

1. Scope

This specification applies to pultruded fiberglass tangent crossarms for mounting on round or flat electrical power poles and supporting energized electrical distribution conductors.

2. Reference Standards

Unless otherwise stated in this specification, the conductors shall comply with the latest revisions of the following standards:

ASTM A36 Standard Specification for Carbon Structural Steel

ASTM A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM A220 Standard Specification for Pearlitic Malleable Iron

ASTM D578 Standard Specification for Glass Fiber Strands

ASTM D4364 Standard Practice for Performing Outdoor Accelerated Weathering Tests of Plastics Using Concentrated Sunlight

ASTM D7745 Standard Practice for Testing Pultruded Composites

ASTM D8019 Standard Test Methods for Determining the Full Section Flexural Modulus and Bending Strength of Fiber Reinforced Polymer Crossarms Assembled with Center Mount Brackets

ASTM F2329 Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

ASTM G90 Standard Practice for Performing Accelerated Outdoor Weathering of Nonmetallic Materials Using Concentrated Natural Sunlight

ASTM G154 Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

3. Physical Characteristics

Tangent fiberglass crossarms and mounting brackets shall be drilled and dimensioned per the following drawings:

Figure 1: 7' 2-Pin Fiberglass Crossarm - Material ID 5003130

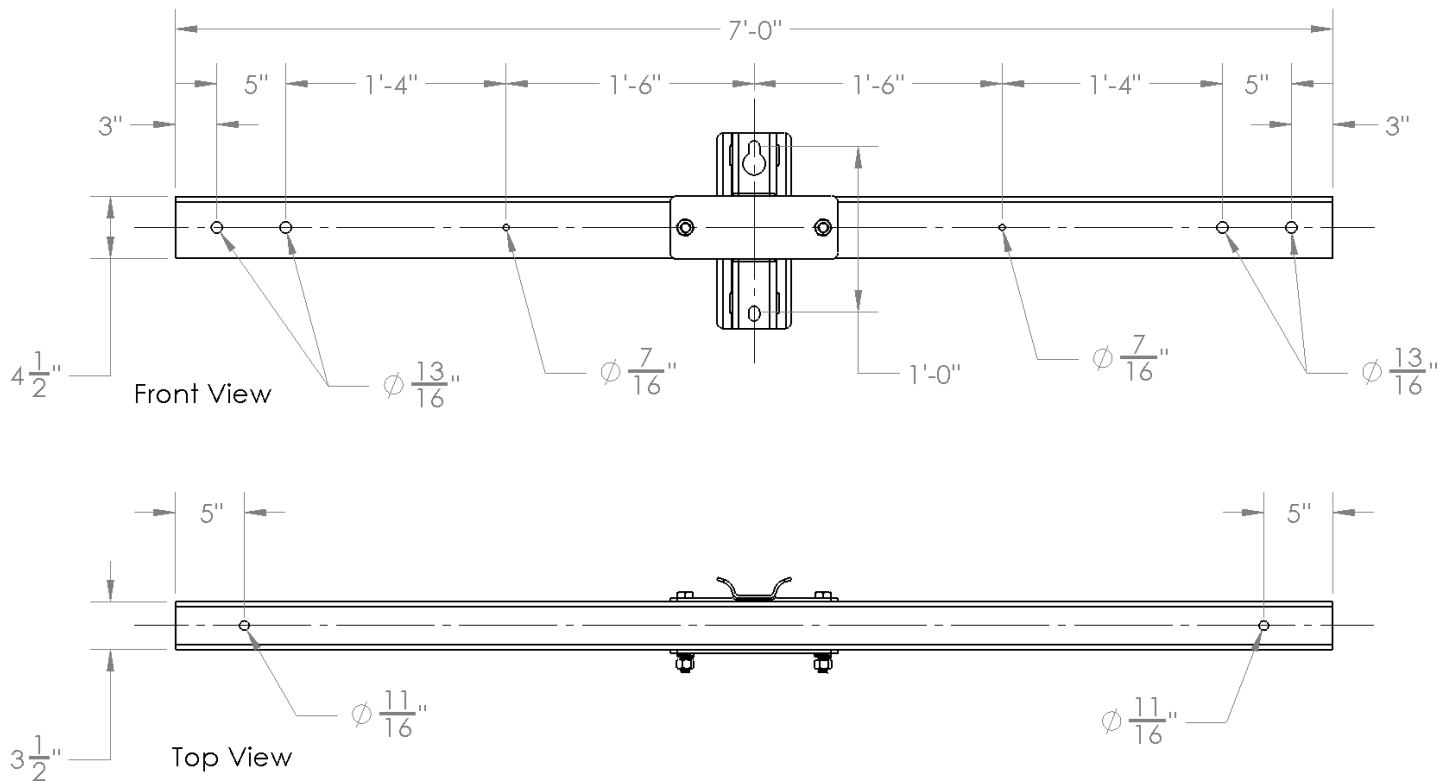


Figure 2: 10' 4-Pin Fiberglass Crossarm - Material ID 872657

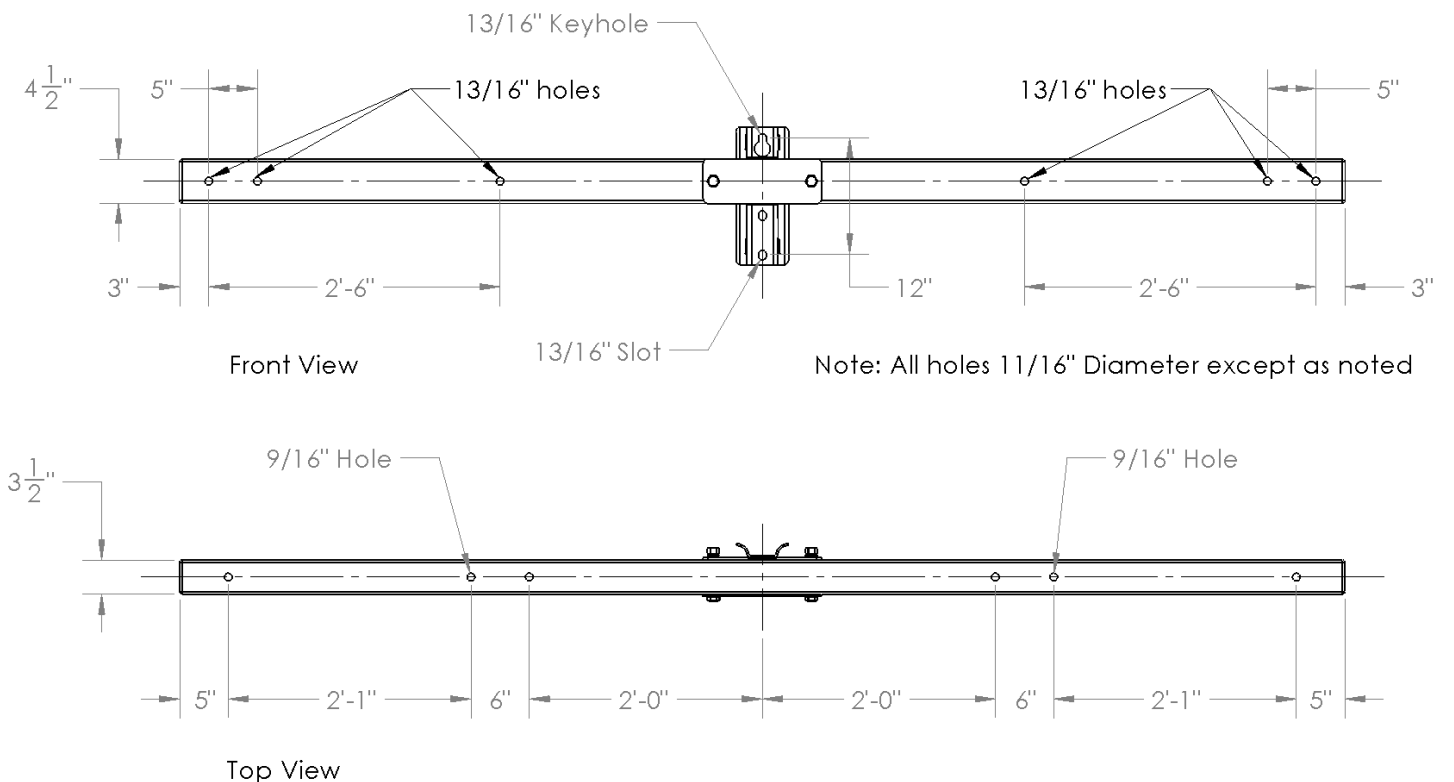
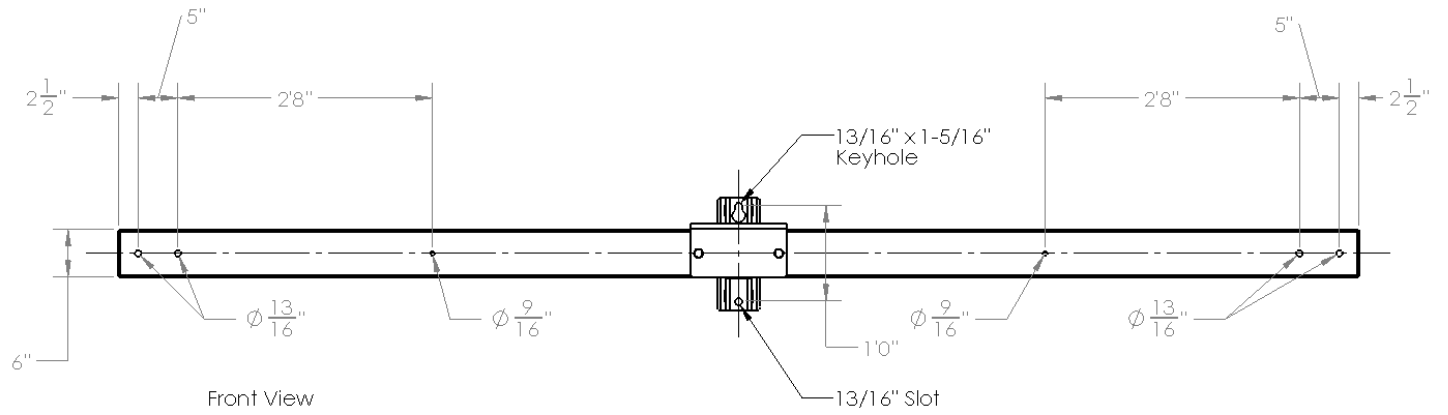


