

Veri*Lite™

Silicone Rubber Line Post Insulators for 15-72kV Applications



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NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.

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Veri*Lite Insulators embody the latest features available in polymer insulator design and manufacture.

Ohio Brass began its efforts in polymer research in the early 1900s. After years of production and research with polymeric compounds in the high voltage insulation field, Ohio Brass introduced the Hi*Lite insulator in 1976. A decade later the Ohio Brass polymer distribution arrester, PDV-100, was introduced as the first U.S. made polymer-housed MOV arrester.

Today's Veri*Lite post insulators build upon the experience of placing over 15 million polymer distribution arresters, 13 million polymer deadend distribution insulators and 2 million high voltage transmission insulators in service. Ohio Brass is dedicated to providing a quality product for the electric utility industry.

Design

The structural design of the Veri*Lite insulator consists of three basic parts:

Rod - Veri*Lite insulator fiberglass rod is produced from the highest quality materials. Strands are aligned for maximum tensile strength. The rod is filled 65 percent, by volume, with electrical grade glass fibers.

End Fittings - Ferrous end fittings are directly crimped to the fiberglass rod by a process originated by Ohio Brass. The crimp requires no intermovement of the parts to achieve high strength, nor does it introduce potting compounds or adhesives.

Weathersheds - Veri*Lite insulators are manufactured with OB's proprietary silicone rubber.

Ohio Brass uses several tests to evaluate materials. Tracking, QUV, corona cutting, salt fog, oxidative stability and variations of differential thermal analysis tests assure the quality of OB's shed material.

Leakage Distance

Veri*Lite insulators feature high leakage distance for optimum contamination performance.

Washability

The Veri*Lite insulators listed in this catalog are suitable for washing by all known methods in current use. Washing tests have been conducted with high-pressure equipment at close nozzle-to-insulator distances. No water intrusion occurred after multiple washings.

Standards

Veri*Lite line post insulators meet ANSI C29.18-2003 and CEA LWIWG-02-1996 standards.

The Ohio Brass facility in Aiken, SC, USA is registered for successful implementation of a quality system in accordance with ISO 9001-2000.

Mechanical Ratings

Specified Cantilever Load (SCL) is the ultimate cantilever strength rating. Maximum Design Cantilever Load (MDCL) or Working Cantilever Load (WCL) is the maximum continuous cantilever load at which the post insulator should be applied.

Markings

Markings are 0.12 inch high raised letters in the rubber and include: Base catalog number, CEA LWIWG Class, SCL in pounds, MDCL/WCL in kN and date code. Ohio Brass identification is cast into the end fittings.

Equivalency

Equivalency of line post insulators involves a check of the general characteristics.

MECHANICAL

Compare the SCL of the polymer insulator to the cantilever strength rating of the porcelain insulator.

ELECTRICAL

Compare porcelain to Veri*Lite leakage distance.
Compare porcelain to Veri*Lite section length.

Insulation Coordination

The operating performance of a distribution or transmission line depends on its insulation level. It must not flashover under practically any operating condition.

Several methods of coordination of line and station insulation have been proposed. Generally, the best method is to establish a definite common insulation level for all the station insulation and then match that level with the line insulation. With this approach, the task is limited to three fundamental requirements:

1. Selection of the Basic Impulse Insulation Level (BIL).
2. Specification of insulation with flashover characteristics equal to or greater than the selected BIL.
3. The application of suitable overvoltage surge protection.

Satisfactory performance is generally achieved with an insulator which has a dry 60 Hz flashover of three to five times the phase-to-ground voltage and a leakage distance approximately twice the shortest air-gap (strike) distance.

Packaging

Veri*Lite insulator standard packing is cartons on pallets. Larger orders for Veri*Lite posts may be shipped in wood crates.

Sample Polymer Specification

Purpose: To ensure a suitable service life of polymer insulating materials.

I. Material Design Tests

- The following must be performed to certify a material for use in production.

1. Tracking test: Performed on a sample of material inclined at 30° and electrodes positioned 35 mm apart. Samples are sprayed with a conductive solution (400 Ωcm) and energized at 10 kV. The cycle is repeated every 90 seconds. The sample passes if there is:

1. No carbonization or tracking.
2. No erosion through sample.
3. No leakage current flow at the end of 90 seconds.

The sample must withstand 20,000 test cycles.

2. Ultraviolet Test: Samples of the rubber must be tested in a QUV tester or equivalent cyclic weatherometer. The samples are exposed to high ultraviolet radiation and high humidity without cracking, checking or becoming hydrophilic.

The sample is judged to have passed this test if it exceeds 8,000 hours of exposure without damage.

3. Corona Cutting: Samples 5 cm by 7 cm are subjected to mechanical stress of 300,000 microstrain by bending samples around a grounded electrode. A needle-like electrode is placed 1 mm from the surface of the sample and energized at 12 kV in a controlled humidity chamber.

The sample is judged to have passed this test if there is no splitting or cutting. Samples must pass 1,000 hours of exposure to this test.

4. Oxidative Stability: Samples of the polymer compound are tested using differential scanning calorimetry. Samples are heated rapidly in a nitrogen atmosphere to the test temperature of 200°C. The atmosphere is then changed to oxygen and the temperature is maintained until the antioxidant is consumed, as measured by an exothermic chemical reaction. The time to this reaction must exceed 400 minutes.

5. Tear Strength: Rubber test slabs are prepared in accordance with ASTM Standards and are tested to determine tear strength of the material. The acceptable nominal tear strength, per ASTM method B, is 100 lb./in.

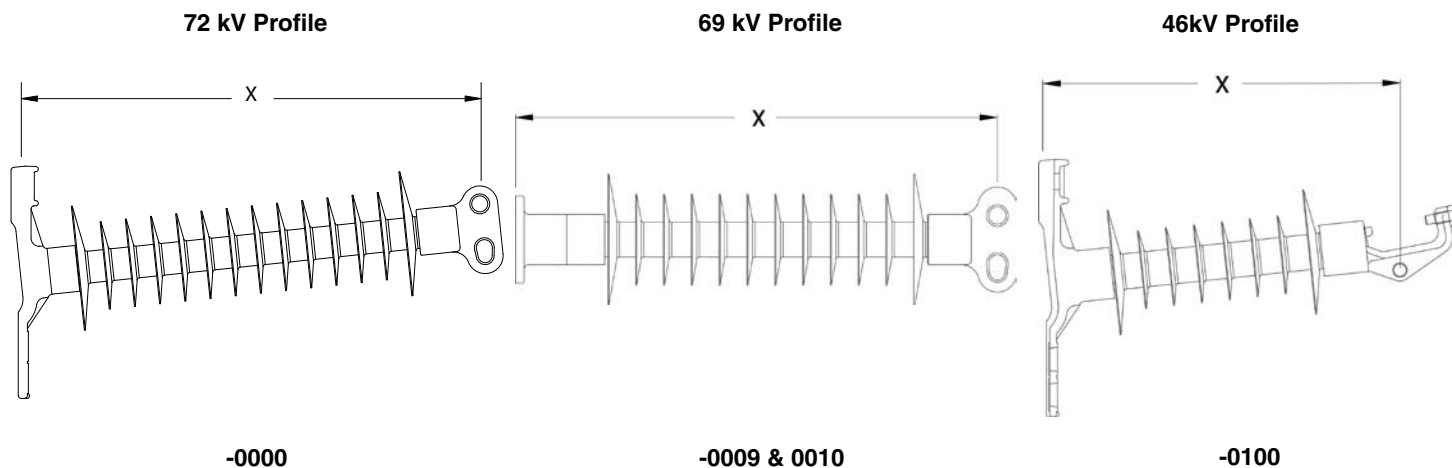
II. Other Requirements

- The manufacturer must supply upon request a listing of routine tests performed to ensure production compliance with design tests.

