ATKORE DEFENDER™

Corrosion Resistant Metal Framing Line
Mechanical Submittal Package

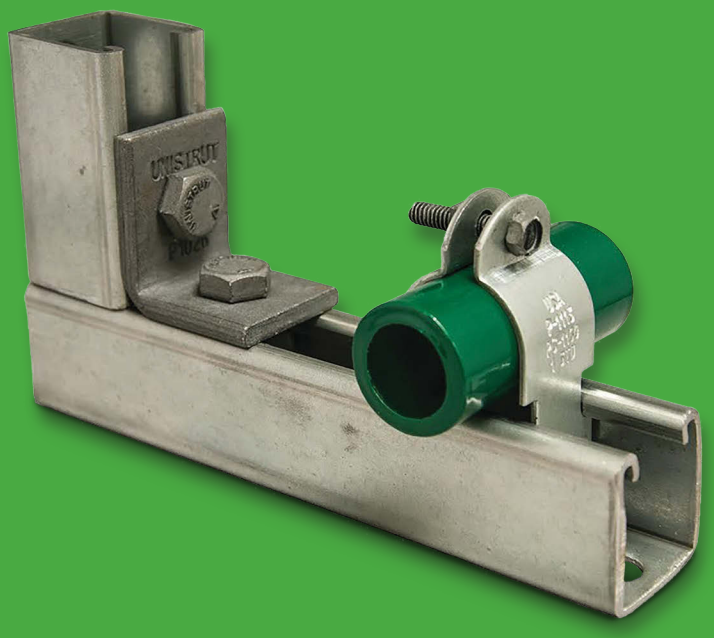
Alterations to this document by any agency other than Atkore International voids the certification.

Atkore™
Unistrut

Atkore Defender™

Atkore Defender is designed for harsh environments, providing a service life between Hot-Dip Galvanized and stainless steel systems. Independent testing shows that Atkore Defender is THREE times more corrosion-resistant than Hot-Dip Galvanized products. In addition, Atkore Defender avoids the use of costly stainless steel hardware. Atkore Defender is a great choice for harsh and corrosive environments.

Get better performance with Atkore Defender.
This brochure lists the Unistrut Defender parts, dimensions and applications that are commonly in stock. Many other Unistrut parts can be made by request. For more information about Atkore Defender, contact your Atkore Regional Sales Manager, Agent or call 800-882-5543.

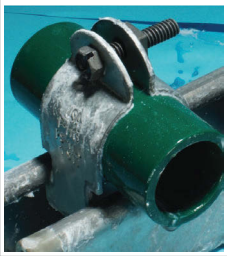
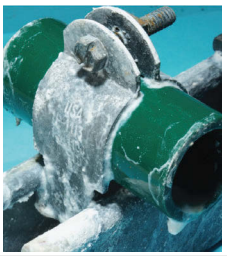
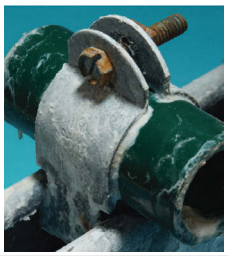
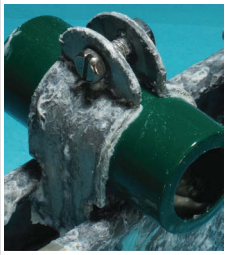
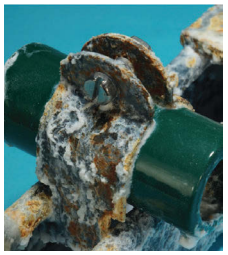
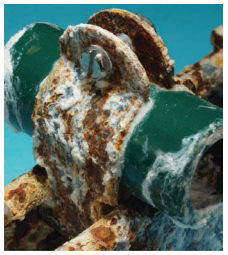


Corrosion Protection

Atkore Unistrut

The Atkore Defender coating was tested against the traditional Hot-Dip Galvanized coating by an independent, accredited 3rd party laboratory for 3,000 hours of continuous salt spray exposure per ASTM B117. The test was conclusive, proving that Atkore Defender outperforms Hot-Dip Galvanizing by lasting 3 times as long before reaching the 5% red rust failure criteria! **The photos below show the clearly superior performance provided by Atkore Defender.**

PHOTOS FROM ASTM B117 SALT SPRAY TEST

	0 hours	100 hours	1,000 hours	2,000 hours	3,000 hours
Atkore Defender™ (DF)					
Hot-Dip Galvanized (HG) per ASTM A123 and A153					

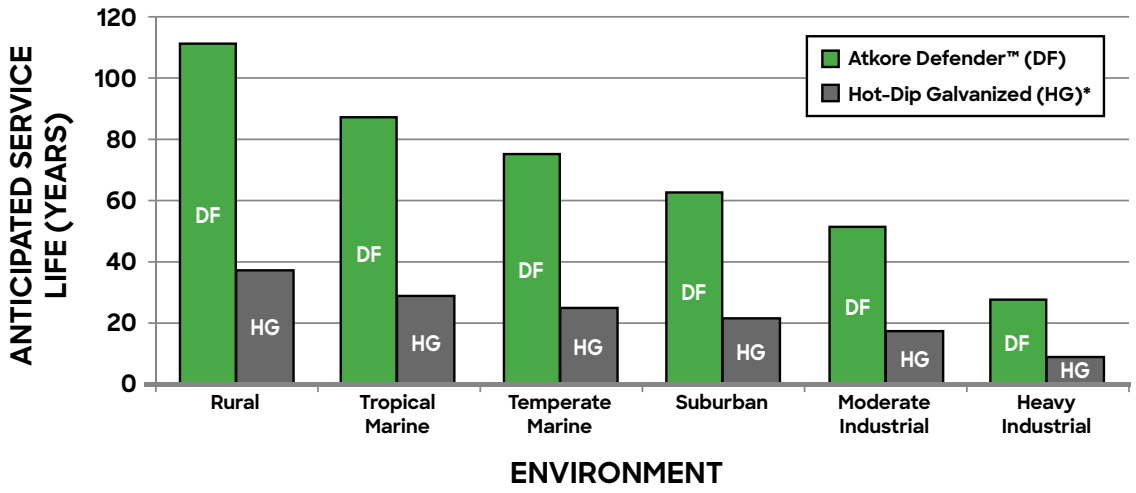
Anticipated Service Life

With over 3 times the corrosion protection of Hot-Dip Galvanized products, the anticipated service life for Atkore Defender vastly outperforms traditional carbon steel framing systems.

Atkore Defender will meet the design life of most new applications, eliminating the need to replace parts over time. See the difference below!

