HELIPOLE

FILAMENT WOUND COMPOSITE POLES

ABOUT COMPANY

Helipole – Lighting the Future with Innovation

Helipole is a pioneering manufacturer of Fiber-Reinforced Polymer (FRP) composite poles, delivering innovative, durable, and sustainable solutions for modern infrastructure needs. A division of CNC Technics, we combine decades of engineering expertise with advanced materials to create products that redefine strength, safety, and efficiency.

With installations across multiple countries and applications ranging from street lighting to telecom and airport infrastructure, Helipole is trusted by governments, developers, and industries worldwide. Our commitment lies in designing poles that are lightweight, corrosionresistant, and capable of withstanding extreme conditions, offering a reliable alternative to conventional poles.

Misson & Vision

Our Mission

To engineer and deliver high-performance composite poles that combine innovation, sustainability, and reliability, empowering infrastructure growth while reducing long-term costs and environmental impact.

Our Vision

To be a global leader in composite pole technology, recognized for transforming infrastructure development with cutting-edge, eco-friendly, and maintenance-free solutions that stand the test of time.

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ISO CERTIFICATES

Certificate of Registration

This is to certify that the Environmental Management System of

CNC TECHNICS PVT.LTD

SURVEY NO. 48 & 49, PLOT NO. 2, BLOCK – G, IDA, AUTONAGAR, VISAKHAPATNAM, – 530046, ANDHRA PRADESH (INDIA)

Has been successfully assessed & conforms with the following standard

ISO 14001:2015

Scope of Certification

DESIGN, MANUFACTURE AND SUPPLY OF FRP/GFRP POLES AND VESSELS.

Certificate No.	CNC/EMS/HZS/1994
Initial Registration Date	11.08.2025
Issue Date	11.08.2025
Surveillance 1 Audit Date	11.07.2026
Surveillance 2 Audit Date	11.07.2027
Re-Certification Due Before	10.08.2028
Date of Expiry	10.08.2026

Signature of Director

Accreditation No.: CB-MS-2002

(Accredited by United Accreditation Foundation (UAF),

To Check Certification Status:

SARVA MANAGEMENT SYSTEM PRIVATE LIMITED

TÜV NORD

CERTIFICATE

Management system as per

ISO 9001 : 2015

The Certification Body TÜV INDIA hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

CNC TECHNICS PVT. LTD.
Survey No. 48 & 49, Plot No - 2,
Block - G, IDA, Autonagar,
Vishakapatnam - 530 046, Andhra Pradesh,
India

operates a management system in accordance with the requirements of ISO 9001:2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope -

Design, Manufacture and Supply of GFRP Poles and Vessels.

Certificate Registration No. **QM 06 00324**
Audit Report No. **Q 7791/2017**

Valid from **11.02.2023**
Valid until **10.01.2026**
Initial certification **10.01.2017**

Certification Body
at TÜV INDIA PVT. LTD.

Mumbai, **11.02.2023**

TUV India Pvt. Ltd., 801, Raheja Plaza – 1, L.B.S. Marg, Ghatkopar (W), Mumbai - 400 086, India cert.helpdesk@tuvindia.co.in

Certificate of Registration

This is to certify that the Occupational Health and Safety Management System of

CNC TECHNICS PVT.LTD

SURVEY NO. 48 & 49, PLOT NO. 2, BLOCK – G, IDA, AUTONAGAR, VISAKHAPATNAM, – 530046, ANDHRA PRADESH (INDIA)

has been successfully assessed & conforms with the following standard

ISO 45001:2018

Scope of Certification

DESIGN, MANUFACTURE AND SUPPLY OF FRP/GFRP POLES AND VESSELS.