kV	Post Style	Line	Base	Catalog Number	ANSI C29.18 Class	CEA LWIWG-02 Class	"X" Dimension Inches (mm)	Line & Gnd End Shed Dia. Inches (mm)	Intermediate Shed Quantity	Intermediate Shed Dia. Inches (mm)	Dry Arc Distance Inches (mm)
15	Horz	Clamptop	Gain	80S0150100	51-31	LP 15	12.5 (318)	4.8 (121)	0	----	7.4 (188)
	Horz	Clamptop	3/4-10 Tap	80S0150109	51-21		13.3 (339)				
	Vert	Clamptop	3/4-10 Tap	80S0150209	51-11		12.8 (324)				
	Vert	F-Neck	3/4-10 Tap	80S0150F09	51-1F		12.4 (315)				
25	Horz	Clamptop	Gain	80S0250100	51-32	LP 25	14.3 (362)	5.2 (132)	2	3.8 (96)	9.6 (244)
	Horz	Clamptop	3/4-10 Tap	80S0250109	51-22		15.1 (383)				
	Vert	Clamptop	3/4-10 Tap	80S0250209	51-12		14.5 (368)				
	Vert	F-Neck	3/4-10 Tap	80S0250F09	51-2F		14.2 (360)				
35	Horz	Clamptop	Gain	80S0280100	51-33	LP 28M	16.5 (420)	5.1 (130)	4	4.6 (117)	11.7 (297)
	Horz	Clamptop	3/4-10 Tap	80S0280109	51-23		17.4 (441)				
	Vert	Clamptop	3/4-10 Tap	80S0280209	51-13		16.8 (425)				
	Vert	F-Neck	3/4-10 Tap	80S0280F09	51-3F		16.5 (418)				
46	Horz	Blade	Gain	80S0460000	---	LP 46	19.2 (488)	7.1 (179)	6	4.4 (112)	14.4 (390)
	Horz	Blade	3/4-10 Tap	80S0460009	---		20.0 (508)				
	Horz	Clamptop	Gain	80S0460100	51-34		19.0 (482)				
	Horz	Clamptop	3/4-10 Tap	80S0460109	51-24		19.8 (504)				
	Vert	Clamptop	3/4-10 Tap	80S0460209	51-14		19.4 (492)				
	Vert	F-Neck	3/4-10 Tap	80S0460F09	51-4F		19.5 (495)				
69	Horz	Blade	Gain	80S0690000	---	LP 69M	25.8 (656)	7.5 (190)	8	5.2 (132)	22.3 (566)
	Horz	Blade	7/8-9 Tap	80S0690010	---		26.6 (676)				
	Horz	Clamptop	Gain	80S0690100	51-36		25.6 (650)				
	Horz	Clamptop	7/8-9 Tap	80S0690110	51-26		26.5 (672)				
	Vert	Clamptop	7/8-9 Tap	80S0690210	51-16		26.1 (662)				
	Vert	F-Neck	7/8-9 Tap	80S0690F10	---		26.1 (663)				
72	Horz	Blade	Gain	80S0720000	---	---	28.7 (728)	7.8 (198)	12	5.5 (140)	25.4 (645)
	Horz	Blade	7/8-9 Tap	80S0720010	---		28.9 (735)				
	Horz	Clamptop	Gain	80S0720100	---		28.7 (728)				
	Horz	Clamptop	7/8-9 Tap	80S0720110	---		28.9 (734)				
	Vert	Clamptop	7/8-9 Tap	80S0720210	---		27.6 (701)				
	Vert	F-Neck	7/8-9 Tap	80S0720F10	---		28.5 (723)				

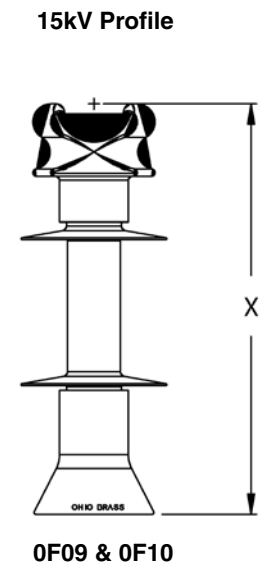
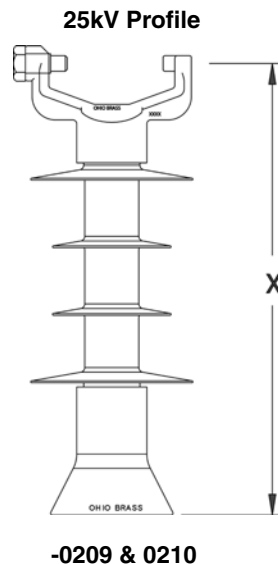
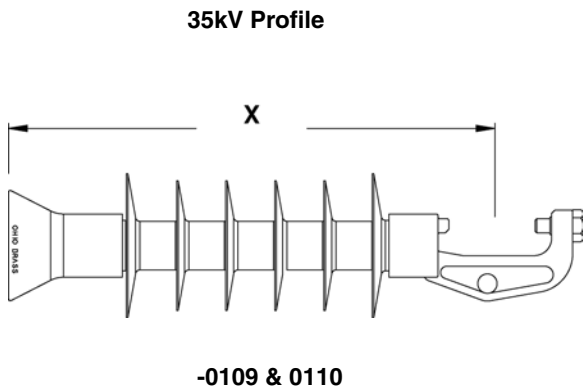
Notes:

1. Product Design & Testing in accordance with ANSI C29.18-2003 and CEA LWIWG-02-1996
2. For CEA LWIWG-02 Sample Tests, change the seventh digit in the catalog number from 0 to 6
3. SCL is the ultimate cantilever strength rating
4. MDCL/WCL is the maximum continuous cantilever load at which the post should be applied
5. Maximum Design Tension for Clamptop is 2500 pounds (11 kN)



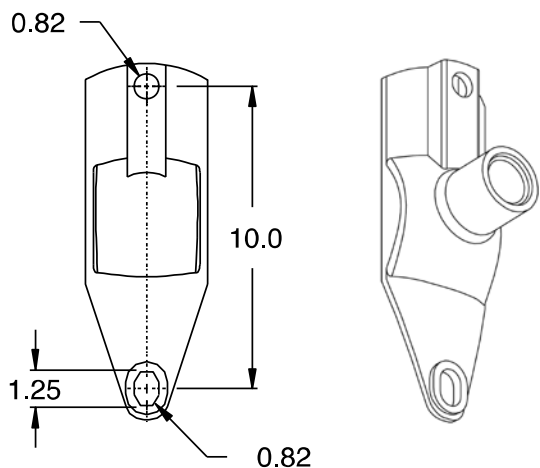
Leakage Distance Inches (mm)	60 Hz (Low Frequency) Flashover		Impulse Critical Flashover Pos. kV	Impulse Positive Withstand kV	SCL pounds (kN)	MDCL/WCL pounds (kN)	Net Weight pounds (kg)	Standard Package Quantity			kV
	Dry-kV	Wet-kV						Carton	Pallet	Max/Crate	
11.0 (279)	75	40	115	100	2800 (12.5)	1235 (5.5)	9.8 (4.5)	3	36	----	15
							7.1 (3.2)				
							6.8 (3.1)				
							6.9 (3.1)				
17.3 (439)	100	75	150	140	2800 (12.5)	1235 (5.5)	10.3 (4.7)	3	36	----	25
							7.6 (3.5)				
							7.3 (3.3)				
							7.4 (3.4)				
26.1 (662)	125	80	180	160	2800 (12.5)	1235 (5.5)	10.9 (4.9)	3	36	----	35
							8.2 (3.7)				
							7.8 (3.5)				
							8.0 (3.6)				
34.3 (872)	160	100	240	225	2800 (12.5)	1235 (5.5)	15.8 (7.2)	----	----	14/21/28/35	46
							10.6 (4.8)			70	
							15.2 (6.9)			14/21/28/35	
							10.0 (4.5)			70	
							10.0 (4.5)			70	
							10.1 (4.6)			70	
58.2 (1478)	235	180	350	330	2470 (11.0)	1235 (5.5)	17.8 (8.1)	----	----	14/21/28/35	69
							12.6 (5.7)			35	
							17.2 (7.8)			14/21/28/35	
							12.0 (5.4)			35	
							12.0 (5.4)			35	
							12.1 (5.5)			35	
71.0 (1803)	270	230	400	380	2030 (9.0)	1015 (4.5)	24.0 (10.9)	----	----	14/21/28/35	72
							18.8 (8.5)			35	
							23.4 (10.6)			14/21/28/35	
							18.2 (8.3)			35	
							18.2 (8.3)			35	
							18.3 (8.3)			35	