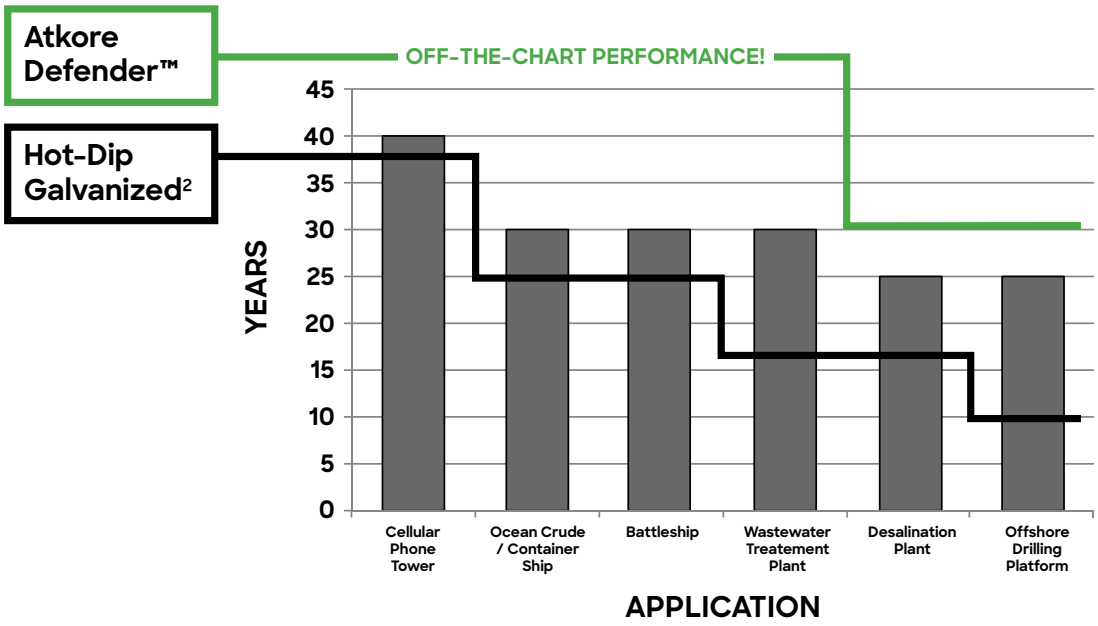
ANTICIPATED SERVICE LIFE

(Time to 5% Red Rusting of the Steel Surface)



*Hot-Dip Galvanized per ASTM A123 and A153 coating service life as specifiec within the North American Metal Framing Industry

TYPICAL APPLICATION DESIGN LIFE[1] VS. ANTICIPATED SERVICE LIFE



1) Typical application design life is sourced from a number of different publications and is not true for all applications. Reference your project-specific requirements and environment for a true performance estimate.
2) Hot-Dip Galvanized per ASTM A123 and A153 coating service life as specifiec within the North American Metal Framing Industry

Technical Information

Atkore™ Unistrut

Finishes:

Atkore Defender is a combination of two proprietary material coatings conforming to ASTM standards A1046 and A1059.

Materials:

Channel, Fittings and Pipe Clamps meet the physical requirements of ASTM A1011 SS GR 33.

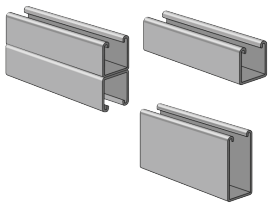
Technical Notes:

1. Structural performance, including Slip and Pull-Out Loads, meets all Allowable Loads as specified in the Unistrut General Engineering catalog for carbon steels. Please reference the Unistrut General Engineering catalog for this information.
2. To achieve full performance and cost benefits, Atkore Defender must be used as a complete metal framing system. In addition, caution should be taken when putting Atkore Defender in contact with stainless steel materials due to a dissimilar metals condition that may cause galvanic corrosion.
3. Some red staining may be observed over time on Atkore Defender parts in corrosive environments. Red staining is superficial oxidation of the zinc/iron ions at the surface, and not corrosion of the substrate steel. This is noted in ASTM A1059 section 6.3.
4. One of the unique characteristics of Atkore Defender strut channel is that it contains self-healing properties. If the product is cut or scratched in the field, the finish will propagate into those areas eliminating the need for secondary touch-ups.

Atkore™ Unistrut

Table of Content

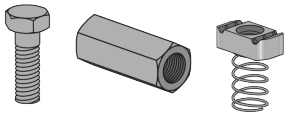
1 5/8" Channel



Standard Lengths
Standard lengths are 10 feet (3.05m) and 20 feet (6.10m). Tolerances are ±1/8" (3 mm). Special lengths are available for a small cutting charge with a tolerance of ±1/8" (3 mm).

Dimensions
Imperial dimensions are illustrated in inches. Metric dimensions are shown in millimeters and rounded to one decimal place.

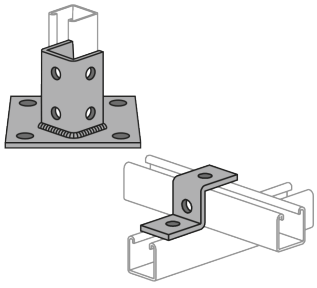
Nuts & Hardware



Threads
All threads on the nuts and bolts are Unified and American coarse screw threads.

Dimensions
Imperial dimensions are illustrated in inches. Metric dimensions are shown in parentheses or as noted. Unless noted, all metric dimensions are in millimeters and rounded to one decimal place.

General Fittings & Beam Clamps

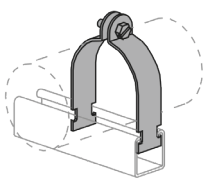


Application
All parts drawings illustrate only one application of each fitting. In most cases many other applications are possible. The channels shown in the illustrations are P1000, 1⅝" square, except where noted otherwise.

All 9/16" diameter holes use ½" x 13/16" hex head cap screws and ½" nuts – P1010, P4010 or P5510 – depending on the channel used.

Beam Clamps
Clamps are designed to be used with W, M, S and HP Shape beams, Standard C and Miscellaneous MC Channels, Angles and Structural Tees. Clamps must be used in pairs where indicated.

Pipe/Conduit Supports



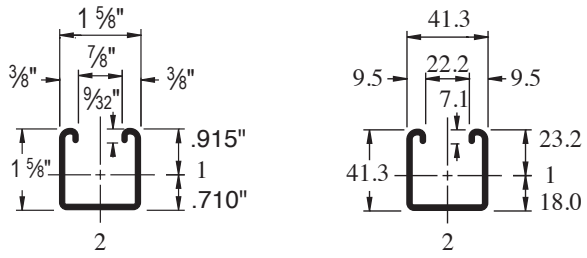
Application
Unistrut pipe clamps are designed for the support of electrical and mechanical services. Supports to meet nearly every requirement can be attained using Unistrut Metal Framing components.

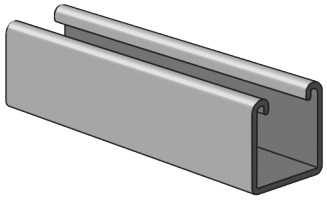
Dimensions
Imperial dimensions are illustrated in inches. Metric dimensions are shown in parenthesis or as noted. Unless noted, all metric dimensions are in millimeters and rounded to one decimal place.

