



**HIGH MAST LIGHTING POLES**  
Cột giàn đèn nâng hạ

# Since 1996



HAPULICO INDUSTRY., JSC was established in 1996 at Hanoi City. Initially a small industrial workshop specializing in manufacturing parts for outdoor lighting luminaires. The development of our company has been marked since 2007, when we expanded scale by investing a modern factory, nowadays main products of our company are not only for outdoor lighting applications but also for other range such as utility poles, antenna monopole and urban equipment...

Our factory located at Dong Khuc industrial park, Vinh Khuc ward, Van Giang district, Hung Yen province, close the Hanoi City about 45 minutes by car and also nearby two highways from HaNoi City to international seaport, this position have many advantages in collect material raws for production as well as very convenient for transportation goods go to other place in the country and to the HaiPhong international seaport of loading.

Our factory scaled 54.000m<sup>2</sup> wide including the area of industry factory is more than 25.000m<sup>2</sup> and remaining area is for internal transport system, auxiliary areas and standby outdoor yards. Its also has been equipped modern machineries such as production lines to fabricate tapered steel columns, street light luminaires... We believe that with this capacity we can meet your stringent requirement about quality, quantity and delivery time.

The our main products and services

- Hot dipped galvanized steel columns for applications such as street lighting poles, power transmission poles, antenna monopole...
- High Mast poles for area lighting applications such as airport, seaport, dock, station yard, tollgate, sport court...
- Decorative lamp-post for landscape lighting applications as garden, parks, resort...
- HID street lamps and floodlights
- LED street lamps and floodlights



# HAPULICO INDUSTRY.,JSC

We are the biggest public lighting poles manufacturer in VIETNAM  
Your OEM orders are always welcome!



Hot dipped galvanized steel columns for outdoor lighting applications are one of the key products of our factory. It made on morden productions lines with productivity more than 300 tons/month. The area of industry workshop for this operation is more than 12.000m<sup>2</sup> and include special machines such as cut to length production lines; CNC hydraulic brake press machine 12m; SAW auto welding systems and many other specialized equipments...

## **Products design**

Complies with the standard code such as EN:40; Technical Report No.07... Base under support of FEA/CAE/CAD design softwares.

## **Steel columns structure**

Normally it was designed tapered continuous steel tube no have circumferential joints. The section shape of steel tube can be round, octagonal, polygonal shape... For the highmast poles, it will designed from some sections joint overlap so that the number of tube section is minimum.

## **Materials**

The main material used for production of columns is hot rolled steel have thickness from 3mm to 10mm with properties in accordance with Japan JIS G3101 standard or equivalent.

## **Welding Joint**

Longitudinal seam weld is SAW welding and the other joint are MIG/MAG welding carried out on specialised equipments and complies withAWD 1.1 standard.

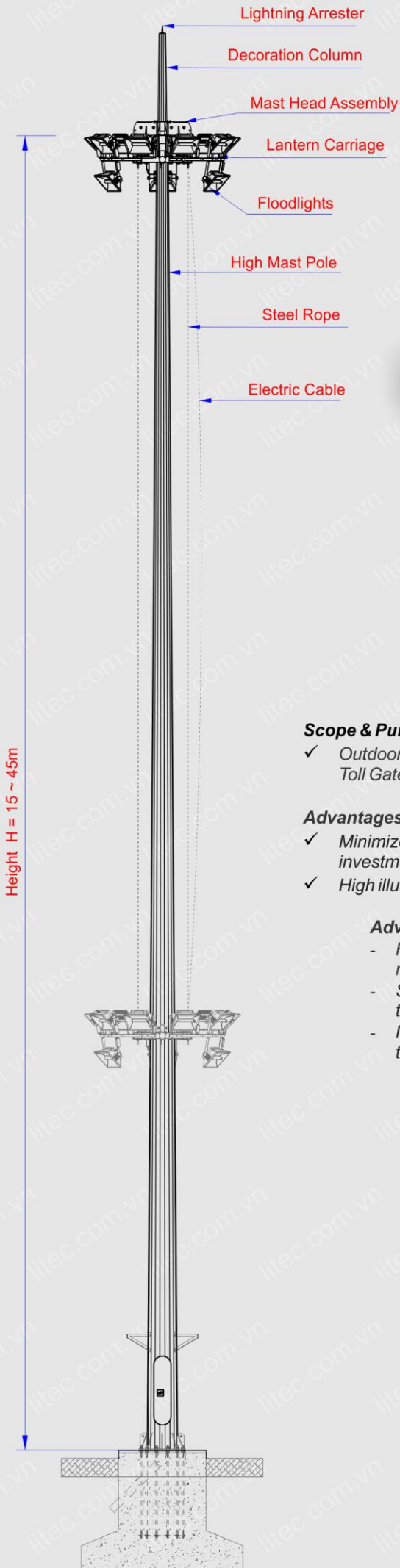
## **Finished surfaces**

After finished machining, all columns will be treated by hot dipped galvanized complies with standard ASTM A123 or equivalent. Additional requirements for outside surface paint coating to increase durability and aesthetics are met (Options).

## **Packaged**

Typically in Vietnam domestic market, the initial quote for hot dipped galvanized light poles are ex-work price and not include packaging cost. We are always ready to meet any of your package requirement (Options).

# HIGH MAST LIGHTING POLES



## Scope & Purpose of use

- ✓ Outdoor area lighting: Squares, Airports, Seaports, Harbour, Station Yards, Highway, Toll Gate, Sport Playground, Shopping Area, Amusement Park...

## Advantages of the high mast illumination solution

- ✓ Minimize the number of light poles to be installed, save space occupied, save initial investment costs.
- ✓ High illumination performance, high uniform illuminance, good visual and observance.

## Advantages of movable lantern carriage solution

- High economic efficiency, maximum save the cost of operating and maintenance.
- Self service, no need crane equipment or other support services to periodic testing and maintenance lamps.
- Not required have to close the traffic road during time checking or maintenance the lighting fixtures.

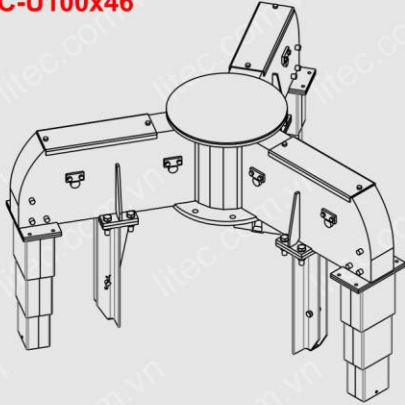
## High Mast Lighting Poles of Hapulico Industry.,JSC

- Multi of types and designs, suitable for multi demand, easy choosing products reasonable optimal for specific purpose of use.
- Design the structure of high mast poles was supported by pro analytics calculation software of USA.
- Mast Head Assembly is the type star arms, this structure easy to add more pulley for multi purpose of use and also allows customized for Mast Head decoration and mounting types of lightning rods.
- Main robust frame of movable lantern carriage is steel ring U shape. Three smart steel latches automatic latched lantern carriage at the top of poles to ensure absolute safety.
- Designed electric compact winch mounted inside poles, winch is worm gear structure fully self-braking, other parts such as drum, case and transition disk are hop-dip galvanized steel. The load of winch system up to 1100kg.
- The product structure was modularization designed, very convenient to pack, transport, assembly, operating and maintenance.

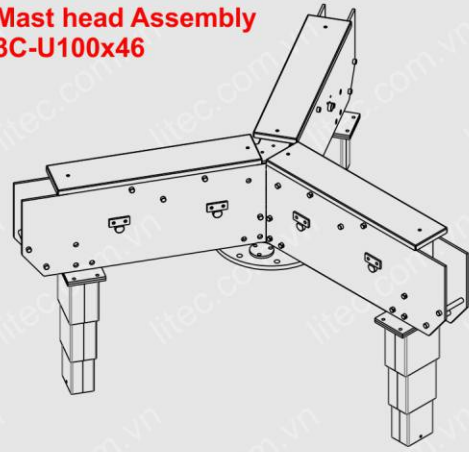


# THE MAIN COMPONENTS OF LANTERN CARRIAGE LIFTING SYSTEM

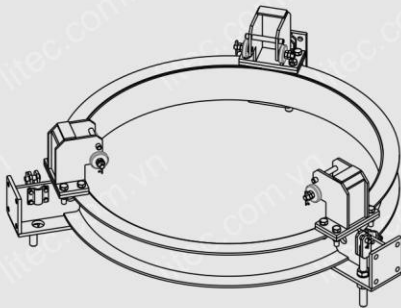
**Mast head Assembly  
1C-U100x46**



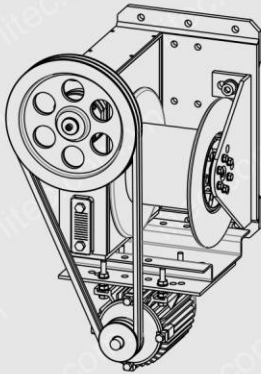
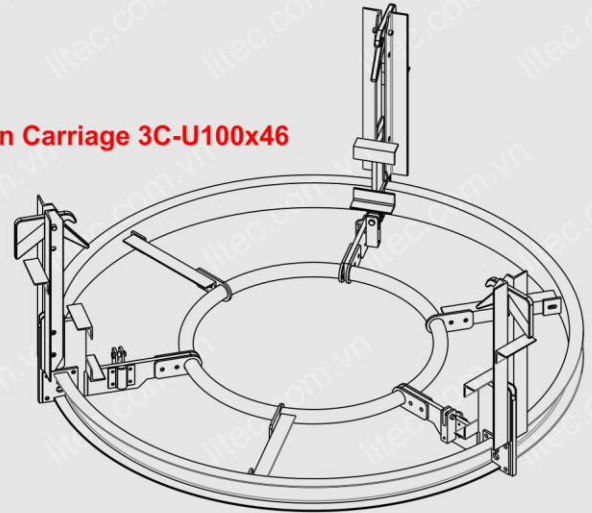
**Mast head Assembly  
3C-U100x46**



**Lantern Carriage 1C-U100x46**

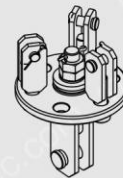


**Lantern Carriage 3C-U100x46**

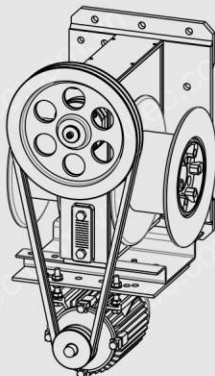


**Electric single drum winch HS-01T**

- +Transmission: Worm Gears
- + Lubrication: Oil-immersed Worm Drive
- + Drive characteristics: self-braking completely
- + Lifting speed: Max 5,3m /min
- + Electric motor: 03 phase 380V/50Hz or single phase 220V/50Hz (Option)
- + Winch drum: Single