6. 15, 25 & 28 kV Units use 1.5 inch (38 mm) Diameter Rod
 7. 46, 69 & 72 kV Units use 1.75 inch (44 mm) Diameter Rod
 8. Markings are 0.12 inch high raised letters in the rubber and include: Base Catalog Number, SCL in pounds, LWIWG-02 Class, MDCL/WCL in kN

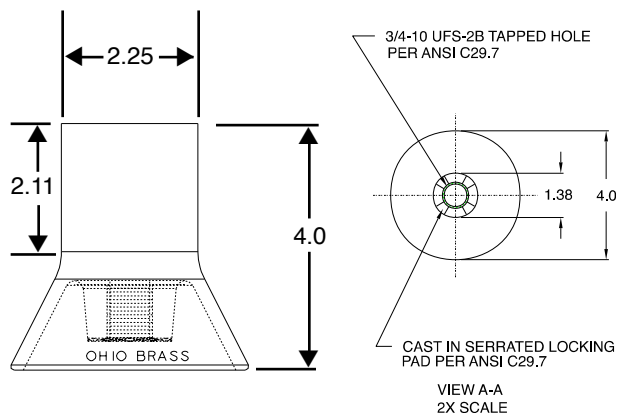


Post Base & Line Fittings

Post Base Fittings Dimensions (in inches)

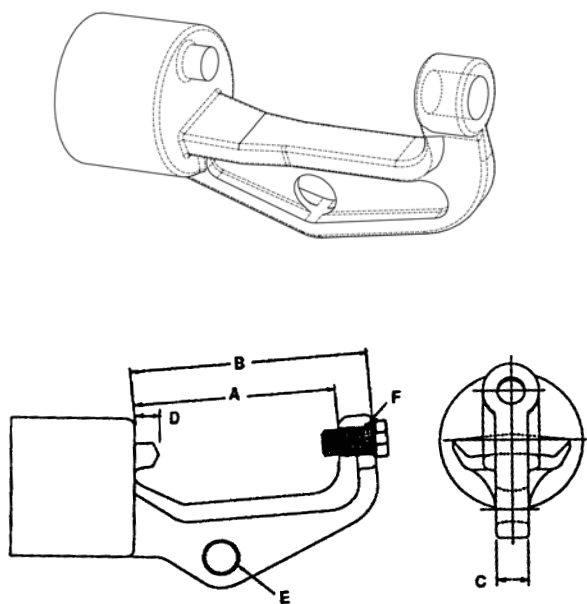


**15, 25 & 35 kV
Horizontal Gain Base**

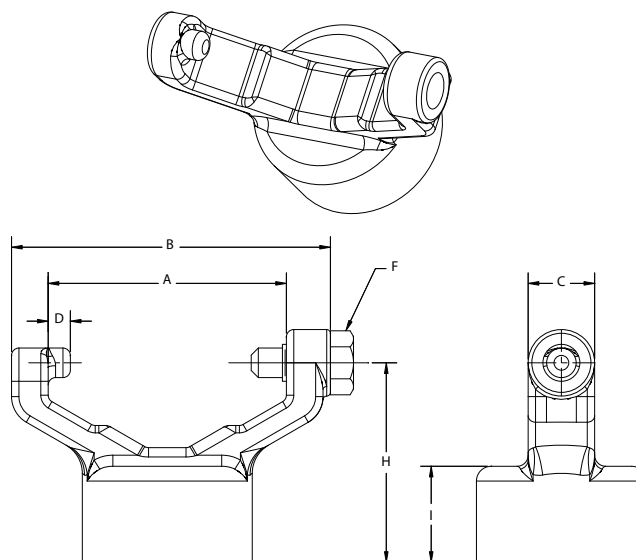


**15, 25 & 35 kV
Stud Base**

Post Line Fittings Dimensions (in inches)



**15-72 kV
Horizontal Clamtop Cap**

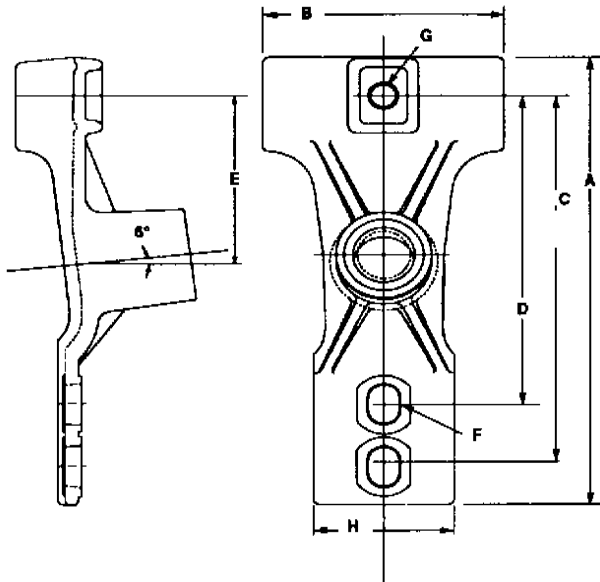


**15-72 kV
Vertical Clamtop Cap**

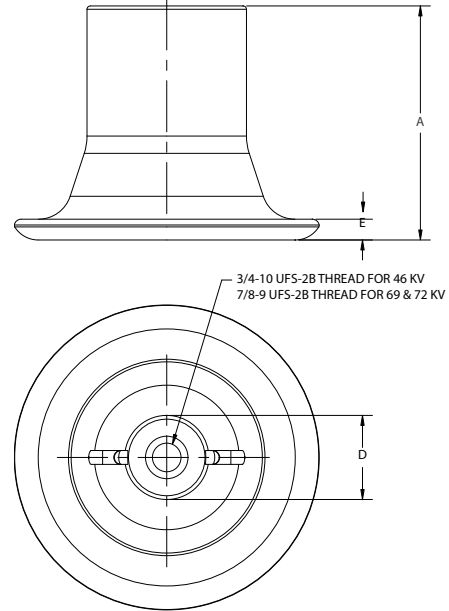
Line Post Line Fittings Dimensions (in inches)

