), polyester, and polyolefin elastomer.

3.1.7 See Terminology F 552 for definitions of other terms.

4. Ordering Information

4.1 Orders for steel fence framework purchased to this specification shall include the following information:

¹³ Available from Chain Link Fence Manufacturers Institute, 10015 Old Columbia Road, Suite B-215, Columbia, MD 21046; or website <http://www.chainlinkinfo.org/>.

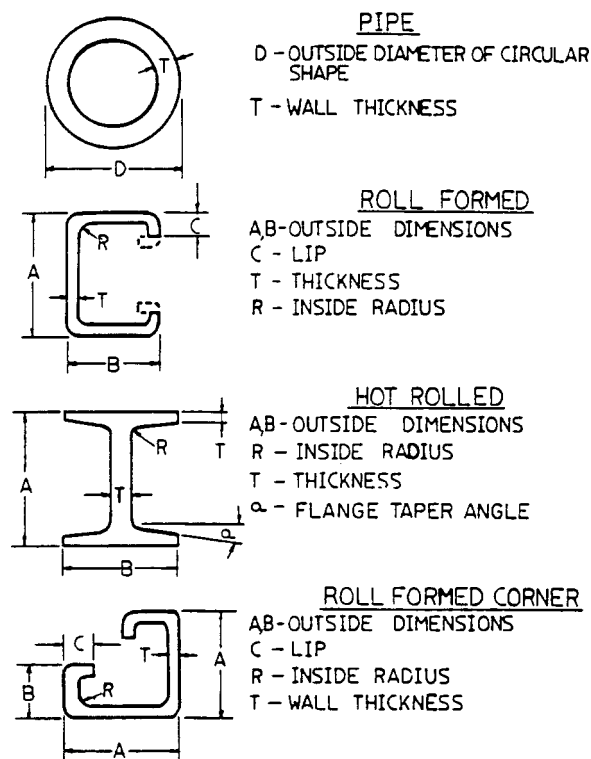


FIG. 1 Definitions of Dimensional Terms

TABLE 1 Size Terminology

Trade Size, in. [mm]	Designator, NPS [Metric]	Actual Outside Diameter	
		in.	mm
1 3/8 [34.9]	1 [25]	1.315	33.4
1 3/8 [41.3]	1 1/4 [32]	1.660	42.2
2 [50.8]	1 1/2 [40]	1.900	48.3
2 1/2 [63.5]	2 [50]	2.375	60.3
3 [76.2]	2 1/2 [65]	2.875	73.0
3 1/2 [88.9]	3 [80]	3.500	88.9
4 [101.6]	3 1/2 [90]	4.000	101.6

4.1.1 Number of posts and rails by size and length,

4.1.2 Type of outside and inside coating (Section 7) and class of material,

4.1.3 Color, if applicable, in accordance with Specification F 934,

4.1.4 Material group (IA, IC, IC-L, II, II-L, III, III-L) (Table 2),

4.1.5 Certification, if required, and

4.1.6 Exception(s) to this specification, or special requirements, if any.

NOTE 2—These details may be covered in whole or in any part by accompanying the orders with design drawings and notations thereon.

TABLE 2 Definitions of Fence Framework Materials Design

Material	Description of Material
Group IA Round Steel Pipe	Steel pipe shall be produced to conform to Specification F 1083, standard weight (Schedule 40).
Group IB Aluminum Pipe	Aluminum pipe shall be produced of alloy Aluminum Pipe 6063 and shall conform to Specification B 429.
Group IC Round Steel Pipe (Electric Resistance Welded Pipe)	Steel pipe shall be produced in accordance with commercial standards. Minimum yield strength shall be 50 000 psi [344 MPa]. Such products shall include, without seeking to limit to, cold-formed and welded pipe. The minimum weight shall be not less than 90 % of the nominal weight.
Group IIA Roll-Formed Steel Shapes (C-Sections)	Roll formed steel shapes shall be produced to commercial standards. Minimum yield strength shall be 45 000 psi [310 MPa]. The minimum weight shall be not less than 90 % of the nominal weight. The formed lip shall be of the same thickness as the flat elements and shall project no less than 1/3 the width of the flat element being stiffened. Group II products shall be designated such that the strong axis is perpendicular to the line of fence.
Group IIB Aluminum Shapes	Aluminum shapes shall be produced of alloy 6061-T6 and shall conform to Specification B 308/B 308M.
Group III Hot-Rolled Shapes (H Beams)	Hot-rolled shapes shall meet the criteria and exhibit a minimum yield strength of 45 000 psi [310 MPa]. The minimum weight shall be not less than 90 % of the nominal weight.
Group IV Alternate Design	Any suitable design can be delivered, provided it meets the strength and stiffness criteria of Fig. 2 (Industrial) or Fig. 3 (Light Industrial/Commercial) and the producer has supplied, in a form acceptable to the purchaser, data that demonstrates conformance with the specification. At the producer's option the methods in either Section 6 or 6.4 may be used.