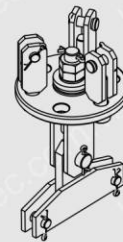


**Transition System  
for single drum**



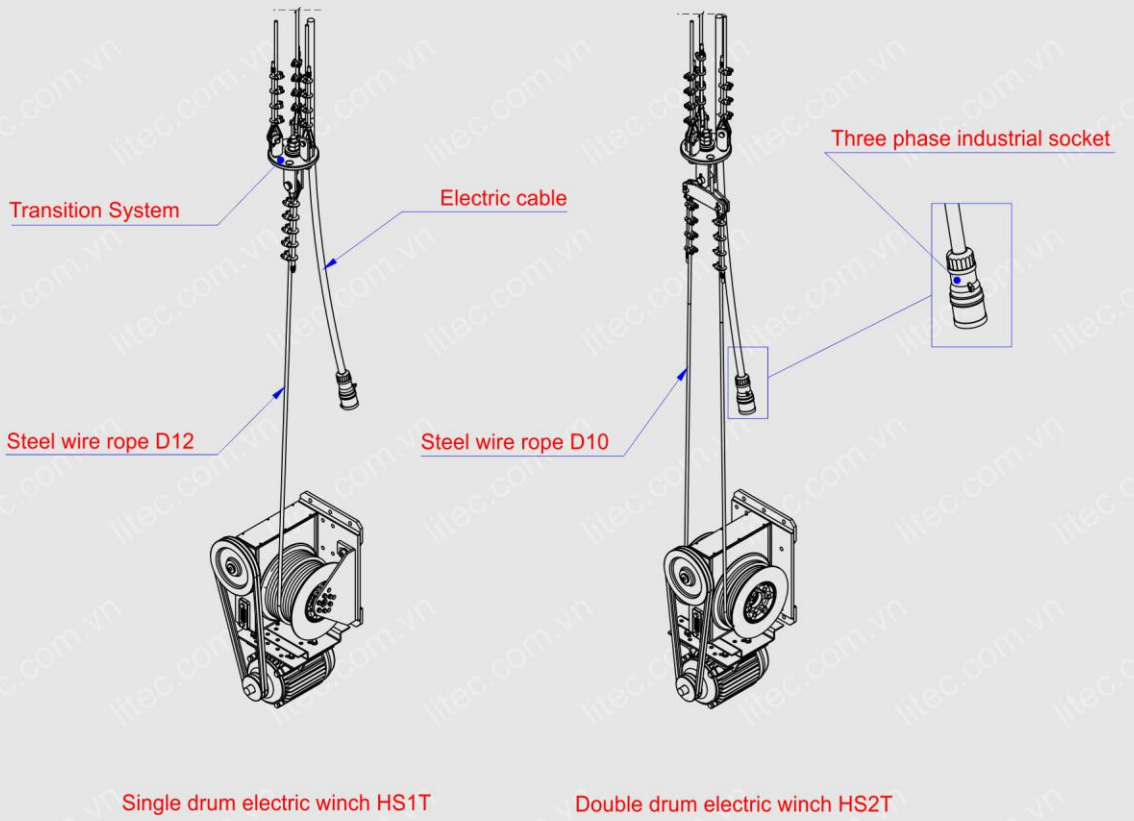
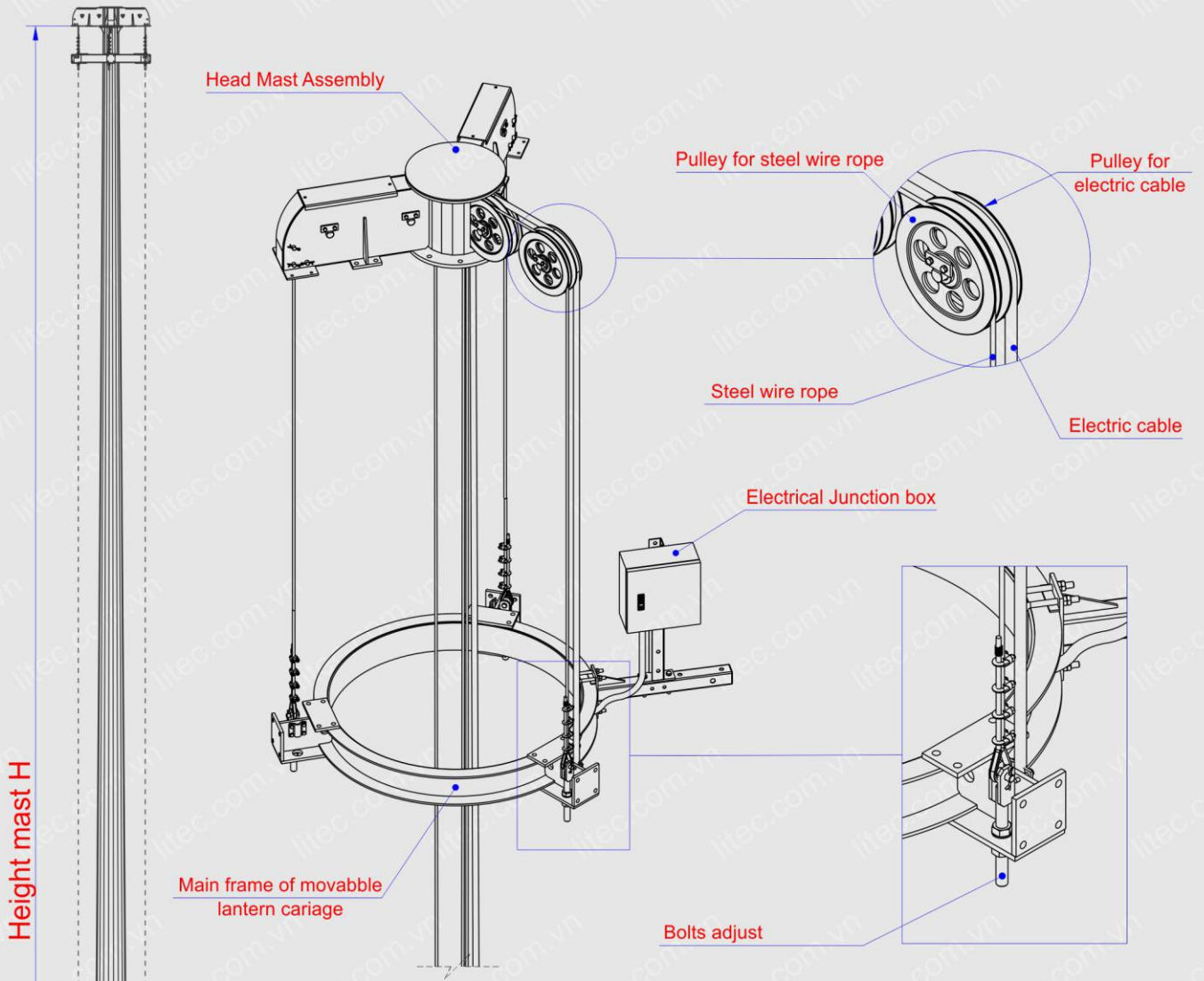
**Electric single drum winch HS-02T**

- +Transmission: Worm Gears
- + Lubrication: Oil-immersed Worm
- + Drive characteristics: self-braking completely
- + Lifting speed: Max 5,3m /min
- + Electric motor: 03 phase 380V/50Hz or single phase 220V/50Hz (Option)
- + Winch drum: Double



**Transition System  
for double drum**

# THE MAIN COMPONENTS





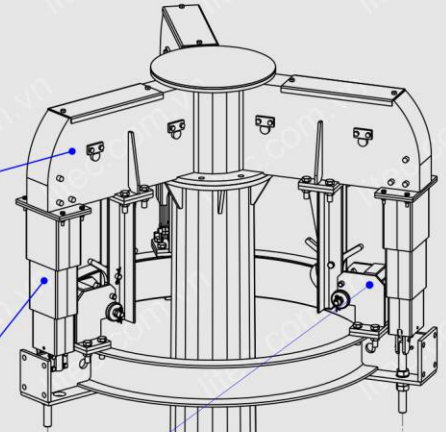
# HIGH MAST LIGHTING POLES

## Mast Head Assembly:

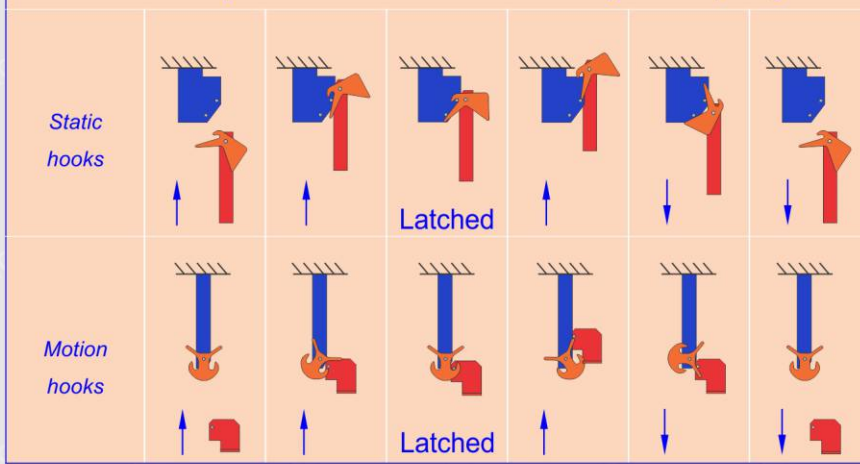
- Robust hot-dip galvanized welding steel structure frame. Design closed structure to anti birds build nest inside. The lanterns carriage will lifted through 03 steel rope and pulley system mounted inside each arm of Mast Head Assembly.
- All pulleys working independently. System auto lubricate by using stainless steel pins and self-lubricating copper sleeves for pulleys.
- The typical design is for one power cable. Structure star arms allow extend to 06 power cables for multi purpose of use such as lighting system, camera system, wireless system...

## Sleeves protect cable:

To anti direct sun ray on the section of power cable from output pulley to lantern carriage, this section usually strained under self weight of whole power cable and easy hurt by ultraviolet rays. This sleeves also protect clamps of cables.

