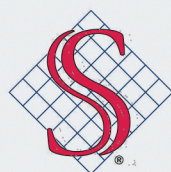




Composite Transmission and Distribution Products

- Lewtex® Tangent and Dead End Crossarms
- H-Frame Crossarms
- Sidearm and X-Braces
- Knee and Vee-braces
- Composite Buss and Switch Supports
- Tuff-Top Pole Extensions



Shakespeare

A valmont  BRAND

Lewtex® Composite Crossarms



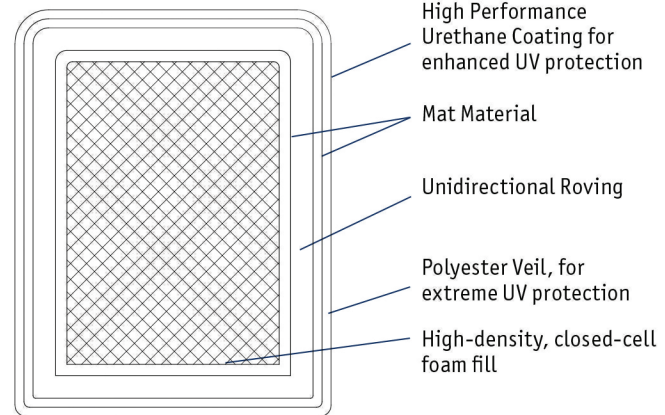
- For composite, concrete, metal, or wood poles
- Normal installation: no special equipment needed
- Environmentally safe—no chemical preservatives
- UV protection enhanced with inhibitor-laden resins, polyester veil, and sophisticated urethane coatings
- Will not rot or splinter, strength factors do not change
- Impervious to insects, woodpeckers, and weather
- Tight, computer-assisted manufacturing tolerances
- Can be pre-drilled at factory
- Extensive UV exposure testing, advanced Tangent Eccentric Load system testing, as well as industry-standard beam tests

Shakespeare's Lewtex composite crossarms bring proven strength and durability to your most demanding applications. Our extensive testing program includes industry-standard beam testing, as well as extended UV testing. Our tangent crossarms also undergo advanced, Tangent Eccentric Load testing. These tests result in data that are valid for the whole system, including the mounting hardware and the brackets, not just the crossarm. This testing is a far better indicator of real-world performance.



8' braceless
10,000# Dead End
assembly, 373' of
795 AAC

Lewtex Composite Structure



795 ACSR under build project.



477 ACSR under build project, 14' Lewtex arms





Frequently Asked Questions

Q How are the crossarms protected from ultraviolet light?

A Three ways: Ultraviolet inhibitors are formulated into the resin during manufacture. The crossarm's outer shell is covered with a polyester veil that provides a resin-rich surface to control blooming. And the finished product is coated with a UV-protective urethane coating that provides excellent UV resistance. Product performance is verified by extensive accelerated testing.

Q Can the crossarm be drilled in the field?

A Yes. Drill a few holes with standard tools—brace and bit, etc. For many holes, an electric or hydraulic drill with a carbide tip is suggested.

Q Does the core absorb water?

A No. NETRACC (SEI) electrical testing verifies that water will not permeate the closed cell foam.

Q Can ground wires be attached to the crossarm?

A Yes. Ground wires may be attached with clips using #10 sheet metal or self-tapping screws. The clips are available from many suppliers.

Q What is the expected life of the crossarm?

A Experience and accelerated testing show a minimum life of 40 years, after which the product may show some visual effects of aging but retain a very high percentage of its strength.

Q What special hardware is needed?

A None. The Lewtex® crossarm was designed to be used with existing inventories of hardware without any modifications.

Q What strength values can be expected?

A The standard crossarm will give the same minimum strength values as a wooden crossarm of the same dimensions. During load testing the Lewtex® composite crossarm outperformed a Douglas Fir crossarm.

Q What lengths and colors are available?

A Length is limited only by shipping practicalities, and the crossarms are available in a palette of three standard colors. Any color can be matched. Gray is standard.

Q What is the effect of continued flexing on the crossarm?

