Aluminum Light Pole Specifications

Pole Shaft

The shaft shall be constructed of seamless extruded tube of Aluminum Alloy 6063 *(round shafts)* or Aluminum Alloy 6XXX *(square shafts)* per the requirements of ASTM B221 of sufficient nominal thickness to meet the design requirements without the use of internal reinforcing sleeves. No longitudinal shaft welds shall be allowed. The shaft shall be full-length heat treated after welding to produce a T6 temper in round shafts and a T5 temper in square shafts. The heat-treating oven used shall be certified to meet the requirements of ASTM B597 and Mil-H-6088 specifications. An aluminum pole cap utilizing stainless steel attaching screws will be provided when required.

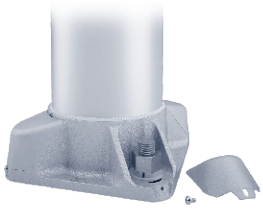
Pole Arms

The pole arms will be constructed of seamless extruded tube of Aluminum Alloy 6063 per the requirements of ASTM B221. Arms shall be full-length heat treated after welding to produce a T6 temper. Attachment pole plates shall be of Aluminum Alloy of T6 temper with stainless steel attaching hardware.

Anchor Base – *Round Shafts*

4-Bolt Base

The 4-Bolt base flange for attachment to the foundation or to the transformer base shall be of cast Aluminum Alloy 356-T6.
Base flange shall be joined to pole shaft by means of complete circumferential welds; externally at the top of flange and internally at bottom of shaft tube. Four anchor bolt covers of cast Aluminum Alloy 356-F with stainless steel hex head attaching screws shall be provided.

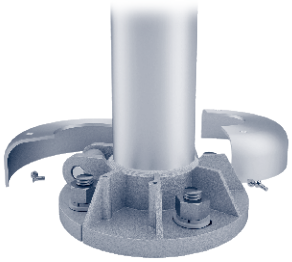


3-Bolt-Base

The 3-Bolt base flange shall be of cast Aluminum Alloy 356-T6 with spun aluminum base cover and stainless steel hex head attaching screws. Base flange shall be joined to pole shaft by means of complete circumferential welds; externally at the top of flange and internally at bottom of shaft tube.

Hinged Base

Hinged cast aluminum base flange of Alloy 356-T6 with 2-piece cast aluminum base cover and stainless steel hex head attaching screws. Base flange shall be joined to pole shaft by means of complete circumferential welds; externally at the top of flange and internally at bottom of shaft tube. The hinge mechanism is engaged by removal of the 2-piece cover and two front anchor bolt nuts.



Beehive Base

The Beehive cast aluminum transformer base shall be of Alloy 356-T6 with an aluminum door and stainless steel attaching screws. Base shall be joined to pole shaft by means of complete circumferential weld.

Direct Buried

Direct Buried aluminum poles are designed for embed installations. Poles with butt diameters of 6" and larger shall be provided with an anti-rotational device by means of partial flattening the butt of the pole into an oval cross-section. A wiring provision will be provided 24" below ground line. Soil conditions vary by site, therefore foundation requirements should be determined by a qualified Structural Engineer with knowledge of jobsite soil conditions.

Transformer Base *(T-Base)*

The T-Base shall be a casting of Aluminum Alloy 356-T6 with removable access door held in place with one stainless steel screw. The base shall be 17" tall with an access door 11-3/4" high, 9-1/4" wide at the top and 9-3/4" wide at the bottom. It shall connect to 1" diameter anchorage. Three bases with bolt circles ranging from 10" to 17-1/4" can be used with shafts in size from 6" to 10" diameter *(dependent on their proper application and specific loading restrictions)*. The bases shall meet 2009 AASHTO breakaway requirements. Four *(4)* 1" diameter galvanized steel hex-head machine bolts with nuts and washers shall be supplied to attach the transformer bases to the base flange of the pole shaft. Eight *(8)* 1/2" thick x 2-3/4" diameter galvanized steel heavy washers shall be provided to properly distribute the bolt forces in the top and bottom flanges of the transformer base.

Anchor Base – *Square Shafts*

4-Bolt Base

The 4-Bolt cast aluminum base flange shall be constructed of Alloy 356-T6 with aluminum snap-in bolt covers.

Hinged Base

The Hinged cast aluminum base flange shall be constructed of Alloy 356-T6 with three *(3)* stainless steel screws. Base flange shall be joined to pole shaft by means of complete circumferential welds; externally at the top of flange and internally at bottom of shaft tube. The Hinge mechanism is engaged by removal of the three *(3)* securing screws.

Handhole – *Round Shafts*

4"-5" Butt Diameters

4"-5" butt diameter poles shall feature a 2" x 4" handhole with curved lap style aluminum door and two *(2)* stainless steel self-tapping attaching screws. A grounding provision incorporating a tapped ¼"-20NC hole is provided opposite the handhole.

