**Atkore - POWERSTRUT**®

This product specification is written according to the Construction Specifications Institute *MasterFormat*, 2018 Update.

**SECTION 23 05 29**

**Hangers and Supports for HVAC Piping and Equipment**

**PART I – GENERAL**

1.01 SUMMARY

1. Framing shall be a strut type metal framing system (Strut System)
2. Strut System shall be used:
	1. To support mechanical and electrical equipment and devices.
	2. For structural applications as applicable.
3. Strut System and components must be supplied from a single approved Manufacturer.

1.02 REFRENCES

1. NFPA 70, National Electrical Code (NEC)
2. NEC Article 384
3. ASTM Standards
4. ASTM A1011 SS Grade 33 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
5. ASTM A575 - Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades
6. ASTM A576 - Standard Specification for Steel Bars, Carbon, Hot-Wrought, Special Quality
7. ASTM A36 - Standard Specification for Carbon Structural Steel
8. ASTM A635 - Standard Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Alloy, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, General Requirements for
9. ASTM A1059 - Standard Specification for Zinc Alloy Thermo-Diffusion Coatings (TDC) on Steel Fasteners, Hardware, and Other Products
10. ASTM A1046 - Standard Specification for Steel Sheet, Zinc-Aluminum-Magnesium Alloy-Coated by the Hot-Dip Process
11. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
12. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
13. ASTM B209-14 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
14. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
15. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
16. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
17. ASTM B177 - Standard Guide for Engineering Chromium Electroplating

1.03 QUALITY ASSURANCE

* 1. Manufacturer’s qualifications:
	2. The manufacturer shall have at least 10 years’ experience in manufacturing Strut Systems.
	3. The manufacturer must certify in writing all components supplied have been produced in accordance with an established quality assurance program.
	4. Work shall meet the requirements of the following standards:
1. Federal, State and Local codes
2. American Iron and Steel Institute (AISI) Specification for the Design of Cold Formed Steel Structural Members
3. American Society for Testing and Materials (ASTM)
4. Metal Framing Manufacturer’s Association (MFMA)

1.04 SUBMITTALS

1. Structural calculations by a Registered Professional or Structural Engineer in the State of the Project’s location for approval by the Professional of Record. Calculations may include, but are not limited to:
2. Description of design criteria
3. Stress and deflection analysis
4. Selection of framing members, fittings, and accessories
5. Assembly drawings necessary to install the Strut System in compliance with the Contract Drawings
6. Pertinent manufacturers published data

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

1. All material is to be delivered to the work site in original factory packaging to avoid damage to the finish.
2. Upon delivery to the work site, all components shall be protected from the elements by a shelter or other covering.

1.06 WARRANTY

1. Manufacturer shall warrant for 1 year from the shipment date that products will be free from defects in material or manufacture. In the event of any such defect in violation of the warranty, Manufacturer shall have the option to repair or replace any such defective product.
2. Installer shall warrant for 1 year from the date of completion of work that the work will be free of defects in installation. In the event of any such defect in violation of the warranty, Installer shall have the option to repair or replace any such defective product.

**PART 2 - PRODUCTS**

2.01 ACCEPTABLE MANUFACTURERS

1. Strut System and components shall be
	1. Atkore Power-Strut®

 16100 South Lathrop Avenue

 Harvey, IL 60426

 TOLL-FREE / 800-882-5543

 Local / (708) 339-1610

2.02 MATERIALS

* 1. All channel members shall be fabricated conforming to one of the following ASTM specifications:
	2. Plain Carbon Steel: A 1011 SS Grade 33
	3. Pre-Galvanized Carbon Steel: A 653 Grade 33
	4. Power-Strut Defender: A 1046 SS Grade 33
	5. Stainless Steel: A 240 (Type 304)
	6. Aluminum: B 221 (Type 6063-T6)
1. All fittings shall be fabricated conforming to one of the following ASTM specifications:
	1. Carbon Steel: All carbon steel fittings shall be fabricated from steel that meets/exceeds the physical requirements of ASTM A1011 SS Grade 33 and conforms to one of the following ASTM specifications:
		1. A 575
		2. A 576
		3. A 36
		4. A 635
		5. A 1059
		6. A 1046
	2. Stainless Steel:
		1. A 240 (Type 304 or Type 316)
		2. A 276 (Type 304 or Type 316)
	3. Aluminum:
		1. B 209 (Type 1100F or Type 5052-H32)
2. Any substitutions of product or manufacturer must be approved in writing ten days prior to bid date by the Professional of Record.

2.03 FINISHES

1. FACTORY PAINTED
	1. Channel
		1. Rust inhibiting thermoset acrylic enamel paint applied by electrodeposition after cleaning and phosphating, and thoroughly baked.
	2. Fittings
		1. Polyester powder coat after cleaning and phosphating, and thoroughly baked.
	3. Color shall be FHWA Highway Green, Color Tolerance Chart, PR Color No. 4
	4. Hardness = 2H
	5. Performance
		1. Salt Spray per ASTM B117
			1. Scribed: Exceed 400 hours
			2. Unscribed: Exceed 600 hours
		2. Nominal chalking at 1,000 hours per weatherometer G-23 test
		3. No checking at 1,000 hours per weatherometer G-23 test
2. ELECTRO-GALVANIZED per ASTM B 633 Type III SC 1
3. PRE-GALVANIZED per ASTM A653
	1. Zinc coated by hot-dipped process prior to roll forming at the steel mill
	2. Zinc coating thickness shall be G90 (0.75 mil = 0.45 oz./ sq. ft. surface area)
4. HOT-DIPPED GALVANIZED per ASTM A123 or A153
	1. Zinc coated after all manufacturing operations are complete
	2. Zinc coating thickness shall be G65 (2.6 mils = 1.50 oz./ sq. ft. surface area)
5. POWER-STRUT DEFENDER per ASTM A1046 and A1059
	1. Strut coated per A1046 to a mass of 0.45 oz./ sq. ft. surface area
	2. Fittings coated per A1059 to a thickness of 30 microns and/or A1046 to a mass of 0.45 oz./sq. ft. surface area

**PART 3 – EXECUTION**

3.01 EXAMINATION

* 1. The installer shall inspect the work area prior to installation. If work area conditions are unsatisfactory, installation shall not proceed until satisfactory corrections are completed.

3.02 INSTALLATION

1. Installation shall be accomplished by a fully trained installer.
2. Set Strut System components into final position true to line, level and plumb, in accordance with approved drawings.
3. Anchor material firmly in place, and tighten all connections to their recommended torques.

3.03 CLEANUP

1. Upon completion of this section of work, remove all protective wraps and debris. Repair any damage due to installation of this section of work.

3.04 PROTECTION

1. During installation, it shall be the responsibility of the installer to protect this work from damage.
2. Upon completion of this scope of work, it shall become the responsibility of the general contractor to protect this work from damage during the remainder of construction on the project and until substantial completion.