1 5/8" Channel

P1000® DF & P1001 DF Channels

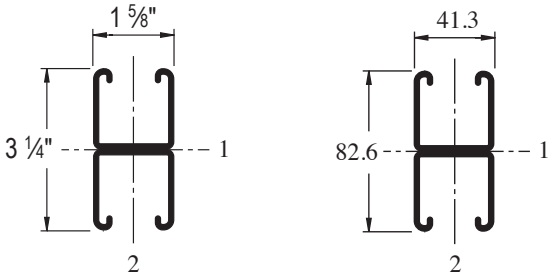
P1000 DF

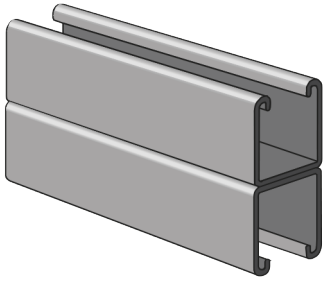




Wt/100 ft:189 lbs (281 kg/100 m)
Allowable Moment 5,070 in-lbs (570 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

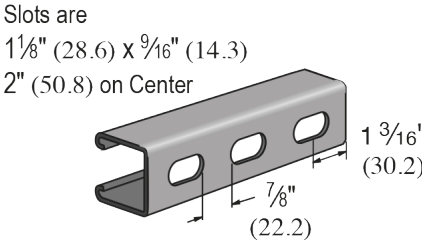
P1001 DF





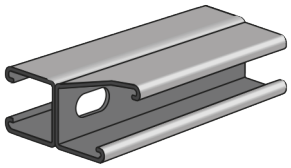
Wt/100 ft: 378 lbs (562 kg/100 m)
Allowable Moment 14,360 in-lbs (1,620 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

P1000T DF



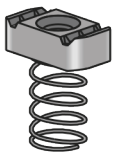
Wt/100 ft: 185 lbs (275 kg/100 m)

P1001T DF

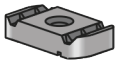


Wt/100 ft: 321 lbs (478 kg/100 m)
Allowable Moment 12,200 in-lbs (1,378 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

Channel Nuts (Refer to Hardware Section for Details)



P1006-1420 DF
P1008 DF
P1010 DF



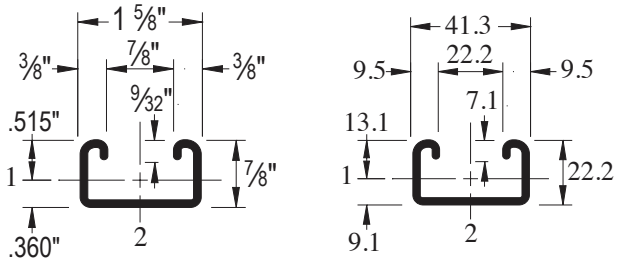
P3006-1420 DF
P3008 DF
P3010 DF

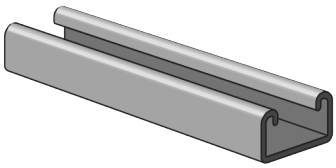
Standard Channel Lengths: 10' & 20'

Atkore Unistrut 1 5/8" Channel

P3300® DF & P3301 DF Channels

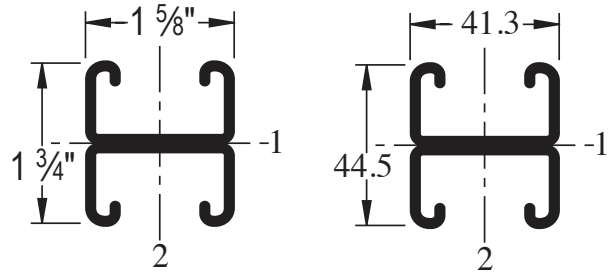
P3300 DF

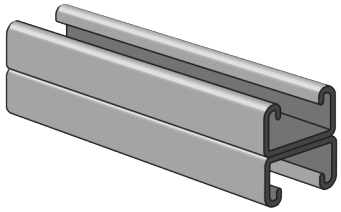




Wt/100 ft: 134 lbs (200 kg/100 m)
Allowable Moment 1,800 in-lbs (200 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

P3301 DF

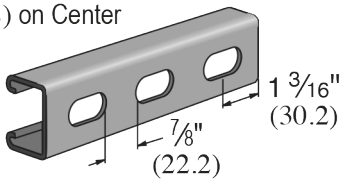




Wt/100 ft: 269 lbs (400 kg/100 m)
Allowable Moment 5,060 in-lbs (570 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

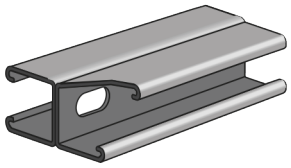
P3300T DF

Slots are
1⅛" (28.6) x 9/16" (14.3)
2" (50.8) on Center



Wt/100 ft: 130 lbs (193 kg/100 m)

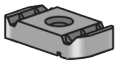
P3301T DF



Wt/100 ft: 260 lbs (386 kg/100 m)

Channel Nuts (Refer to Hardware Section for Details)

P4006-1420 DF
P4008 DF
P4010 DF



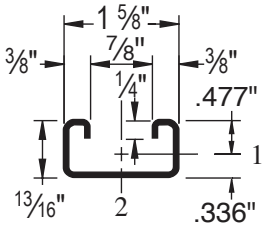
P3006-1420 DF
P3008 DF
P3013 DF

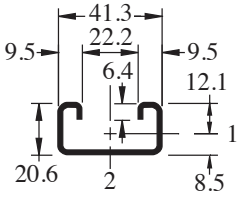
Standard Channel Lengths: 10' & 20'

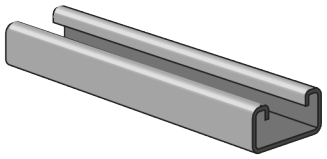
1 5/8" Channel

P4100® DF & P4101 DF Channels

P4100 DF

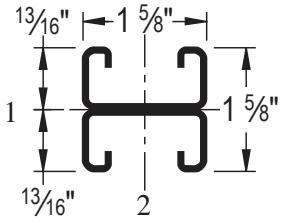


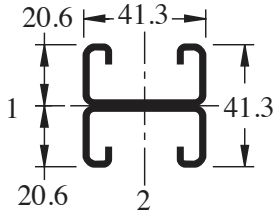


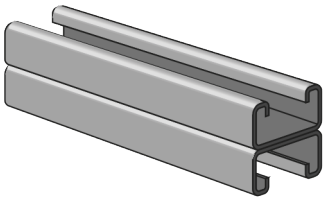


Wt/100 ft: 98 lbs (147 kg/100 m)
Allowable Moment 1,360 in-lbs (150 N·m)
14 Gauge Nominal Thickness .075" (1.9mm)

