

FenceSpecCheck

Wheatland Tube Company

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ASTM Specifications www.astm.org

A53/A53M-18 Schedule 40 & Schedule 80 Pipe:“ Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless”

Schedule 40, schedule 80 and heavier pipe used for utility applications, hydrostatic and mechanical test requirements. Sometimes a specifier incorrectly specifies A53 schedule 40 for fence framework. Caution,

A53 can be considered equal to F1083 schedule 40 fence pipes, based on how the A53 spec is presented F1083 may or may not be substituted.

Wheatland Tube is a prime manufacturer of A 53 in the United States.

A121-19 Barbed wire:“ Specification for Metallic-Coated Carbon Steel Barbed Wire”

A121 lists all types of barbed wire; that used for chain link fence is listed as follows:

Design number 12-4-5-14R manufactured using 12 gauge twisted strand wire, 4-point, 14 gauge barbs spaced 5 inches on center

Design number 12-4-3-14R requires the barbs to be 3 inches on center.

Coating Type A – Aluminum coated

Coating Type Z - Class 3 – Galvanized coated strand 0.80 oz/ft²

Coating Type ZA – Zinc-5% aluminum-mischmetal alloy (probably not available in the market currently)

A392-11a(2017) Galvanized chain link fabric: “Specification for Zinc-Coated Steel

Chain Link Fence Fabric” (zinc coated after weaving or woven from zinc coated strand)

Class 1 - 1.2 oz/ft²

Class 2 - 2.0 oz/ft²

A491-11(2017) Aluminum coated, “aluminized”: “Specification for Aluminum-Coated Steel Chain Link Fence Fabric”

6 gauge - 9 gauge -10 gauge specifies a 0.40 oz/ft² coating

11 gauge specifies a 0.35 oz/ft² coating

11 ½ gauge specifies a 0.30 oz/ft² coating

A817-12(2017) "Specification for Metallic-Coated Steel Wire for Chain-Link Fence Fabric and Marcellled Tension Wire" The metallic coated wire specification for the wire used in the manufacturing of pre coated metallic chain link fabric and tension wire.

A824-01(2017) Coil spring wire - 7 gauge: "Specification for Metallic-Coated Steel Marcellled Tension Wire" The specification lists only 7 gauge wire. Metallic coatings are listed in A817 as follows:

Type I - Aluminum coated 0.40 oz/ft²

Type II - Galvanized/zinc coated

Class 3 - 0.90 oz/ft²

Class 4 - 1.20 oz/ft²

Class 5 - 2.00 oz/ft²

Type III Zinc-5% Aluminum Mischmetal ("*galvinal*", "*galfan*")

Class 60 - 0.60 oz/ft²

Class 100 - 1.00 oz/ft²

F537-01(2019) Wood: "Specification for Design, Fabrication and Installation of Fences Constructed of Wood and Related Materials"

F552-14(2019) Chain Link Terminology: "Standard Terminology Relating to Chain Link Fencing"

F567-14a(2019) Chain link installation: "Standard Practice for Installation of Chain Link Fence"

F626-14(2019) Chain link fittings: "Standard Specification for Fence Fittings"

F654-07(2017) Residential Gates: "Specification for Residential Chain Link Gates"

F668-17 Color coated fabric: "Specification for Polyvinyl Chloride (PVC), Polyolefin and Other Polymer-Coated Chain Link Fence Fabric" Important to note! The steel core wire is the specified wire gauge not the outside diameter of the polymer-coated wire.

Type 1 Extruded

Type 2a Extruded and adhered

Type 2b Fused and adhered

F900-11(2017) Commercial swing gates: "Specification for Industrial and Commercial Swing Gates". Eight foot rule: no member horizontally or vertically should be greater than eight feet apart.

F934-96(2017) Standard colors of coated chain link systems: "Specification for Standard Colors for Polymer-Coated Chain Link Fence Materials"
Black - Olive Green – Brown – Dark Green

F964-13(2019) Rigid PVC Profiles: "Specification for Rigid Poly Vinyl Chloride (PVC) Exterior Profiles Used for Fencing and Railing"

F969-11(2016) Tennis court fence: "Standard Practice for Construction of Chain Link Tennis Court Fence"

F1043-18 Commercial and Industrial Framework: "Specification for Strength and Protective Coatings of Steel Industrial Chain Link Fence Framework"
Group IA - Schedule 40 F1083 hot-dip galvanized pipe
Group IC - Galvanized after forming - Wheatland WT 40 pipe
Group II - Roll-formed C post
Group IV - Performance criteria future products

F1083-18 Schedule 40 and schedule 80 Pipe: "Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures"
Hot-dip galvanized pipe having a zinc coating of 1.8 oz/ft² outside and 1.8 oz/ft² inside,
Regular Grade Sch 40, Yield Strength - minimum 30,000 psi.
High Strength Grade Sch 40, Yield Strength - minimum 50,000 psi.

