



Pole Shaft

Tapered steel shaft with flutes terminating above base plate to facilitate using decorative nut covers. Shaft provided with an upsweep luminaire arm.

Mast Arm

Straight tapered arm with flutes terminating at the welded simplex connection.

Fluted Options

Available in 16-Flat, 16-Sharp, 12-Flat or 8-Sharp (See Fluted Shape Option's page for view of actual cross-section).

FLCB16 Arm Fluted Traffic Pole Specification

General

The fluted traffic pole shall consist of a tapered pole and traffic signal mast arm, luminaire arm, anchor bolts, and base plate. The pole shall be fluted, but the traffic signal mast arm shall be round. Fluted tubes shall have an 8 sharp, 12 flat, 16 sharp, or 16 flat cross-section as specified in the contract documents.

Pole

The fluted pole shall be formed from tubes conforming to ASTM A595 process, and have a constant linear taper of 0.14 in/ft. The tube's seam weld shall be formed by the Electric Resistance Weld (ERW), and shall be smooth with no visual appearance. The flutes shall terminate approximately 6" above the base plate connection. The termination of the flutes is to increase the product's fatigue life, to facilitate welding and the attachment of decorative nut covers, and for aesthetic appeal. The shaft shall be one piece, and contain no circumferential welded butt splices. Laminated tubes are not permitted. The pole shall have a reinforced 4.0" x 6.5" handhole with cover located 1'-6" from the pole base. Each pole shall be provided with a cap secured in place with set screws.

Mast Arm

Fluted mast arms shall be formed from tubes conforming to ASTM A595 process, and have a constant linear taper of 0.14 in/ft. The tube's seam weld shall be formed by the Electric Resistant Weld (ERW), and shall be smooth with no visual appearance. Mast arms up to 40' shall be manufactured and shipped in one piece. The fluted mast arm shall be straight as specified with flutes terminating approximately 3" from the large end to increase the product's fatigue life, to facilitate welding, and for aesthetic appeal. The arms shall be bolted to the shaft using a welded simplex connection. Circumferential welded butt splices and laminated tubes are not permitted. Each arm shall be provided with an end cap secured in place with set screws.

Luminaire Arm

The tapered luminaire arm shall be made from the same process as the shaft and mast arm. Each arm end shall be provided with a 2.38" slipfitter and be provided with the length and arm rise as specified. The arm shall be attached to the pole using a welded simplex connection and three 0.75" hex cap screws.

Fluting Process

The pole tubes shall be cold rolled over a precision hardened steel mandrel to form an 8 sharp, 12 flat, 16 sharp or 16 flat flute shaft as specified. The fluted

shaft shall have uniform, equally spaced Doric flutes. The flutes shall be formed with 3" diameter rollers in full contact with the material from the top of the crest, through the valley of the flute, to the top of the next crest. The termination of the flutes shall be well defined by having no greater than 1.5 inch radii transition into the round section of the pole. For the 8 and 16 flute cross-sections, all 8 or 16 rollers respectively shall be engaged at the same time so as to produce a consistent, near perfect cross-section. For the 12 flat cross-section, all flats and valleys shall be rolled to produce the same well defined, near perfect cross-section. Individually rolled flutes or round poles with a separate fluted sheathing are not permitted.

Anchor Bolts and Base Plate

Anchor bolts shall conform to the requirements of AASHTO M314 Grade 55. The upper 12" of the bolts shall be hot dip galvanized per ASTM A153. Each anchor bolt shall be supplied with two hex nuts and two flat washers. The strength of the nuts shall equal or exceed the proof load of the bolts. A decorative cast aluminum nut cover shall be provided for each anchor bolt. Each nut cover shall be attached to the pole with a 0.25" stainless steel, self tapping, hex head cap screw. Base plates shall conform to ASTM A36 and shall be integrally welded to the tubes with a telescopic welded joint.

Finish

The finish shall be hot dip galvanized to ASTM A123 (in accordance with Valmont's F1 spec.), painted using TGIC polyester powder (in accordance with Valmont's F264 spec.), or provided with a combination coating using a TGIC polyester powder directly over hot dip galvanized (in accordance with Valmont's F283 spec.).

Calculations

Calculations, if required, shall include pole, mast arm, luminaire arm, base plate, and anchor bolt analysis. Tube drag coefficients shall be increased to include the effects of fluted shapes. Maximum loads and stresses shall be determined for the most critical wind direction. The pole shall be analyzed in its final deflected position, at the arm to pole connection(s) and pole base. Maximum arm and pole loads, stresses and combined stress ratios (CSR) shall be provided for the specified loading combinations, as well as maximum top of pole dead load rotation. Dead load stresses at welded connections shall be limited to 20 ksi. Shaft dimensions shall be equivalent in strength for the loads shown on the drawings.