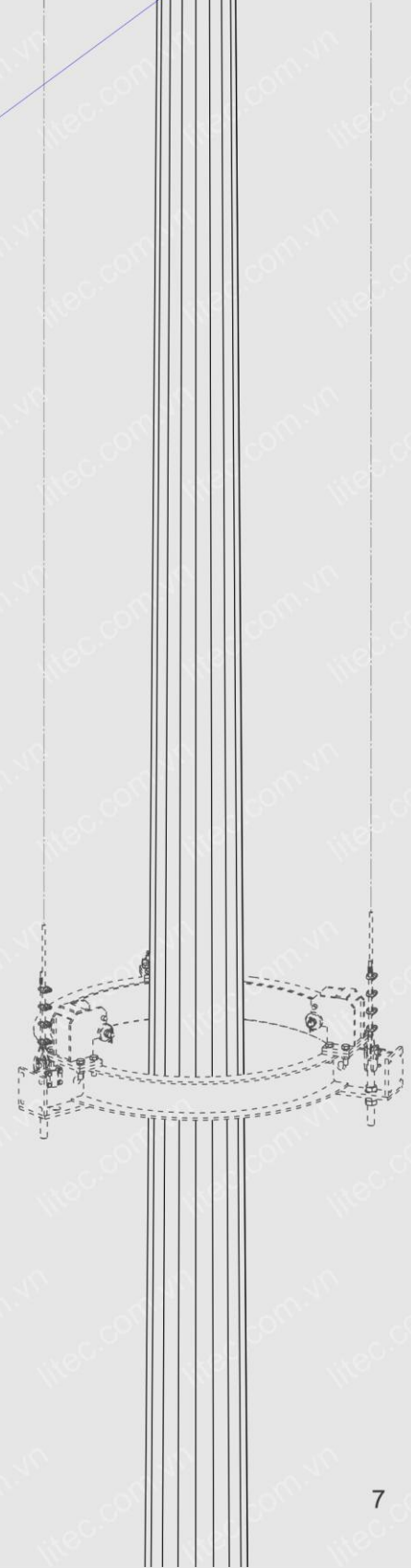
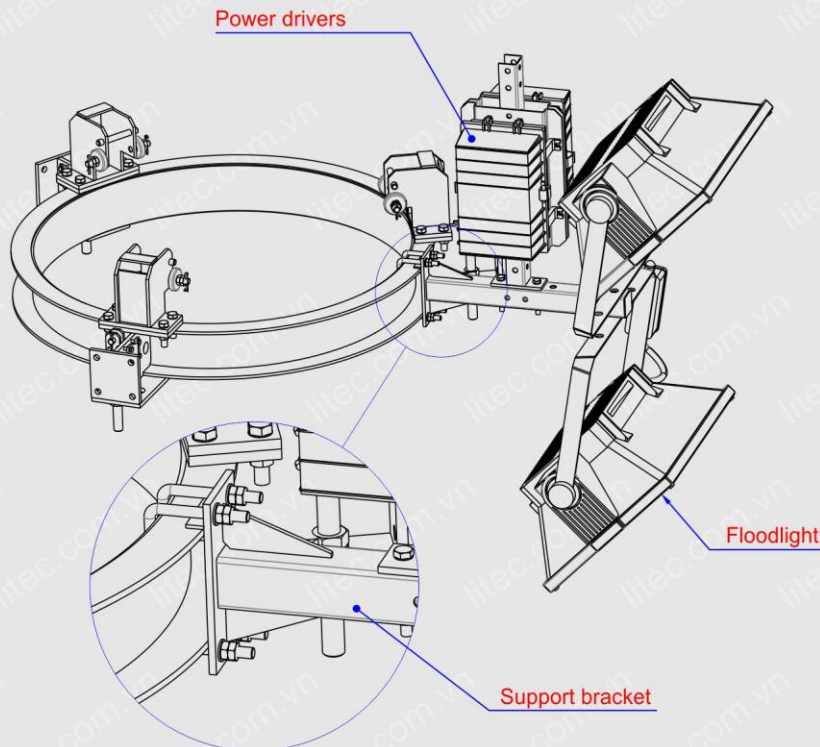


The mechanical latch system will automatic latched lantern carriage at the top of high mast



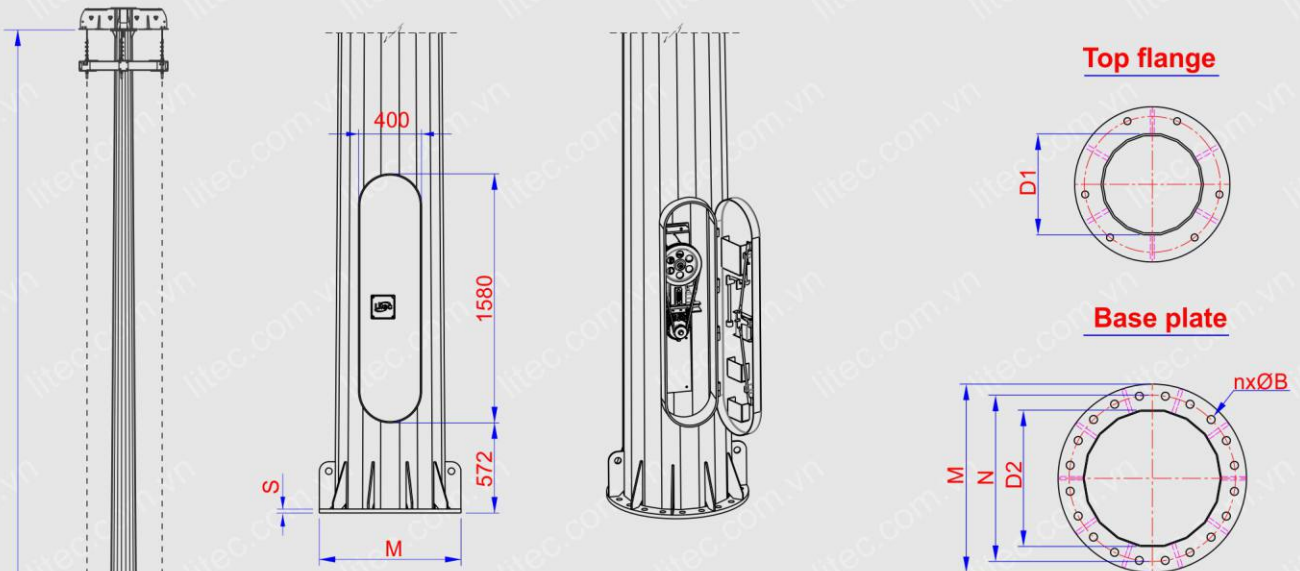
## Movable lantern carriage

The universal bracket system very convenient to mounting lighting fixtures on lantern carriage





# HIGH MAST LIGHTING POLES



High Mast body is including the tapered polygonal tubes designed overlap joint to met height as requirement with the number of tube is minimum. The service door was designed sure with three latch position and hid the lock behind the label to anti public vandalism.

## SPECIFICATIONS

High mast pole dimensions						Base plate dimensions					Base reactions		
Height H (m)	Load level	Number of tubes	Tube thickness (mm)	Tube length (m)	D1 (mm)	D2 (mm)	M (mm)	S (mm)	N (mm)	nxØB	Vert. load (kN)	Shear load (kN)	Moment (kN.m)
15	L	2	4/4	10.5/5.2	260	470	700	25	600	20x30	14	7	82
	M		5/5	10.5/5.2		468					15	10	117
	H		6/6	10.5/5.2		466					17	16	184
17	L	2	4/4	10.5/7.2	260	499	700	25	600	20x30	15	8	98
	M		5/5	10.5/7.2		497					17	11	140
	H		6/6	10.5/7.2		495					18	18	219
18	L	2	4/4	10.5/8.2	260	513	700	25	600	20x30	15	8	106
	M		5/5	10.5/8.2		511					17	12	152
	H		6/6	10.5/8.2		509					19	18	239
20	L	2	4/4	10.5/10.3	260	542	750	25	650	20x36	17	9	125
	M		5/5	10.5/10.3		540					19	13	178
	H		6/6	10.5/10.3		538					21	20	279
25	L	3	5/5/5	10.5/10.5/5.6	260	603	850	30	750	20x36	23	11	176
	M		5/6/6	10.5/10.5/5.6		601					25	15	253
	H		6/8/8	10.5/10.5/5.6		595					29	24	394
30	L	3	5/5/6	10.5/10.5/10.5	260	675	900	30	800	20x36	28	13	239
	M		5/6/8	10.5/10.5/10.5		673					32	18	341
	H		6/8/8	10.5/10.5/10.5		667					41	29	531
35	L	4	5/5/6/8	10.5/10.5/10.5/6.1	260	736	1000	40	900	20x36	36	15	312
	M		6/6/8/8	10.5/10.5/10.5/6.1		728					41	22	447
	H		6/8/12/14	10.5/10.5/10.5/6.1		716					55	34	695
40	L	4	5/5/6/8	10.5/10.5/10.5/11.1	260	808	1050	40	950	24x36	44	18	399
	M		6/6/8/8	10.5/10.5/10.5/11.1		800					49	25	573
	H		6/8/12/14	10.5/10.5/10.5/11.1		788					68	39	887
45	L	5	5/5/6/8/8	10.5/10.5/10.5/10.5/6.9	260	865	1150	40	1050	24x42	54	20	501
	M		6/6/8/8/10	10.5/10.5/10.5/10.5/6.9		857					61	29	717
	H		6/8/12/14/14	10.5/10.5/10.5/10.5/6.9		833					85	45	1112



# PRODUCT CODE

**NH-GLOBAL 25M 01CD HS1T - DC3F 9D1000 L550 \*\*\*\***

**Other additional requirements**

**Bracket for mounting floodlight**

L550: Bracket with length 550mm  
L850: Bracket with length 850mm

**Rate Power of floodlight (W)**

D1000: 1000W	D400: 400W
D2000: 2000W	D800: 2x400W

**Floodlight quantity**

**Electric motor**

DC1F: Single phase motor 220V 50/60Hz  
DC3F: Three phase motor 380V 50/60Hz

**Electric Winch**

HS1T: Single drum winch  
HS2T: Double drum winch



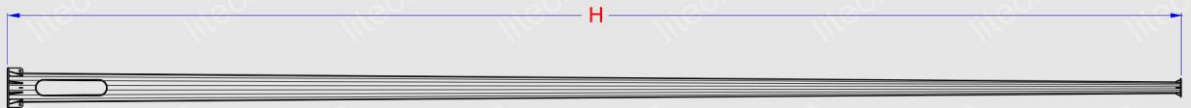
**Number of electric power cable**

01CD: One electric power cable  
02CD: Two electric power cables  
03CD: Three electric power cables

