GalvOnAll™

GBR-40™ Heavy Industrial Fence Pipe
and
GBR-20™ Commercial Fence Pipe

The Choice
of
Professional Chain Link Fence Installers

AMERISTAR®

Proudly Made in the USA
The high-tensile steel and advanced roll-forming process used to produce GalvOnAll™ GBR-40™ fence framework results in a strength superior to Schedule 40 pipe. Ameristar’s GalvOnAll™ manufacturing process utilizes a full layer (0.90 oz. per sq. ft. nominal) of hot-dip zinc galvanization on both the outside and inside surfaces. This total protection process ensures much greater corrosion and exposure resistance than for conventional galvanized framework employing a painted interior.

<table>
<thead>
<tr>
<th>FENCE INDUSTRY O.D.</th>
<th>NOMINAL PIPE SIZE DESIGNATOR</th>
<th>ACTUAL O.D. (IN.)</th>
<th>WALL THICKNESS (IN.)</th>
<th>WT./FT. (POUNDS)</th>
<th>MIN. YIELD STRENGTH</th>
<th>X</th>
<th>(1) SECTION MODULUS</th>
<th>=</th>
<th>MAX. BENDING MOMENT LBS./IN.</th>
<th>10' FREE SUPPORTED LBS.</th>
<th>CALCULATED LOAD (LBS.)</th>
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<tr>
<td>1-5/8&quot;</td>
<td>1-1/4</td>
<td>1.660</td>
<td>.111</td>
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<td>x</td>
<td>.1961</td>
<td>=</td>
<td>9,895</td>
<td>327</td>
<td>284</td>
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<tr>
<td>2&quot;</td>
<td>1-1/2</td>
<td>1.900</td>
<td>.120</td>
<td>2.28</td>
<td>50,000</td>
<td>x</td>
<td>.2810</td>
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<td>293</td>
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<tr>
<td>2-1/2&quot;</td>
<td>2</td>
<td>2.375</td>
<td>.130</td>
<td>3.12</td>
<td>50,000</td>
<td>x</td>
<td>.4831</td>
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<tr>
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</table>

The high-tensile steel used in the manufacture of GalvOnAll™ GBR-20™ commercial fence pipe is designed to retain 80% of the strength of heavy industrial GalvOnAll™ GBR-40™ fence pipe. GalvOnAll™ GBR-20™ is a strong, yet economical alternative for an endless variety of special applications such as tennis courts, baseball and softball fields, and sports complexes, and a host of institutional and business perimeter installations.
CONSTRUCTION SPECIFICATION FOR CHAIN LINK FENCE, INDUSTRIAL, GALVANIZED UTILIZING AMERISTAR® GalvOnAll™ GBR-40™ FENCE PIPE (MEETS “BUY AMERICA” DOMESTIC PROCUREMENTS)

PART 1 - GENERAL
1.01 WORK INCLUDED
The contractor shall provide all labor, materials and appurtenances necessary for the installation of the galvanized chain link fence system defined herein at the Project Site.

1.02 RELATED WORK
Section 02500 - Paving and Surfacing
Section 03100 - Cast-In-Place Concrete
Section 04200 - Unit Masonry

1.03 SYSTEM DESCRIPTION
The contractor shall supply a totally galvanized chain link fence system of the design, style and strength defined herein. The system shall include all components (i.e., framework, chain link fabric, gates and fittings) required.

1.04 QUALITY ASSURANCE
The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

1.06 SUBMITTAL
The manufacturer’s literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE
Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling.

PART 2 - MATERIALS
2.01 MANUFACTURER
Framework for galvanized chain link fence systems shall conform to Ameristar® GalvOnAll™ GBR-40™Fence Pipe (industrial weight), as manufactured by Ameristar® Fence Products in Tulsa, Oklahoma.

2.02 MATERIAL - STEEL FRAMEWORK
A. The steel material used to manufacture Ameristar® GalvOnAll™ GBR-40™Fence Pipe shall be zinc-coated steel strip, galvanized by the hot-dip process conforming to the criteria of ASTM A653/ A653M and the general requirements of ASTM A924/A924M.

B. The zinc used in the galvanizing process shall conform to ASTM B6. Weight of zinc shall be determined using the test method described in ASTM A90 and shall conform to the weight range (external and internal) of ASTM F1043, Type B.

C. The framework shall be manufactured in accordance with commercial material that meet the strength (58,000 psi as minimum yield strength) and coating requirements of the following standards: 1.) ASTM F1043, Group K, Electrical Resistance Welded Round Steel Pipe, heavy industrial weight. 2.) A924/A924M, Type I, Grade 2, Electrical Resistance Welded Steel Pipe. 3.) RRF-191/3, Class 1, Grade B, Electrical Resistance Welded Steel Pipe.