P4101 DF



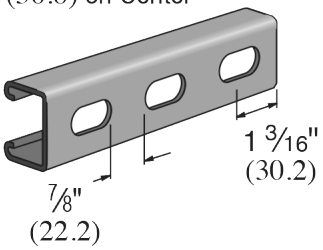




Wt/100 ft: 197 lbs (293 kg/100 m)
Allowable Moment 3,610 in-lbs (410 N·m)
14 Gauge Nominal Thickness .075" (1.9mm)

P4100T DF

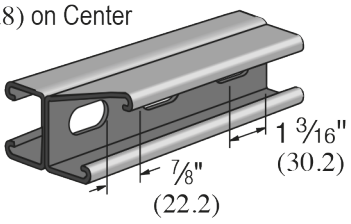
Slots are
1⅛" (28.6) x 9/16" (14.3)
2" (50.8) on Center



Wt/100 ft: 87 lbs (129 kg/100 m)

P4101T DF

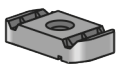
Slots are
1⅛" (28.6) x 9/16" (14.3)
2" (50.8) on Center



Wt/100 ft: 174 lbs (259 kg/100 m)

Channel Nuts (Refer to Hardware Section for Details)

P4006-1420 DF
P4008 DF
P4010 DF



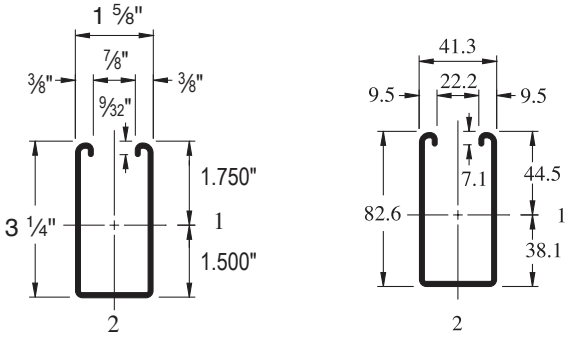
P3006-1420 DF
P3008 DF
P3013 DF

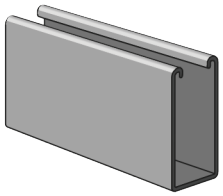
Standard Channel Lengths: 10' & 20'

1 5/8" Channel

P5000® DF & P5001 DF Channels

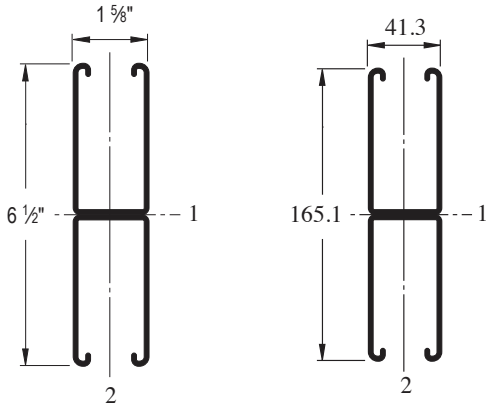
P5000 DF

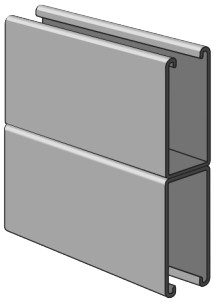




Wt/100 ft: 305 lbs (454 kg/100 m)
Allowable Moment 15,770 in-lbs (1,780 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

P5001 DF

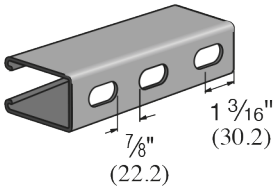




Wt/100 ft: 610 lbs (907 kg/100 m)
Allowable Moment 48,180 in-lbs (5,440 N·m)
12 Gauge Nominal Thickness .105" (2.7mm)

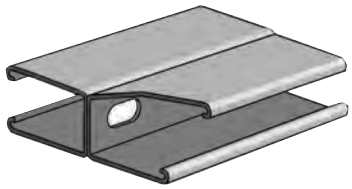
P5000T DF

Slots are
1 1/8" (28.6) x 9/16" (14.3)
2" (50.8) on Center



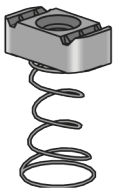
Wt/100 ft: 300 lbs (446 kg/100 m)

P5001T DF

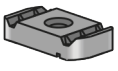


Wt/100 ft: 600 lbs (892 kg/100 m)

Channel Nuts (Refer to Hardware Section for Details)



P5508 DF
P5510 DF

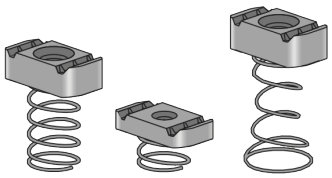


P3006-1420 DF
P3008 DF
P3010 DF

Standard Channel Lengths: 10' & 20'

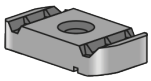
Nuts & Hardware

Channel Nuts With and Without Spring



Channel Nut With Spring

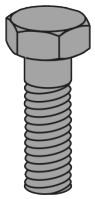
Part Number	Nut Size Thread		Wt/100 pcs lbs (kg)	Use With
P1006-1420 DF	¼"	-20	7 (3.2)	P1000 DF
P1008 DF	⅜"	-16	10 (4.5)	
P1010 DF	½"	-13	12 (5.4)	
P4008 DF	⅜"	-16	9 (4.1)	P3300 DF, P4100 DF
P4010 DF	½"	-13	8 (3.6)	
P5508 DF	⅜"	-16	10 (4.5)	P5000 DF
P5510 DF	½"	-13	12 (5.4)	



Channel Nut Without Spring

Part Number	Nut Size Thread		Wt/100 pcs lbs (kg)	Use With
P3006-1420 DF	¼"	-20	6 (2.7)	Any Channel
P3008 DF	⅜"	-16	9 (4.1)	
P3010 DF	½"	-13	11 (5.0)	P1000 DF, P4100 DF
P3013 DF	½"	-13	8 (3.6)	P3300 DF, P4100 DF

Hardware



HEX Head Cap Screws

Part Number	Size	Wt/100 pcs lbs (kg)
HHCS025075DF	¼" x ¾"	1.3 (0.6)
HHCS025150DF	¼" x 1½"	2.6 (1.2)
HHCS037100DF	⅜" x 1"	4.5 (2.0)
HHCS037150DF	⅜" x 1½"	6.0 (2.7)
HHCS050094DF	½" x 15⁄16"	9.1 (4.1)
HHCS050119DF	½" x 1 3⁄8"	10.2 (4.6)
HHCS050150DF	½" x 1½"	11.6 (5.3)

Hexagon Nuts

Part Number	Size	Wt/100 pcs lbs (kg)
HHXN025DF	¼"	0.6 (0.3)
HHXN037DF	⅜"	1.6 (0.7)
HHXN050DF	½"	4.8 (2.2)

