



**C.J. Engineering Works** a partnership company started in 1972 as a heavy metal forming and fabrication services to cater chemical, hydro power plants, mining, shipping and other allied heavy industries.

As the challenges of market were sensed, we diversified to manufacturing of lifting clamps to lift metal plate and various fabricated structures under the brand "**CAMLIFT**" and further started manufacturing of frp/grp street light poles under the brand "**CENTRICOM**" on the indigenously self-made centrifugal moulding machine.

Since our team consist of very experienced background from metal and frp, we have been delivering very high quality product.

All of our manufacturing process has been qualified with a technical expertise and maintain stringent quality check and 100% traceability with required certifications.



## "CENTRICOM" frp/grp light poles





## MANUFACTURING PROCESS

**Centrifugal casting** is a production technology used to make composite **poles** (with fiberglass) in the **shape of a truncated cone** with maximum length of 10 meter.

The pole is formed by inserting the reinforcement (fiberglass) in a specific rotating mould that has a truncated-cone cavity. Due to **centrifugal force**, the fiberglass adheres to the walls of the mold and takes its shape.

The matrix (resin) inside the mould is impregnated with fiberglass due to the rapid rotation of the mould (centrifugal casting). It also hardens by polymerizing when it comes in contact with the heated mould.

The poles produced by centrifugal casting can have consistence thickness due to the possibility of controlling the distribution of the reinforcement inside the mould. This way, tapered poles are obtained which are reinforced only in the critical areas determined by their use. This is accomplished without increasing thickness and thus weight over the entire length.

This technology makes it possible to make products with a high degree of dimensional and physical-mechanical repeatability.

### **Applications Area :**

Street Light poles

Garden Light poles

Jetty Light poles

Solar Light poles

Flag poles

CCTV poles

Sineage pole

Utility poles



**Accessories offered:**



FRP/GRP single arm



FRP/GRP double arm



internal junction box



External junction box



Metal base bracket with  
 frp cladding



Tailor made base bracket



Top load testing of pole



Comparison of	Composite Poles	Steel Poles
<b>Weight</b>	Specific weight 1860Kg/m <sup>3</sup> , about 26-32% that of steel.	Specific weight 7800Kg/m <sup>3</sup> , about 3-4times heavy then composite pole.
<b>Rusting</b>	Non corrosive due to basic material characteristics	Even after powder coating or galvanizing, rusting starts from inside & the base.
<b>Installation</b>	Light in weight, can be handled by less no. of person	Very heavy, needs lifter machines which adds the cost
<b>Maintenance</b>	Completely maintenance free	Need re-coating or refurbish after some time.
<b>Surface finish</b>	Smooth and surface layer can be integrated with the base material, so the surface layer will NOT fall off with time	The surface coating often fall off after some time, for the index of expansion against temperature and much deferent for metal and surface coating, so after some time coating is easy to peel off.
<b>Insulation</b>	Nonconductive, very good insulation	Conductive, have risk for electricity leakage.
<b>Service life</b>	Longer than metal, 20 to 25 years	Shorter life due to rusting
<b>Wind resistance</b>	Our poles can withstand wind speed of 180 Km/Hr.	-
<b>Corrosion resistance</b>	Very good against water, acid rain, sea water, salty air, chemicals.	Can be attacked by water, acid rain and sea water.
<b>Bendability</b>	It can withstand stability after bending up to 25° to 30°	It can be bend but does not have stability
<b>Impact</b>	When the vehicle impact on the pole its can break down at time and person in the vehicle will be safe.	When the vehicles impact on pole its will damage the vehicle and the person may get injury.



## MECHANICAL PROPERTIES

PROPERTY	TEST METHOD	UNITS
Specific gravity	ASTM D 792	1.30-1.80 Kg/m <sup>3</sup>
Glass content( % by weight)	ASTM D2584	45.0 to 55.0 %
Water absorption	ASTM D 570	< 0.5%
Tensile Strength	ASTM D 638	200+/-50 Mpa
Flexural Strength	ASTM D790	250+/-50 Mpa
Compressive Strength	ASTM D 695	200+/-50 Mpa
Yeild Strength	ASTM D 638	250+/-50 Mpa
Elasticity of modular	ASTM D 638	1500 to 25000 Mpa

## Standard Dimensions for "CENTRICOM" frp poles

Sr. No.	Length 'mm'	Top OD 'mm'	Bottom OD 'mm'	Avg. Thk 'mm'	Test Load on Top 'Kg'
1	3000	76	126	4	200
2	4000	76	143	4	200
3	5000	76	160	5	200
4	6000	76	176	5	200
5	7000	76	193	6	200
6	8000	76	210	6	200
7	9000	76	228	7	200
8	10000	76	245	7	200

**Note :** Dimensional tolerance in linear +/- 20mm