F1183-96(2017) Aluminum alloy fabric: "Specification for Aluminum Alloy Chain Link Fence Fabric"

F1184-16 Slide gates: "Specification for Industrial and Commercial Horizontal Slide Gates"

Type I - Overhead slide

Type II - Cantilever slide

Class 1 - Steel or aluminum frame using external rollers

Class 2 - Steel or aluminum frame using internal rollers

Important safety requirements! Roller covers and fall over guideposts are required for the Class 1 external roller gates.

- F1345-10a(2019) Galfan®/Galvinal® fabric:** “Standard Specification for Zinc-5% Aluminum-Mischmetal Alloy-Coated Chain-Link Fence Fabric”
Class 1 - 0.6 oz/ft²
Class 2 - 1.0 oz/ft²
- F1379-95(2018) “Standard Terminology Relating to Barbed Tape”**
- F1553-11(2017) “Standard Guide for Specifying Chain Link Fence”**
- F1664-08(2018) Polymer coated tension wire:** “Specification for Poly Vinyl Chloride (PVC) and Other Conforming Organic Polymer-Coated Steel Tension Wire Used with Chain-Link Fence”
Two core wire gauges, 9 ga. & 7 ga., three classes of coatings, same as F668.
- F1665-08(2018) Polymer coated barbed wire:** “Specification for Poly Vinyl Chloride (PVC) and Other Conforming Organic Polymer-Coated Steel Barbed Wire Used with Chain-Link Fence”
Strand wire has three classes of coatings, same as F668
- F1908-08(2018) “Standard Guide for Fences for Residential Outdoor Swimming Pools, Hot Tubs, and Spas”**
- F1910-98(2018) “Specification for Long Barbed Tape Obstacles”**
- F1911-05(2019) “Standard Practice for Installation of Barbed Tape”**
- F1999-14(2019) “Standard Practice for Installation of Rigid Poly (Vinyl Chloride) (PVC) Fence Systems”**
- F2000-19 “Standard Safety Performance Specification for Baseball and Softball Fields”**
- F2049-11(2017) Play area fencing:** “Safety Performance Specification for Fences/Barriers for Public, Commercial, and Multi-Family Residential Outdoor Play Areas”
- F2200-20 Electrically operated gate safety and design:** “Specification for Automated Vehicular Gate Construction”

- F2408-16 Ornamental galvanized steel tube fence:** “Standard Specification for Ornamental Fences Employing Galvanized Steel Tubing”
- F2409-10(2016) Guide for non-residential pool fence** “Standard Guide for Fences for Non Residential Outdoor Swimming Pools, Hot Tubs and Spas”
- F2453-14(2019) Welded wire mesh fence fabric:** “Standard Specification for Welded Wire Mesh Fence Fabric (Metallic-Coated or Polymer Coated) for Meshes of 6 in² or Less, in Panels or Rolls, with Uniform Meshes”
- F2548-20 Expanded metal for security applications:** “Standard Specification for Expanded Metal Fence Systems for Security Purposes”
- F2589-16 Ornamental tubular steel fence:** “Standard Specification for Ornamental Fence Employing Steel Tubular Pickets”
- F2611-15 Chain Link Security Fence Design:** “Standard Guide for the Design and Construction of Chain Link Security Fencing”
- F2630-14 Self-Closing Self-Latching Gates:** “Standard Guide for Self-Closing/Self Latching General-Purpose Gates”
- F2698-08(2018) Skate Park fencing:** “Standard Guide for Fences for Above Ground and In-Ground Skate Park Facilities”
- F2699-08(2018) Water spray play area fencing:** “Standard Guide for Fences for Commercial and Public Outdoor Water Spray/Play Areas”
- F 2780-20 Expanded metal security fence** “Standard Guide for Design and Construction of Expanded Metal Security Fences and Barriers”
- F2781-15 Forced entry testing** “Standard Practice for Testing Forced Entry, Ballistic, and Low Impact Resistance of Security Fence Systems”
- F2814-09(2015) Ornamental steel security fence** “Standard Guide for the Design and Construction of Ornamental Steel Picket Fence Systems for Security Purposes”