A Tests have not been able to produce a fatigue failure in composite utility products. This is one of the strengths of composites, hence their use in bridges, helicopter rotors, and gratings—applications where resistance to repeated flexing is critical.

Q How do temperature extremes affect the composite crossarm?

A Fiberglass reinforced composites have been used successfully in industrial applications requiring wide temperature variations. The material's smooth, strong surface provides no place for thawing ice to invade. Indeed, composites get stronger in cold weather.

Q After field drilling, is there hydrolizing of exposed edges?

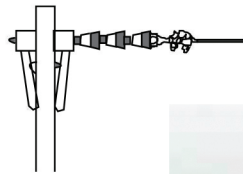
A Published technical data show that significant hydrolizing occurs only when the exposed edge is submerged. Natural exposure to environmental conditions has only minimal effect on the laminate.



Typical Dead End

Bill of Materials

- Crossarm, 8' Dbl arm Deadend
- 2 Bolt, Mach., Galv. 1/2" x 7"
- 1 Bolt, Mach., Galv. 5/8" x 10"
- 3 Bolt, Dbl. Arm Galv. 1/2" x 24"
- 4 Brace, Apitong, 36"
- 4 Nut, Lock, Galv. 1/2"
- 11 Nut, Lock, Galv. 5/8"
- 2 Nut, Oval Eye, 5/8" x 1 1/2"
- 4 Washer, Lock, Galv. Dbl. Cl Spring 1/2"
- 11 Washer, Lock, Galv. Dbl. Cl Spring 5/8"
- 8 Washer, Round, 1/2"
- 12 Washer, Square, 11/16" hole, 2 1/4" x 2"
- 2 XARM, 5x5x8FT Drilled for Distribution



Ult. Load:
5,000 lbs.

64 Items, total, to assemble and install

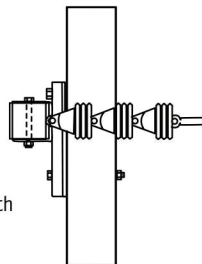
Material cost (64 pieces)	\$ 202.50
1.8 Hrs Labor/truck/overhead (@ 55.00/hr.)	135.00
TOTAL	\$ 337.50



Lewtex® Composite Dead End

Bill of Materials

- Crossarm #HDB096G12242 Dead End Arm with Center Mount Bracket
- 2 Bolts, Mach., Galv., 5/8"
- 2 Washer, Square, 11/16" hole, 2 1/4" x 2"
- 2 Nut, 5/8"
- 2 Washer, Lock, 5/8"



Ult. Load:
10,000 lbs.

9 Items, total, to install

Material cost (9 pieces)	\$ 200.00
0.5 Hrs Labor/truck/overhead (@ 55.00/hr.)	37.50
TOTAL	\$ 237.50

Conclusion: The Lewtex® crossarm saves \$100.00 in installation cost.