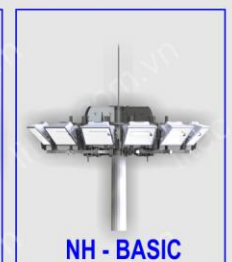
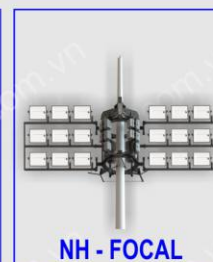
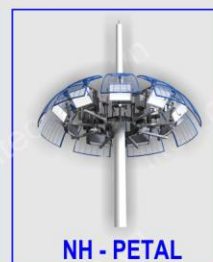
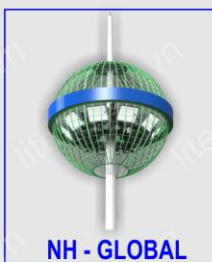
**Load level**

L: Basic Wind Speed 30m/s  
M: Basic Wind Speed 36m/s  
H: Basic Wind Speed 42m/s

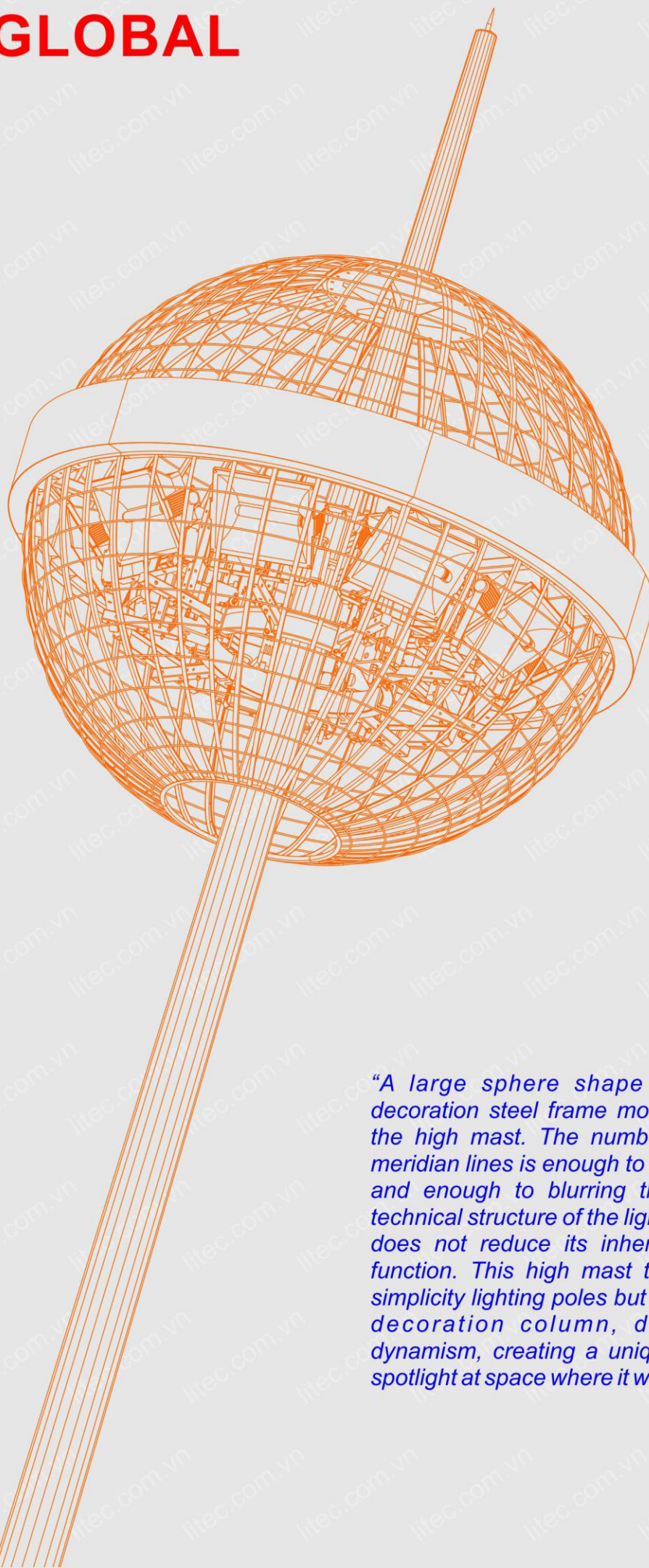
**Height of High Mast**



**Type of High Mast**



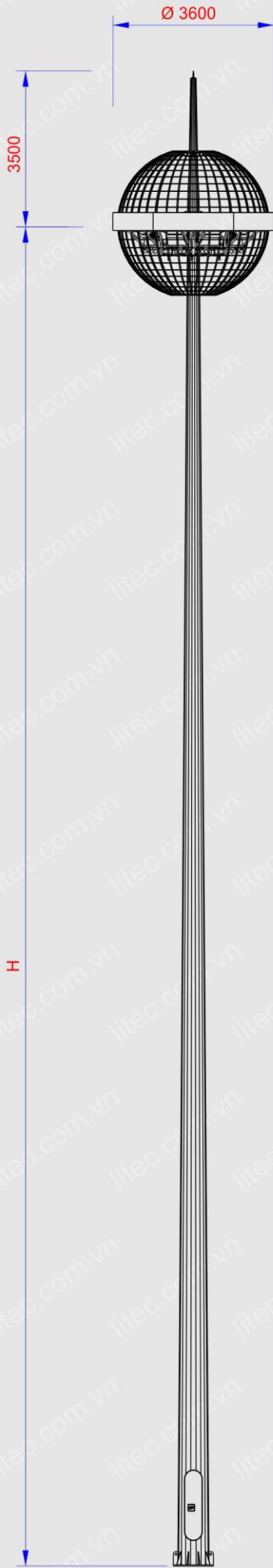
# NH - GLOBAL



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*“A large sphere shape structured by decoration steel frame mounted on top of the high mast. The number of parallel & meridian lines is enough to highlight sphere and enough to blurring the monotonous technical structure of the lighting fixtures but does not reduce its inherent illuminating function. This high mast type is not only simplicity lighting poles but also impression decoration column, demonstrating dynamism, creating a unique architectural spotlight at space where it was presented...”*

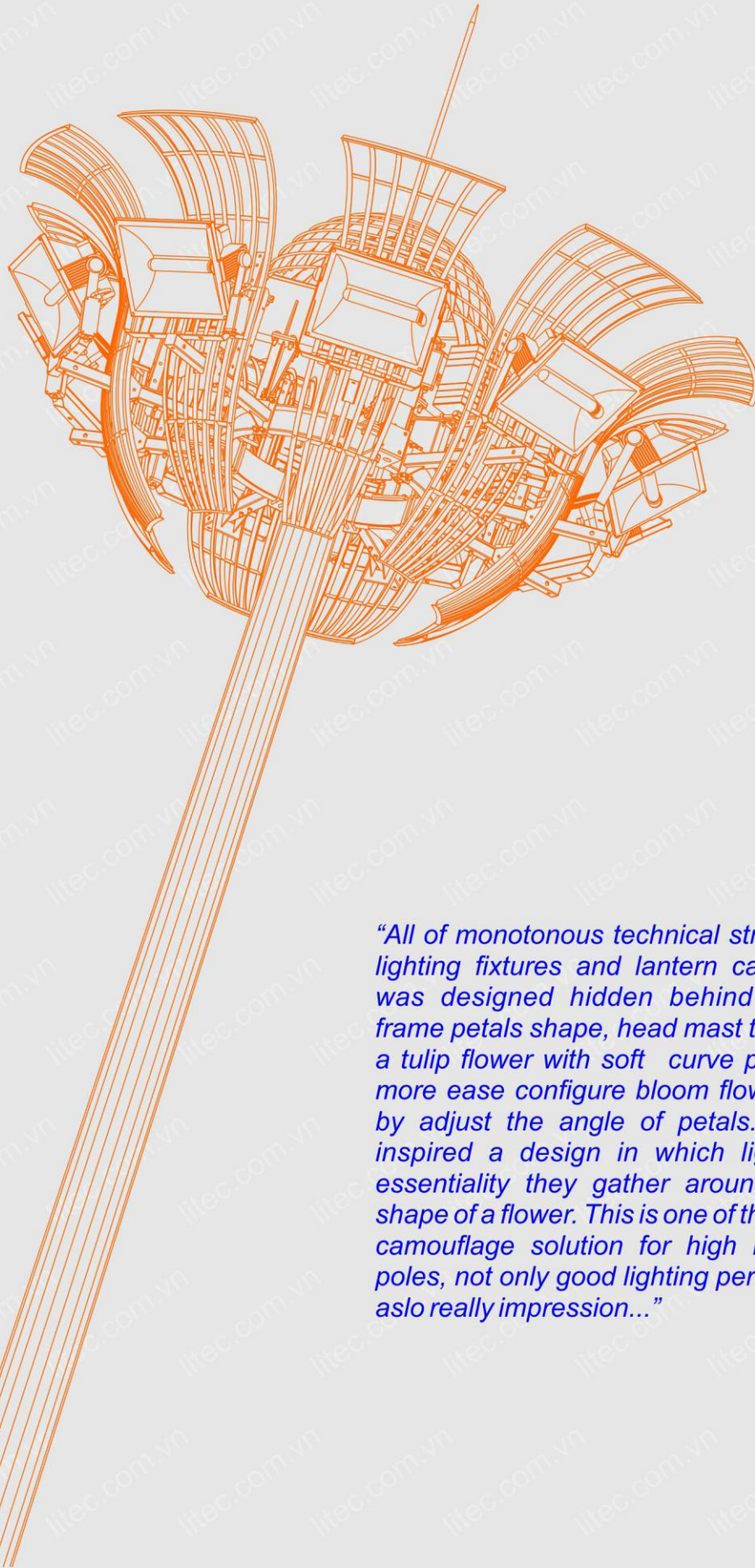




### NH-GLOBAL HIGH MAST LIGHTING POLE

	<ul style="list-style-type: none"> <li>- High mast design was supported by pro analytics calculation software of USA.</li> <li>- The mast body is including the tapered polygonal steel tubes overlap joint to meet the specific requirement height with the number of tubes is minimum.</li> <li>- The height of mast (H) is 15m to 45m.</li> </ul>
	<ul style="list-style-type: none"> <li>- Using bracket type L550.</li> <li>- Maximum number of floodlights: 12pcs (Rate power lamp to 2000W).</li> <li>- Floodlight layout: Typical layout is circular with equal angle spacing. Can adjust floodlights to concentrate for one direction.</li> </ul>
	<ul style="list-style-type: none"> <li>- The structure on top mast was designed modularization. Convenient to pack, transportation and erection.</li> <li>- The column on top of the mast can customize for decoration design and suitable with specific lightning arrester system.</li> </ul>
	<ul style="list-style-type: none"> <li>- Decoration sphere frame composed of two hemispheres. Each hemisphere consists of six modules. Very convenient for packaging, transportation and installation.</li> <li>- Decoration sphere frame hot-dip galvanized welding steel structure. Painted color follow request of customers.</li> </ul>
	<ul style="list-style-type: none"> <li>- For the maintenance works, the bottom hemisphere and lantern carriage will lowered by electric winch.</li> <li>- Space for maintenance is very open because the hemispherical module is designed to be easily disassemble.</li> </ul>