Type	A	B	C	D	E	F	H	I	Material
H. Clamtop Cap	4.00	4.75	0.62	0.38	0.69	5/8-11 UFS-2B	-	-	60-40-18 DI
V. Clamtop Cap	4.00	5.38	1.12	0.38	-	5/8-11 UFS-2B	3.38	1.63	60-40-18 DI

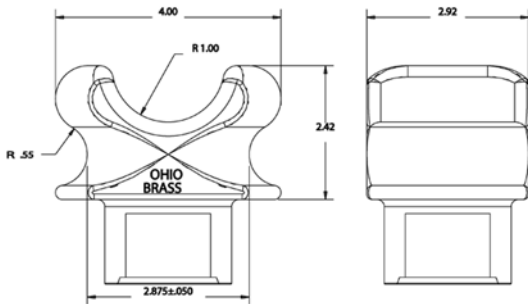
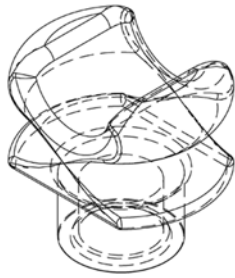
Post Base & Line Fittings



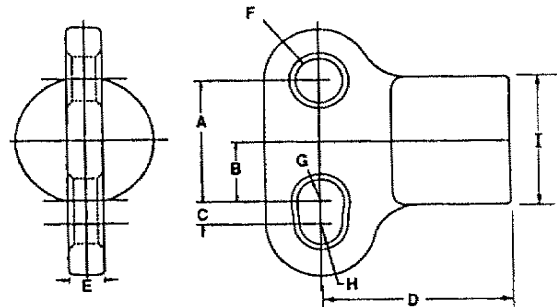
46, 69 & 72 kV Horizontal Gain Base



46, 69 & 72 kV Stud Base



15-72 kV F-Neck Cap



46, 69 & 72 kV Two Hole Blade

Line Post Base Fittings Dimensions (in inches)

Type	A	B	C	D	E	F	G	H	Material
H. Gain Base	14.50	7.00	12.00	10.00	6.75	1.25 x 0.88	0.88	4.00	60-40-18 DI
Stud Base	4.22	2.875	5.50	1.50	0.50	3/4-10 UFS-2B or 7/8-9 UFS-2B	-	-	60-40-18 DI
Two Hole Blade	2.75	1.38	0.50	4.00	0.75	1.00 Dia.	0.50 R	0.44 R	60-40-18 DI



Application Curves for Veri*Lite Insulators

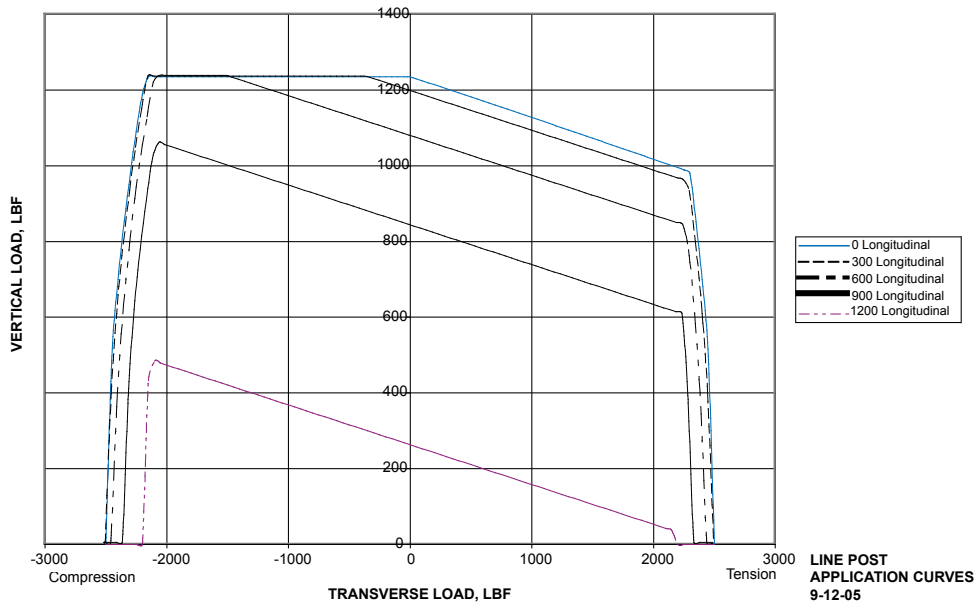
How to use the application curves. After you have established the loading cases, you can use the curves to determine whether a specific Veri*Lite unit meets your loading requirement.

For example, consider the installation of a Veri*Lite post number 80S025-0100 on a line with a vertical cantilever load of 800 pounds and a compression load of 900 pounds. By entering the curve at these values,

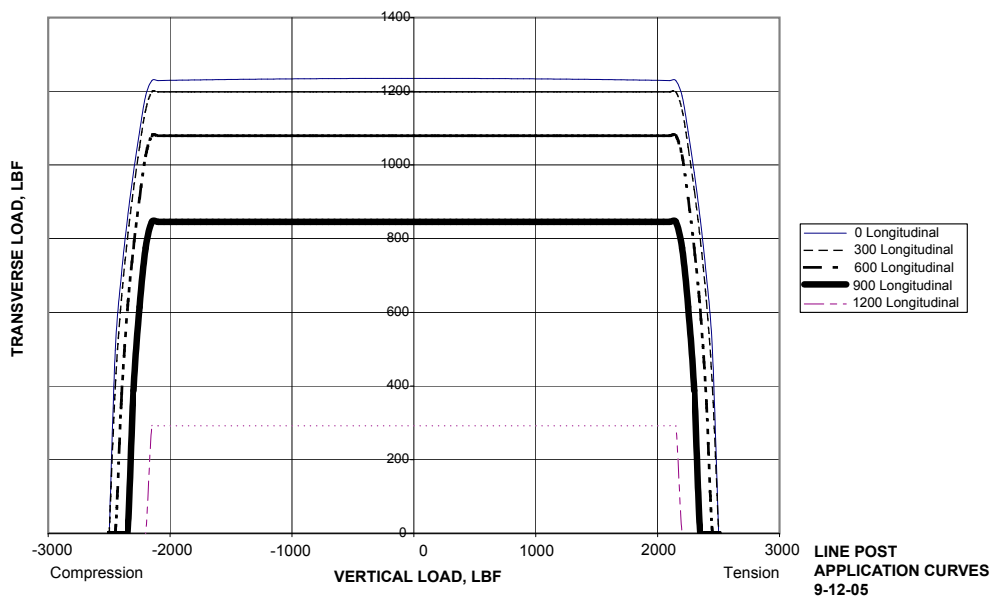
find the allowable longitudinal load to be 900 pounds. When the posts are loaded in tension the cantilever loading due to the combined effects of longitudinal, vertical and tensile loads should not exceed the rated tension working value.

IMPORTANT: The application curves should not be extrapolated.