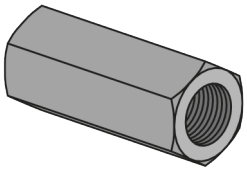
Flat Washers

Part Number	Size	Wt/100 pcs lbs (kg)
HFLW025DF	¼"	0.8 (0.4)
HFLW037DF	⅜"	1.5 (0.7)
HFLW050DF	½"	3.5 (1.6)

Atkore Unistrut

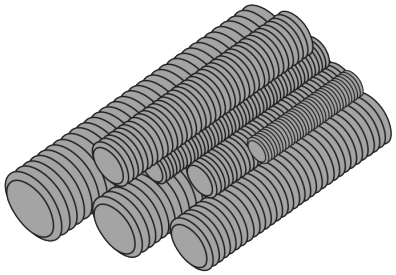
Nuts & Hardware

Hardware



Steel Coupler Nuts

Part Number	Size	Length (mm)	Wt/100 pcs lbs (kg)
HRCN037DF	⅜" - 16	1¾" (44.5)	9.0 (4.1)
HRCN050DF	½" - 13	1¾" (44.5)	10.0 (4.5)



Standard Length 6' (1.83m)

Steel Threaded Rod

Part Number	Size	Wt/100 pcs lbs (kg)
HTHR037DF	⅜" - 16	30 (13.6)
HTHR050DF	½" - 13	53 (24.0)

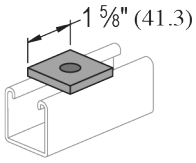
Low Carbon Steel Grade 1006 - 1010
Fy = 36,000 psi minimum
Ft = 58,000 psi minimum

Lock Washers

Part Number	Size	Wt/100 pcs lbs (kg)
HLKW025DF	¼"	0.25 (0.1)
HLKW037DF	⅜"	0.63 (0.3)
HLKW050DF	½"	1.32 (0.60)

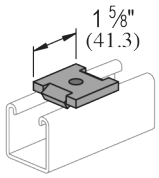
General Fittings

General Fittings



P1063 DF, P1064 DF

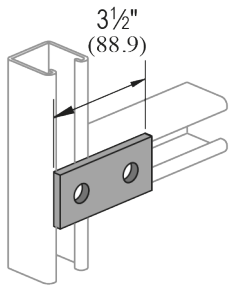
Part Number	Bolt Size	Hole Size	Wt/100 pcs lbs (kg)
P1063 DF	3/8"	7/16"	18 (8.2)
P1064 DF	1/2"	9/16"	17 (7.7)



P2863 DF, P2864 DF

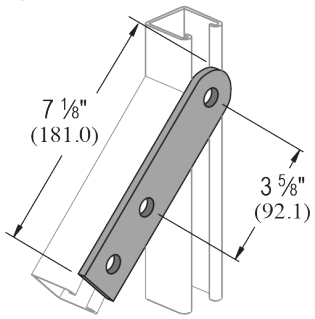
Part Number	Bolt Size	Hole Size	Wt/100 pcs lbs (kg)
P2863 DF	3/8"	7/16"	18 (8.2)
P2864 DF	1/2"	9/16"	17 (7.7)

P1065 DF



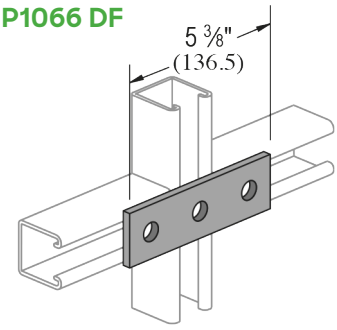
Wt/100 pcs: 38 lbs (17.2 kg)

P2324 DF



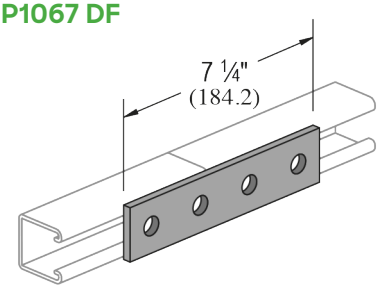
Wt/100 pcs: 75 lbs (34.0 kg)

P1066 DF



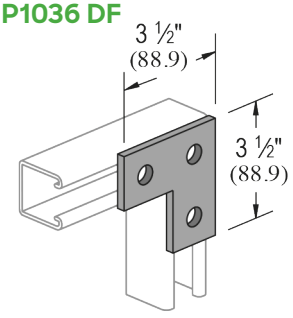
Wt/100 pcs: 56 lbs (25.4 kg)

P1067 DF



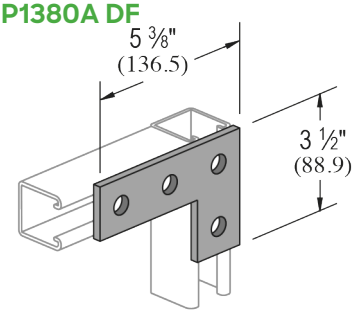
Wt/100 pcs: 78 lbs (35.4 kg)

P1036 DF



Wt/100 pcs: 58 lbs (26.3 kg)

P1380A DF



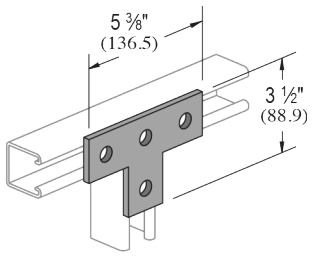
Wt/100 pcs: 105 lbs (47.6 kg)

Standard Dimensions for 15/8" (41.3mm) width series channel fittings (Unless Otherwise Shown on Drawing)
Hole Diameter: 9/16" (14.3mm); Hole Spacing - From End: 13/16" (20.6mm); Hole Spacing - On Center: 17/8" (47.6mm); Width: 15/8" (41.3mm); Thickness: 1/4" (6.4mm)

General Fittings

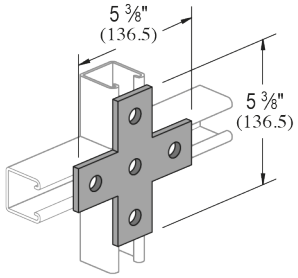
General Fittings

P1031 DF



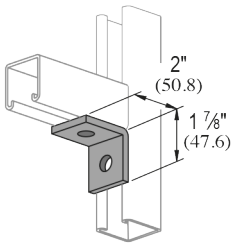
Wt/100 pcs: 80 lbs (36.3 kg)

P1028 DF



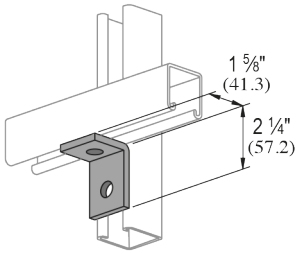
Wt/100 pcs: 105 lbs (47.6 kg)

P1026 DF



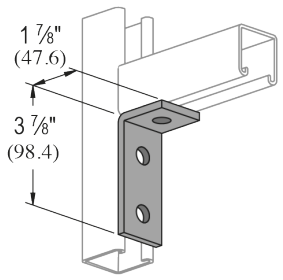
Wt/100 pcs: 38 lbs (17.2 kg)