Figure 3: 13' 6-Pin Fiberglass Crossarm - Material ID 872665



Note: All holes $1\frac{1}{16}$ inch diameter except as noted

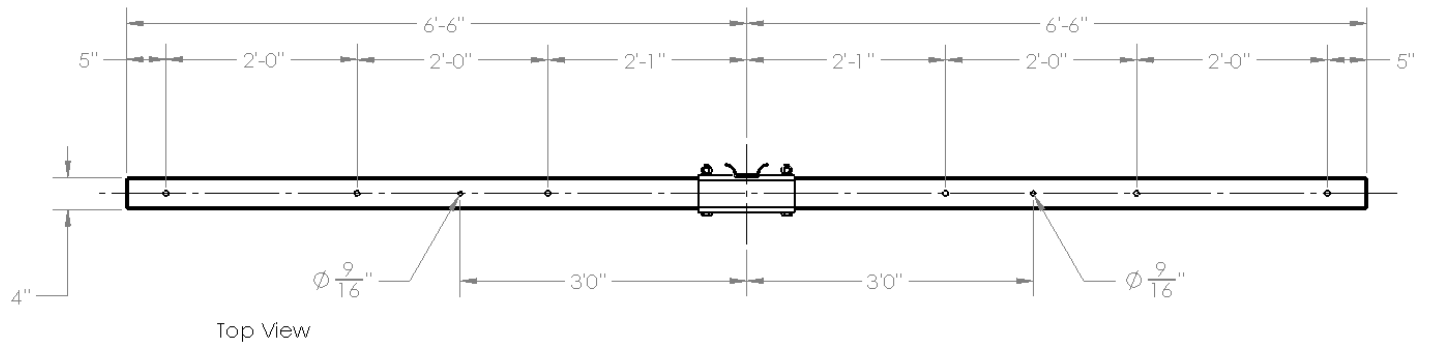


Figure 4: 15' 6-Pin Fiberglass Crossarm - Material ID 1002155

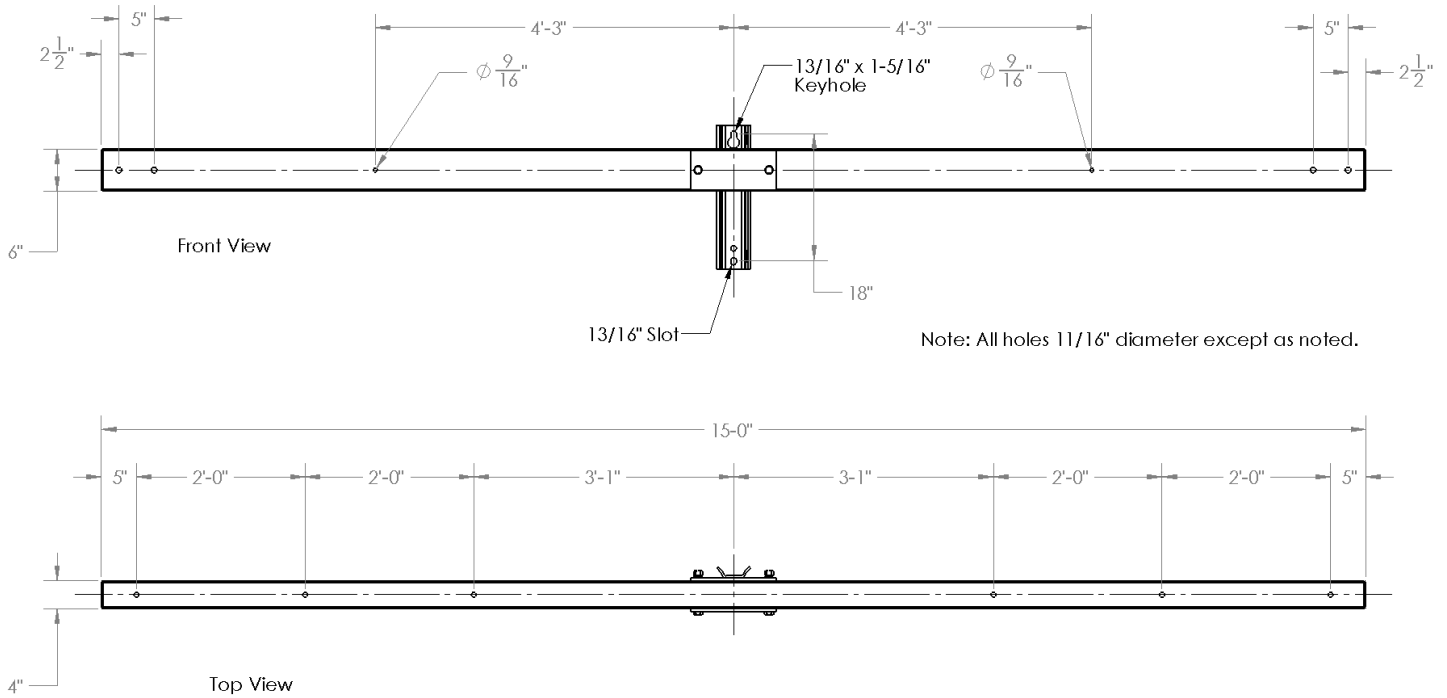


Figure 5: 18' Fiberglass Crossarm - Material ID 1001414

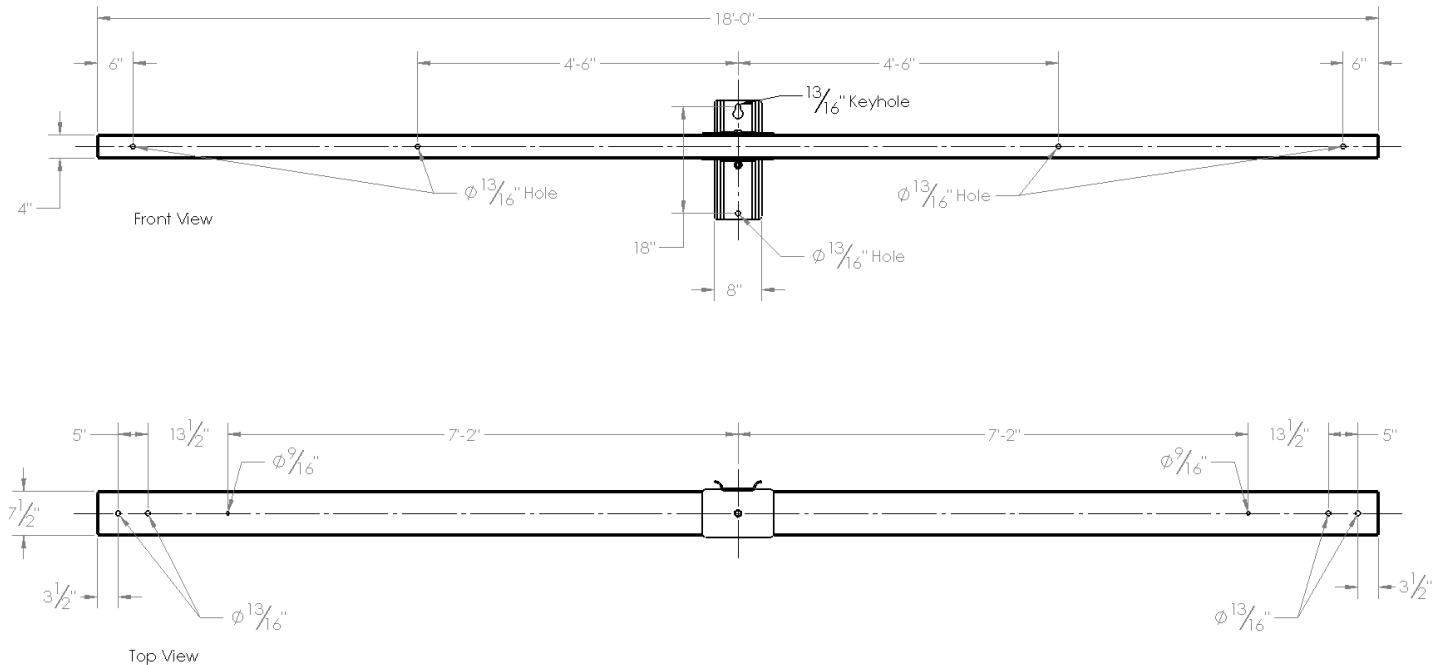


Figure 6: 26' Fiberglass H-Frame Crossarm - Material ID 1000960

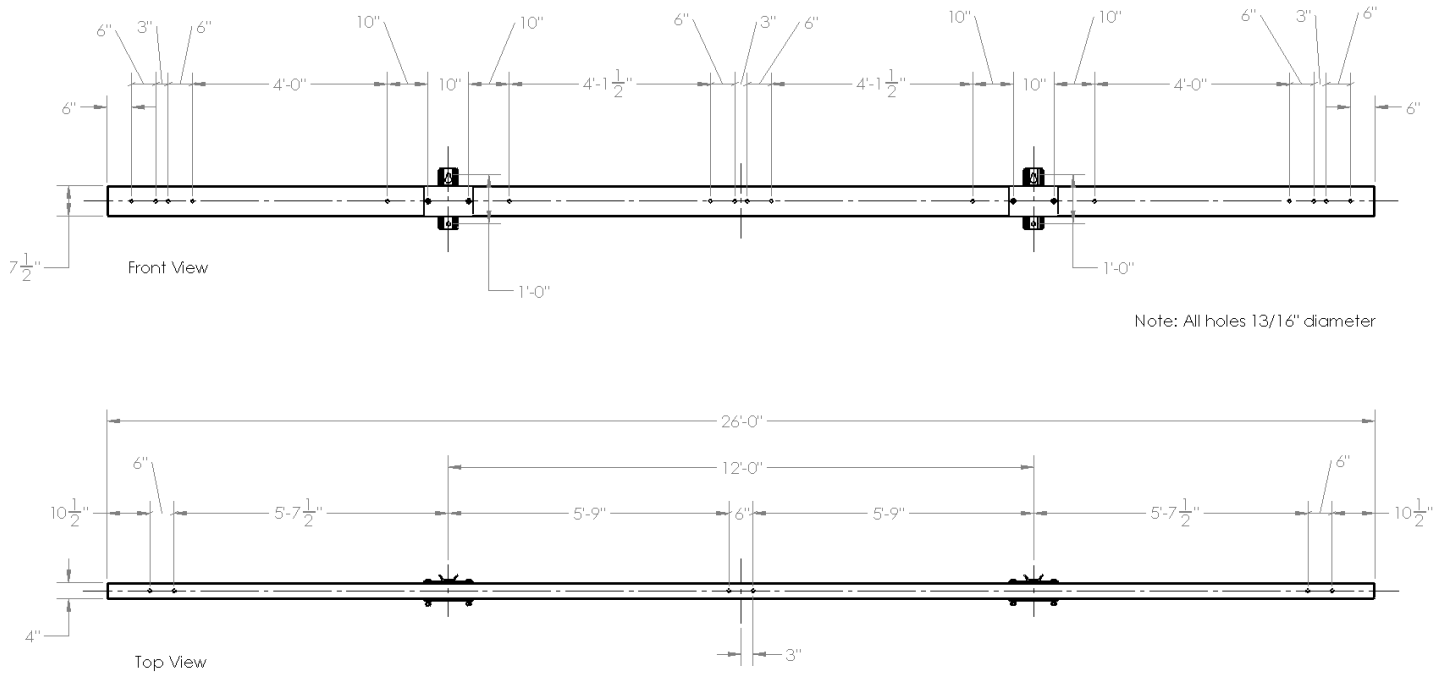