D. The exterior surface of the electrical resistance weld shall be recoated with the same type of material and thickness as the basic zinc coating.

E. A chrome conversion coating shall be applied to the external surface.

F. The steel material shall be 30 microns in diameter ± 15 microns in diameter and shall be verified by a strip and weight method utilizing an atomic absorption spectrophotometer or x-ray fluorescence spectrograph.

2.03 MATERIAL - FABRIC
A. The fabric shall be hot dipped galvanized with a minimum zinc coating weight per ASTM A392 and specified as one of the following: (Class I - The weight of the zinc coating shall not be less than 1.2 oz./ft² [366 g/m²] of uncoated wire surface] or [Class II - The weight of the zinc coating shall not be less than 2.0 oz./ft² [610 g/m²] of uncoated wire surface, on wire of fabric coated before weaving; on fabric coated after weaving, the weight of zinc coating shall not be less than 2.0 oz./ft² [610 g/m²] of uncoated wire surface as determined from the average of two or more specimens, and not less than 1.8 oz./ft² [500 g/m²] of uncoated wire surface for any individual specimen.)

B. Wire Size: The finished wire size shall be (gauge pitch) size foot feet high with a mesh size of (gauge mesh size) inches (See Table 2).

C. Height and Mesh Size: The fabric height shall be (height) foot feet high with a mesh size of (gauge mesh size) inches (See Table 2).

D. Selvage: Top edge (specify knuckled or twisted) and bottom edge (specify knuckled or twisted).

2.04 MATERIAL - FENCE FITTINGS
The material for fence fittings shall be manufactured to meet the requirements of ASTM F262.

2.05 MATERIAL - GATES
Swing gates shall be manufactured and coated to meet the requirements of ASTM F900. Sliding gates shall be manufactured to meet the requirements of ASTM F1184.

PART 3 - EXECUTION
3.01 PREPARATION
All new installation shall be laid out by the contractor in accordance with the construction plan.

3.02 INSTALLATION
Install chain link fence in accordance with ASTM F567. For chain link tennis court fences, install in accordance with ASTM F969. Fence posts shall be set at spacings of a maximum of 10' o.c. Gate posts shall be spaced according to the gate openings specified in the construction plans. The “Paving and Surfacing,” “Cast-In-Place Concrete” and “Unit Masonry” sections of this specification shall govern post base placement and material requirements. Install fabric on security side and attach with wire ties or clip to line posts at 15 inches o.c. and to rails, braces and tension wire at 24 inches o.c.

3.03 CLEANING
The contractor shall clean the job site of excess materials. Post hole excavations shall be scattered uniformly away from posts.

| Table 1 | Table 2 | Graphs |
CONSTRUCTION SPECIFICATION FOR CHAIN LINK FENCE, COMMERCIAL, GALVANIZED UTILIZING AMERISTAR® GalvOnAll® GB2-20™ FENCE PIPE (MEETS “BUY AMERICA” DOMESTIC PROCUREMENTS)

PART I - GENERAL

1.01 WORK INCLUDED
The contractor shall provide all labor, materials and apprenticeship necessary for installation of the galvanized chain link fence system defined herein (specify project site).

1.02 RELATED WORK
Section 02500 - Paving and Surfacing
Section 03300 - Cast-In-Place Concrete
Section 04200 - Unit Masonry

1.03 SYSTEM DESCRIPTION
The contractor shall supply a total galvanized chain link fence system of the design, style and strength defined herein. The system shall include all components (i.e., framework, chain link fabric, gates and fittings) required.

1.04 QUALITY ASSURANCE
The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES
A. American Society for Testing and Materials (ASTM) Standards:
  - A90/A90M - Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
  - A92 - Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
  - A653/A653M - Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - F969 - Specification for Fence Fittings.
  - F1184 - Specification for Fence Fittings.
  - F626 - Specification for Fencing.
  - F680 - Specification for Poly (Vinyl Chloride) (PVC)-Coated Steel Chain-Link Fence Fabric.
  - F909 - Specification for Construction of Chain-Link Tennis Court Fence.
  - F1104 - Specification for Wall Steel Sheet, Metallic-Coated by the Hot-Dip Process.
  - F1114 - Specification for Metal Industrial and Commercial Swing Gates.
  - F907 - Practice for Wall Steel Sheet, Metallic-Coated by the Hot-Dip Process.

