

Alliance, Mast with rising & lowering headframe



valmont 
STRUCTURES



ALLIANCE, medium size, for an application up to 8 floodlights by level at 20, 25 and 30 m high.



ALLIANCE, large size, for an application up to 10 floodlights by level at 30, 35 and 40 m high.

Alliance, Mast with rising & lowering headframe

Within the range of high masts intended for lighting large areas, rising & lowering systems make it easier and safer to clean and maintain floodlights by enabling work to be carried out at ground level. This design frees those responsible for this type of lighting from the requirements of new local and European directives on the safety of maintenance operations at heights and consequently reduces the risk of accidents at work with their associated costs.

They are mainly used on roadways and parking areas connected with transport (motorways, railways, ports, airports). They are also found in parts of the world prone to cyclones, where lowering the headframe enables the lighting equipment to be protected as the cyclone passes over, and also in stadiums where they make it possible to carry out rapid “live” maintenance.

They are economical and they dispense with the need for a headframe or fixed platform with its safety features (safety rail, kickboard, etc.) and safety access (rungs and cable, access trapdoor, lift, etc.). As a result, even the wind loading of the installation is reduced.

In response to needs expressed by our Customers, we at VALMONT have developed

A L L I A N C E

a new design for a more reliable, robust and safe rising & lowering system at a reasonable budget, available in two sizes.

- **Fixed head with weatherproof cover [1]**

All components involved in moving the headframe (pulleys, dollies, baffles, etc.) are shielded from storms and birds within the fixed head which opens up to ease assembly and closes with 3 stainless steel covers positioned on the arms and a central cover. The dimensions of the fixed head and all other parts of the headframe comply with design rules (Calculation sheet available on demand).

- **Panzerflex self-supporting electrical cable [2]**

The Panzerflex self-supporting electrical cable, used in a vertical position on lengths up to 45 m, is of reinforced quality. It is flexible enough to run easily over the pulleys situated in the fixed head. The cable is held tight at its ends by cable clamps positioned on the headframe and on the yoke plate.

- **Stainless steel lifting cables [3]**

The dimensions of the lifting cables comply with the regulations in force with a minimum safety coefficient of 5. The use of stainless steel ensures a lifetime of service. The cables are supplied assembled, crimped by a qualified specialist sub-contractor. Their diameter depends on the model: 6 mm for the Alliance Medium, 8 mm for the Alliance Wide

- **Closed rectangular-section headframe [4]**

The use of a closed rectangular section gives the headframe outstanding rigidity to torsion and bending and ensures faultless operation.

- **Masts conform to local specifications [5]**

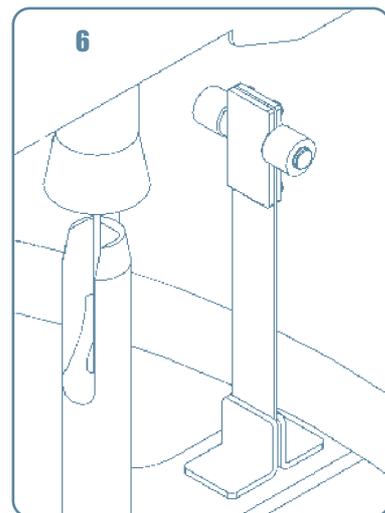
The dimensions of the masts comply with local specifications for structural calculations for masts for lighting large areas. Each of the masts is supplied with a calculation sheet justifying its performance.

- **Stainless spring steel latching tab [6]**

The dimensions of each latching tab are designed for a safety coefficient of 4 in tension. This highly technical component is designed to follow the prescribed course through the latching and unlatching phases. During these phases and in the fixed position, the headframe is centred and laterally immobilised by 3 polyamide centring pins.



w i t h r i s i n g & l o w e r i n g h e a d f r a m e

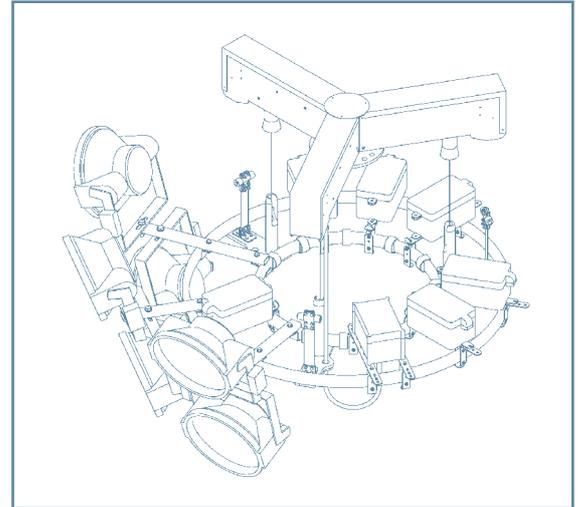


Alliance, Mast with rising & lowering headframe

Configurations

- The Alliance range is recommended for installations between 20 and 40m high supporting between 3 and 20* floodlights with an electrical fittings box, the latter depending on a number of factors.