F2919-12(2018) Welded wire mesh panels “Standard Specification for Welded Wire Mesh Fence Fabric (Metallic-Coated or Polymer Coated) with Variable Mesh Patterns or Meshes Greater than 6 in.² [3871 mm²] in Panels”

F2957-13(2019)e1 Aluminum Ornamental Fence “Standard Specification for Ornamental Aluminum Fence Systems

F3000-13(2018) Chain link privacy slats “Standard Specification for Polymer Privacy Insert Slats for Chain Link Fabric and Privacy Chain Link Fabric Manufactured Containing Pre-Installed Privacy Slats”

F3151-17 “Standard Specification for Driven Steel Post Drive Anchor System”

F3204-16 **Welded wire security fence** “Standard Guide for Design and Construction of Welded Wire Fence Systems for Security Purposes

F3342-19 **Standard Guide for Temporary Fence Applications for Construction Sites**

Chain Link Manufacturers Institute Product Manual

The Chain Link Fence Manufacturers Institute does not write specifications. The CLFMI Product Manual references current ASTM specifications.

Federal Specification RR-F-191K/ GEN

(Basically, follow ASTM standards) (dates shown are still current)

RR-F-191/1F (2008) Chain Link Fabric (specification lists 6, 9 and 11 gauge)

Type I - Zinc-coated 1.2 oz/ ft² unless 2.0 oz/ft² is specified Type

II - Aluminum-coated, 0.40 oz/ft² coating for 6 and 9 gauge, 0.35 oz/ft² coating for 11 gauge

Type III – Aluminum Alloy, alloy 6061, temper T94

Type IV – PVC coated; gauge specified is the core wire (the coating type is not listed in separate classes; specifier is to take into consideration type of coating to meet environmental conditions)

Type V – Zinc-5% Aluminum-Mischmetal Alloy-Coated Steel Wire

RR-F-191/2E (2006) Chain link gates, all types

Gates are to be constructed using round pipe or square sections per RR-F-191/3E. Swing gates ASTM F900, slide gates ASTM F1184. External cantilever rollers shall be enclosed. Electrically operated gates must comply with ASTM F2200.

RR-F-191/3E (2006 & 2007 Amendment) Fence posts and rails

Class 1 - Steel pipe

Grade A- ASTM F1083, hot-dipped galvanized schedule 40 pipe

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Grade B- ASTM F1043 Group IC, Wheatland WT-40

Class 2 - Aluminum alloy schedule 40 pipe

Class 3 – ASTM F1043 Group II Formed steel “C” sections

Class 4 – Steel H-sections (no longer available)

Class 5 – Aluminum alloy H-sections

Class 6 – Steel square sections

Class 7 – Aluminum square sections

A separate schedule lists post size based on the fence height

RR-F-191/4F (2008) Chain link fence accessories

Fittings, barbed wire, tension wire, basically all per ASTM standards

AASHTO M-181 (American Association of State and Transportation Officials) AASHTO follows ASTM specifications and standards however there may be some differences because AASHTO does not update their specifications as quickly as ASTM. (2010 still current)

AASHTO Designation: M 181-10-UL Standard Specification for Chain Link Fence

Chain link fabric

Type I Galvanized chain link fabric (zinc-coated steel)

Class C - 1.2 oz/ft²

Class D – 2.0 oz/ft²

Type II – Aluminized chain link fabric (aluminum-coated steel)

Type III – Aluminum alloy chain link fabric, alloy 6061-T89 or T94

Type IV – PVC coated and other polymer coated steel chain link fabric (gauge is the core wire)

Class A – Extruded or extruded and adhered to

Class B – Thermally fused and bonded

Framework

Grade 1 – ASTM F1083 Schedule 40, 1.8 oz/ft² zinc coating inside and outside

Wheatland is a prime U.S. manufacturer of galvanized sch 40

Grade 2 – ASTM F1043 Group IC, Wheatland WT-40 type product

FAA (Federal Aviation Administration) **AC 150/5370-10H** 12/21/18
Item F-162 Chain-Link Fences
Follows ASTM Specifications



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