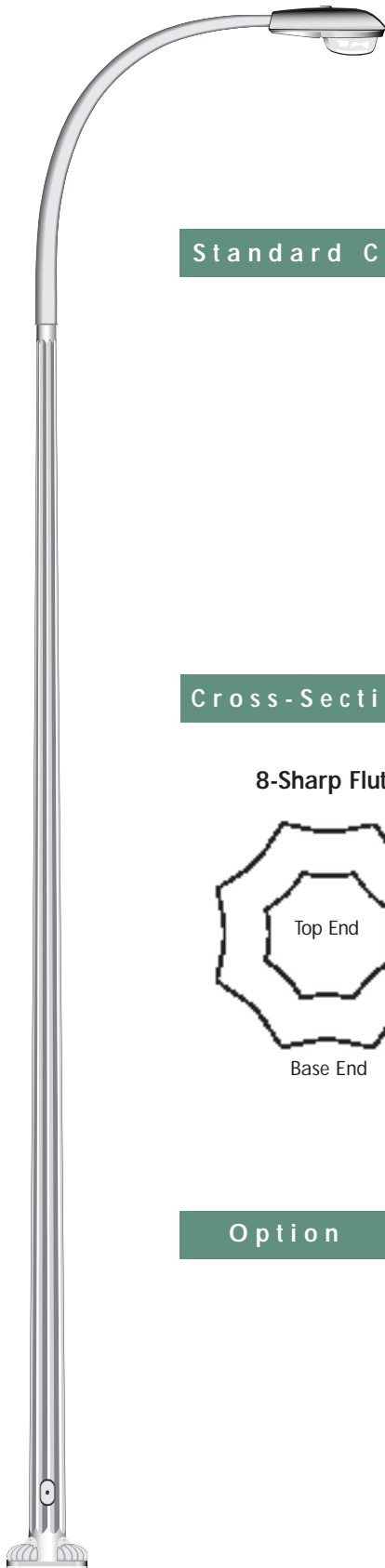


# Fluted Steel Tapered with Davit Luminaire Arm



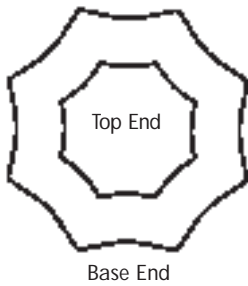
## Standard Components

Cast Nut Cover

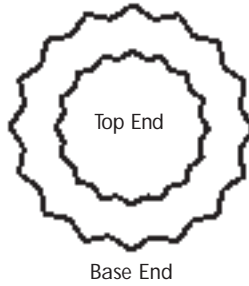


## Cross-Sections (Choose One)

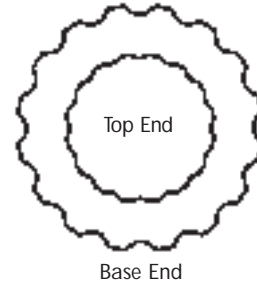
8-Sharp Flute



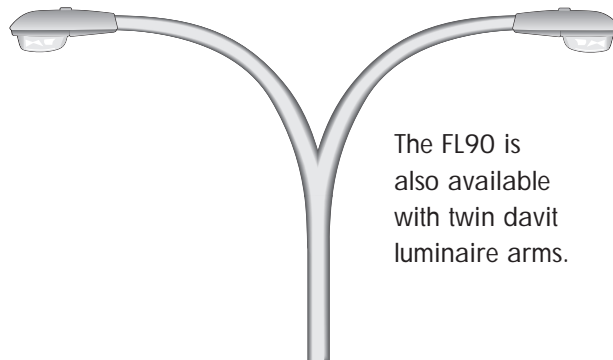
16-Sharp Flute



16-Flat Flute



## Option



The FL90 is also available with twin davit luminaire arms.

# FL90 Fluted Pole Specification

## General

The FL90 fluted pole shall consist of a tapered pole, davit luminaire arm, anchor bolts, and base plate. The pole shall be fluted and shall have an 8 sharp, 16 flat, or 16 sharp 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.

## Davit Luminaire Arm

Arms shall conform to ASTM A595 Grade A with a minimum yield strength of 55 ksi, have a round cross-section and a constant linear taper of 0.14 in/ft. The arm shall be smoothly bent to a 6'-3" inside radius. The twin arm assembly shall be telescopically slip fit over the pole and fastened together to assure arms will not rotate in high wind conditions. The minimum length of the telescopic slip splices shall be 1.5 times the inside diameter of the exposed end of the female section. The arm end shall have a standard pipe tenon conforming to ASTM A53 Grade B welded to a hot rolled mild carbon (HRMS) steel plate which, in turn, is welded to the arm; or be reformed to a constant outside diameter of 2.38" over an 8" length.

## 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.

## 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 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.