Tangent Crossarms 3½x4½

Standard Tangent - Brace Type

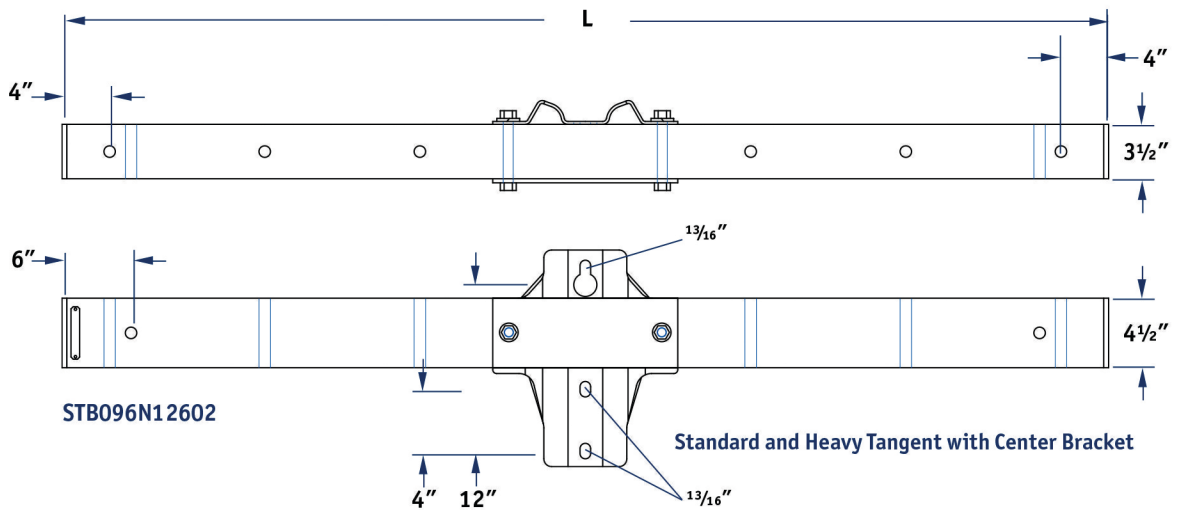
Catalog Number	Length (in.) ("L")	No. of Wire Positions	Dimensions (In.)	Weight (Lbs.)	Beam Strength Ultimate Load per Side (Lbs.)
STN096N00402REA	96	4	3½x4½	24	5,000
STN096N00602REA	96	4	3½x4½	24	5,000
STN120N00602REA	120	6	3½x4½	29	4,000

Heavy Tangent - Brace Type

Catalog Number	Length (in.) ("L")	No. of Wire Positions	Dimensions (In.)	Weight (Lbs.)	Beam Strength Ultimate Load per Side (Lbs.)
HTN096N00402REA	96	4	3½x4½	39	10,000
