

# PRODUCT OVERVIEW

## HIGH MAST

Ideal for large-area lighting solutions with durable, high-reach poles. **Vibhor Steel Tubes** offer high mast ranging from 9M to 60M height with specific standards R&L (rising & lowering) circular LC, special cradle type (0-180°) LC suitable to mount 24 nos. (0-360°) fix type and double LC with more than 24 nos. All force coefficient values & other factors to design wind pressure we follow are per wind tunnel report conducted at NWTF, IIT Kanpur

## Raising and lowering High Mast Details

### *Lantern Carriage*

Lantern Carriage is an important part of a high mast as it carries lighting system on it. It has 6, 8 & 12 arms which carry luminaries. It is made of ERW pipe, having a ring & straight arms with several holes for passing cables from it. Lantern carriage is made in two parts which make the assembly easy in erected condition of mast. It goes up to the top by help of winch & motor. It can come down to the height of door if any service or maintenance is required. To avoid scratches on surface of mast in case of up-down movement of mast, provided "Rubber Buffer" on the inner side of ring.

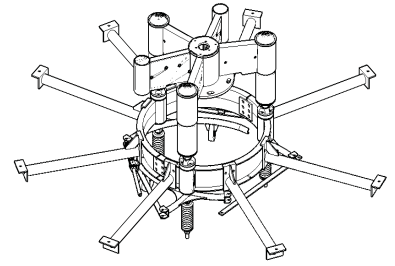


### *Latching System*

Raising and lowering mechanism helps the operator to lower the lantern carriage for maintenance which keeps the mast in good and working condition. Latching Mechanism ensure that lantern carriage should remain docked at correct position even if the



suspension wire ropes fail. As these lighting masts are normally installed in public areas, safety of life is the core purpose of this system.



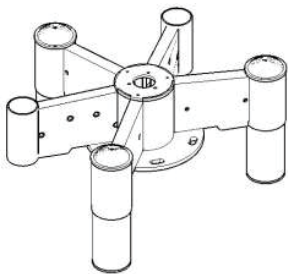
The latching mechanism shall consist of three main sub-assemblies.

- a. Head frame
- b. Luminaire carriage
- c. Self-centring system

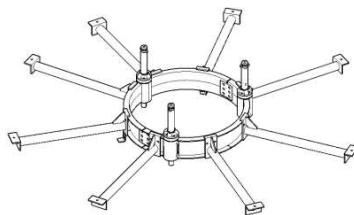
All material shall be of corrosive resistant in nature including stainless steel, aluminum or galvanized steel unless otherwise specified.

#### *Components of Latching System*

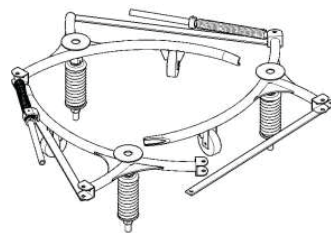
**A. Head Frame**



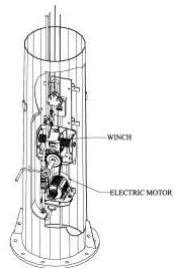
**B. Luminaire Carriage**



**C. Self-Centring System**



**D. Winch**



#### *Winch with Motor*

Winches are the heart of a high mast placed inside the door & rotated by the help of motor. Winch is double drum with oil filled inside for the lubrication. Winch is used for movement of lantern carriage on mast.



### *Lighting Arrestor*

Lighting arrestor is installed on the top of the head frame cover which helps to transfer electricity to earth in case of thunder strike. A 12 mm strip is provided below door which transfer electricity to earth & protects the luminaries & electrical panels from any damage.

### *Head Frame*

Head frame is the top most part of a high mast, holds the pulley arrangement in it. The SS316/304 rope used for moving the lantern carriage passes through the head frame pulley.

There are two types of head frames manufactured by us:

- Two-way head frame
- Three-way head frame
- Two-way head frame contains set of pulleys on either side of it. In three-way system, it has 3 wire ropes passing through it.



### *Electrical System*

Mast shall have the facilities of testing the luminaries at the bottom level. The cables used in a mast is EPR insulated, PCP sheathing & Cotton Braiding to get the required strength & flexibility. These cables are connected with the aluminium junction box on lantern carriage.

## **Street structure**

Designing is based on BSEN 40-3-3:2003 A tested for stability by using application software. Location of installation terrain category & wind speed are important factors for stability check. All these factors are as per IS 8T5 or as per customer requirements.

