

**ANCHOR BOLTS**

Anchor Bolts are fabricated from carbon steel bar conforming to AASHTO M314 Grade-55 or ASTM F1554 Grade-55. Bolts have an "L" bend on one end and are galvanized a minimum of 12 inches on the threaded end. Four anchor bolts are provided per pole. Each anchor bolt is furnished with two hex nuts and two flat washers.

**ANCHOR BASE**

The anchor base (base plate) is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom. Please refer to the charted bolt circles and detail drawings to determine the type of hole or slot accommodation made for the anchor bolt.

**POLE SHAFT**

The pole shaft conforms to ASTM A595 Grade-A and is supplied in 11 gauge (0.1196"), 7 gauge (0.1793") 5 gauge (0.2092") or 3 gauge (0.2391") thickness. The pole can be either one-piece or two piece construction, with a full length longitudinal high frequency electric resistance weld. The DS210 series is round in cross-section having a uniform taper of approximately 0.14 inches per foot of length. The DS220 series shaft is square in cross section having flat sides, radiused corners and a uniform taper of approximately 0.11 inches per foot of length.

**HANDHOLE**

The reinforcing handhole rim consists of either a nominal 3" x 5" rectangular shaped tubing or 4" x 6.5" oval shaped pipe material. The 3" x 5" handhole is provided with a steel attachment bar, steel cover, and one round head machine screw. The 4" x 6.5" handhole includes two tabs for mounting a steel cover with hex head attachment screws. Both handhole types are welded in the pole shaft and are located 1'-6" above the base.

**ELECTRICAL GROUND**

A nut holder is provided near the handhole and includes a .5"-13UNC hex head bolt and nut.

**NUT COVERS (OPTIONAL)**

Nut covers for anchor bolts are zinc die cast. Each cover is fastened to the shaft by a 0.25" stainless steel, self-tapping, hex head screw. Nut covers are a standard component for the DS210 series and are NOT available for the DS220 series.

**FULL BASE COVER (STANDARD)**

The optional full base cover is fabricated from ABS plastic. Valmont reserves the right to provide a steel assembly on some applications depending upon the finish requirement and/or pole shaft base diameter. Both steel and plastic covers are a two-piece assembly secured together with two fasteners. A full base cover is a standard component on the DS220 series.

**POLE TOP TENON (STANDARD)**

Pole top tenons are fabricated from structural quality hot rolled carbon steel with a guaranteed minimum 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 wiring raceway into the pole top tenon. Standard sizes are either 2.38" O.D. x 4" long (P2) or 4" O.D. x 6" long (P4) steel tubing. See page 1 for other available sizes.

**POLE TOP CAP**

A removable cap is available as an option to be used in conjunction with drilled shafts for direct luminaire arm attachment.

**STANDARD FINISH**

Standard finishes available are galvanize, prime coat (powder), and finish coat (powder). For information regarding the scope and application of these coatings please refer to page 5.

**FASTENING HARDWARE**

All structural fasteners are galvanized high strength carbon steel. All fasteners are galvanized or zinc plated carbon steel or stainless steel.

**DESIGN**

The standards shown in this section are designed to withstand dead loads and theoretical dynamic loads developed by variable wind speeds, as charted, with an appropriate gust factor under the following conditions:

The luminaire(s) and/or mounting bracket(s) center of gravity, or centroid, is assumed to be located a maximum of 2'-6" above the pole top. For purposes of design, effective projected area (EPA) is considered to be the product of the actual projected area and the drag coefficient.

The listed weights include luminaire(s) and/or mounting bracket(s) and are based on a weight to EPA ratio of 25 pounds per square foot.

The wind velocities are based on 10 mph increments from 80 mph through 100 mph (reference wind map). Standards to be located in areas of known abnormal conditions require special consideration. For example: coastal areas, airports, and areas of special winds such as the Chinook type along the eastern slope of the Rocky Mountains.

Standards are designed for ground mounted applications. Standards mounted on structures, such as bridges and buildings, also necessitate special consideration requiring Valmont's recommendation.