Certificate No.	CNC/OHS/625/3403
Initial Registration Date	11.08.2025
Issue Date	11.08.2025
Surveillance 1 Audit Date	11.07.2026
Surveillance 2 Audit Date	11.07.2027
Re-Certification Due Before	10.08.2028
Date of Expiry	10.08.2026

Signature of Director

Accreditation No.: CB-MS-2012

(Accredited by United Accreditation Foundation (UAF),

To Check Certification Status:

SARVA MANAGEMENT SYSTEM PRIVATE LIMITED

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WHAT IS FILAMENT WINDING

- **Filament** winding is the method of using a CNC (Computer Numerical Control) filament winding machine to manufature components like cylinder, Pipes, Poles, Symmetric & Non-Symmetric objects, pressure vessels or tanks, etc. The process involves the controlled layup of Fiber filaments under tension onto a rotating mandrel.

- GFRP is defined as a composite material made out of glass fiber reinforcedwith a polymer matrix. This combination of Fiberglass and resin when designedproperly, forms a strong engineered product.

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FILAMENT WOUND FRP/GFRP STREET LIGHT POLES

- There are various methods of manufacturing poles, but the most efficient and highest technology driven method is Filament winding.
- Most of the top pole manufactures in the world use this technology due to its strength benefits.
- Our fibre reinforced plastic poles poles are made using sophisticated multi axes Siemens controlled CNC Filament Winding Machines and ancillary equipment using specialized winding & design software imported from the UK.

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FILAMENT WOUND FRP/GFRP STREET LIGHT POLES

- The process of making GFRP poles by Filament winding ensures a high glass fiber content, as much as 65 to 70%. Other processes may not be higher than 50 to 55 percent.
- The long continous fibers used in filament winding along with low angles of winding provide high longitudinal strength which is an important requisite for GFRP poles.
- Our poles have UV inhibitors to prevent decay of resin over long periods of exposure to the sun.
- We use industry standard E-Glass fibers. This results in a pure composite, high strength, fiber-reinfored pole

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COMPARATIVE WEIGHTS OF STEEL & CONCRETE vs FRP/GFRP STREET LIGHT POLES

S.No	Comparative Weight of other Material Poles Vs Frp Pole
1	Weight of FRP Pole is 40% Weight of Steel Pole
2	Weight of FRP Pole is 20% Weight of Concrete Pole

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BENEFITS AND ADVANTAGES OF FRP/GFRP STREET LIGHT POLES

MAINTENANCE

There is practically no maintenance to be done, during the entire life of the pole

EASY MOVEMENT

Very easy movement even in rough terrain, since just two personnel can handleone pole

EARTHING

No earthing is required unlike steel poles, due to the entire pole being manufactured using non conductive materials

COLOURS

Large variety of colours possible, to help blend in with the surroundings

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BENEFITS AND ADVANTAGES OF FRP/GFRP STREET LIGHT POLES

LIGHTWEIGHT

Very light, weighing in at less than half the weight of steel poles

CORROSION RESISTANT

The nature of the material used provide the pole with complete rust proof capabilities, as well as resistance towards high humidity, sea water, acid rain, etc

ELECTRICAL CONDUCTIVITY

Non-Conductive materials used provide the pole with shock proof capabilities

TRANSPORTATION COSTS

These are at a MINIMUM, due to the lightweight nature of the poles

HIGH STRENGTH

High strength and resilience allow the poles to withstand high wind speeds. Failures are negligible