Raw material is procured as per BSEN 10025 / IS 2062 & galvanized as per BSEN ISO 1461.

Vibhor Steel Tubes produces hot dip galvanized as well as painted polygonal & conical poles which can be used for illumination, power distribution, signaling etc. The poles are provided with different types of brackets & customized accessories depending upon the application.

## Foundation Bolt

Foundation bolts provide anchoring to the Pole / High masts, Monopoles as well as provides stability to the structure. The size & length of a foundation bolt is decided according to the location, height of structure & wind speed at particular zone. Quantity of nut & washer also changes as per the load applied on the structure. Sizes are available from M16 to M39 & as per requirements manufactured in EN-8 grade. We use red oxide paint & hot dipped galvanizing to increase resistance against corrosion. We use EM-30 to M-78 anchor bolts with high tensile strength. Bolts and studs are of grade 8.8.



## Octagonal Street Light Poles – Technical Specifications

| Pole Type | Description        | Top Dia.<br>(mm) | Bottom Dia.<br>(mm) | Sheet Thickness<br>(mm) | Base Plate Dimensions<br>(LxBxT) |
|-----------|--------------------|------------------|---------------------|-------------------------|----------------------------------|
| VSOP-030  | 3M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 12                   |
| VSOP-040  | 4M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 12                   |
| VSOP-050  | 5M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 12                   |
| VSOP-060  | 6M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 12                   |
| VSOP-070  | 7M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 12                   |
| VSOP-081  | 8M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 16                   |
| VSOP-082  | 8M Octagonal Pole  | 70               | 155                 | 3                       | 250 x 250 x 16                   |
| VSOP-091  | 9M Octagonal Pole  | 70               | 130                 | 3                       | 200 x 200 x 16                   |
| VSOP-092  | 9M Octagonal Pole  | 70               | 155                 | 3                       | 250 x 250 x 16                   |
| VSOP-093  | 9M Octagonal Pole  | 70               | 175                 | 3                       | 275 x 275 x 16                   |
| VSOP-101  | 10M Octagonal Pole | 70               | 130                 | 3                       | 200 x 200 x 16                   |
| VSOP-102  | 10M Octagonal Pole | 70               | 155                 | 3                       | 250 x 250 x 16                   |
| VSOP-103  | 10M Octagonal Pole | 70               | 175                 | 3                       | 275 x 275 x 16                   |
| VSOP-111  | 11M Octagonal Pole | 70               | 155                 | 3                       | 250 x 250 x 16                   |
| VSOP-112  | 11M Octagonal Pole | 70               | 175                 | 3                       | 275 x 275 x 16                   |
| VSOP-113  | 11M Octagonal Pole | 90               | 210                 | 3                       | 300 x 300 x 16                   |
| VSOP-121  | 12M Octagonal Pole | 70               | 175                 | 3                       | 275 x 275 x 16                   |
| VSOP-122  | 12M Octagonal Pole | 90               | 210                 | 3                       | 300 x 300 x 16                   |

## Conical Street Light Poles – Technical Specifications

| Pole Type | Description      | Top Dia.<br>(mm) | Bottom Dia.<br>(mm) | Sheet<br>Thickness<br>(mm) | Base Plate<br>Dimensions<br>(LxBxT) |
|-----------|------------------|------------------|---------------------|----------------------------|-------------------------------------|
| VSCP-030  | 3M Conical Pole  | 75               | 108                 | 3                          | 200 x 200 x 12                      |
| VSCP-040  | 4M Conical Pole  | 75               | 119                 | 3                          | 200 x 200 x 12                      |
| VSCP-050  | 5M Conical Pole  | 75               | 130                 | 3                          | 200 x 200 x 12                      |
| VSCP-060  | 6M Conical Pole  | 75               | 140                 | 3                          | 200 x 200 x 12                      |
| VSCP-070  | 7M Conical Pole  | 75               | 152                 | 3                          | 200 x 200 x 12                      |
| VSCP-080  | 8M Conical Pole  | 75               | 163                 | 3                          | 250 x 250 x 16                      |
| VSCP-090  | 9M Conical Pole  | 75               | 174                 | 3                          | 275 x 275 x 16                      |
| VSCP-110  | 10M Conical Pole | 75               | 185                 | 3                          | 275 x 275 x 16                      |
| VSCP-111  | 11M Conical Pole | 75               | 196                 | 3                          | 300 x 300 x 16                      |
| VSCP-112  | 12M Conical Pole | 75               | 206                 | 3                          | 300 x 300 x 16                      |

Above all are standard sizes of octagonal / conical poles, Vibhor Steel can also manufacture customised Octagonal and Conical Pole as per customer requirements.