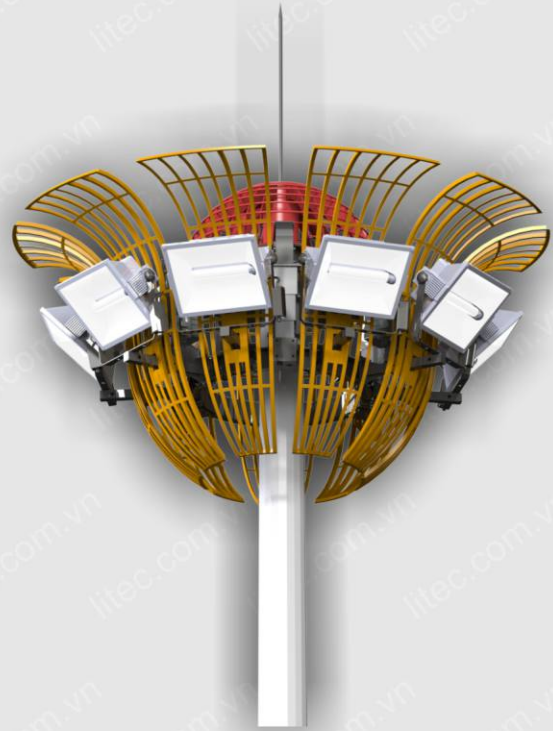
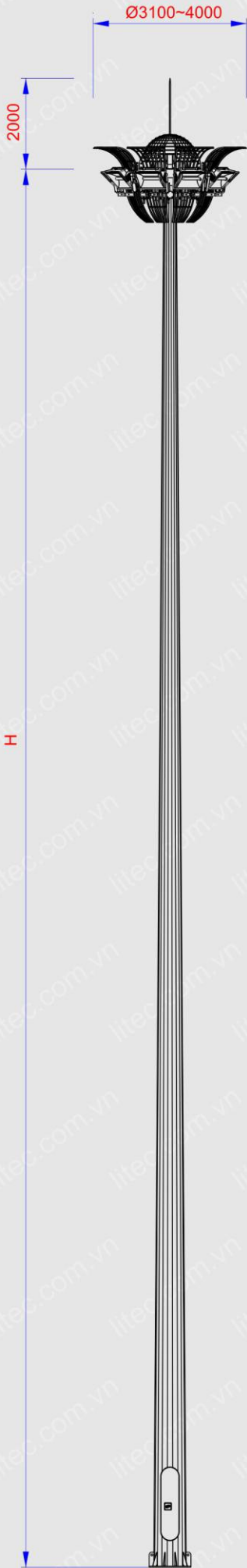
# NH - TULIP



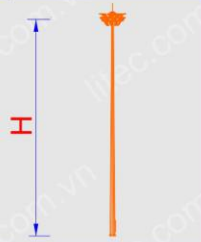
HAPULICO INDUSTRY.,JSC

*“All of monotonous technical structure of the lighting fixtures and lantern carriage frame was designed hidden behind camouflage frame petals shape, head mast to be looks as a tulip flower with soft curve petals, further more ease configure bloom flower as desire by adjust the angle of petals. Nature has inspired a design in which lightness and essentiality they gather around the gentle shape of a flower. This is one of the impression camouflage solution for high mast lighting poles, not only good lighting performance but also really impression...”*





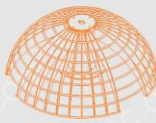
### NH-TULIP HIGH MAST LIGHTING POLE



- High mast design was supported by pro analytics calculation software of USA.
- The mast body is including the tapered polygonal steel tubes overlap joint to meet the specific requirement height with the number of tubes is minimum.
- The height of mast (H) is 15m to 45m.



- Using bracket type L550; L850.
- Quantity floodlight shall 06; 09 or 12 pcs (Rate power lamp to 2000W).
- Flood Light layout: Mounted floodlight as circularly with equal angle spacing.



- The structure on top mast was designed modularization. Convenient to pack, transportation and erection.
- The design allows to mounting different types of lightning arresters.

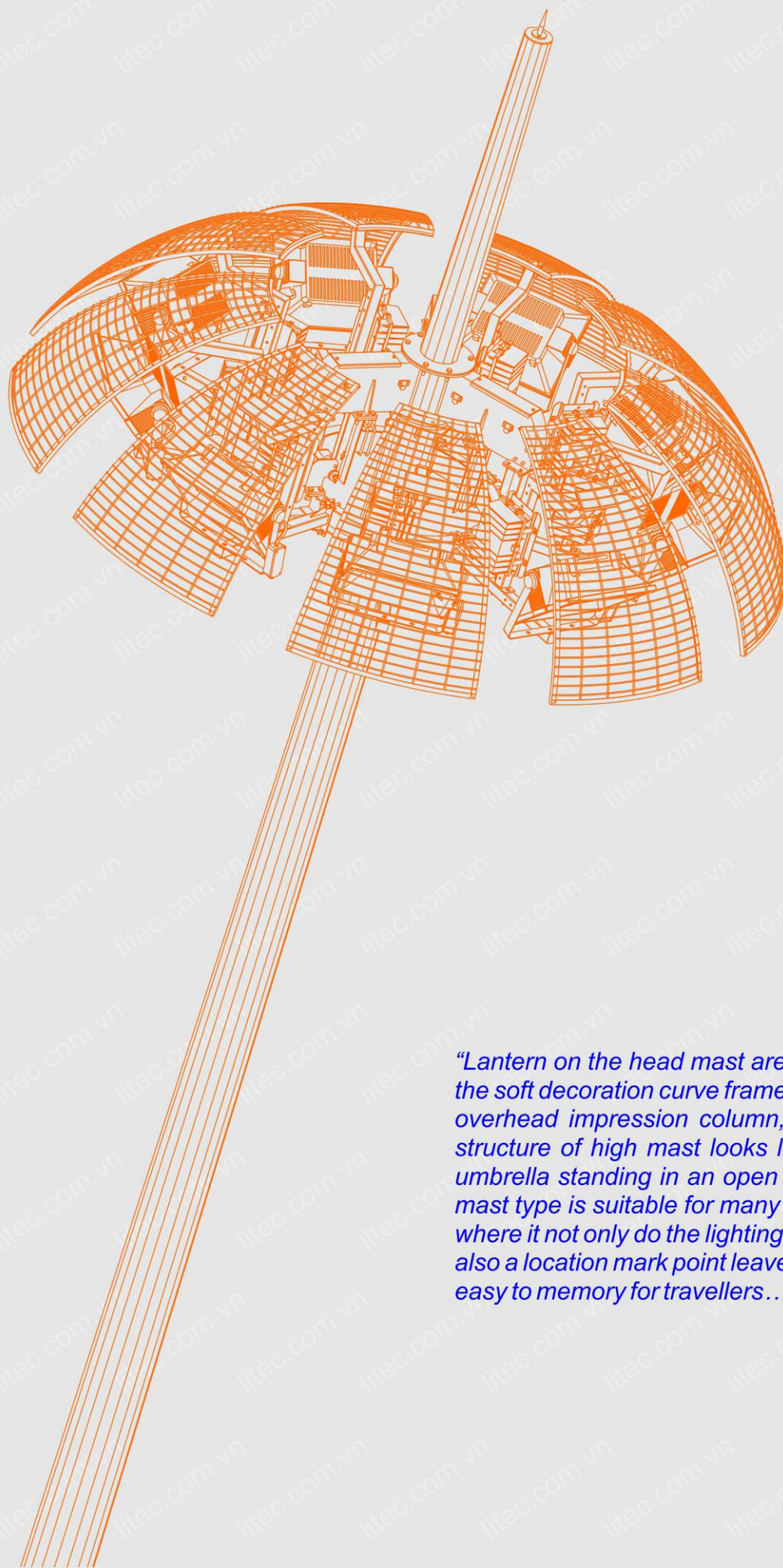


- Design petal mounted on the bracket, can adjust the rotating angle of the petals to create blooming flower as desire.
- The frame petals is hot-dip galvanized welding steel structure. Painted color follow request of customers.



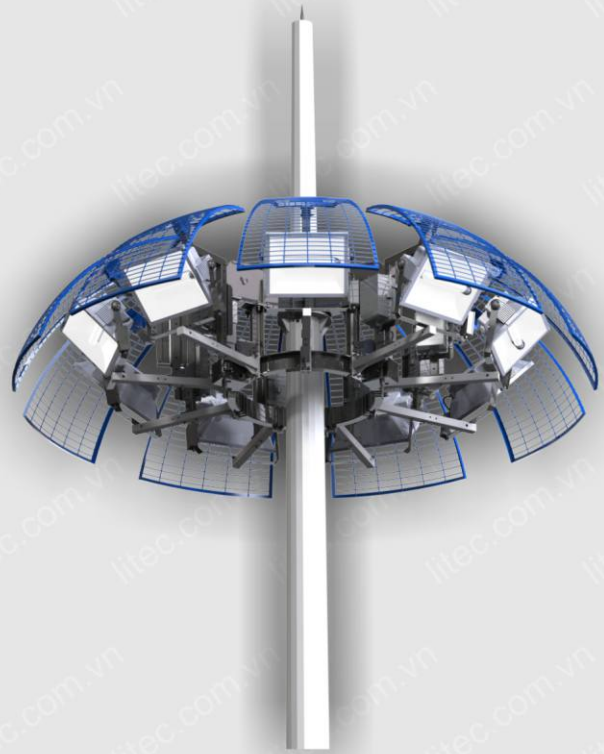
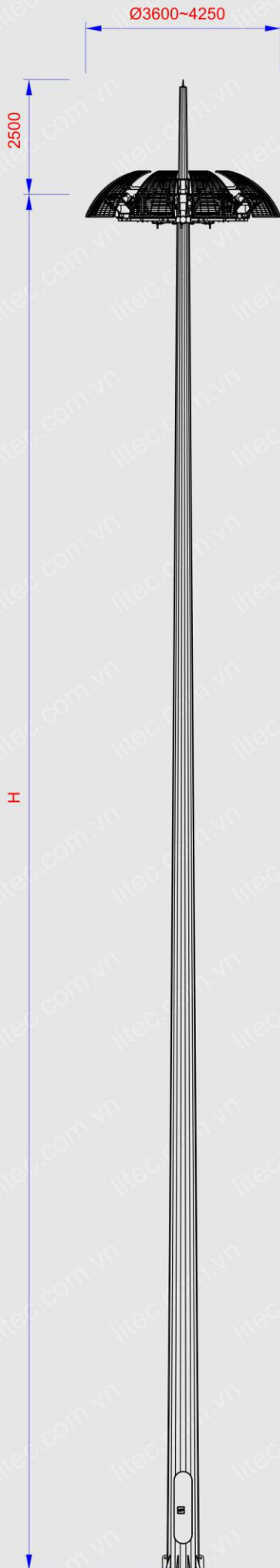
- For the maintenance works, the tulip flower and lantern carriage will lowered by electric winch.
- Space for maintenance is very open because the petal was modularization design allow easy disassemble.

