

Specifications

HAPCO SPECIFICATION ADVANTAGE





HAPCO ALUMINUM...Better By Design

*Venetian Causeway
Miami, FL
Installed Circa 1951*

Hapco Specification Advantages

Tapered Poles

The ability to taper an aluminum pole is the single greatest difference between Hapco and other pole providers. As one of the very few manufacturers in the country that can taper aluminum poles, Hapco offers a distinct advantage over pole providers that purchase tapered aluminum and resell it to their customers.

Customer Benefit:

- A tapered pole is a more efficient pole. Less wind deflection at the top allows for an increase in EPA, resulting in the ability to specify a lighter pole. The taller a pole, the more this is magnified.
- A tapered pole looks better. This is particularly true when using a post top fixture. It allows for a much more attractive transition. Most poles will be tapered to a three inch top which transitions to a 3" post top perfectly. Most round straight poles will be at a minimum top OD of 4". This results in a larger pole transitioning to a smaller post top fixture.

Sample Taper Specification

The shaft shall be constructed of seamless extruded tube of 6063 aluminum alloy per the requirements of ASTM B221 of sufficient nominal thickness to meet the design requirements without the use of internal reinforcing sleeve. No longitudinal shaft welds shall be allowed. The spun tapered shaft shall have a nominal (x)-inch outside bottom diameter and a (x)-inch outside top diameter with a minimum nominal wall thickness of (x). The shaft shall have a flush (x)-inch by (x)-inch reinforced hand hole with an aluminum cover. The cover shall be secured with stainless steel screws. The handhole frame will have a 3/8"-16NC tapped hole for grounding. The shaft shall be full-length heat-treated after welding on the base flange to produce a T6 temper. The heat-treating oven used shall be certified to meet the requirements of ASTM B597 and Mil-H-6088 specifications.

Performance Specifications

Hapco customers may specify performance specifications that allow a pole to meet loading requirements as opposed to a specified wall and diameter specification. Hapco is able to manufacture lighter poles due to its heat treating process. Hapco purchases aluminum extrusions in a T4 Temper. After tapering and welding, the poles are then baked (heat treated) in an oven at 350 degrees for six and one half hours, increasing the temper to T6. This increased strength allows Hapco to build a pole to required loading while using less material than much of the competition. If a manufacturer cannot heat treat, they must use larger diameter or thicker walls to meet the same EPA.

Customer Benefit:

- A stronger, more efficient pole.

Sample Design Specification

The pole shall conform to the requirements of the "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2001 LTS4" by The American Association of State Highway and Transportation Officials for a basic wind speed of (x) mph when supporting a luminaire having a maximum effective projected area (EPA) of (x) ft² and a maximum weight of (x) lbs.



Heat Treating After Welding

When poles are welded to a base, the weld becomes the weakest part of the pole. Thicker walled poles must be used to compensate for this weakness. A stronger pole reduces the stress load on the weld. Heat treating after weld strengthens the weld by 70%. This allows Hapco to use thinner walled poles to achieve the same EPA. Many competitors do not have the ability to heat treat, forcing them to use thicker materials resulting in more expense.

Customer Benefit:

- A more efficient pole which results in cost savings.

Sample Heat Treat and Welding Specification

Heat Treating: The shaft shall be full-length heat treated after welding on the structural base to produce a T6 temper. The heat treating oven used shall be certified to meet the requirements of ASTM B597 and Mil-H-6088 specifications.

Welding: Welding shall be done by the inert gas shielded metal arc method with consumable electrode. Aluminum alloy 4043 electrode shall be used. Welding shall be in accordance with AWS Specification D1.2, Structural Welding Code - Aluminum.

AAMA 2604 (Super Durable) Powder Coating

The American Architectural Manufacturers Association (AAMA) provides classifications for powder coating. These specifications have been widely recognized as the standards for testing and performance of organic coatings on architectural aluminum extrusions and panels. AAMA 2604 is known as Super Durable powder coat which is formulated with advance polyester resin technology that utilizes higher performance pigments. While many other manufacturers use the lesser 2603 as the standard, Super Durable 2604 is Hapco's standard powder coat. AAMA makes Southern Florida the benchmark for testing due to its extreme weather conditions. They guarantee Super Durable 2604 to withstand outdoor exposure for 5 years as opposed to 1 year for standard 2603.



