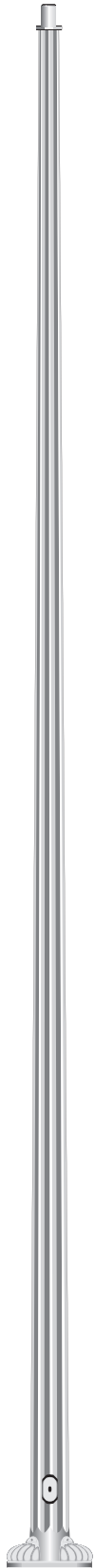
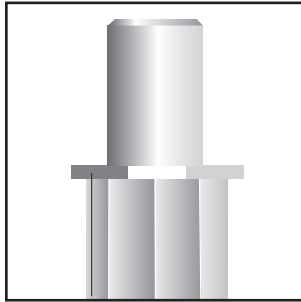


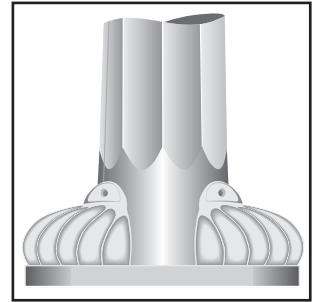
Fluted Steel Tapered with Tenon



Standard Components



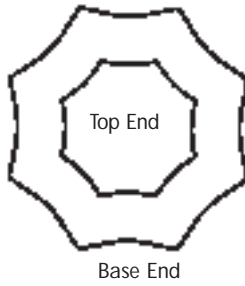
Tenon
 P2 = 2.375" OD X 4" L
 P4 = 4" OD X 6" L



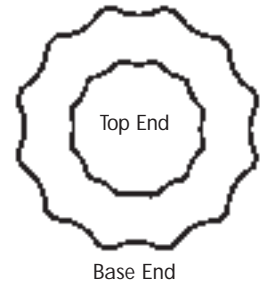
Cast Nut Cover

Cross-Sections (Choose One)

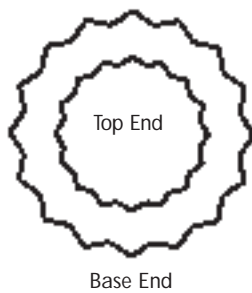
8-Sharp Flute



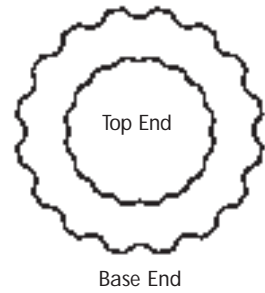
12-Flat Flute



16-Sharp Flute



16-Flat Flute



FL210 Fluted Pole Specification

General

The FL210 fluted pole shall consist of a tapered pole, pole top tenon, anchor bolts, and base plate. The pole shall be fluted and 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" from the base plate connection to increase the product's fatigue life, to facilitate welding and the attachment of the 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.

Fluting Process

The pole 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.

Pole Top Tenon

Pole top tenons are fabricated from structural quality hot rolled carbon steel with a guaranteed yield strength of

30,000 psi. A pole top plate and tenon of weldable grade hot rolled commercial quality carbon steel is circumferentially welded to the top of the pole shaft. This plate provides an internal weather resistant wire raceway into the pole top tenon. A (P2) tenon is 2.38" O.D. x 4" long and the (P4) is 4.00" O.D. x 6" long steel tubing.

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. Base plates shall conform to ASTM A36 and shall be integrally welded to the tubes with a telescopic welded joint.

Decorative Nut Covers

The decorative nut covers shall be a sandcast alloy 356.2 and be attached to the pole using 0.25" stainless steel, self tapping, hex head screws.

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 the pole, 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 pole base. Maximum pole loads, stresses and combined stress ratios (CSR) shall be provided for the specified loading combinations. 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.