We can manufacture maximum height of 13mtrs octagonal pole in single section.

All octagonal / conical poles are hot dip galvanised as per standard BSEN ISO 1461.

We are providing P.U painted structures as per requirement of customer.

# HIGH MAST - Technical Specification

| Sr. No. | Mast Ht.<br>(meter) | Mast Code<br>(meter) | Top<br>dia.(mm) | Mast Details<br>Bottom<br>dia.(mm) | Tk.(mm) | Nos. | Anchor Bolt<br>Details Dia's<br>length(mm) | PCD<br>(mm) |
|---------|---------------------|----------------------|-----------------|------------------------------------|---------|------|--------------------------------------------|-------------|
| 1       | 12.0                | VSHM 12A             | 100             | 310                                | 3       | 4    | M24x850                                    | 385         |
| 2       | 12.0                | VSHM 12B             | 100             | 360                                | 3       | 4    | M24x850                                    | 445         |
| 3       | 12.5                | VSHM 12.5A           | 100             | 310                                | 3,3     | 4    | M24x850                                    | 385         |
| 4       | 12.5                | VSHM12.SB            | 100             | 360                                | 3,3     | 4    | M24x850                                    | 445         |
| 5       | 12.5                | VSHM 12.5C           | 150             | 360                                | 3,3     | 4    | M24x850                                    | 445         |
| 6       | 16                  | VSHM 16A             | 150             | 360                                | 3,3     | 6    | M24x850                                    | 445         |
| 7       | 16                  | VSHM 16B             | 150             | 360                                | 3,4     | 6    | M24x850                                    | 445         |
| 8       | 16                  | VSHM 16C             | 150             | 41D                                | 3,3     | 8    | M30x850                                    | 490         |
| 9       | 16                  | VSHM 16D             | 150             | 410                                | 3,4     | 8    | M30x850                                    | 490         |
| 10      | 16                  | VSHM 16E             | 150             | 46D                                | 3,3     | 8    | M30x850                                    | 590         |
| 11      | 16                  | VSHM 16F             | 150             | 460                                | 3,4     | 8    | M30x850                                    | 590         |
| 12      | 20                  | VSHM 20A             | 150             | 36D                                | 3,3     | 6    | M24x850                                    | 445         |
| 13      | 20                  | VSHM 20B             | 150             | 360                                | 3,4     | 6    | M30x850                                    | 445         |
| 14      | 20                  | VSHM 20C             | 150             | 410                                | 3,3     | 8    | M30x850                                    | 490         |
| 15      | 20                  | VSHM 20D             | 150             | 410                                | 3,4     | 8    | M30x850                                    | 490         |
| 16      | 20                  | VSHM 20E             | 150             | 460                                | 3,3     | 8    | M30x850                                    | 590         |
| 17      | 20                  | VSHM 20F             | 150             | 460                                | 3,4     | 8    | M30x850                                    | 590         |
| 18      | 20                  | VSHM 20G             | 150             | 460                                | 4,5     | 8    | M30x850                                    | 590         |
| 19      | 25                  | VSHM 25A             | 150             | 460                                | 3,4,4   | 12   | M30x850                                    | 590         |
| 20      | 25                  | VSHM 25B             | 150             | 460                                | 3,4,5   | 12   | M30x850                                    | 590         |
| 21      | 25                  | VSHM 25C             | 150             | 460                                | 4,4,5   | 12   | M30x850                                    | 590         |
| 22      | 25                  | VSHM 25D             | 150             | 540                                | 3,4,5   | 12   | M30x850                                    | 650         |
| 23      | 25                  | VSHM 25E             | 150             | 54D                                | 4,4,5   | 12   | M30x850                                    | 650         |
| 24      | 30                  | VSHM 30A             | 150             | 460                                | 3,4,4   | 12   | M30x850                                    | 590         |
| 25      | 30                  | VSHM 30B             | 150             | 460                                | 3,4,5   | 12   | M30x850                                    | 590         |
| 26      | 30                  | VSHM 30C             | 150             | 540                                | 3,4,5   | 12   | M30x850                                    | 650         |
| 27      | 30                  | VSHM 30D             | 150             | 540                                | 4,4,5   | 12   | M30x850                                    | 650         |
| 28      | 30                  | VSHM 30E             | 150             | 540                                | 4,4,6   | 12   | M30x850                                    | 650         |
| 29      | 30                  | VSHM 30F             | 150             | 540                                | 4,5,6   | 12   | M30x850                                    | 650         |
| 30      | 30                  | VSHM 30G             | 150             | 610                                | 3,4,5   | 12   | M30x850                                    | 740         |
| 31      | 30                  | VSHM 30H             | 150             | 610                                | 4,4,5   | 12   | M30x850                                    | 740         |
| 32      | 30                  | VSHM 30I             | 150             | 610                                | 4,4,6   | 12   | M30x850                                    | 740         |
| 33      | 30                  | VSHM 30J             | 150             | 610                                | 4,5,6   | 12   | M30x850                                    | 740         |