HTN096N00602REA	96	4	3½x4½	39	10,000
HTN120N00602REA	120	6	3½x4½	49	9,400



Lewtex® Crossarms being installed on a Shakespeare Composite Structures Tuff-Pole®



Standard Tangent - with Center Bracket

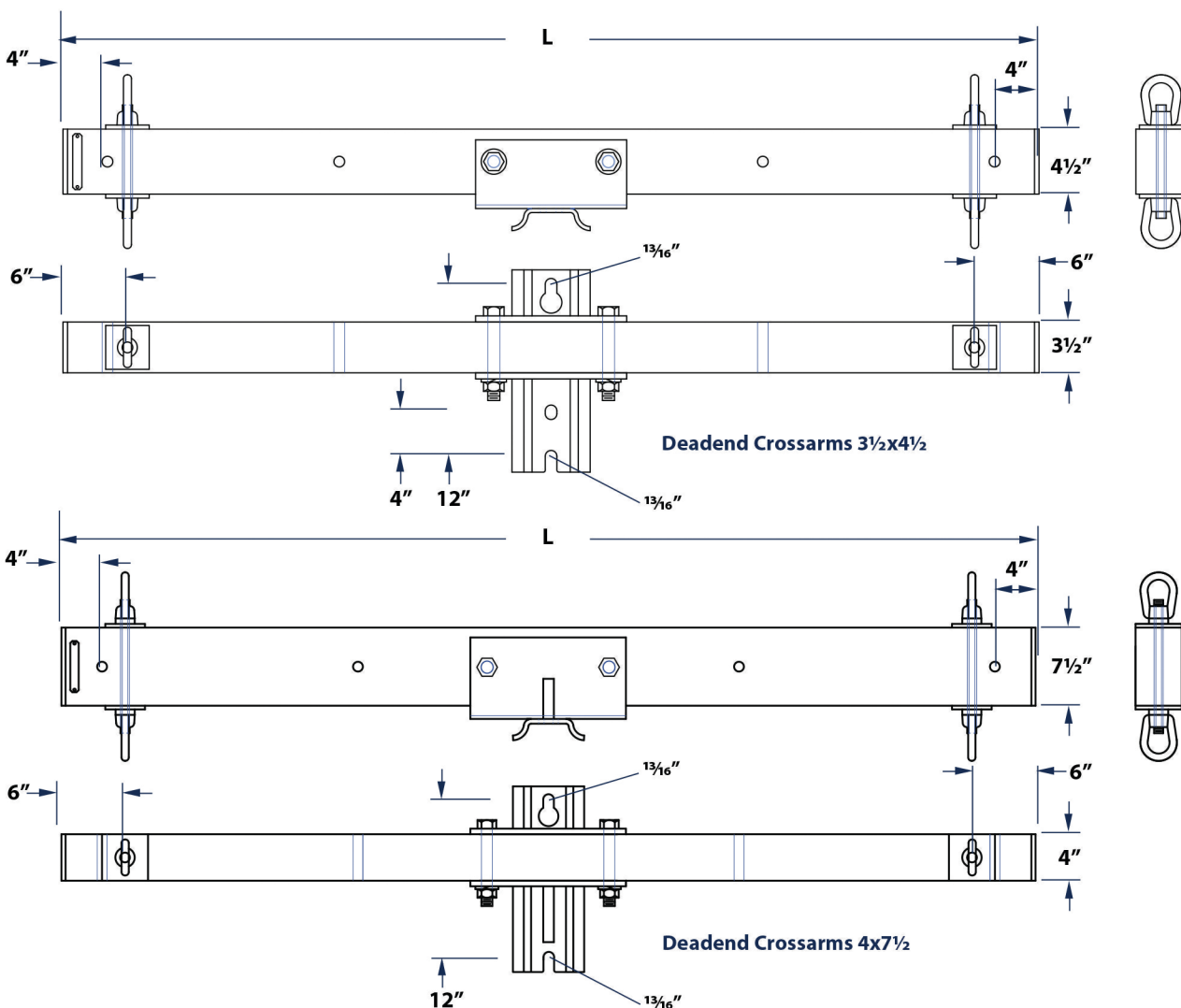
Catalog Number	Length (in.) ("L")	No. of Wire Positions	Dimensions (In.)	Weight (Lbs.)	Beam Strength Ultimate Load per Side (Lbs.)	Assembly Strength (Lbs.)
STB096N12602	96	6	3½x4½	38	5,000	4,000
STB120N12602	120	6	3½x4½	43	4,150	3,000
STB144N12402	144	4	3½x4½	49	3,150	2,400