GOOD AESTHETICS

Environmentally friendly aesthetics help the pole blend well with the landscape

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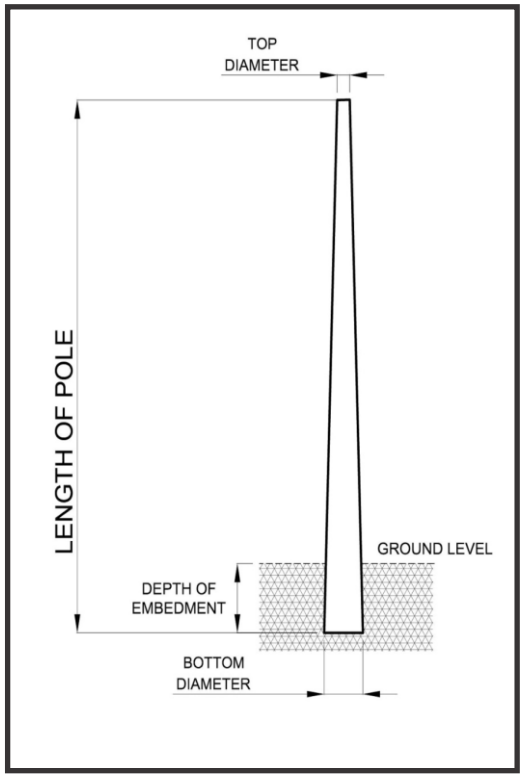
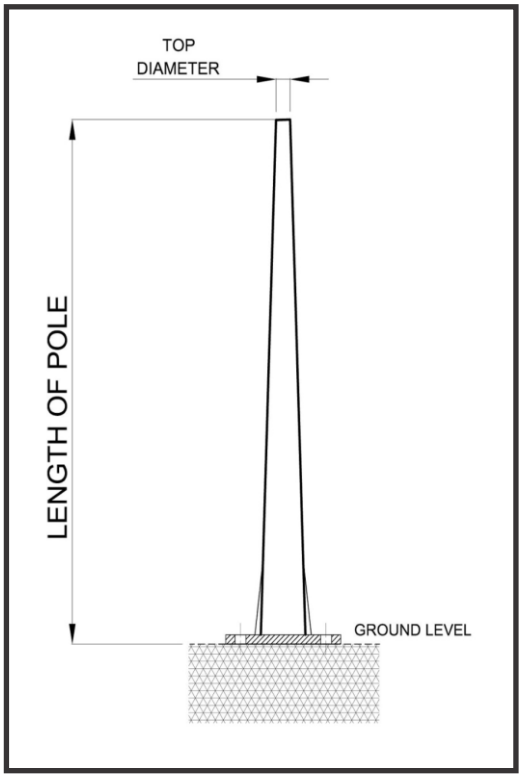
BURIAL TYPE



FLANGE TYPE



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MATERIAL STANDARDS

- **MATERIALS**: We use high strength glass fiber for the manufacture of the composite poles. The Fiberglass used is in compliance with ASTM D2343 & D2344 standards.

  The Polymer Matrix used is of a high strength and flexibility in nature. The resin is also designed to be chemically resistant according to IS 6746.

- **UV PROTECTED**: UV Protection lengthens the life of the poles and prevents degradation from radiation and weathering effects. This layer of protection is integrated and does not scratch or flake off, offering far superior protection than traditional coating and surface veils. Our poles are designed for an average usage of 50 years.

- **LABELLING** There are ID labels affixed externally to every pole for identification purposes.

- **ENVIRONMENTALLY FRIENDLY**: Our poles never need to be treated or maintained with any chemical additive or coating throughout their long service life. There is no leaching unlike wood poles, which keeps the environment free of hazardous associated preservative chemicals.

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DESIGN

HELIPOLEs are tested in accordance with:

- **American National Standards Institude (ANSI C136.2)**
- **British Standards (BS) EN 40-2-2004**

- **LIGHTWEIGHT DESIGN** of HELIPOLE leads to a significant improvement in the number of poles that can be shipped to the customer in a single truckload. This results in fewer trips and less emissions.

STRUCTURAL AND FUNCTIONAL DESIGN

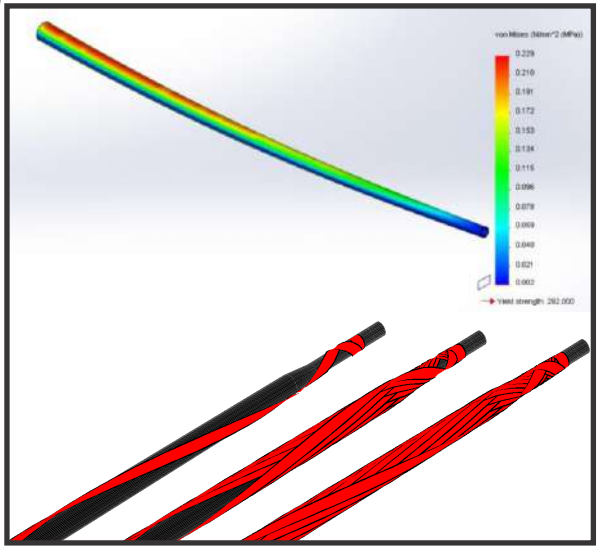
- With the input of parameters such as :
  - **Material properties**
  - **Geometry data of the tube**
  - **Winding angle of fiber**
  - **Thicknesses and so on**