AAMA 2604 (Super Durable) Powder Coating (continued)

Customer Benefit:

- Superior gloss and color retention over standard polyesters.
- Superior weathering capabilities.
- Better exterior durability, UV resistance and gloss retention. Accepts and holds onto electrical charge better and longer than standard powders.
- Reduces the overall cost of ownership of the pole by providing longer lasting aesthetics.

Sample Power Coating Specification

Powder coating material shall be a Super Durable thermosetting polyester powder coating. A minimum coating thickness of 2 mils shall be maintained. Application of powder shall be electrostatically applied by a closed loop automated powder coating system featuring eight automatic spray guns with computerized controls to ensure 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 Fahrenheit 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 time at temperature in accordance with the paint manufacturer's recommendations. Once oven cured, the product shall move immediately to and continuously through a 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.

Lifetime Warranty

Hapco aluminum pole assemblies are now covered by a Lifetime Warranty. As a leader in the manufacture of aluminum lighting poles for more than 60 years, we are proud to be the first in the metal pole industry to offer this guarantee.

Customer Benefit:

- Lifetime Quality...Guaranteed.

Surface Preparation Prior to Powder Coat

Proper surface preparation is a major factor in long lasting and adhering Powder Coat. This ensures that items are contamination free. Prior to powder coating, if items become contaminated, the powder will not bake/bond to the item properly. This is the most commonly seen reason for powder coat to peel or flake off of installed poles. Hapco utilizes a state-of-the-art shot blasting system. To further ensure contamination free products, the shot blasting facility is a mere six yards from the powder coat system.

Customer Benefit:

- Proper adhesion of the powder coat to the item, assuring a long aesthetic life.
- Uniform powder coat as pole and base run through the system together.

Sample Surface Preparation Specification

Pole shafts shall be shot blasted utilizing automated shot blast equipment with specifically designed shadow patterning to achieve 360 degree coverage. The line speed shall be automated and shall be controlled to ensure uniform surface preparation. As a part of the integrated system, 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.



AASHTO Specifications or Local Building Codes

All standard Hapco poles are designed to American Association of State Highway & Transportation Officials (*AASHTO*) standards, which is conservative by nature. Not all manufacturers design to AASHTO, with many having denotations under their EPA tables similar to the following: All EPA values are calculated by the factory...if EPA's calculated per AASHTO are needed, please consult the factory. These disclaimers allow them to make the EPA's whatever they desire. Hapco designs to AASHTO specifications because pole failure is not an option, and our commitment to quality and safety is validated by our **Lifetime Warranty** on Aluminum pole assemblies.

The Hapco Design Engineering team can also design poles to applicable Local Building Codes such as the Florida Building Code. We have the expertise to assist project owners in selecting the precise pole for a project, which can result in significant cost savings.

In addition, Hapco meets applicable ASTM material standards, and welding is performed by gas metal arc welding in accordance with American Welding Society (*AWS*) or Canadian Standards Association (*CSA*) specifications.

Customer Benefit:

- Assurance of the proper pole for the job through access to industry-leading Design, Engineering, and Manufacturing.
- Confidence that the poles are built to specification.

Aluminum Alloy 356

Hapco base castings are specified exclusively with Aluminum Alloy 356. Competitors commonly use Alloy 319 which contains 4% Copper content in the alloy. Unlike Aluminum, Copper will corrode, causing premature cracking and peeling of applied coatings. Aluminum Alloy 356 is a superior alloy that contains no copper.

Customer Benefit:

- A higher quality alloy containing 0% Copper equals zero corrosion, guaranteeing Hapco customers enhanced aesthetics.

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Proudly Supporting Our Industry...

American Welding Society
AWS D1.2 Committee

*American Association of State Highway
and Transportation Officials*
AASHTO NCHRP

National Electrical Manufacturers Society
NEMA ANSI C136
Accredited Standards Committee