80S015, 80S025 & 80S028 HORIZONTAL STYLE



80S015, 80S025 & 80S028 VERTICAL STYLE



Maximum deflection for any of the post styles is approximately 1.75" at SCL.
Curves are shown using a 2.0 safety margin to SCL

Application Curves for Veri*Lite Insulators

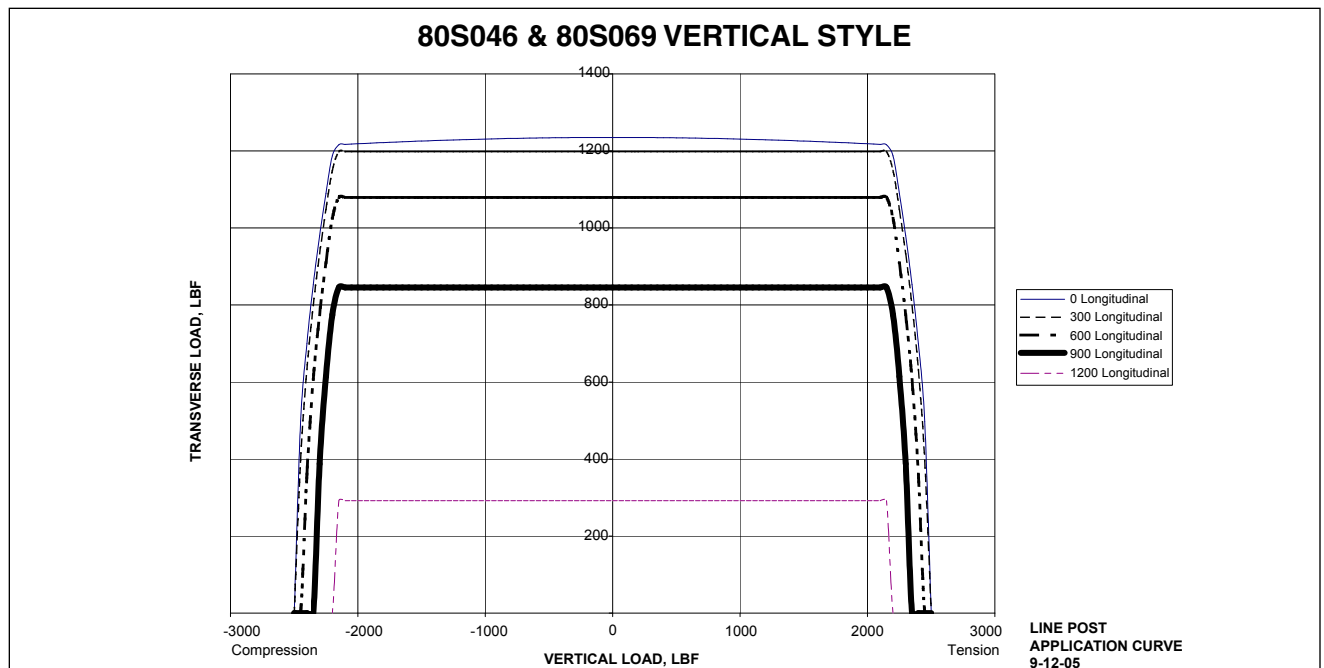
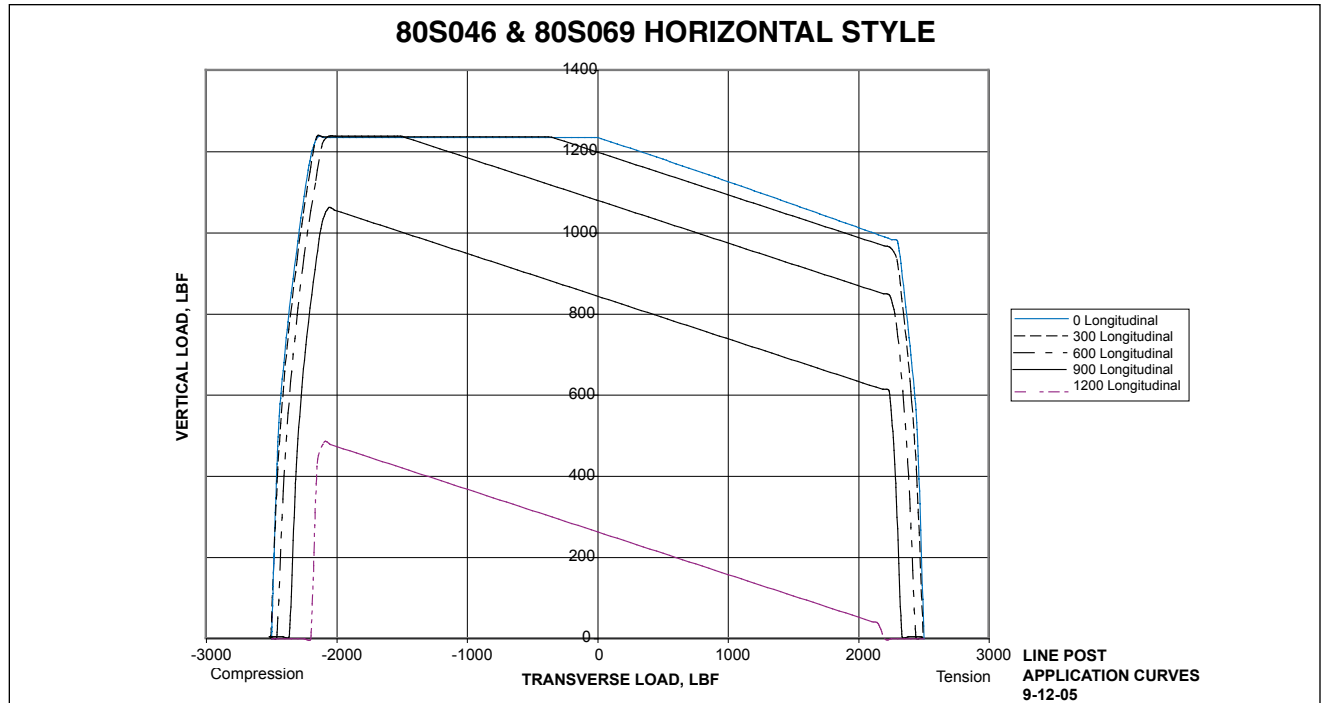
How to use the application curves. After you have established the loading cases, you can use the curves to determine whether a specific Veri*Lite unit meets your loading requirement.

For example, consider the installation of a Veri*Lite post number 80S069-0100 on a line with a vertical cantilever load of 800 pounds and a compression load of 900 pounds. By entering the curve at these values,

find the allowable longitudinal load to be 900 pounds.

When the posts are loaded in tension the cantilever loading due to the combined effects of longitudinal, vertical and tensile loads should not exceed the rated tension working value.

IMPORTANT: The application curves should not be extrapolated.

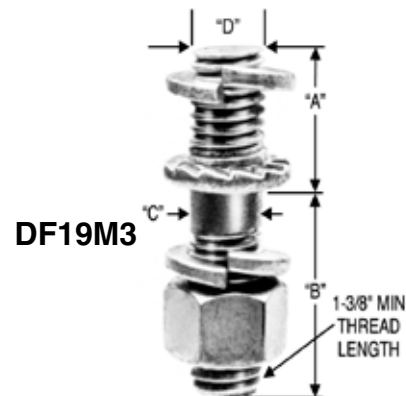


Maximum deflection for any of the post styles is approximately 1.75" at SCL.
Curves are shown using a 2.0 safety margin to SCL

Line Post Insulator Studs

DF19M Series

Serrated collar and lockwasher secure unit to line post insulator and prevent accidental disassembly. Cut threads above serrated collar, rolled threads below collar.