Height correction factors and drag coefficients are applied to the entire structure. An appropriate safety factor is maintained based on the minimum yield strength of the material incorporated in the standard. Secondary moments are considered on all designs.

Maximum weight and EPA values for DS220 products are determined by analyzing stress from two wind directions as shown. Due to the increased area and reduced section properties, stress levels across the points generally control the allowable loads.

Valmont Industries, Inc. reserves the right to install various, engineer approved, material hanging accommodations to facilitate the manufacturing process. If this method is not acceptable, Valmont Industries, Inc. must be notified by the customer prior to manufacturing.

Nominal Mounting Height (ft)	Shaft					Pole Base			Anchor Bolts	80MPH w/1.3 Gust		90MPH w/1.3 Gust		100MPH w/1.3 Gust	
	Designation Number	Base O.D. (in)	Top O.D. (in)	Wall Thk. (ga)	Struct. Weight (lbs)	Bolt Circle (in)	Square (in)	Thk. (in)	Dia. x Lngth. x Hk. (in)	Max. EPA (ft <sup>2</sup> )	Max. Weight (lbs)	Max. EPA (ft <sup>2</sup> )	Max. Weight (lbs)	Max. EPA (ft <sup>2</sup> )	Max. Weight (lbs)
20	**525A200	5.25	3.05	11	155	10.75	10.75	0.75	1.00 x 36 x 4	18.0	452	13.8	345	10.7	268
	**550E200	5.50	3.30	7	235	11.00	11.00	1.00	1.00 x 36 x 4	30.5	764	24.0	602	19.0	477
25	**600A250	6.00	3.25	11	205	12.00	11.50	0.88	1.00 x 36 x 4	16.8	422	12.6	315	9.5	238
	641E250	6.41	3.66	7	310	12.50	11.88	1.25	1.00 x 36 x 4	28.5	713	22.5	563	18.2	455
30	641A300	6.41	3.11	11	260	12.50	11.88	0.88	1.00 x 36 x 4	13.6	340	9.8	245	7.0	175
	641E300	6.41	3.11	7	375	12.50	11.88	1.25	1.00 x 36 x 4	23.6	590	17.9	448	13.7	343
	713E300	7.13	3.83	7	431	13.50	12.63	1.25	1.00 x 36 x 4	27.4	687	21.6	542	17.3	434
35	681A350	6.81	2.96	11	305	13.00	12.25	0.88	1.00 x 36 x 4	10.7	269	7.3	184	4.8	120
	713E350	7.13	3.28	7	475	13.50	12.63	1.25	1.00 x 36 x 4	23.4	585	17.4	435	13.0	325
	788E350	7.88	4.03	7	540	14.50	13.38	1.25	1.00 x 36 x 4	25.7	643	18.8	470	13.8	345
39	718A389	7.18	2.92	11	345	13.50	12.63	0.88	1.00 x 36 x 4	8.6	215	5.4	135	3.0	75
	713E389	7.13	2.87	7	500	13.50	12.63	1.25	1.00 x 36 x 4	19.3	483	14.2	355	10.4	260
	875E389	8.75	4.49	7	670	15.75	14.25	1.50	1.25 x 42 x 6	26.1	654	20.6	517	16.2	405
45	788E450	7.88	2.93	7	620	14.50	13.38	1.25	1.00 x 36 x 4	16.0	400	11.1	278	7.4	187
	875E450	8.75	3.80	7	730	15.75	14.25	1.50	1.25 x 42 x 6	23.5	588	16.6	415	11.4	287
50	881E500	8.81	3.31	7	780	16.00	15.50	1.25	1.25 x 42 x 6	19.4	485	13.2	332	8.7	218

**DS220 NOTES:**

1. \*\* 3" x 5" nominal handhole, all others 4" x 6.5" nominal.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. The pole base plate is provided with bolt holes 0.25" larger than the anchor bolt diameter.
4. Maximum weight and EPA values are based on top mounted luminaires and/or brackets having a centroid 2'-6" above the nominal mounting height.

**Wind Direction Detail**