Heavy Tangent - with Center Bracket

Catalog Number	Length (in.) ("L")	No. of Wire Positions	Dimensions (In.)	Weight (Lbs.)	Beam Strength Ultimate Load per Side (Lbs.)	Assembly Strength (Lbs.)
HTB096N12602	96	6	3½x4½	53	10,000	6,800
HTB120N12602	120	6	3½x4½	63	9,400	6,450
HTB144N12402	144	4	3½x4½	73	7,500	5,000



Deadend Crossarm Assemblies

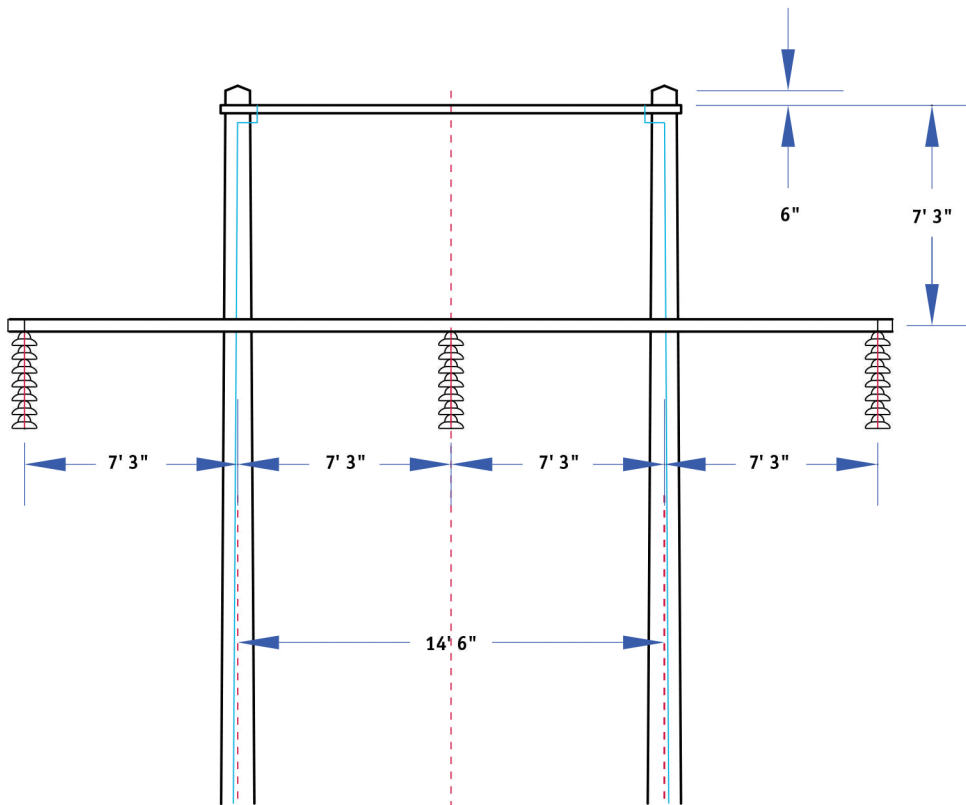


Deadend Crossarm Assemblies

Base Catalog Number	Length (in.) ("L")	No. of Wire Positions	Dimensions (In.)	Weight (Lbs.)	Ultimate Load per Wire Position (Lbs.)
HDB063	63	2	3½x4½	41	10,000 @ 2 positions
HDB096	96	2	3½x4½	56	10,000 @ 2 positions
HDB120	120	2	3½x4½	66	9,400 @ 2 positions
IDB096	96	2	4"x6"	65	14,250 @ 2 positions
IDB120	120	2	4"x6"	78	11,500 @ 2 positions
XDB096	96	2	4"x7½"	85	18,000 @ 2 positions
XDB120	120	2	4"x7½"	95	18,000 @ 2 positions
XDB144	144	2	4"x7½"	130	14,250 @ 2 positions



H-Frame Crossarms 4x7½



H-Frame Crossarms

H-Frame Crossarm Assemblies

Catalog Number	Length (in.) ("L")	Dimensions	Weight (lbs.)	Max. Load per Phase (Lbs.)
XHN264N00302	264	4x7½	176	6,000
XHN297N00302	297	4x7½	198	5,000
XHN360N00302	360	4x7½	240	4,200
XHN384N00302	384	4x7½	256	3,800



HOW TO ORDER



Lewtex® Crossarms Ordering Template and Options

Profile: S=3.5"x4.5" STD H=3.5"x4.5" HVY T=3.5"x4.5" EX HVY I=4"x6" X=4"x7.5"	X	D	B	096	G	12	2	4	2	123	Special Drill Pattern or Special Requirements: (Unique designation assigned at factory). Example: 123
Application: T=Tangent D=Deadend B=Double Arm Deadend H=H-Frame Z=Other				Guy Attachment: G=Double Guy N=None				Number of Attachments: Examples: 2=2 4=4 6=6 8=8 A=10 B=11 C=12 D=13 E=14 F=15 G=16 (etc.)	Color: 2=Gray 5=Dark Bronze		
Mounting Hardware: B=Standard Bracket Assy N=None Z=Special Mounting Hdw				Gain Hole Spacing: 08=8"* 10=10"* 12=12" ZZ=Other (contact factory) *Guy Attachment not available with less than 12" spacing							
				Length in Inches: Examples: 036=3' 054=4'6" 072=6' 096=8' 120=10' 144=12'				Wire Positions: 2=2 4=4 6=6			