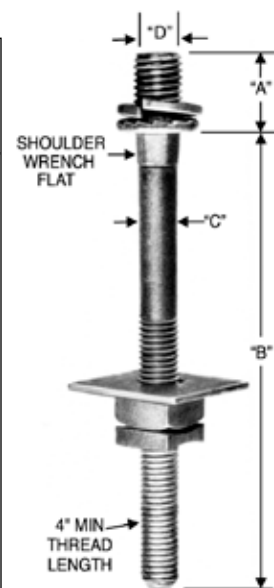


For Steel Crossarms

Catalog No.	Dimensions (in.)				Hardware Included	Standard Package	Weight 100 Pcs.
	"A"	"B"	"C"	"D"			
DF19M1	1-1/8	1-3/4	5/8	3/4	(1) reg. hexnut and (2) spring lockwashers	100 pcs.	43 lbs.
DF19M3	1-1/8	1-3/4	3/4	3/4	(1) reg. hexnut and (2) spring lockwashers	100 pcs.	54 lbs.
875833001	1-3/8	2	7/8	7/8	(1) reg. hexnut and (2) spring lockwashers	100 pcs.	85 lbs.

For Wood Crossarms

Catalog No.	Dimensions (in.)				Hardware Included	Std. Pkg.	Weight 100 Pcs.
	"A"	"B"	"C"	"D"			
DF19M2	1-1/8	7	5/8	3/4	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	50 pcs.	102 lbs.
DF19M4	1-1/8	7	3/4	3/4	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	40 pcs.	140 lbs.
DF19M19	1-1/8	10	5/8	3/4	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	25 pcs.	176 lbs.
DF19M20	1-1/8	12	5/8	3/4	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	25 pcs.	192 lbs.
*DF19M29	1-1/8	14	3/4	3/4	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	20 pcs.	234 lbs.
*DF19M32	1-1/8	24	3/4	3/4	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	15 pcs.	342 lbs.
875843001	1-3/8	8	7/8	7/8	(1) sq. nut, (1) sq. washer, (1) spring lockwasher, (1) MF locknut	50 pcs.	277 lbs.



*DF19M29 and DF19M32 include (1) additional double coil lockwasher.

Suspension Trunnion Bolted Aluminum Clamp Top Clamps

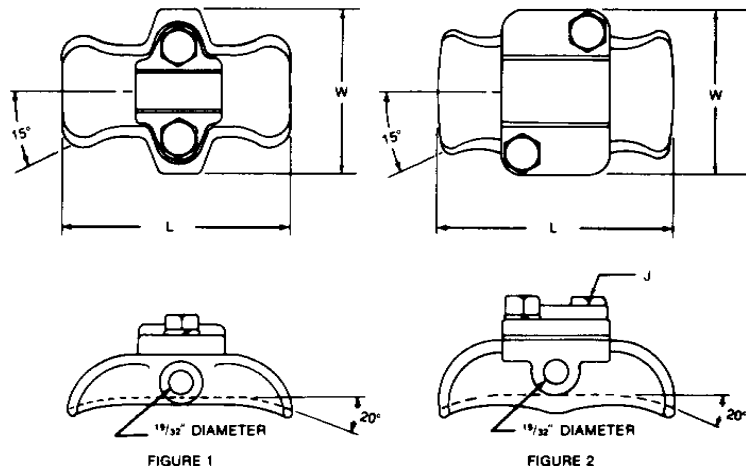


For standard voltage applications with all aluminum, ACSR or aluminum alloy conductor.

Designed for use on tangent suspension spans with horizontal or vertical post insulators.

Keeper is reversible for proper fit on different size conductors.

Material: Body and Keeper—356-T6 aluminum alloy
 Hardware—Galvanized steel
 Anti-static spring 302 stainless steel



Catalog Number	Former Catalog Number	Fig. No.	Clamping Range Inches (mm)	Ultimate Body Strength Lbs. (kN)	Dimensions Inches (mm)			Approx. Wt. Each Lbs. (kg)
					L	W	J	
TSC57	270660-3002	1	.25-.57 (6.3-14.4)	2,800 (12.46)	5-1/4 (133.3)	3-7/8 (98.4)	1/2 (12.7)	.42 (.19)
TSC86		1	.35-.86 (8.8-21.8)	2,800 (12.46)	5-1/4 (133.3)	3-7/8 (98.4)	1/2 (12.7)	.45 (.20)
TSC106	270661-3002	1	.50-1.06 (12.7-26.9)	2,800 (12.46)	5-1/4 (133.3)	3-7/8 (98.4)	1/2 (12.7)	.62 (.28)
TSC150	270662-3002	1	1.00-1.50 (25.4-38.1)	2,800 (12.46)	5-1/4 (133.3)	3-7/8 (98.4)	1/2 (12.7)	.64 (.29)
TSC200	270663-3002	2	1.50-2.00 (38.1-50.8)	2,800 (12.46)	5-1/4 (133.3)	3-7/8 (98.4)	1/2 (12.7)	.75 (.34)

- NOTES: (1) Recommended torque on bolts; 1/2" — 480 in. lbs.
 (2) Anti-static spring can be supplied by adding "ARIV" to catalog number. Example, TSC57ARIV.
 (3) Clamp top clamps can be mounted directly on Veri*Lite posts, if the posts are ordered with the horizontal or vertical clamp top option.

Bracket, Pole Top Insulator

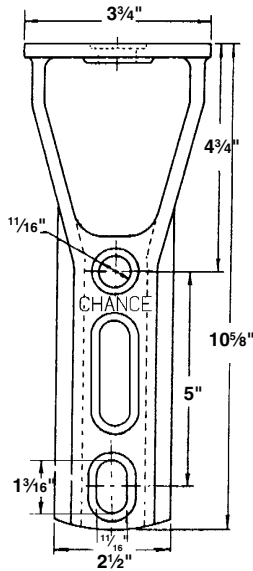
Mounts post or pin type insulator to top of pole. Variety of bolt hole locations for mounting to pole.

Catalog No.	Mounting Bolt Dia.	Insulator Bolt Dia.	Mtg. Bolt Spacing	Dist. From Insul. Base To Top Hole	Approx. Ship. Wt. Lbs. Per 100 Pcs.
IB2	5/8"	5/8" or 3/4"	4 3/4"	4 3/4"	360
IB3	3/4"	5/8" or 3/4"	5" or 8"	6 3/8"	600
†IB4	5/8"	5/8" or 3/4"	5" or 8"	5"	600
75114	3/4"	5/8" or 3/4"	6" or 8"	6"	1000