## HIGH MAST

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All force coefficient values & other factors to design wind pressure we follow are per wind tunnel report conducted at NWTF, IIT Kanpur

## STADIUM MAST

Perfectly engineered Structures for optimal lighting in sports arenas and stadiums. Our engineering solutions are available for:

- Stadium masts heights ranging from 16M to 60M height.
- Fixture fittings on head frame ranging from 12 nos. to 140 nos.
- Support for design of stadium masts as per both Indian and British standards.

Expertise in making Head frame shapes like ROUND, RECTANGLE, CIRCLE & TRAPEZOIDAL etc.

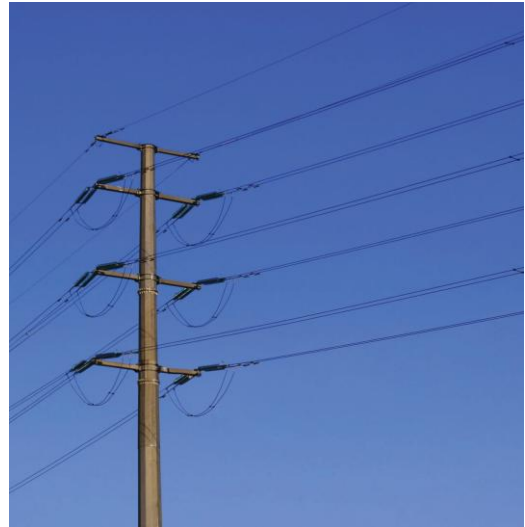


## FLAG MAST

Strong, towering poles, designed for flag displays, ranges from 9M to 120M in height and accommodate flags from 9x6ft to 120x80ft with special domes. Design includes STAAD report checks. Engineering solutions are also available for all flag types varying from domestic, international & religious type flag masts.

# MONOPOLE

Introducing high-quality MONOPOLES for modern power infrastructure, designed to tackle challenging urban environments with ease. Suitable for 33kV to 400kV power transmission, Switch Yard Structures, and special designs like A-frame, Y-frame, and Twin poles.



## Distribution (daN) Poles & Rural Electrification

We provide solutions for power line carrying low voltage electricity from substations for residential and commercial spaces as well as from Renewable Energy Production Centers to Substations.

- **Cross Arms**
- **Top Brackets**
- **Steel Poles /daN Poles**
- **Clamps**



# daN Poles

## *Standards*

1. EN 10025: Hot rolled products of structural steel
2. EN 10149: Hot rolled flat products made of high yield strength for cold forming
3. EN 10079: Definition of steel products
4. NFA 35 503: Steel for galvanization by hot immersion.
5. ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles specifications and test methods.  
ISO 14713: Protection against corrosion of iron and steel structures in zinc and aluminum coatings guidelines.

## *Load Combinations Applied on Poles*

- Nominal tension applied to the pole top
- Specific weight of the pole
- Specific weight of the conductors and the accessories of line (cross arms, insulators)
- Wind Pressure on the pole by taking into account the following uniform pressures:

## *Common Climate Conditions*

**WIND PRESSURE: "CLIENT SPECIFIED"**

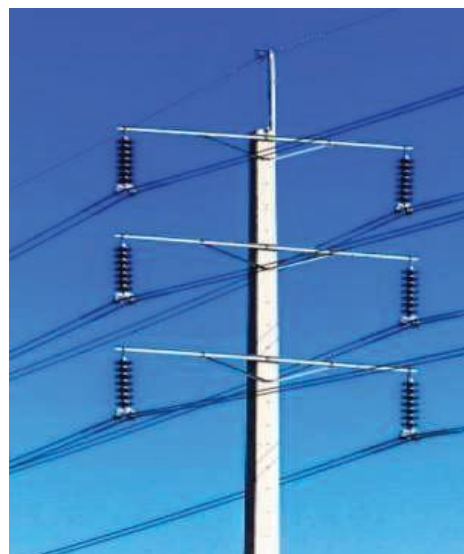
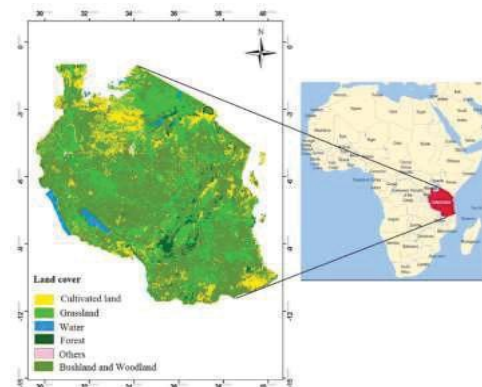
**Maximum ambient temperature: 35 °C**

**Average ambient temperature for year: 25 °C**

**Minimum ambient temperature: 10 °C**

**Altitude: 2000m**

**Relative humidity: up to 95%**



# Special Structures

Unipole



UMBRELLA MAST



SMART POLE



TELECOM TOWER



## Solar Mast

Combining innovation and strength for efficient, sustainable solar energy sustainable solar energy solutions. With ranges of 9M to 30M both standalone & AIO (all in one) solar system which carries upto 8-10 solar panels along with barrier boxes & light fixture



## Gantry Structure

Providing robust support for heavy-duty applications, ensuring reliability in critical infrastructure projects. Usage: Traffic poles, single leg, double leg, triple leg, CCTV, VMS, VDIS, mounting gantries

## Octagonal Lighting Poles

Sleek & modern lighting poles perfect for urban environments.

We are offering octagonal poles ranging from 3M to 12M with SA, DA, TA, FA standard cap type and special brackets like (Sword, Swan and decorative etc.)

Designing is based on BSEN 40-3-3:2003 & tested for stability by using application software. Location of installation, terrain category & wind speed are important factors for stability check. All factors are as per IS 875 or as per customer requirements. Raw material is procured as per IS 2062/BSEN 10025 & galvanized as per BSEN ISO 1461. We produce polygonal & conical poles hot dip galvanized as well as painted which can be used for illumination, power distribution, signaling etc. The poles are provided with different types of brackets & customized accessories depending upon the application.



Sleek & modern lighting poles perfect for urban environments.

Vibhor Steel offering conical poles ranging from 3M to 12M with SA, DA, TA, SA standard cap type and special brackets like (Sword, Swan and decorative etc.). We are specialized in bend poles, ambrosia (decorative poles) etc.

# Swaged Tubular Pole

Swaged Tubular Poles are specially used in Street Lighting purpose in NACs/ Municipal Corporations/ Housing Board Colonies / Residential areas. These kinds of poles are specially designed by swaging at the end to give more tensile strength and durability. Being galvanized, it bears rust and maintenance free feature. Thus, it makes the first choice of many architects and professionals. It's light weight design makes it hassle free and easy in shipment and installation.

**Pole Height and Design** - Basically, the height of the swaged poles ranges from 5M to 14M with a thickness variation from 2.5mm to 7.2mm depending upon the area (locality) of usage. Usually, it can be classified into two types based upon its design:

1. **Single Arm:** The pole consists of a unidirectional arm, bending from the swaged junction/ joint
2. **Dual Arm:** The pole consists of two arms, bending diametrically opposite to each other from the swaged junction/joint.

We customize order as per the requirement of client. Raw materials used: We use the best quality Hot Rolled Coils, produced from the finest plant of India, as raw material to manufacture the perfect dimension of swaged poles. We have in-house Galvanizing plants with capacity of 7M and 13M. To give the best Hot Dip Galvanized product, we use Zinc directly procured from Hindustan Zinc Limited, the only trusted Zinc manufacturer in India.

## Our Swaged Tubular Pole Features

- Finest Grade Material (H.R. Coil IS:10748 grade | and above)
- Highly Resistant to Rust and Corrosion (Zinc coating of 550 gsm/sq. mtr)
- Minimal maintenance cost
- Lightweight and Durable
- Low Shipping Cost (Centrally located in India)

