



## Engineering Specifications

APEES Marlan's Safe System Pole is a fibre reinforced polymer, or composite pole. The Safe System Pole is manufactured in accordance with the Powertrusion line of poles.

As the Asia and Pacific distributor of the Powertrusion Poles, APEES Marlan can supply the poles to the engineered specifications which remain consistent throughout the manufacturing process, no changes to ID or OD of the poles.



The Powertrusion product line of poles have been specifically engineered to withstand the environmental forces of mother nature and the test of time. The three profiles are pultruded with a hybridized polyurethane resin system with an E-glass reinforcement package. The resin contains superior UV inhibitors, in addition, the poles are shrouded with a polyester surfacing veil that provides superior UV protection against the sun's harmful rays. The extremely durable, light weight, high strength Powertrusion poles are the strongest, cost effective pultruded poles in the marketplace. Strong enough to be driven to the highest level of resistance, ensuring a solid, lasting installation.



The Safe System Pole is easier to install, has less maintenance requirements and all standard furniture can be fitted. The following tables provide the standard properties although piles can be manufactured and fabricated to order.

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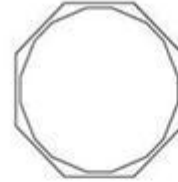
**CP076**

203mm x 6.3mm



**CP074**

259mm x 6.3mm



**CP210**

259mm x 7mm

### Mechanical and Physical Properties

	203mm Light Duty CP076	259mm Med. Duty CP074	259mm Heavy Duty CP210
<b>Mechanical Properties</b>			
Flexural strength (full section)	275.8 Mpa	289.6 Mpa	344.7 Mpa
Axial Compression Strength	275.8 Mpa	289.6 Mpa	344.7 Mpa
Modulus of Elasticity	26.2 Gpa	27.5 Gpa	31.0 Gpa
<b>Physical Properties</b>			
Moment of Inertia mm <sup>4</sup>	2.53E7	5.81E7	7.14E7
Section Modulus mm <sup>3</sup>	2.49E5	1.30E5	5.51E5
Radius of Gyration mm	71.4	91.4	90.7
Weight N/m	92.4	128.7	161.3

### Class & Strength, Length & Weight

CLASS STRENGTH	30 ft. (9.14m) WEIGHT	35 ft. (10.67m) WEIGHT	40 ft. (12.2m) WEIGHT	45 ft. (13.7m) WEIGHT	50 ft. (15.2m) WEIGHT	55 ft. (16.8m) WEIGHT	60 ft. (18.3m) WEIGHT
<b>5</b>	8 Ser II	8 Ser II	10 Ser I	10 Ser I	10 Ser II	10 Ser II	10 Ser III
1,900 lbs (861 kg)	201 lbs (91.2 kg)	234 lbs (106 kg)	368 lbs (167 kg)	412 lbs (187 kg)	457 lbs (207 kg)	503 lbs (228 kg)	688 lbs (312 kg)
<b>4</b>	8 Ser II	10 Ser I	10 Ser I	10 Ser II	10 Ser II	10-8 Ser IV	10-8 Ser IV
2,400 lbs (1,088 kg)	201 lbs (91.2 kg)	322 lbs (146 kg)	368 lbs (167 kg)	412 lbs (187 kg)	457 lbs (207 kg)	720 lbs (327 kg)	820 lbs (372 kg)
<b>3</b>	10 Ser I	10 Ser II	10 Ser II	10 Ser III	10 Ser III	10-8 Ser IV	---
3,000 lbs (1,361 kg)	277 lbs (126 kg)	322 lbs (146 kg)	368 lbs (167 kg)	515 lbs (234 kg)	572 lbs (259 kg)	748 lbs (339 kg)	---
<b>2</b>	10 Ser II	10 Ser II	10 Ser III	10-8 Ser IV	10-8 Ser IV	---	---
3,700 lbs (1,678 kg)	277 lbs (126 kg)	322 lbs (146 kg)	459 lbs (208 kg)	604 lbs (274 kg)	698 lbs (317 kg)	---	---
<b>1</b>	10 Ser III	10 Ser III	10-8 Ser IV	10-8 Ser IV	---	---	---
4,500 lbs (2,041 kg)	346 lbs (157 kg)	402 lbs (182 kg)	550 lbs (250 kg)	648 lbs (294 kg)	---	---	---



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Crossarm Tangents and Dead Ends are available in a number of sizes and strengths ranging from 87mm x 112 mm to 100mm x 150mm sections, lengths from 1.5m to 3.65m and Ultimate loads per phase of 8.9kN to 66.7kN.



More information on the full Safe Systems range, including a full range of standard pole and crossarm furniture, is available by contacting APEES Marlan.