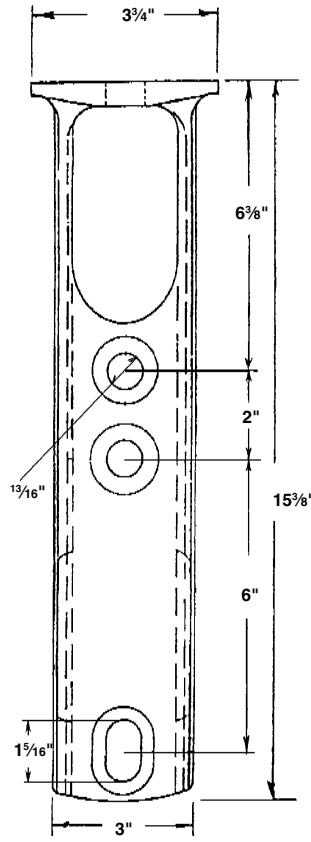
Ductile iron per ASTM A-536

Hot dipped galvanized per ASTM A-153

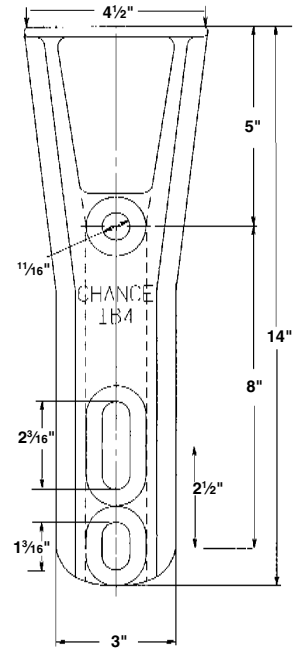
† RUS Listed



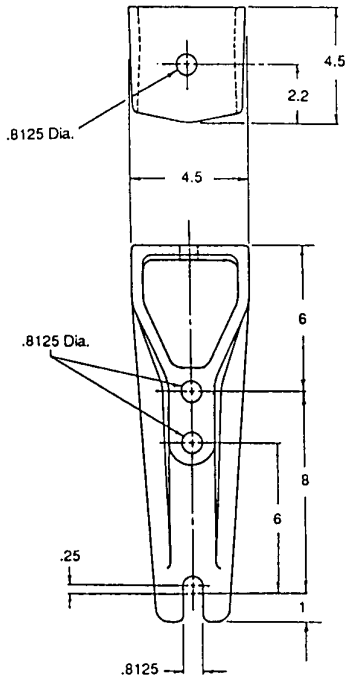
IB2



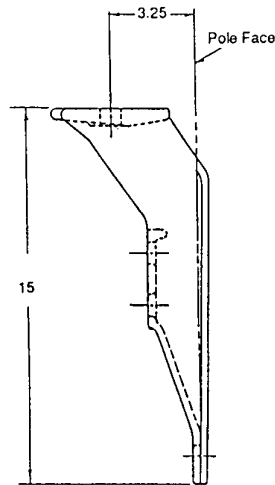
IB3



IB4



75114



Bracket, Horizontal Insulator

Use for mounting one or two insulator(s) to pole for armless construction.

Catalog No.	Mtg. Bolt Dia.	Max. Insul. Bolt Dia.	Mtg. Bolt Spacing	Insul. Angle Dim.	Space Between Insul. Bases	Approx. Ship. Wt.Lbs. Per 100 Pcs.
1IPTB	Two 5/8"	3/4"	5", 6"	5°	—	333
2IPTB	Two 5/8"	3/4"	4", 5"	—	14"	1025

Ductile iron per ASTM A-536
Hot dipped galvanized per ASTM A-153

1IPTB

2IPTB

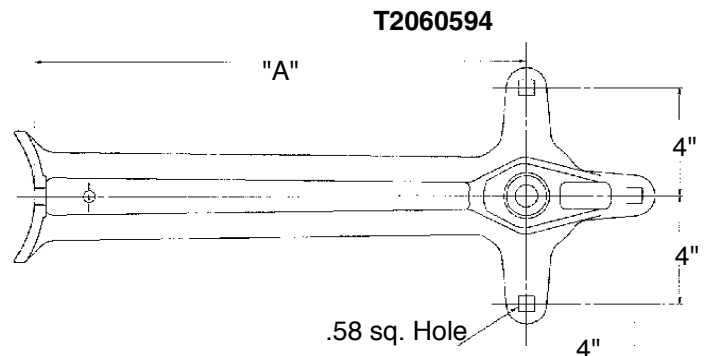
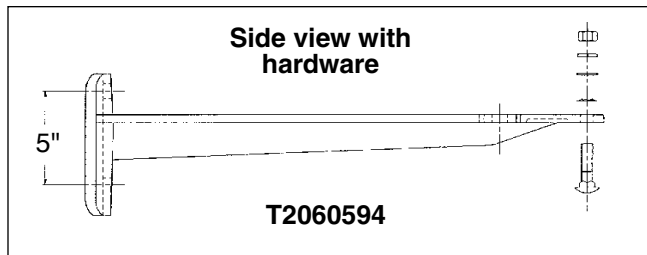
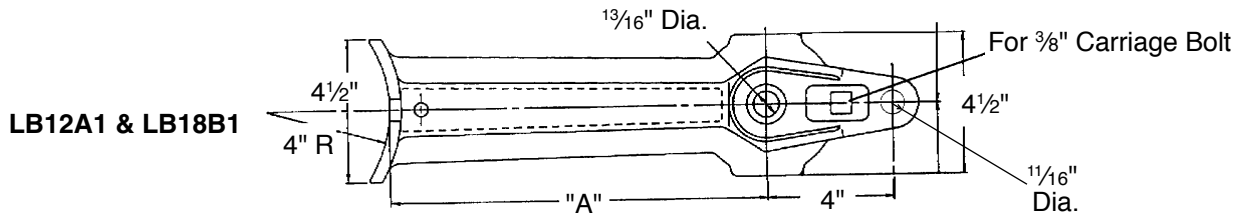
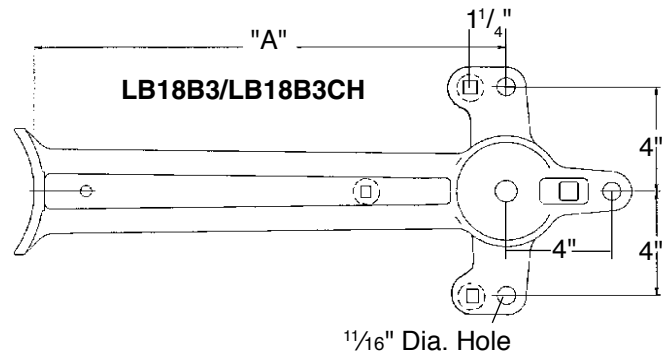

Bracket, Vertical Insulator

Use for mounting pin or post vertical insulators, cutouts, arresters, or cable terminators. Three-hole style can be used for in-line deadending using suspension insulators.

Catalog No.	Max. Insul. Mtg. Bolt Dia.	Max. Equip. Mtg. Bolt Dia.	Pole Mtg. Bolt Dia.	Pole Mtg. Bolt Spacing	Clearance Pole To Insul. Bolt "A"	Approx. Ship. Wt.Lbs. Per 100 Pcs.
LB12A1	3/4"	5/8"	Two 5/8"	5"	12"	860
LB18B1	3/4"	5/8"	Two 5/8"	5"	18"	1300
LB18B3	3/4"	5/8"	Two 5/8"	5"	18"	1400
*T2060594	3/4"	1/2"	Two 5/8"	5"	12"	86
**LB18B3CH	3/4"	5/8"	Two 5/8"	5"	18"	1400

Ductile iron per ASTM A-536
Hot dipped galvanized per ASTM A-153

- * T206-0594 has 3 captive 1/2" x 2" bolts and nuts included
- ** LB18B3CH has 2 captive 1/2" x 2" bolts and nuts included with LB18B3.



Bracket, Pole Top Insulator

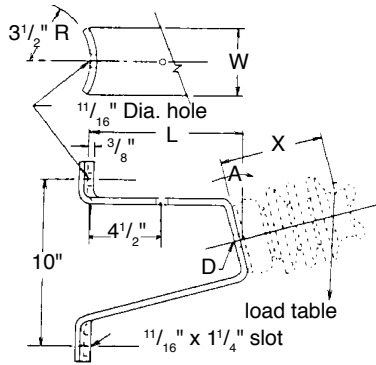


BRACKET, ANGLE CROSSARM

Mounts post insulators at 30° angle on crossarm for use on running corners.