Figure 7: 30'x7.5"x4.0" Fiberglass H-Frame Crossarm - Material ID 873605

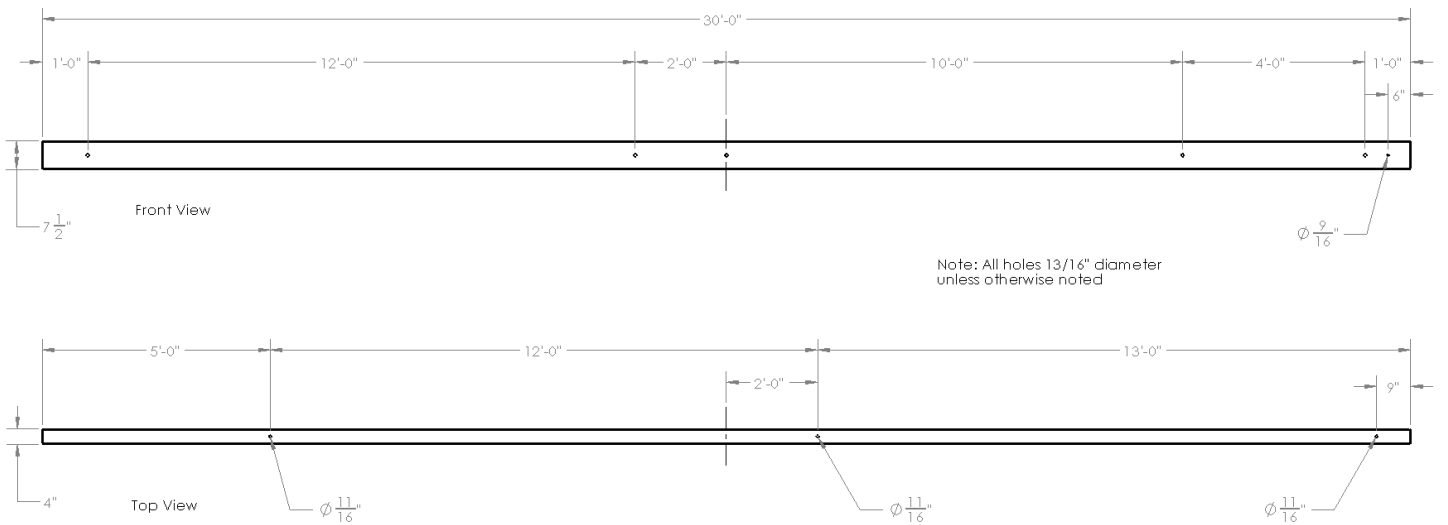
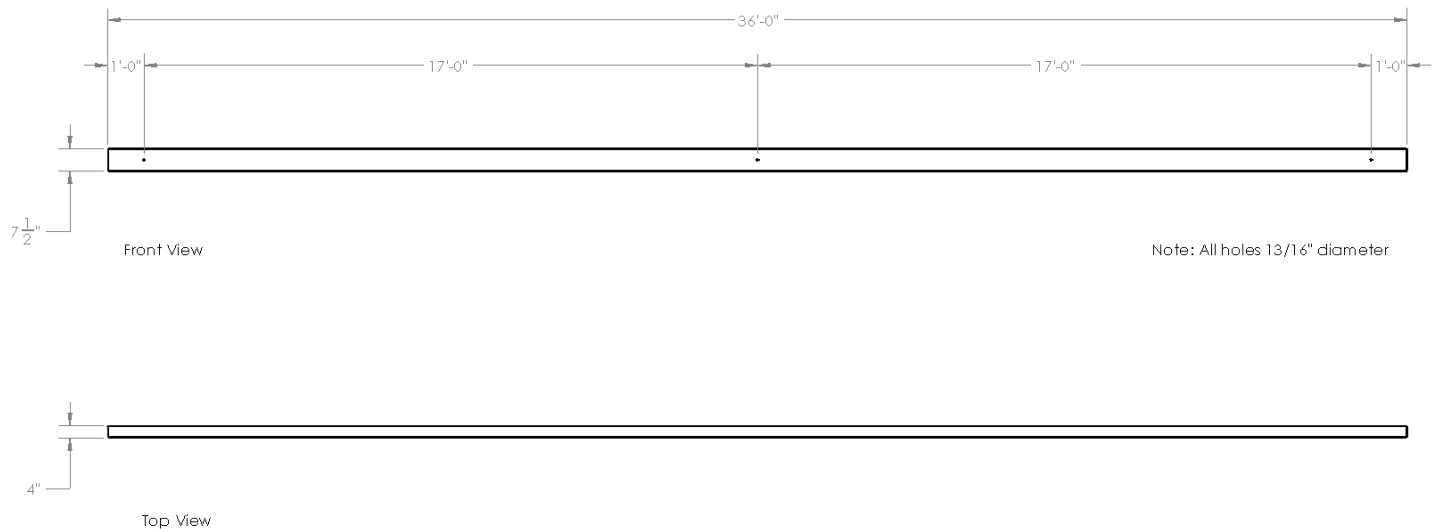


Figure 8: 36'x7.5"x4.0" Fiberglass H-Frame Crossarm - Material ID 873613



4. Construction

4.1 Weather and UV Protection

UV inhibitors shall be added to the polyester resin mixture and the outside surface of the crossarm shall be covered with a polyester surface veil to prevent fiber blooming. Also, the crossarm shall be coated with a minimum two full coats of polyurethane paint. Crossarms shall be tested in accordance with ASTM D4364 and G154, Cycle 1 for a minimum accelerated equivalent of 10,000hrs of UV exposure with no evidence of fiber blooming or other degradation to the structure.

4.2 Color

Color of the finished product shall be munsel gray.

4.3 Foam Filling

Crossarms shall be foam filled to minimize water ingress. Filler shall be either closed cell high density urethane foam or closed cell high density styrene foam.

4.4 Mounting Bracket

Crossarm mounting brackets shall be manufactured from high strength heat treated aluminum alloy, hot dip galvanized structural steel plate or hot dip galvanized ductile iron. All bolts, nuts and other hardware shall be hot dip galvanized. Mounting brackets shall be designed for installation on wood, steel, concrete or fiberglass poles with round or flat mounting surfaces.

4.5 End Caps

Crossarm ends shall be sealed with non-removable flush mounted inserts. External end caps are not acceptable.