P1068 DF



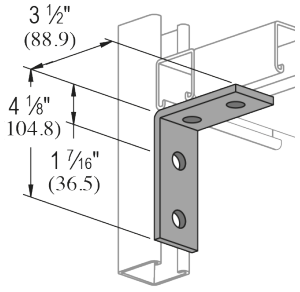
Wt/100 pcs: 38 lbs (17.2 kg)

P1346 DF



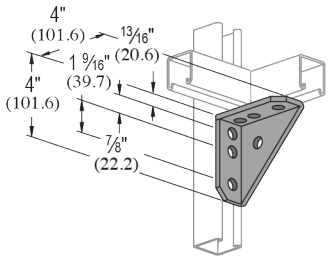
Wt/100 pcs: 58 lbs (26.3 kg)

P1325 DF

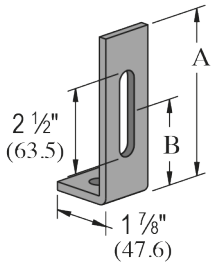


Wt/100 pcs: 78 lbs (35.4 kg)

P2484 DF

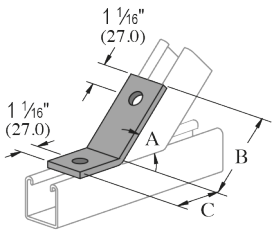


Wt/100 pcs: 134 lbs (60.8 kg)



P1498 DF

Part Number	"A" in (mm)	"B" in (mm)	Wt/100 pcs lbs (kg)
P1498 DF	4⅞"	2½"	65 (29.5)



P1546 DF

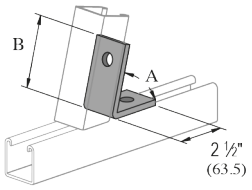
Part Number	"A" in (mm)	"B" in (mm)	"C" in (mm)
P1546 DF	45° (0.79)	3 (76.2)	2⁵⁄₁₆ (58.7)

Wt/100 pcs: 58 lbs (26.3 kg

Standard Dimensions for 15/8" (41.3mm) width series channel fittings (Unless Otherwise Shown on Drawing)
Hole Diameter: 9/16" (14.3mm); Hole Spacing - From End: 13/16" (20.6mm); Hole Spacing - On Center: 17/8" (47.6mm); Width: 15/8" (41.3mm); Thickness: 1/4" (6.4mm)

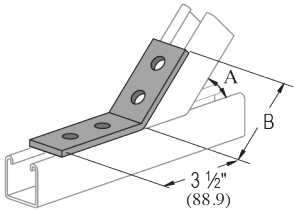
General Fittings

General Fittings



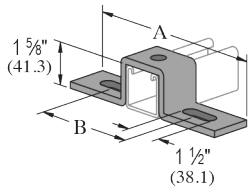
P1186 DF

Part Number	"A" in (mm)	"B" in (mm)
P1186 DF	45° (0.79)	3⅛" (79.4)



P2265 DF

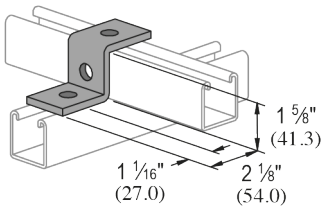
Part Number	"A" in (mm)	"B" in (mm)
P2265 DF	45° (0.79)	3¹¹⁄₁₆" (93.7)



P1048 DF

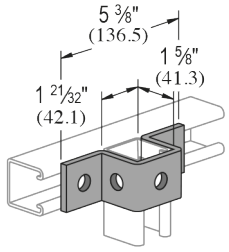
Part Number	"A" in (mm)	"B" in (mm)	Wt/100 pcs lbs (kg)
P1048 DF	7¼ (184.2)	4⅛" (104.8)	105 (47.6)

P1045 DF



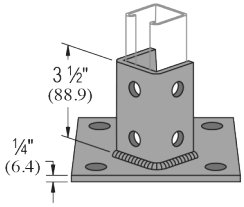
Wt/100 pcs: 55 lbs (24.9 kg)

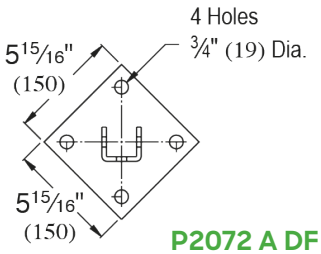
P1047 DF



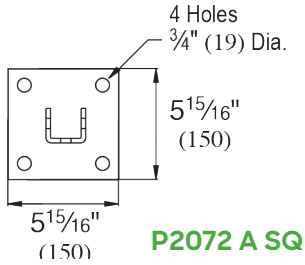
Wt/100 pcs: 88 lbs (39.9 kg)

P2072A DF, P2072A SQ DF





P2072 A DF



P2072 A SQ DF

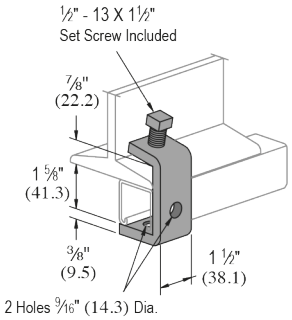
Wt/100 pcs: 373 lbs (169.2 kg)

Standard Dimensions for 15/8" (41.3mm) width series channel fittings (Unless Otherwise Shown on Drawing)
Hole Diameter: 9/16" (14.3mm); Hole Spacing - From End: 13/16" (20.6mm); Hole Spacing - On Center: 17/8" (47.6mm); Width: 15/8" (41.3mm); Thickness: 1/4" (6.4mm)

Atkore Unistrut General Fittings

General Fittings

P1271S DF

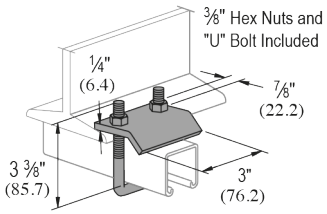


Design Load Each
500 lbs (2.22 kN)
Use in Pairs Only

Note: Requires P1010 Channel Nut and bolt.