# NH - PETAL



*“Lantern on the head mast are covered by the soft decoration curve frame roofs with an overhead impression column, the overall structure of high mast looks like as large umbrella standing in an open space. This mast type is suitable for many large space where it not only do the lighting function but also a location mark point leave impression easy to memory for travellers...”*

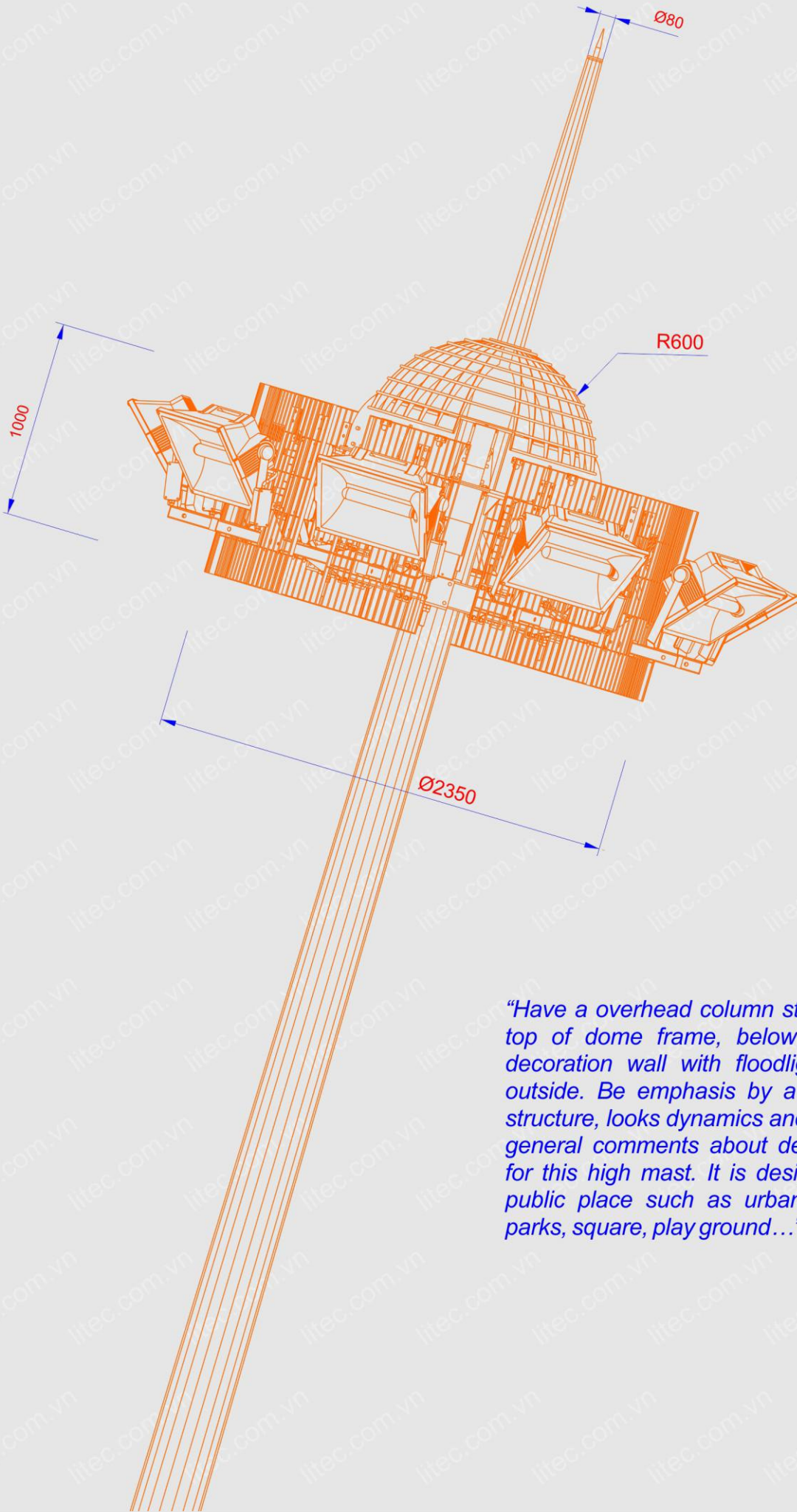




### NH-PETAL HIGH MAST LIGHTING POLE

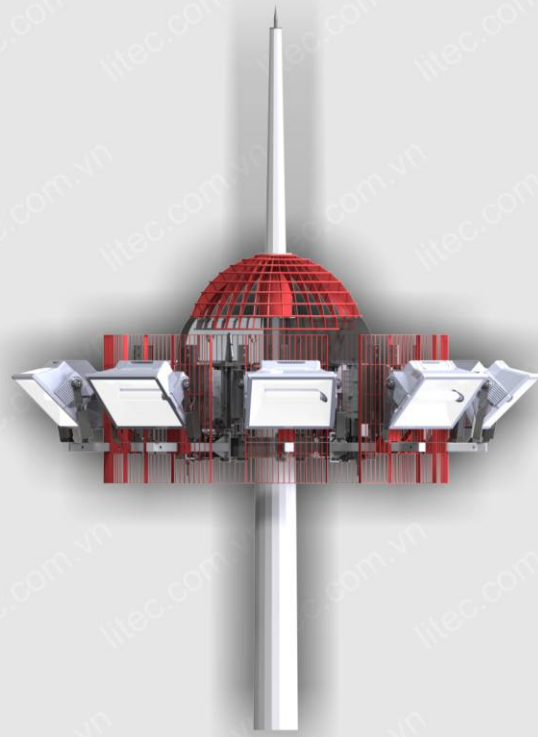
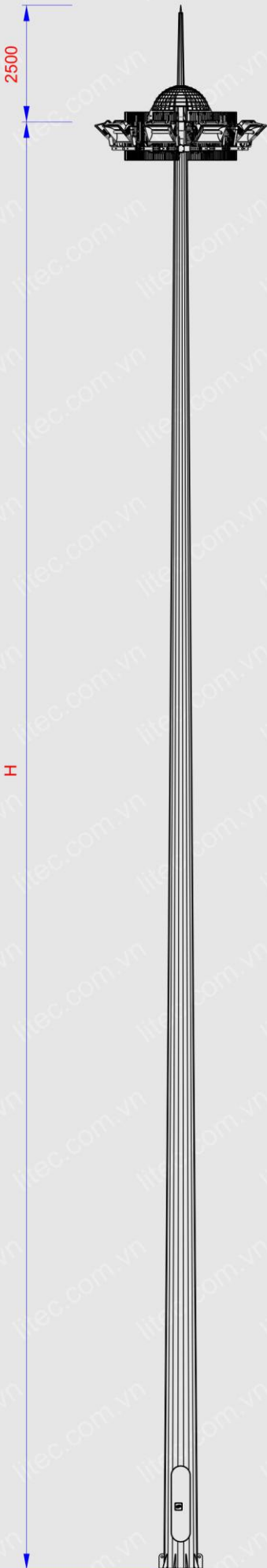
	<ul style="list-style-type: none"> <li>- High mast design was supported by pro analytics calculation software of USA.</li> <li>- The mast body is including the tapered polygonal steel tubes overlap joint to meet the specific requirement height with the number of tubes is minimum.</li> <li>- The height of mast (H) is 15m to 45m.</li> </ul>
	<ul style="list-style-type: none"> <li>- Using bracket type L550; L850.</li> <li>- Quantity floodlight shall 06; 09 or 12 pcs (Rate power lamp to 2000W)</li> <li>- Flood Light layout: Mounted floodlight as circularly with equal angle spacing.</li> </ul>
	<ul style="list-style-type: none"> <li>- The head mast and petal lantern carriage was modularization designed, very convenient to pack, transportation and erection.</li> <li>- The design allows to mounting different types of lightning arresters.</li> </ul>
	<ul style="list-style-type: none"> <li>- Decoration roof frame mounted on the bracket, can adjust the rotation angle to suitable with each kind of floodlight.</li> <li>- The frame roof is hot-dip galvanized welding steel structure. Painted color follow request of customers.</li> </ul>
	<ul style="list-style-type: none"> <li>- For the maintenance works, whole umbrella and lantern carriage will lowered by electric winch.</li> <li>- Space for maintenance is very open because the umbrella roof was modularization designed allow easy disassemble.</li> </ul>

# NH - DOME



*“Have a overhead column standing on the top of dome frame, below is a circular decoration wall with floodlights mounted outside. Be emphasis by a DOME cubic structure, looks dynamics and creativity are general comments about decoration style for this high mast. It is design for lighting public place such as urban, amusement parks, square, play ground...”*





### NH-DOME HIGH MAST LIGHTING POLE



- High mast design was supported by pro analytics calculation software of USA.
- The mast body is including the tapered polygonal steel tubes overlap joint to meet the specific requirement height with the number of tubes is minimum.
- The height of mast (H) is 15m to 45m.



- Using bracket type L550; L850.
- Quantity floodlight shall 06; 09 or 12 pcs (Rate power lamp to 2000W).
- Flood Light layout: Mounted floodlight as circularly with equal angle spacing.



- The head mast and petal lantern carriage was modularization designed, very convenient to pack, transportation and erection.
- The design allows to mounting different types of lightning arresters.