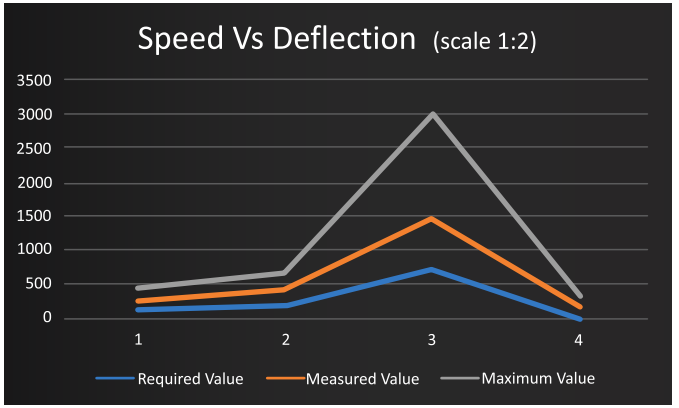
- Important calculations are done by applying forces such as :
  - **Lateral tip force**
  - **Bending force**
  - **External wind pressure**

- The Poles are designed using a specialized software from UK. Using the input of Parameters and Applied forces, crucial elements such as Deflected shape under load, percentage of deflection, deflection at the tip of the pole are calculated.

STRESS CALCULATIONS

Description	Load Applied in Kgs	Wind Speed in Kmph	Displacement in mm	Deflection in mm
Required Value	100	187	709	0
Measured Value	120	205	750	1
Maximum Value	200	270	1550	4





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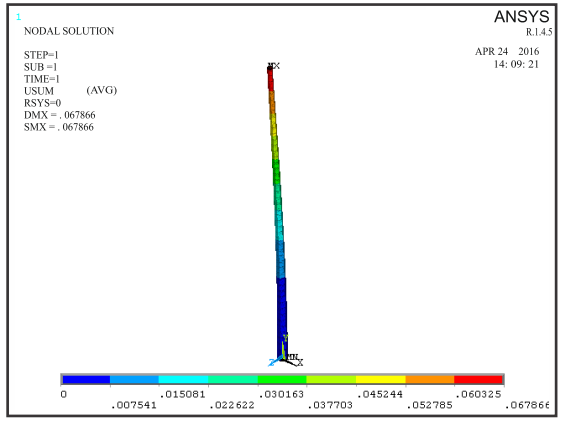
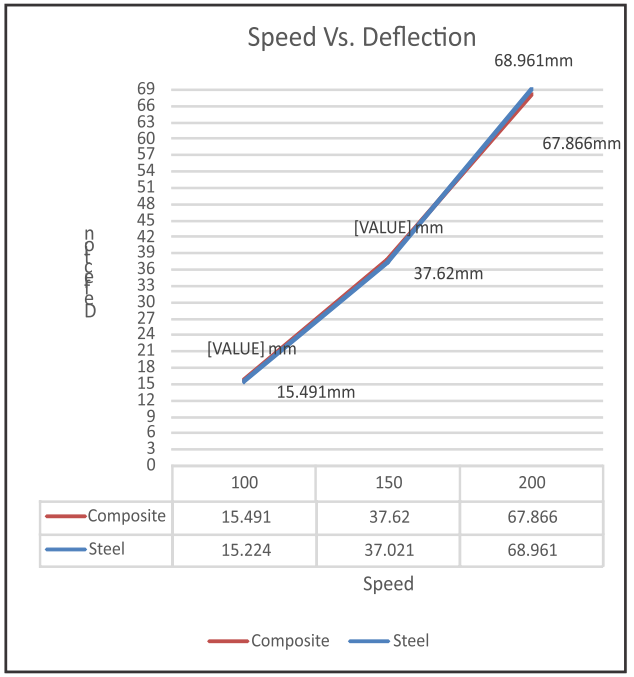
DESIGN & ANALYSIS OF DEFLECTIONS BETWEEN STEEL AND COMPOSITE