Catalog No.	Crossarm Size	Mtg. Bolt Diameter	Stud Bolt Diameter	Approx. Ship Wt. Lbs. Per 100 Pcs.
1XAB	3 ³ / ₄ " x 4 ³ / ₄ " Max. and Round Crossarms	3/4"	3/4"	610

Ductile iron per ASTM A-536
 Hot dipped galvanized per ASTM A-153


C2060009

BRACKETS, POST INSULATOR Curved base

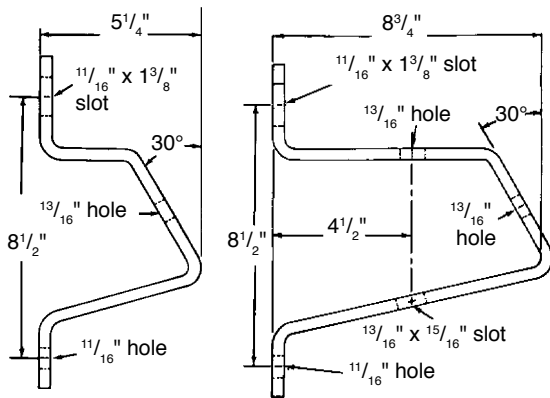
This bracket can be used for mounting distribution post-type insulators from 15 kV to 34.5 kV on the side of the pole. The base has a pole-shape back for convenient installation. Brackets can be placed in a phase-over-phase arrangement or can be mounted on opposite sides of the pole for "armless" construction.

Insulators not included.

Catalog Number	Dimensions In Inches			Angle A	Approx. Ship Wt. Lbs. Per 100 Pcs.
	L	D	W		
*C2060009	9 1/2	13/16	4	15°	1220
†*C2060010	12	13/16	4	15°	1669
C2060011	15	13/16	4	15°	2066

*These brackets have 13/16" stringing block holes.

†RUS listed


C2060162
C2060209

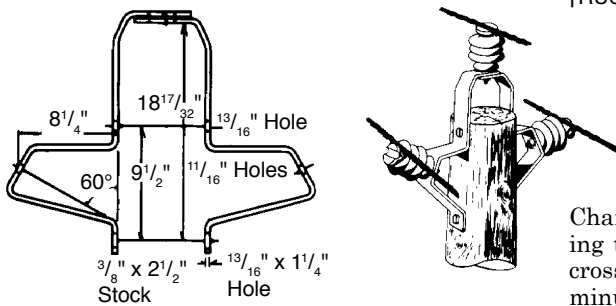
BRACKETS, POST INSULATOR Side Mounted

The bracket is formed of high-quality 3/8" x 2 1/2" bar steel and hot dip galvanized. It can be utilized to mount distribution post insulators from 15 kV to 34.5 kV.

Catalog Number		Pole Mounting	Insulator Stud	Approx. Ship Wt. Lbs. Per 100 Pcs.
13/16" Hole	1 1/16" Hole	Bolts Required	Bolts Required	
†*C2060209	16919	Two 5/8"	3/4"	650
C2060162		Two 5/8"	3/4"	440

*This bracket is designed to facilitate a stringing block.

†RUS listed


No. 9183

BRACKETS, POST INSULATOR Uni-Brackets

Chance Uni-Brackets are a clean-appearing, low-cost method of mounting three post-type insulators atop a pole completely eliminating the crossarm. The brackets can be installed on the pole in less than five minutes, requiring only two 3/4" bolts for attachment. Uni-Brackets fit poles having a pole-top diameter from 6" to 8 1/2". Slot on top is 1 1/16" x 2 1/4".

No. 9183 brackets can be adapted to a variety of distribution construction using post-type insulators from 15 through 34.5 kV.

Catalog Number	Insulator Stud Bolts Required	Approx. Ship Wt. Lbs. Per 100 Pcs.
†9183	5/8"	2100

†Includes both sections of bracket

SUPER TOP-TIE® Line Ties

• for Pin, Post and Spool Insulators

Made of aluminum-clad steel compatible with aluminum, aluminum-alloy and ACSR conductors in the top grooves of vertical-mounted *ANSI Class C, F, J and many non-standard pin and post insulators (single- or double-support) or on *ANSI 53-2 spool insulators (horizontal or vertical).

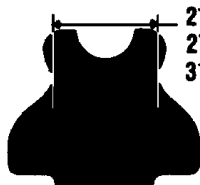
High-density polyethylene hooks provide the wide application range and ensure proper installation. If used over armor rods (not required), select tie size based on total conductor/armor diameter. Semiconductive-rubber pad and high-density-polyethylene on loops protect against abrasion of insulator, conductor and tie. Fit is resilient and provides superior performance under galloping and aeolian vibration. Install by hand or with hot-line tools.

Manufactured and/or for use under U.S. Patent 4,015,073.



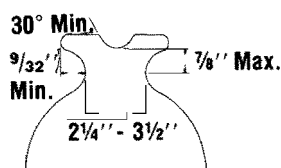
2¼" dia. (C)
2⅞" dia. (F)
3½" dia. (J)

**POST
INSULATOR**

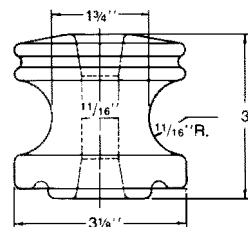


2¼" dia. (C)
2⅞" dia. (F)
3½" dia. (J)

**PIN
INSULATOR**



**NON-STANDARD
INSULATOR**



**ANSI 53-2
SPOOL**

*Super Top-Tie STT10 — STT130 also fit many foreign or reclaimed pin and post insulators with neck sizes 2¼" - 3½".
Consult Hubbell Power Systems, Inc. for use on pins and posts outside these dimensions.

ORDERING INFORMATION

Catalog Number	Aluminum-Type Conductors, Typical Sizes				Color Code	Std. Pkg.	Wt. Per 100, Lb.
	AAC (All-Aluminum)	AAAC (Alum.-Alloy)	ACSR	Diameter Range			
STT10	#6, 7W	#6, 7W	#6, 6/1	.184-.220" (4.67-5.59 mm)	None	50	28
STT20	#4, 7W	#4, 7W	#4, 6/1	.221-.257" (5.61-6.53 mm)	Orange	50	28
STT30	#3, 7W	#3, 7W	#3, 6/1	.258-.289" (6.55-7.34 mm)	Purple	50	28
STT40	#2, 7W	#2, 7W	#2, 6/1	.290-.325" (7.37-8.26 mm)	Red	50	28
STT50	#1, 7W	#1, 7W	#1, 6/1	.326-.360" (8.28-9.14 mm)	Gray	50	28
STT60	1/0, 7W	1/0, 7W	1/0, 6/1	.361-.409" (9.17-10.39 mm)	Yellow	50	32
STT70	2/0, 7W	2/0, 7W	2/0, 6/1	.410-.460" (10.41-11.68 mm)	Blue	50	32
STT80	3/0, 7W	3/0, 7W	3/0, 6/1	.461-.516" (11.71-13.11 mm)	Black	50	32
STT90	4/0, 7W	4/0, 7W	4/0, 6/1	.517-.584" (13.13-14.83 mm)	Pink	50	32
STT100	266.8, 19W	266.8, 19W	266.8, 18/1	.585-.664" (14.86-16.87 mm)	Green	50	32
STT110	336.4, 19W	336.4, 19W	336.4, 18/1	.665-.755" (16.89-19.18 mm)	Brown	50	40
STT120	477, 19W	477, 19W	477, 18/1	.756-.859" (19.20-21.82 mm)	Violet	50	40
STT130	636, 37W	556.5, 19W	556.5, 18/1	.860-.977" (21.84-24.82 mm)	Gold	50	40

LEFT-HAND LAY STANDARD

- Applied Length: 29" - 48" (Depends on insulator make and conductor size).
- Strength: Exceeds Rule 261E.2(A) of National Electrical Safety Code.
- REA accepted.
- To obtain outside diameters of conductors, consult Conductor Chart.