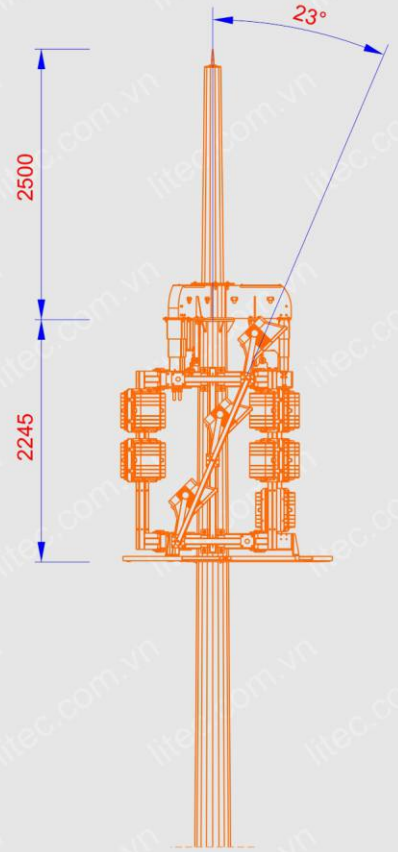
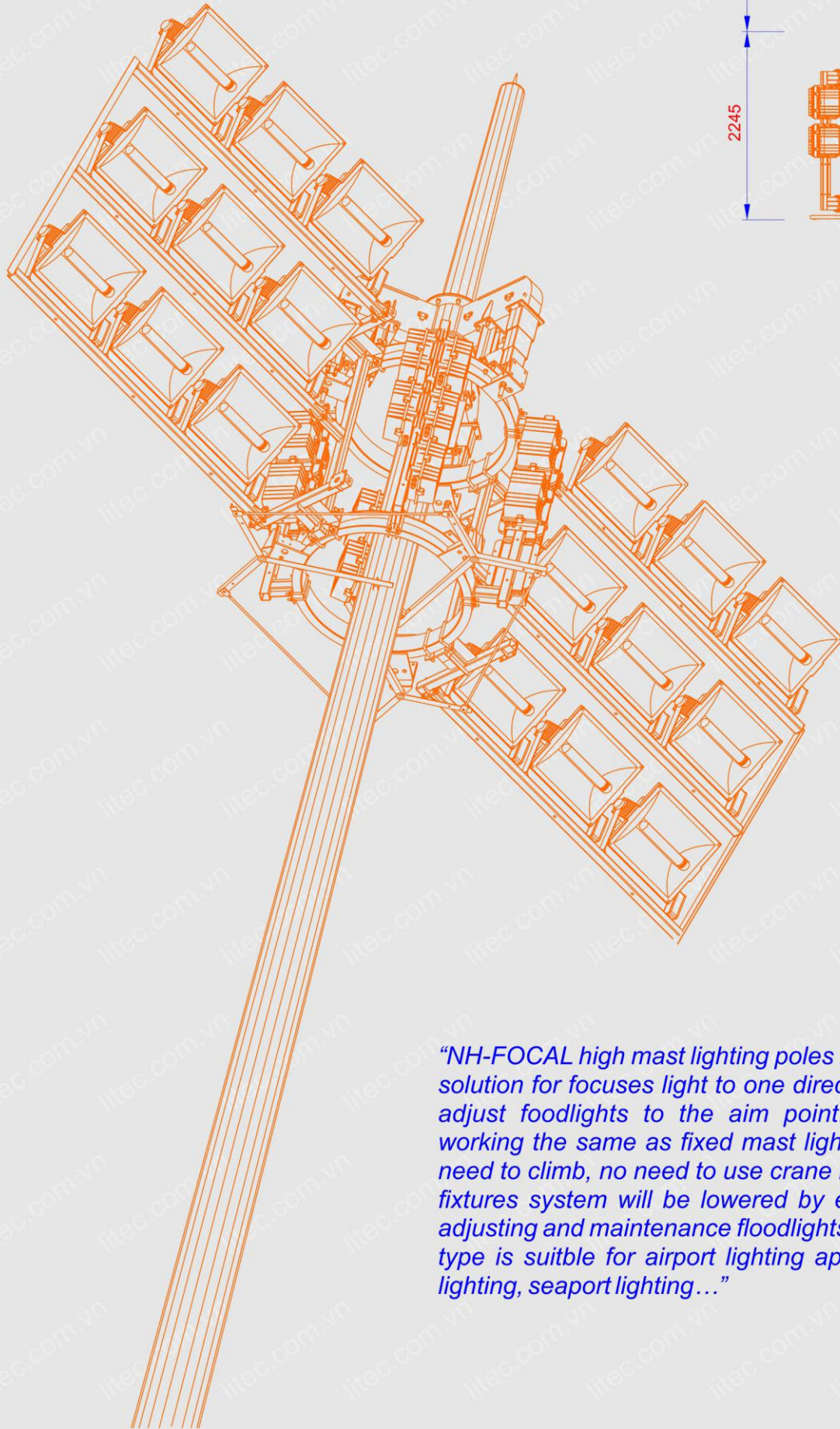
- The module DOME of decorative circular wall mounted on the bracket, can adjust the to form a cylindrical or conical circular.
- The frame roof is hot-dip galvanized welding steel structure. Painted color follow request of customers.



- For the maintenance works, the circular decoration wall and lantern carriage will lowered by electric winch.
- The circular decoration wall was modularization designed allow easy disassemble to convenient for maintenance the lighting fixtures.



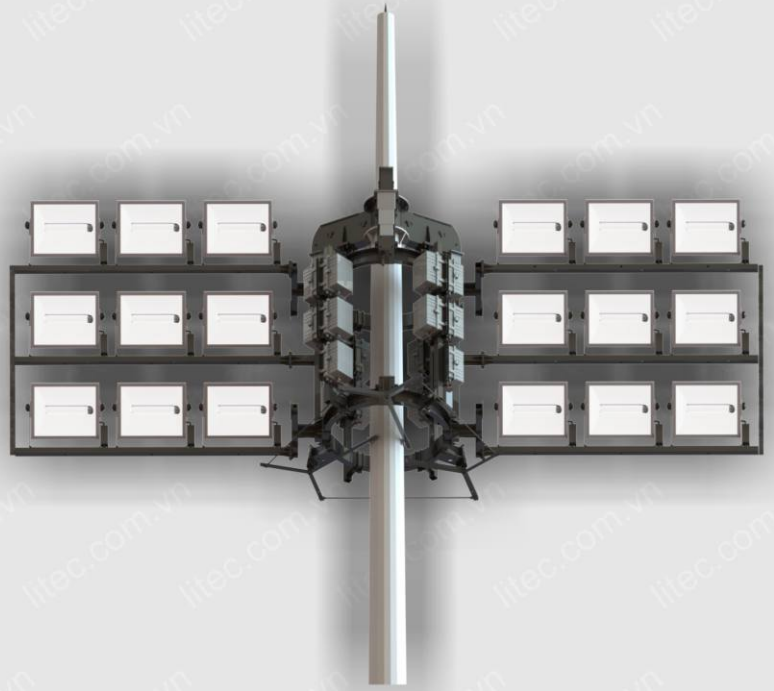
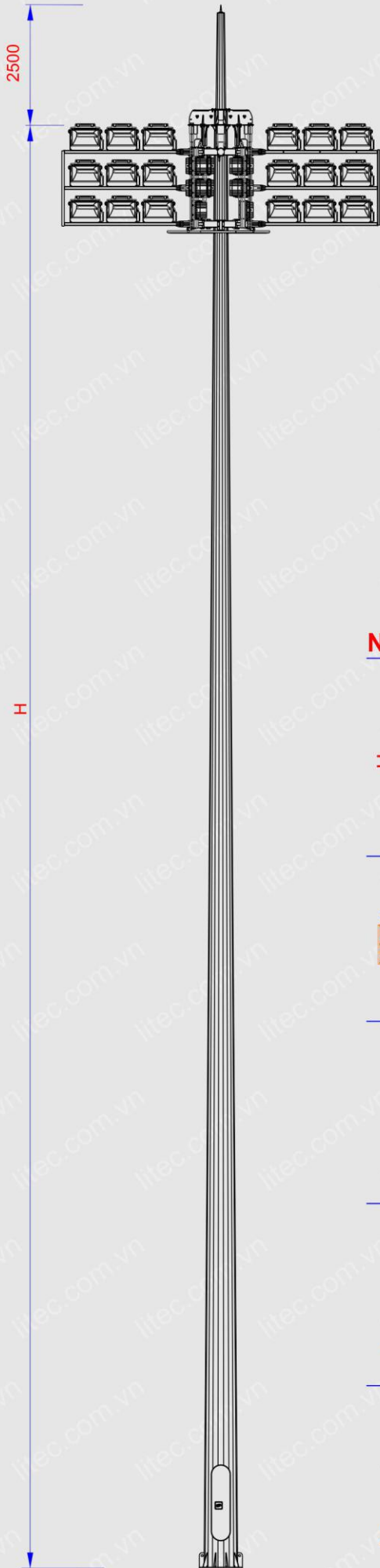
# NH - FOCAL



HAPULICO INDUSTRY.,JSC

*“NH-FOCAL high mast lighting poles is very efficiency solution for focuses light to one direction, allow easy adjust foodlights to the aim point. It responsible working the same as fixed mast lighting type but no need to climb, no need to use crane because lighting fixtures system will be lowered by electric winch to adjusting and maintenance floodlights. This high mast type is suitable for airport lighting applications, sport lighting, seaport lighting...”*