S.No	Material	Deflection at speeds (in mm)		
		100 km/hr	150 km /hr	200 km/hr
1	Steel	15.244	37.021	68.961
2	Composite	15.491	37.62	67.866





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TEST PERFORMED ON FRP/GFRP POLES

- **BENDING TEST** - Static Bending test of poles by the Cantilever design.
- **TORSION TEST** - Performed to calculate the torsional capabilities of the pole.
- **CYCLIC (FLEXURAL FATIGUE) TEST** - Performed with the aim of ensuring the pole fails only after specified repeated exposure to applied loads.

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TEST PERFORMED ON FRP/GFRP POLES

Tests Performed on FRP/GFRP Street Light Poles		
S. No.	**Test**	**Standard**
1	Tensile Strength (CW)	ASTM D638
2	Tensile Strength (LW)	ASTM D638
3	Tensile Modulus (CW)	ASTM D638
4	Tensile Modulus (LW)	ASTM D638
5	Compressive Strength (LW)	ASTM D695
6	Flexural Strength (LW)	ASTM D790
7	Poisson Ratio	ASTM D3039
8	Elongation %(LW)	ASTM D638
9	Flammability Test	UL94 V-0
10	Glass Content	IS 13411
11	Barcol Hardness Test	ASTM D2583
12	Izod Impact Strength	ASTM D256
13	ILSS-Inter Laminar Shear Strength	ASTM D2344
14	Density	ASTM D792
15	24HR Water Absorption	ASTM D570
16	UV Test on Flat Laminate	ASTM G154
17	Electrical Conductivity	ASTM D257

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COMPARISON BETWEEN EXISTING GI POLES & FRP/GFRP POLES

S.No	DESCRIPTION	EXISTING GI POLES	FRP/GFRP POLES
1	WEIGHT	HEAVY	2/3RD OF EXISTING POLES
2	EASE & SPEED OF INSTALLATION	SLOW & COMPLEX	QUICK & EASY
3	LIFE CYCLE	9 TO 25 YEARS	50 YEARS
4	WIND SPEED SUSTAINABILITY	150 KMPH	180 KMPH
5	MAINTENANCE	VERY FREQUENTLY	NOT REQUIRED
6	AESTHETICS	NO AESTHETICS	CUSTOMIZABLE
7	ELECTRICAL CONDUCTIVITY	CONDUCTIVE	NON CONDUCTIVE
8	EARTHING	REQUIRED	SHOCKPROOF
9	SAFETY (IN CASE OF NATURAL CALAMITY/ ACCIDENT)	CAN CAUSE DAMAGE TO LIFE & PROPERTY	BEING LIGHT WEIGHT, DAMAGE WILL BE MINIMAL
10	COLOUR AVAILABILITY	NOT APPLICABLE	MULTIPLE OPTIONS
11	PAINT LIFE	LESS	LIFELONG

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FRP/GFRP POLES MANUFACTURING PLANT AT VIZAG

FRP/GFRP POLES MANUFACTURING PLANT AT HYDERABAD

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PHOTO GALLERIA

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LOGO INCORPORATION

PHOTO GALLERIA

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Thank You...

Manufacturing Unit 1:

CNC Technics Pvt Ltd
Survey No : 48 & 49, Plot No -2, Block - G,
Industrial Development Area,
Autonagar, Visakhapatnam - 530 046.

Manufacturing Unit 2:

CNC Technics Pvt Ltd
Survey No 67 -107 Plot No 39 & 42
Khalsa (V), Ibrahimpatnam
RR Dist, Telangana 501 506

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3A,Type-1, Industrial Estate, Kukatpally, Hyderabad - 500 072.

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