5. Mechanical Characteristics

5.1 Ultimate Strength

Minimum ultimate strengths for 10, 13, 15, 18, 26, 30 & 36 foot crossarms are listed in Table 1, subject to the loading diagram below:

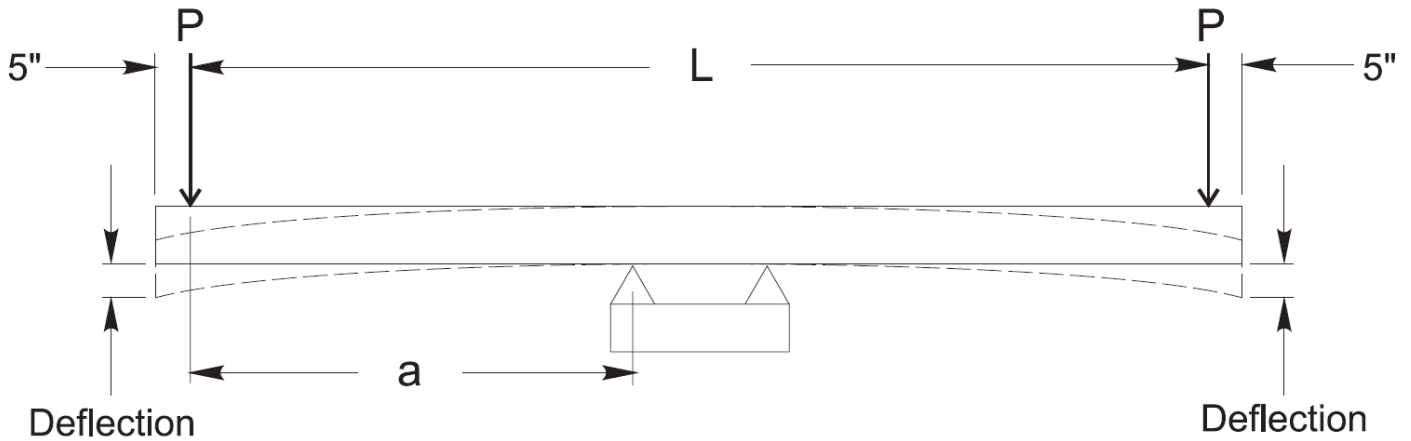


Table 1

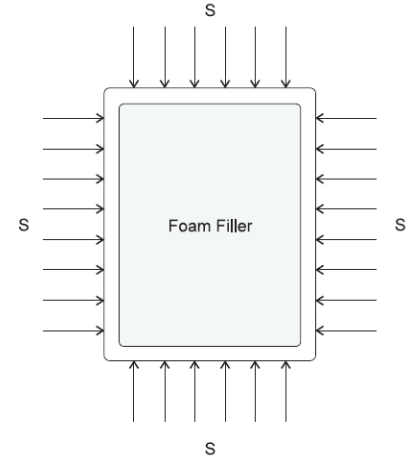
Crossarm	Working Load (lbs)	Ultimate Load (lbs)	Deflection (in/1000 lb)	L (in)	a (in)
7 foot	2,500	5000	0.86	74	27
10 foot	2,500	5,000	0.86	110	50
13 foot	4,500	9,000	1.25	146	68
15 foot	3,550	7,100	2.00	170	80
18 foot	1,350	2,700	4.11	206	97
26 foot	900	1,800	9.00	302	146
30 foot	775	1,550	12.00	350	170
36 foot	650	1,300	43.00	422	206

5.2 Maximum Allowable Deflection

Maximum allowable deflections for crossarms subject to long-term static loads shall not exceed the values listed in Table 1 above.

5.3 Compressive Strength

Compressive strength (S) in both the vertical and horizontal directions for any cross section (including foam filler) perpendicular to the crossarm longitudinal axes shall be a minimum of 1,500 psi without permanent deformation or damage to the fiber/resin matrix.



6. Electrical Characteristics

Fiberglass crossarms shall have an average dry 60 Hz BIL of no less than 15kV/inch and an average wet 60 Hz BIL of no less than 12kV/inch.

7. Identification

Each fiberglass crossarm shall be permanently marked with the manufacturer's name or logo and date of manufacture.

8. Packaging

Fiberglass crossarms shall be shipped fully assembled with mounting brackets.

9. Warranty

Crossarms and their components shall carry a non-prorated warranty of 10 years from the date of delivery. Replacement units shall be new and come with a 10 year warranty from the date of delivery.