Test Data Summary

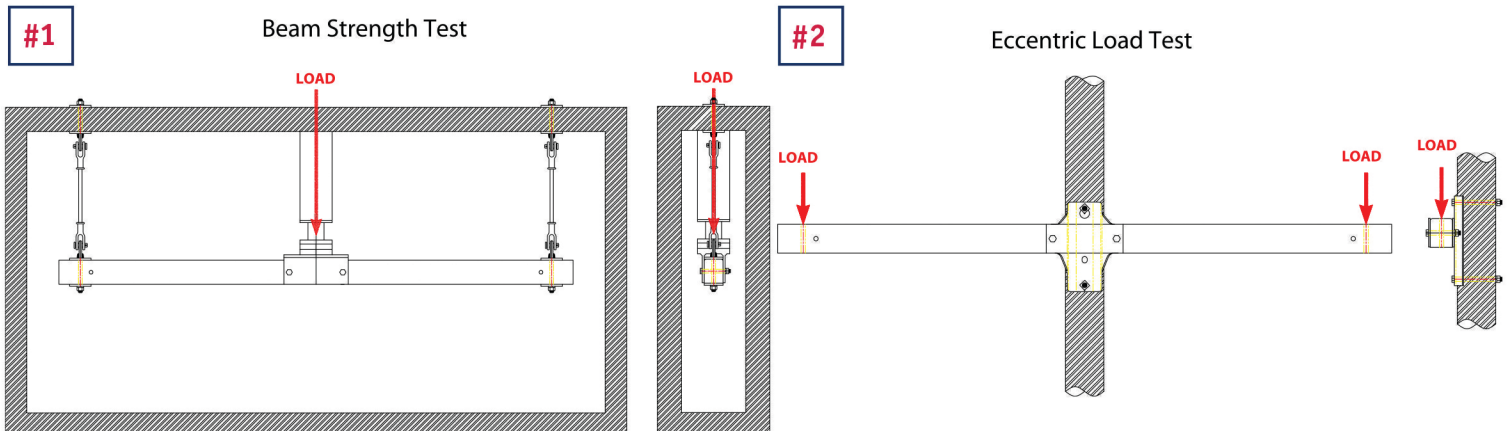
CROSSARM LOAD INFORMATION

Tangent Arms	Length	Wire Positions	Ultimate Load		Deflection per 1K per Position
			Test Procedure #2 Tangent Assembly Vertical Load	Test Procedure #1 Beam Strength Vertical Load	
S-Series 3 1/2" x 4 1/2"	8'	2	4000	5000	.73"
	10'	2	3000	4150	1.54"
	12'	2	2400	3150	2.78"
H-Series 3 1/2" x 4 1/2"	8'	2	6800	10000	.39"
	10'	2	6450	9400	.65"
	12'	2	5000	7500	1.19"
Deadend Arms				Deadend Assembly Horizontal Load	Deflection per 1K per Position
H-Series 3 1/2" x 4 1/2"	5'	2		10000	0.13
	8'	2		10000	0.39
		4		8000	0.48
	10'	2		9400	0.65
		4		6500	0.93
	12'	2		7500	1.19
T-Series 3 1/2" x 4 1/2"		4		5400	1.64
	8'	2		14700	0.36
		4		11500	0.50
	10'	2		12250	0.60
		4		8400	0.90
	12'	2		9800	1.15
I-Series 4" x 6"		4		7100	1.59
	8'	2		14250	0.26
		4		12000	0.31
	10'	2		11500	0.44
		4		7900	0.64
	12'	2		9400	0.79
X-Series 4" x 7 1/2"		4		6800	1.09
	8'	2		18000	0.18
		4		15000	0.22
	10'	2		18000	0.28
		4		12000	0.42
	12'	2		14250	0.53
	4		10000	0.73	