B. ASTM Designation:
  - G5 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - B117 - Specification for Zinc.
  - B117 - Practice for Operating Salt Spray (Fog) Apparatus.
  - D1499 - Practice for Operating Light- and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Plastics.
  - E276 - Practice for Measuring Coating Thickness by Magnetic-Field and Eddy-Current (Electromagnetic) Test Methods.
  - F907 - Practice for Wall Steel Sheet, Metallic-Coated by the Hot-Dip Process.

C. Code References:

1.06 SUBMITTAL
The manufacturer’s literature shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE
Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in a manner to ensure proper ventilation and drainage and to protect against damage, weather, vandalism and theft.

PART II - MATERIALS

2.01 MANUFACTURER
Framework for galvanized chain link fence systems shall conform to Ameristar® GalvOnAll® GB2-20™ Fence Pipe (commercial weight), as manufactured by Ameristar Fence Products in Tulsa, Oklahoma.

2.02 MATERIAL - STEEL FRAMEWORK
A. The steel material used in manufacture Ameristar® GalvOnAll® GB2-20™ Fence Pipe shall be zinc-coated steel strip, galvanized by the hot-dip process conforming to the criteria of ASTM A653/ A653M and the general requirements of ASTM A924/A924M.

B. The zinc used in the galvanizing process shall conform to ASTM B. Weight of zinc shall be determined using the test method described in ASTM A900 and shall conform to the weight range allowance for ASTM A653, Designation G-90.

C. The framework shall be manufactured in accordance with commercial standards to meet the strength (50,000 psi minimum yield strength) and coating requirements of ASTM F1184 and the general requirements of ASTM A924/A924M.

D. The exterior surface of the electrical resistance weld shall be recoated with the same type of material and thickness as the basic zinc coating.

E. A chromate conversion coating shall be applied to the external surface. The chromate shall be 50-micrograms/ft² ± 15 micrograms/ft² and shall be verified by a strip and weight method utilizing an atomic absorption spectrophotometer or x-ray fluorescence spectrograph.

F. A clear coat shall be applied over the chromate conversion coating. The thickness of the clear coat shall be a nominal 0.5 mils or 0.2 mils and shall be determined in accordance with ASTM E376 using a suitable magnetic or eddy current coating thickness tester. (Note: Thickness shall be determined by taking the difference between the thickness of zinc and the total thickness of clear coat and zinc.) The exterior clear-coated surface must demonstrate the ability to withstand exposure of 500 hours without failure at a black panel temperature of 145º F when tested in accordance with ASTM D1499. The clear coat shall withstand 500 hours of exposure to 100% relative humidity per ASTM D257 with blistering or peeling and 950 hours of exposure to salt spray per ASTM B117 with a maximum of 5% red rust.

G. The strength of Ameristar® GalvOnAll® GB2-20™ Fence Pipe shall conform to the requirements of ASTM F1043; the minimum weight shall not be less than 2.0 oz./ft² [366 g/m²], of uncoated wire surface) or (Class II - The weight of the zinc coating shall not be less than 1.2 oz./ft² [183 g/m²] of uncoated wire surface, on wire of fabric coated before weaving; on fabric coated after weaving, the weight of zinc coating shall not be less than 2.0 oz./ft² [366 g/m²] of uncoated wire surface as determined from the average of two or more specimens, and not less than 1.8 oz./ft² [500g/m²] of uncoated wire surface for any individual specimen.)

H. Wire Size: The finished wire size shall be (specify gauge) gauge (See Table 2).

I. Height and Mesh Size: The fabric height shall be (specify height) feet high with a mesh size of (specify mesh size) inches (specify mesh size).

D. Selvage: Top edge (specify knuckled or twisted) and bottom edge (specify knuckled or twisted).

2.04 MATERIAL - FENCE FITTINGS
The material for fence fittings shall be manufactured to meet the requirements of ASTM F626.

2.05 MATERIAL - GATES
Swing gates may be manufactured and coated to meet the requirements of ASTM F900. Slide gates shall be manufactured to meet the requirements of ASTM F1184.

PART III - EXECUTION

3.01 PREPARATION
All new installation shall be laid out by the contractor in accordance with the construction plan.

3.02 INSTALLATION
Install chain link fence in accordance with ASTM F567. For chain link tenace, new fences, install in accordance with ASTM F906. Fence posts shall be set at spacings of a maximum of 10’ o.c. Gate posts shall be spaced according to the gate openings specified in the construction plans. The “Paving and Surfacing,” “Cast-In-Place Concrete” and “Unit Masonry” sections of this specification shall govern post base placement and material requirements. Install fabric on security side and attach with wire ties or clip to line posts at 15 inches o.c. and to rails, braces and tension wire at 24 inches o.c.

3.03 CLEANING
The contractor shall clean the jobsite of excess materials. Post hole excavations shall be scattered uniformly away from posts.