Wt/100 pcs: 95 lbs (43.1 kg)

P2785 DF

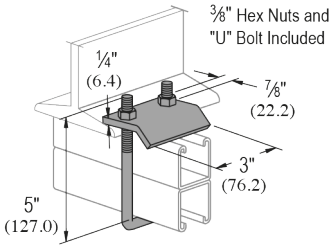


Design Load Each
1,000 lbs (4.45 kN)
Use in Pairs Only

- **For use with Beams up to ¾" (19.1) Flanges and with Channels P1000, P3300, P3301, P4100, and P4101.**

Wt/100 pcs: 83 lbs (37.6 kg)

P2786 DF

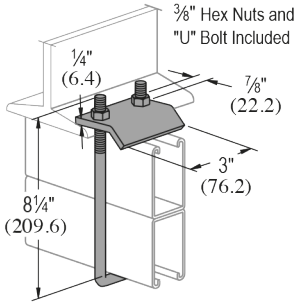


Design Load Each
1,000 lbs (4.45 kN)
Use in Pairs Only

- **For use with Beams up to ¾" (19.1) Flanges and with Channels P1001, P5000.**

Wt/100 pcs: 92 lbs (41.7 kg)

P2787 DF

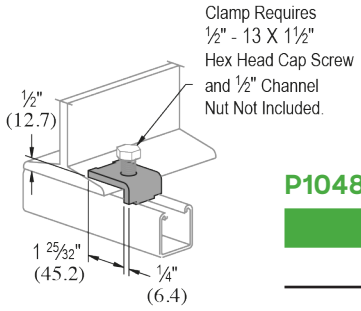


Design Load Each
1,000 lbs (4.45 kN)
Use in Pairs Only

- **For use with Beams up to¾" (19.1) Flanges and with Channels P5001.**

Wt/100 pcs: 112 lbs (50.8 kg)

Beam Clamps



P1048 DF

Part Number	Design Load Each (Use in Pairs Only) lbs (kN)
P1000 DF	600 (2.67)

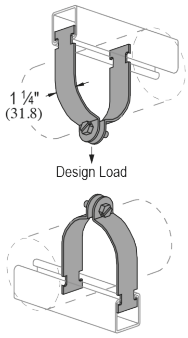
Wt/100 pcs: 27 lbs (12.2 kg)

Standard Dimensions for 1 5/8" (41.3mm) width series channel fittings (Unless Otherwise Shown on Drawing)
Hole Diameter: 9/16" (14.3mm); Hole Spacing - From End: 13/16" (20.6mm); Hole Spacing - On Center: 17/8" (47.6mm); Width: 15/8" (41.3mm); Thickness: 1/4" (6.4mm)
Note : When used for mechanical supports, load capacities of brackets and fittings should be in compliance with the American Standard Code for Pressure Piping.

Pipe/Conduit Supports

Pipe/Conduit Clamps

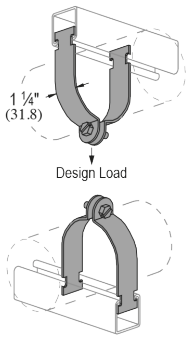
P1428 DF THRU P1431 DF PIPE CLAMPS FOR THIN WALL CONDUIT (E.M.T.)



Part Number	Conduit Size in (mm)	O.D. Size in (mm)	Thickness Gauge (mm)	Wt/100 pcs lbs (kg)	Design Load lbs (kN)
P1428 DF	1 (25.4)	1.163 (29.5)	14 (1.9)	15 (6.8)	600 (2.67)
P1429 DF	1 ¼ (31.8)	1.510 (38.4)	14 (1.9)	18 (8.2)	600 (2.67)
P1430 DF	1½ (38.1)	1.740 (44.2)	12 (2.7)	29 (13.2)	800 (3.56)
P1431 DF	2 (50.8)	2.197 (55.8)	12 (2.7)	33 (15.0)	800 (3.56)
P1118 DF	2½ (63.5)	2.875 (73.0)	12 (2.7)	40 (18.1)	800 (3.56)
P1119 DF	3 (76.2)	3.500 (88.9)	12 (2.7)	47 (21.3)	800 (3.56)

Slotted hex head screw and nut included.

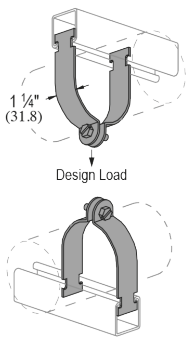
P1112 DF THRU P1119 DF PIPE CLAMPS FOR RIGID STEEL CONDUIT



Part Number	Conduit Size in	O.D. Size in (mm)	Thickness Gauge (mm)	Wt/100 pcs lbs (kg)	Design Load lbs (kN)
P1112 DF	¾	1.050 (26.7)	14 (1.9)	15 (6.8)	600 (2.67)
P1113 DF	1	1.315 (33.4)	14 (1.9)	17 (7.7)	600 (2.67)
P1114 DF	1 ¼	1.660 (42.2)	14 (1.9)	19 (8.6)	600 (2.67)
P1115 DF	1½	1.900 (48.3)	12 (2.7)	29 (13.2)	800 (3.56)
P1117 DF	2	2.375 (60.3)	12 (2.7)	34 (15.4)	800 (3.56)
P1118 DF	2½	2.875 (73.0)	12 (2.7)	40 (18.1)	800 (3.56)
P1119 DF	3	3.500 (88.9)	12 (2.7)	47 (21.3)	800 (3.56)

Slotted hex head screw and nut included.

P1214 DF THRU P1217 DF UNIVERSAL CLAMPS FOR RIGID OR THINWALL CONDUIT



Part Number	Conduit Size in (mm)	Thickness Gauge (mm)	Wt/100 pcs lbs (kg)	Design Load lbs (kN)
P1214 DF	1¼ (31.8)	14 (1.9)	18 (8.2)	600 (2.67)
P1215 DF	1½ (38.1)	14 (1.9)	20 (9.1)	600 (2.67)
P1217 DF	2 (50.8)	14 (1.9)	22 (10.0)	600 (2.67)

Slotted hex head screw and nut included.

Atkore™ Unistrut

Product Index

Atkore™
Unistrut

Atkore Defender™

Superior Corrosion Defense.

Atkore - UNISTRUT®

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

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART I – GENERAL

1.01 SUMMARY

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

1.02 QUALITY ASSURANCE

A. Manufacturer's qualifications:
   1. The manufacturer shall have at least 10 years' experience in manufacturing Strut Systems.
   2. The manufacturer must certify in writing all components supplied have been produced in accordance with an established quality assurance program.
B. 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 2001 Edition
   3. American Society for Testing And Materials (ASTM)
   4. Metal Framing Manufacturer's Association (MFMA)

1.03 SUBMITTALS

A. 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:
   1. Description of design criteria
   2. Stress and deflection analysis
   3. Selection of framing members, fittings, and accessories
B. Assembly drawings necessary to install the Strut System in compliance with the Contract Drawings
C. Pertinent manufacturers published data

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

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

1.05 WARRANTY

A. 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.
B. 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

A. Strut System and components shall be
   1. Atkore UNISTRUT®
      16100 South Lathrop Avenue
      Harvey, IL 60426
      TOLL-FREE / 800-882-5543
      Local / (708) 339-1610

2.02 MATERIALS

A. All channel members shall be fabricated conforming to one of the following ASTM specifications:
   1. Plain Carbon Steel: ASTM 1011 SS Grade 33
   2. Pre-Galvanized Carbon Steel: A 653 Grade 33
   3. Unistrut Defender™: ASTM 1046 SS Grade 33
   4. Stainless Steel: A 240 (Type 304)
   5. Aluminum: B 221 (Type 6063-T6)
B. 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:
      a. ASTM 575
      b. ASTM 576
      c. ASTM 36
      d. ASTM 635
      e. ASTM 1059
      f. ASTM 1046