Primary Axis Loading



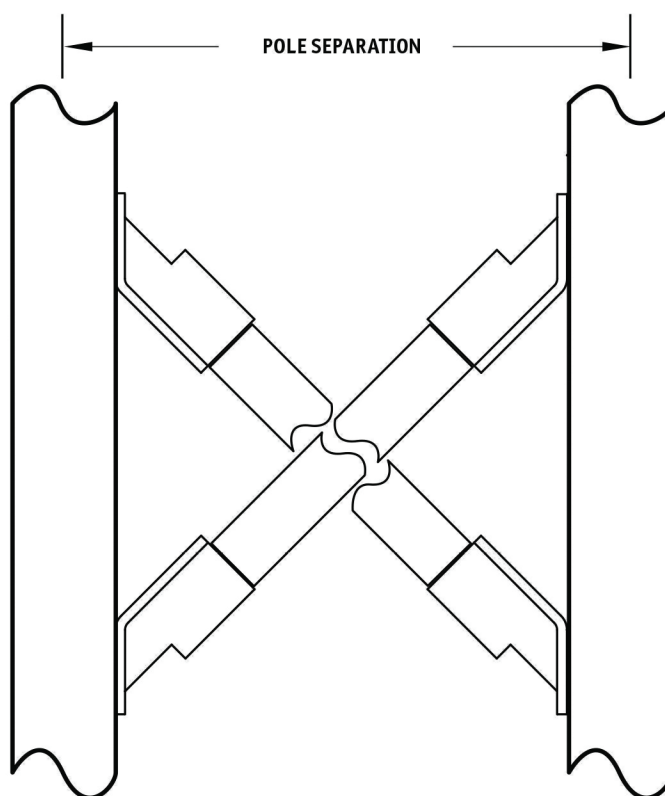
Lewtex Crossarms Testing





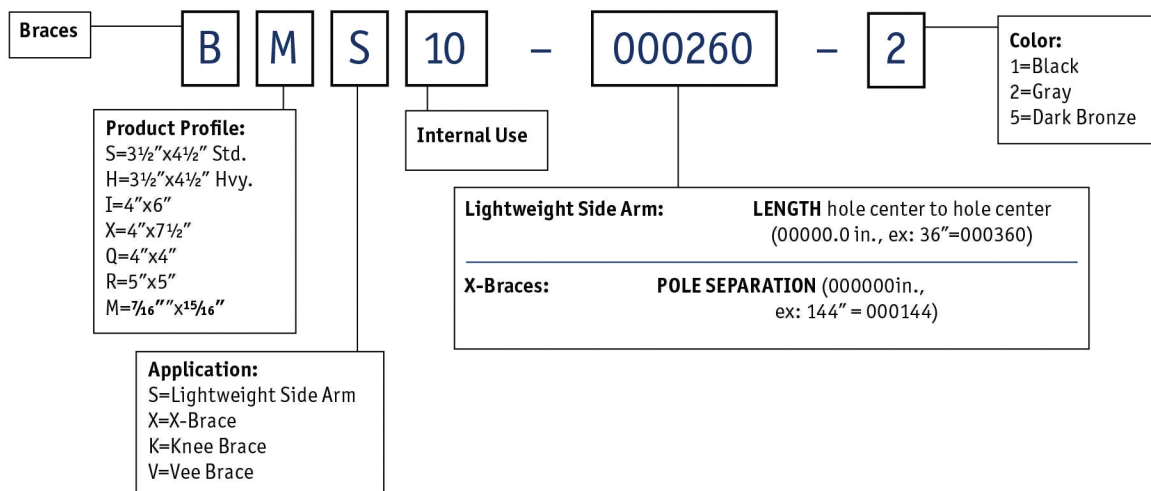
X-Braces

Catalog Number	POLE SPACING (in.)	Profile Dimensions
BSX10-000144-2	144	3½" x 4½"
BHX10-000144-2	144	3½" x 4½"
BIX10-000144-2	144	4" x 6"
BXX10-000144-2	144	4" x 7½"