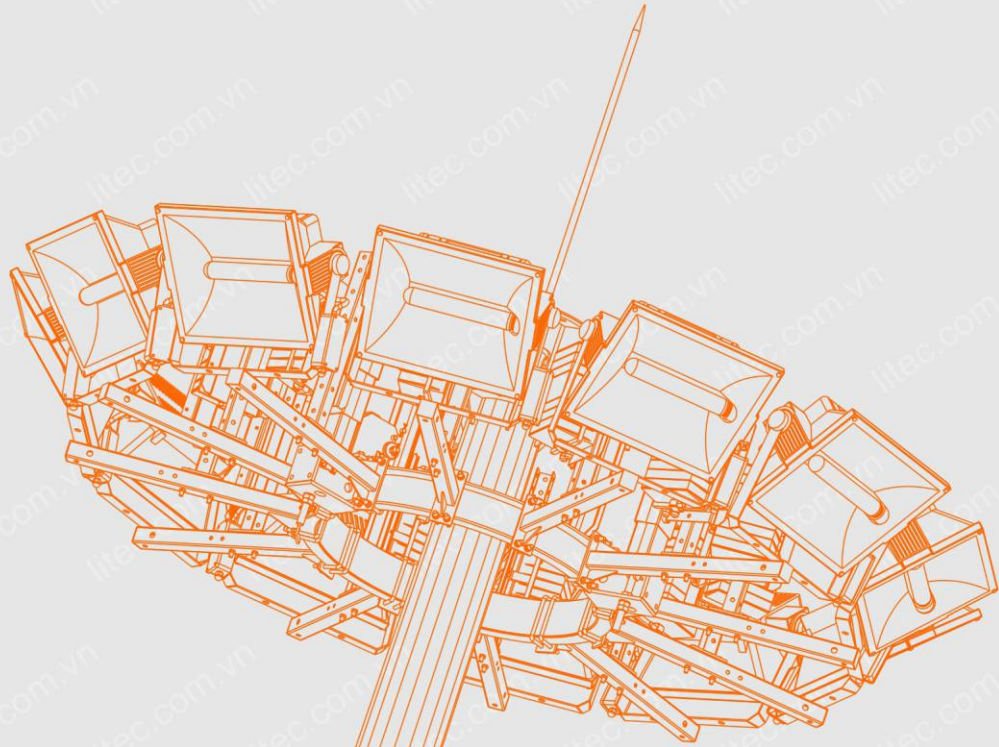




### NH-FOCAL HIGH MAST LIGHTING POLE

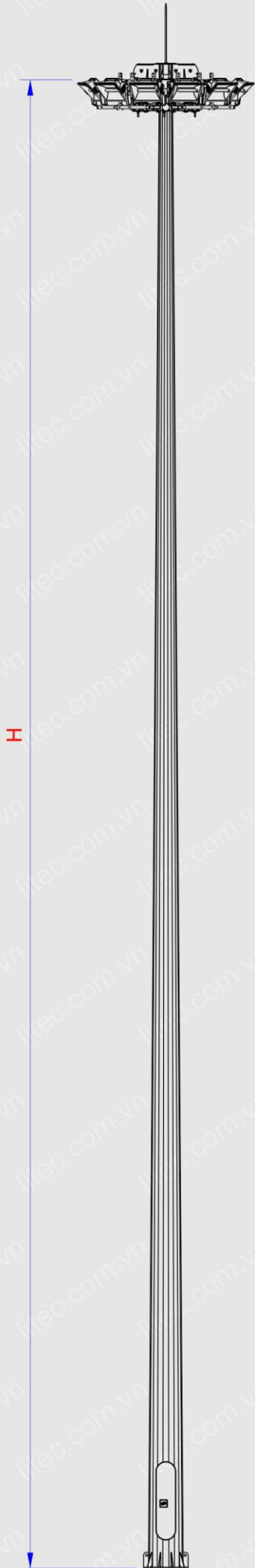
	<ul style="list-style-type: none"> <li>- High mast design was supported by pro analytics calculation software of USA.</li> <li>- The mast body is including the tapered polygonal steel tubes overlap joint to meet the specific requirement height with the number of tubes is minimum.</li> <li>- The height of mast (H) is 15m to 45m</li> </ul>
	<ul style="list-style-type: none"> <li>- Floodlights will be mounted on tilt plane constructed by specialized support bracket system.</li> <li>- Quantity of floodlight up to max 24pcs (Rate power lamp to 2000W).</li> </ul>
	<ul style="list-style-type: none"> <li>- The head mast and petal lantern carriage was modularization designed, very convenient to pack, transportation and erection.</li> <li>- The design allows to mounting different types of lightning arresters.</li> </ul>
	<ul style="list-style-type: none"> <li>- Specialized support bracket system was modularization designed, convenient to pack, transportation and installation.</li> <li>- Self-centering mechanic system will ensure floodlights system moving stably during lift up and lowered down by electric winch.</li> </ul>
	<ul style="list-style-type: none"> <li>- Whole work of checking, maintaining, adjusting, replacing the floodlights will be done in the height about 2m from the ground. Ensure very safe and save cost.</li> </ul>

# NH - BASIC



*“Save investment cost and universal purpose of use are the most prominent features of NH-BASIC high mast lighting poles. All components of NH-BASIC was optimal modularization designed, so very convenient for pack, transportation, installation, operation and maintenance. Structure of head mast and lantern system are design multi-function purpose not only for lighting system but also expandable for additional function such as camera system, wireless system. NH-BASIC masts are versatile for various purposes area lighting application such as: Airport, Seaport, Highway, Tollgate, Traffic Intersection, Harbor, Shopping Area, Play Ground...”*





### NH-BASIC HIGH MAST LIGHTING POLE



- High mast design was supported by pro analytics calculation software of USA.
- The mast body is including the tapered polygonal steel tubes overlap joint to meet the specific requirement height with the number of tubes is minimum.
- The height of mast (H) is 15m to 45m.



- Using bracket type L550; L850.
- Quantity of floodlight up to max 18pcs (Rate power lamp to 2000W).
- Floodlight layout: Typical layout is circular with equal angle spacing. Can layout floodlights to concentrate for one direction.



- The head mast and lantern carriage was modularization designed, very convenient to pack, transportation and erection.
- The design allows to mounting different types of lightning arresters.

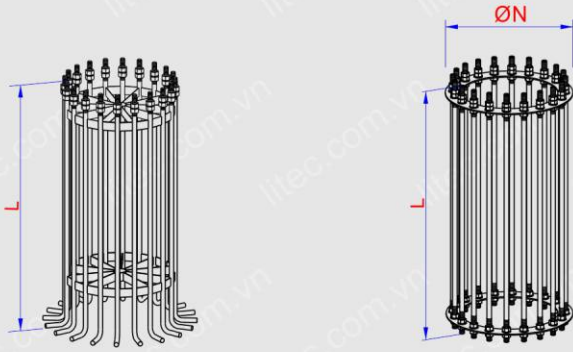


- L550 & L850 support bracket system are versatile for mounting floodlights with sitting type or suspending type.
- The support bracket system can easy layout on the main frame of lantern carriage through U bolts system.



- Whole work of checking, maintaining, adjusting, replacing the floodlights will be done in the height about 2m from the ground. Ensure very safe and save cost.

# ANCHOR BOLTS



Rigid welding Anchor bolts system (LK)

Detachable anchor bolts system (LR)

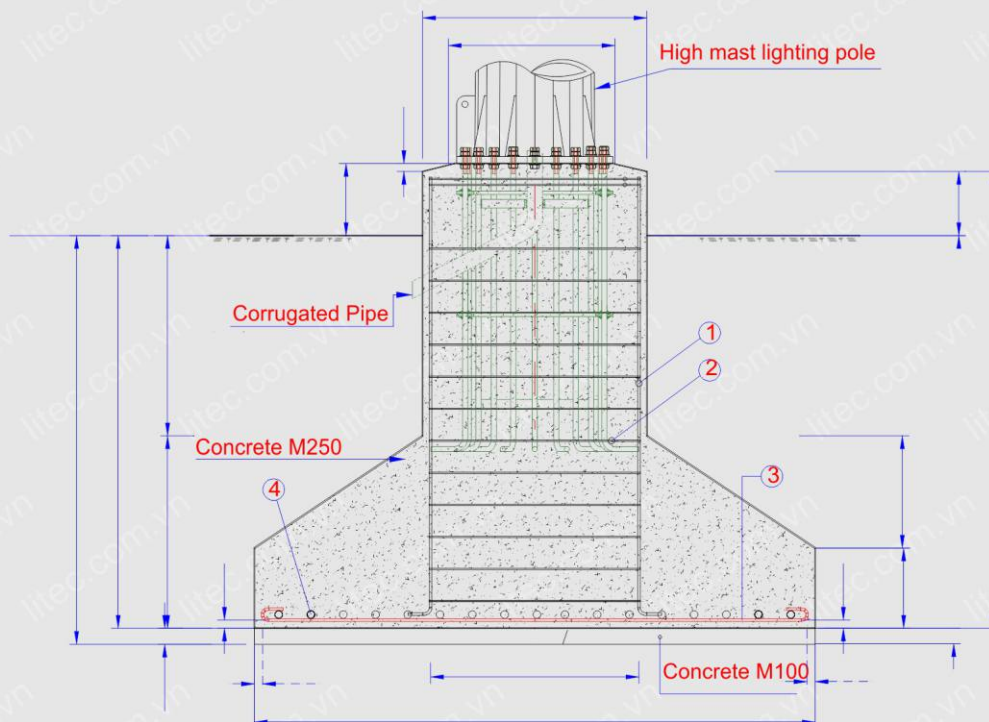
## Characteristic features

- Material: High strength carbon steel C45
- Screw thread: Comply with standard JIS-B1050
- Grade: 5.6 (higher grade is option)
- Electroplating screw thread sections (typical anchor bolts)
- Hop-dip galvanized screw thread sections comply with A153 (Option)

## Specifications of anchor bolts system

Name	Type LK	Type LR	ØN (mm)	L (mm)	M
KM NH 15	x	x	600	1750	20xM24
KM NH 17	x	x	600	1750	20xM24
KM NH 18	x	x	600	1750	20xM24
KM NH 20	-	x	650	1750	20xM30
KM NH 25	-	x	750	1750	20xM30
KM NH 30	-	x	800	1750	20xM30
KM NH 35	-	x	900	1750	20xM30
KM NH 40	-	x	950	1750	20xM30
KM NH 45	-	x	1050	1750	20xM36

## TYPICAL FOUNDATION STRUCTURE





## Typical Floodlights for High Mast lighting Poles



### LED FLOODLIGHT

- + Model: **SARA**
- + Beam Spread: Narrow; Medium
- + Rate power: 350W+1000W
- + Light source: SMD-LED



### LED FLOODLIGHT

- + Model: **ORA**
- + Beam Spread: Narrow
- + Rate power: 800W+1200W
- + Light source: SMD-LED



### HID FLOODLIGHT

- + Model: **KENZA**
- + Beam Spread: Narrow; Medium
- + Rate power: 1000W
- + Light source: Sodium or Metal



### HID FLOODLIGHT

- + Model: **VENUS**
- + Beam Spread: Narrow; Medium
- + Rate power: 1000W+2000W
- + Light source: Sodium or Metal



### HID FLOODLIGHT

- + Model: **BERYL**
- + Beam Spread: Narrow
- + Rate power: 1000W
- + Light source: Sodium or Metal



### HID FLOODLIGHT

- + Model: **DEBRA**
- + Beam Spread: Narrow
- + Rate power: 1000W+2000W
- + Light source: Sodium or Metal



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