6" Butt Diameter

6" butt diameter poles shall feature a reinforced, 3" x 5" curved cast aluminum frame *(Alloy 356-T6)* with aluminum door and two *(2)* stainless steel hex head screws. A grounding provision incorporating a 3/8" diameter hole is provided opposite the handhole.

7"+ Butt Diameters

7" and larger butt diameter poles shall feature a reinforced, 4" x 6" curved cast aluminum frame *(Alloy 356-T6)* with aluminum door and two *(2)* stainless steel hex head screws. Reinforced frame will contain a tapped 3/8"-16NC grounding provision.

Aluminum Light Pole Specifications

Handhole – *Square Shafts*

4"-5" Base Squares

4"-5" square poles shall feature a 2" x 4" handhole with square lap style aluminum door and two *(2)* Stainless Steel self-tapping attaching screws. A 1/4"-20NC grounding provision is provided opposite the handhole.

6"+ Base Squares

6" and larger square poles shall feature a 3" x 5" handhole with square lap style aluminum door and two *(2)* Stainless Steel self-tapping attaching screws. A 1/4"-20NC grounding provision is provided opposite the handhole.

Handhole – *Poles with Arms*

Poles with single arms will contain a handhole that is located 90 degrees clockwise from the plane of the bracket arm as viewed from the top of the pole. Twin arm poles will contain a handhole that is located 90 degrees from the plane of both bracket arms.

Anchorage

Each anchor base pole shall be supplied with anchor bolts. Steel bolts conforming to AASHTO M314-90 Grade 55 with the threaded end galvanized a minimum of 10" per ASTM A153 and a right angle hook at the unthreaded end. Each bolt shall include one *(1)* hex nut, lock washer, and flat washer, with all components being of galvanized steel. A bolt circle template will be provided.

Miscellaneous Hardware

Excluding anchorage hardware, all nuts, bolts, and washers used in the fabrication of the pole shall be Grade 18-8 stainless steel.

Grounding

Each pole shaft shall contain an internal ground provision for the purpose of attaching a grounding connector.

Welding

All welding is performed by gas metal arc welding in accordance with American Welding Society *(AWS)* Specification D1.2, Structural Welding Code – Aluminum, or Canadian Standards Association *(CSA)* W47.2 Certification of Companies for Fusion Welding of Aluminum.

Inspection and Packaging

Each coated part shall be inspected for appearance uniformity and appropriate coating mil thickness. Coated product shall be spiral wrapped with cross woven textile, polyethylene film or burlap material of sufficient tensile and elongation that exceed required characteristics to ensure protection during handling and shipping. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.

Satin Finish

Pole shafts specified with the -01 and -02 Satin finish designations shall be provided a uniform brushed aluminum natural finish achieved by utilizing specially formulated abrasives in a multi-pass, rotary sanding operation. Davit Arms shall match the shaft finish. Mast, Truss, Bullhorn, and Cross Arms shall be provided with a satin etched finish. All materials shall be cleaned and free from dents and unsightly scratches.

Powder Coat –

SURFACE PREPARATION

Pole shafts shall be satin ground, chemically etched, sanded or shot blasted to ensure proper powder coat surface adhesion.
To ensure that the prepared parts are kept clean and not exposed to dirt, dust, grease or oil and to ensure maximum powder coat adhesion, the product shall proceed continuously and immediately to the powder coating process within the same facility where the poles and arms are manufactured.

Powder Coating

Powder coating material shall be a thermosetting polyester powder. A minimum coating thickness of 2.0 mils shall be maintained for aluminum. Application of powder shall be electrostatically applied by a closed loop automated powder coating system featuring twelve automatic spray guns with computerized controls and positioners to assure mil thickness conformance.
The powder coating system shall employ a powder recovery system utilizing closed loop quick-change technology to achieve efficient and contamination free color changes.
The powder shall be applied only when both the ambient and part temperatures are 50 degrees F. or above. Once powder coated, the product shall proceed through a curing oven operating at 400 degrees Fahrenheit that has been surveyed and certified for temperature uniformity. The product shall move continuously through the oven from beginning to end and shall attain the appropriate time at temperature to cure the finish in accordance with the paint manufacturer's recommendations. Once oven cured, the product shall move immediately to and continuously through a forced air cooling tunnel designed to restore the product to acceptable packaging temperature prior to inspection and packaging. Upon exiting the cooling tunnel the product shall be immediately inspected and packaged.

Note:

These specifications are intended for general information only. To facilitate our commitment to continuous improvement and providing industry-leading products, Hapco reserves the right to change materials and designs without prior notice.