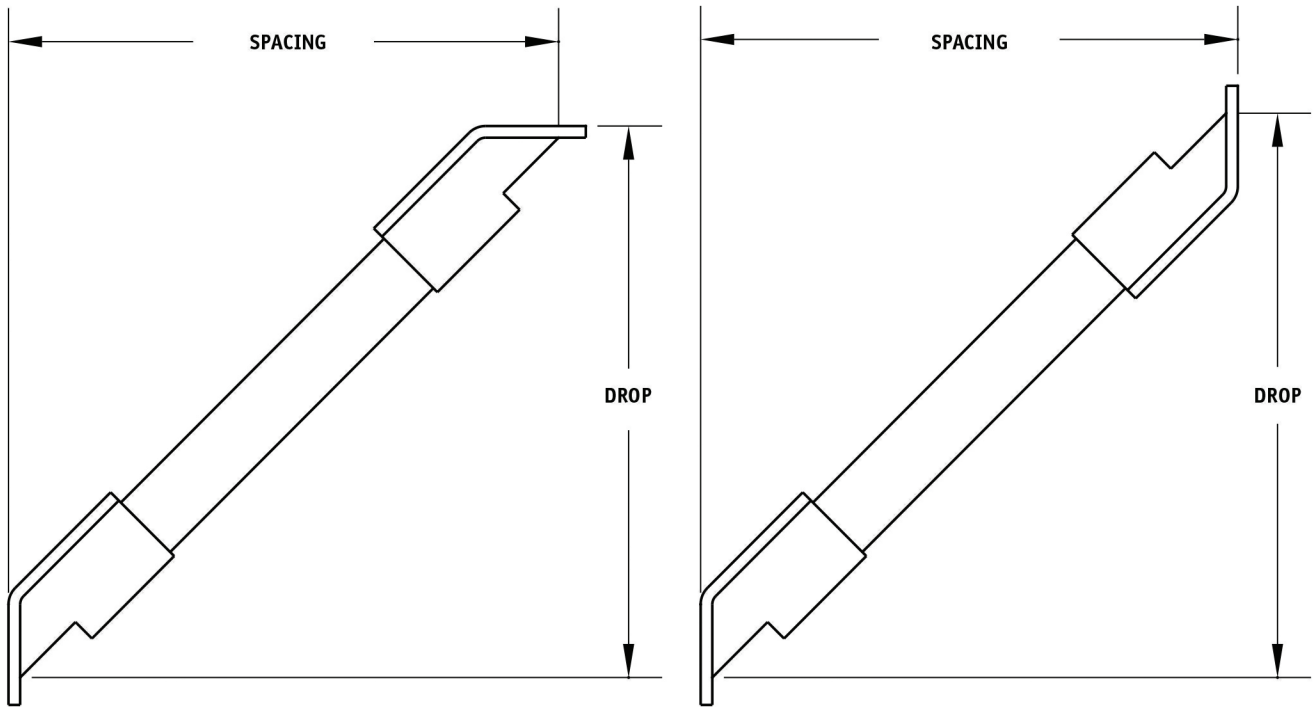


X-BRACES

Composite Sidearm Braces and X-Braces



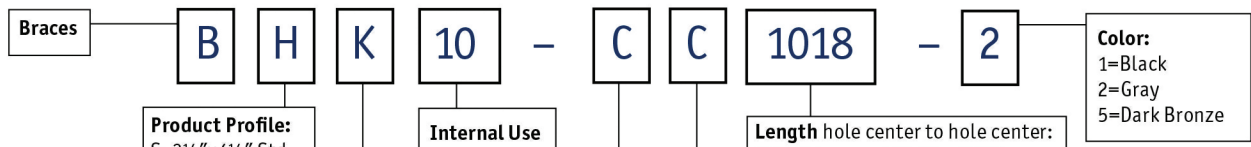
Composite Knee and Vee Braces



KNEE BRACES

VEE BRACES

Composite Knee and Vee Braces



Product Profile:
 S=3½" x 4½" Std.
 H=3½" x 4½" Hvy.
 I=4" x 6"
 X=4" x 7½"
 Q=4" x 4"
 R=5" x 5"
 M=7/16" x 15/16"

Internal Use

Length hole center to hole center:
 (000.0 in., ex: 101.8" = 1018)

Application:
 K=Knee Brace
 V=Vee Brace

1st End Fitting
 (from series chart)

2nd End Fitting
 (from series chart)

End Fitting Series Chart		
	Fitting Angle	Mounting Hole Size
A	30°	13/16"
B	37°	13/16"
C	45°	13/16"
D	52°	13/16"
E	60°	13/16"



Shakespeare

A **valmont**  BRAND

19845 U.S. Highway 76 · Newberry, SC 29108 · 803.276.5504 · 800.800.9008 · F/803.276.8940
www.skp-cs.com