2. Stainless Steel:
    a. ASTM 240 (Type 304 or Type 316)
    b. ASTM 276 (Type 304 or Type 316)
3. Aluminum:
    a. B 209 (Type 1100F or Type 5052-H32)

C. 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

A. FACTORY PAINTED
1. Channel
    a. Rust inhibiting thermoset acrylic enamel paint applied by electro-deposition after cleaning and phosphating, and thoroughly baked.
2. Fittings
    a. 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
    a. Salt Spray per ASTM B117
        (1) Scribed: Exceed 400 hours
        (2) Unscribed: Exceed 600 hours
    b. Nominal chalking at 1,000 hours per weatherometer G-23 test
    c. No checking at 1,000 hours per weatherometer G-23 test

B. ELECTRO-GALVANIZED per ASTM B 633 Type III SC 1

C. 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)

D. 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)

E. UNISTRUT 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

F. SPECIAL COATING / MATERIAL
(Describe as applicable)

PART 3 - EXECUTION

3.01 EXAMINATION

A. 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

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

3.03 CLEANUP

A. 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

A. During installation, it shall be the responsibility of the installer to protect this work from damage.

B. 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.

CERTIFICATE OF COMPLIANCE

Certificate Number	20180205-E361025
Report Reference	E361025-20130429
Issue Date	2018-FEBRUARY-05

Issued to: UNISTRUT INTERNATIONAL CORP
4205 ELIZABETH ST
WAYNE MI 48184

This is to certify that representative samples of COMPONENT - MOUNTING SYSTEMS, MOUNTING DEVICES, CLAMPING DEVICES AND GROUND LUGS FOR USE WITH PHOTOVOLTAIC MODULES AND PANELS

See addendum for models.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: See addendum for standards.

Additional Information: See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

The UL Recognized Component Mark generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: ᴿᵁ, may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

Bruce Mahrenholz, Director North American Certification Program

UL LLC

CERTIFICATE OF COMPLIANCE

Certificate Number	20180205-E361025
Report Reference	E361025-20130429
Issue Date	2018-FEBRUARY-05

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Mounting Systems, Mounting Devices, Clamping Devices and Ground Lugs for Use with Photovoltaic Modules and Panels; Photovoltaic Mounting Rail Types:

P1000HS, P1000T, P1000KO, P1000SL, P1000DS and P1000H3 Pre-galvanized
P1000HS, P1000T, P1000KO, P1000SL, P1000DS and P1000H3 Hot Dip Galvanized
P1000HS, P1000T, P1000KO, P1000SL, P1000DS and P1000H3 Stainless Steel (type 304 or type 316)
P1000HS, P1000T Aluminum, anodized, or mill-finish

P1000 DF, P1001 DF, P1000T DF, P1001T DF, P3300 DF, P3301 DF, P3300T DF, P3301T DF, P4100 DF, P4101 DF, P4100T DF, P4101T DF, P5000 DF, P5001 DF, P5000T DF, P5001T DF Unistrut Defender coating (ZAM: Zinc Aluminum Magnesium)

Suffixes indicate mounting hole configurations

Standards for Safety:
UL2703, Mounting systems, mounting devices, clamping/retention devices, and ground lugs for use with flat-plate photovoltaic modules and panels

Bruce Mahrenholz, Director North American Certification Program

UL LLC

16100 South Lathrop Avenue
Harvey, IL 60426
Office: 708-339-7814
Phone: 800-882-5543
Web: atkore.com/unistrut

Date: June 29, 2022

Subject: **Unistrut Comparison to Power-Strut**

From: Unistrut Engineering

Unistrut is made from ASTM A1011 SS (Structural Steel) Grade 33 steel with beam and column loads based on the 2013 Edition of AISI's Cold-Formed Steel Specification.

Unistrut fittings are made from steel conforming to A575, A576, A635, or A36. Except for A36, all steel also conforms to A1011 SS Grade 33 physical requirements. Loads are based on ultimate load testing with an applicable safety factor.

Power-Strut channel and fittings conform to these same requirements. Atkore, Inc. manufactures Unistrut and Power-Strut in the same manner in most cases. The primary difference being the physical stamp on some products which indicates a specific brand's part number.

Sincerely,

Alex Seither
Product Engineer
Atkore, Inc.

Atkore
Unistrut

16100 South Lathrop Avenue
Harvey, IL 60426
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Phone: 800-882-5543
Web: atkore.com/unistrut

MEMORANDUM

Date: January 19, 2006

Subject: **UNISTRUT & MSS SP-58, SP-69 & SP-89**

From: Unistrut Engineering

Unistrut actively participates on MSS Committee 403, which is responsible for Standard Practices SP-58, SP-69 & SP-89.

In general, Unistrut products conform to the requirements of MSS SP-58, SP-69 & SP-89 where applicable to the objectives of these standards. Unistrut channel, threaded rod, pipe clamps and beam clamps conform to SP-58, SP-69 & SP-89. By definition, MSS considers continuous concrete inserts (e.g. P3200 Series) devices to which hanger assemblies attach. Therefore, MSS does not have requirements for concrete inserts. However, the materials for which Unistrut concrete inserts are made do conform to MSS SP-58, SP-69 & SP-89.

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Harvey, IL 60426
Office: 708-339-7814
Phone: 800-882-5543
Web: atkore.com/unistrut

CERTIFICATE OF COMPLIANCE
BUY AMERICA
BUY AMERICAN

June 1, 2023

To Whom It May Concern:

This certifies that Unistrut® channel is manufactured in the United States from steel melted and manufactured in the United States. These products comply with the Buy America requirements of 49 U.S.C. 5323{j)(I) and the applicable regulations in 49 CFR part 635.10 and with the Buy American Act of 1933 (FAR 52.225, Sections 9-12). All Unistrut channel finishes are also included as follows:

June 1, 2023

Plain (PL)	Perma-Gold (ZD)
Pregalvanized Zinc (PG)	Unistrut Defender (OF)
Hot Dip Galvanized (HG)	Copper Clad (CC)
Electrocoated Zinc (EG)	Perma-Green (GR)

Unistrut channel is also available in stainless steel and aluminum and meet both the Buy America and Buy American Acts.

While most Unistrut fittings are also certified as compliant with domestic requirements, please contact Industry Affairs with a specific bill of materials to confirm. Certification letters are also available to include a specific customer or project name upon request.

This certification has been issued for only the products listed above for domestic compliance and is valid for 180 days from date of issue. Alterations to this document by any agency other than Atkore International voids the certification.

Please contact IndustryAffairs@atkore.com if you have any questions.

Atkore Industry Affairs Team

Direct **1.800.882.5543**
Email **Industryaffairs@atkore.com**

Atkore™ | BUILDING BETTER TOGETHER

Learn **more at www.unistrut.us/atkore-defender**