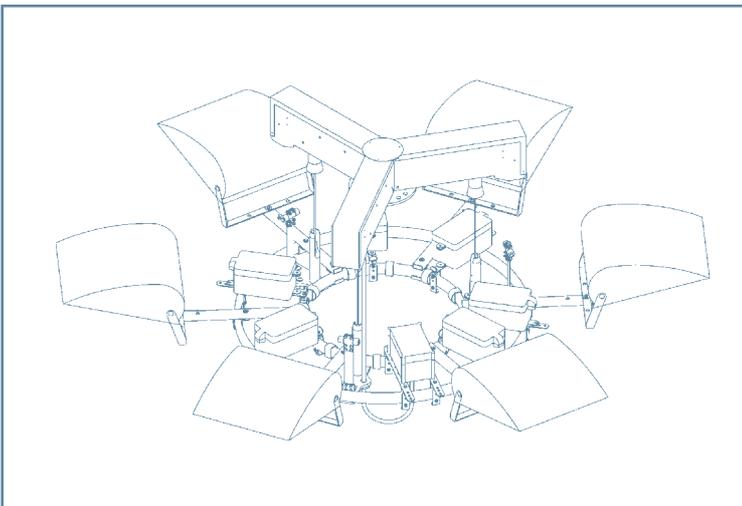
Alliance is suitable for mounting both symmetric and asymmetric types of floodlights and avoids problems of shadowing.



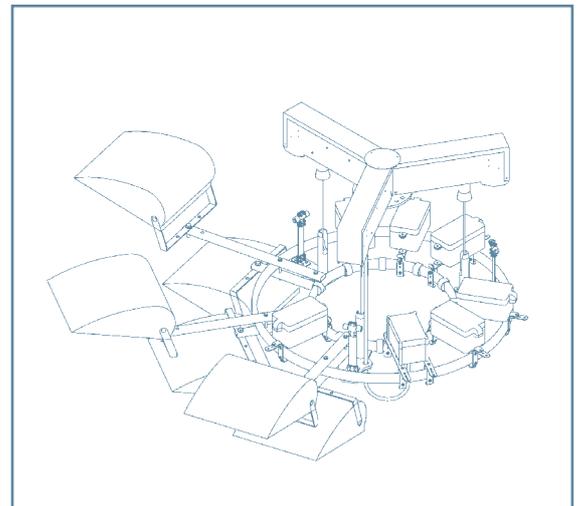
Asymmetric floodlights configured on 2 levels, 120°.

MEDIUM-TYPE ALLIANCE	LARGE-TYPE ALLIANCE
3 to 8 floodlights around 360° on 1 level *	Up to 10 floodlights around 360° at 1 level *
6 to 16 floodlights around 360° on 2 levels *	Up to 20 floodlights around 360° on 2 levels *
2 to 5 floodlights around 90-180° on 1 level *	Up to 10 floodlights around 90-180° on 1 level *
4 to 10 floodlights around 90-180° on 2 levels *	4 to 10 floodlights around 90-180° on 2 levels *
Max. base diameter of mast: 850 mm	Max. base diameter of mast: 1200 mm
Max. net loading: 900 kg	Max. net loading: 1800 kg
Useful loading: 700 kg	Useful loading: 1500 kg

*Approximate values to be checked depending on type of floodlight and orientation (shot)



Asymmetric floodlights configured on 1 level, 360°.



Symmetric floodlights configured on 2 levels, 120°.

Floodlight support arms

- The closed rectangular-section floodlight support arms afford high rigidity to torsion and bending.

They are available in 500, 700 and 1000 mm lengths.

They are delivered in kit form and are easy to assemble and adjust easily around a full 360°.

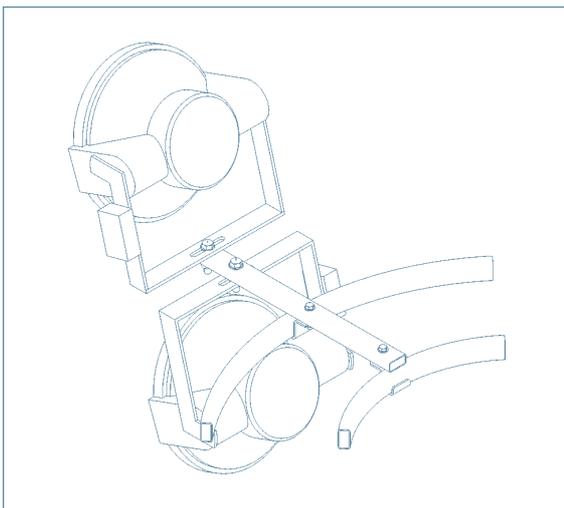
Each floodlight requires one Ø 18 mm hole and one M16 bolt (both provided).



Arm for 1 floodlight.



Arm for 2 asymmetric floodlights.



Arm for 2 symmetric floodlights.

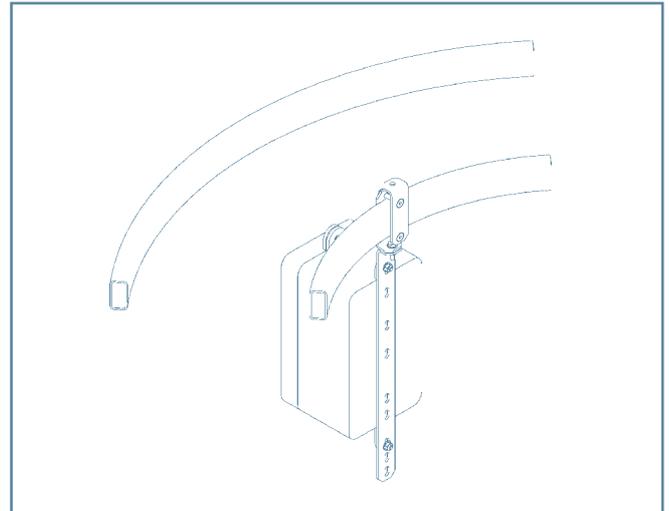


Alliance, Mast with rising & lowering headframe

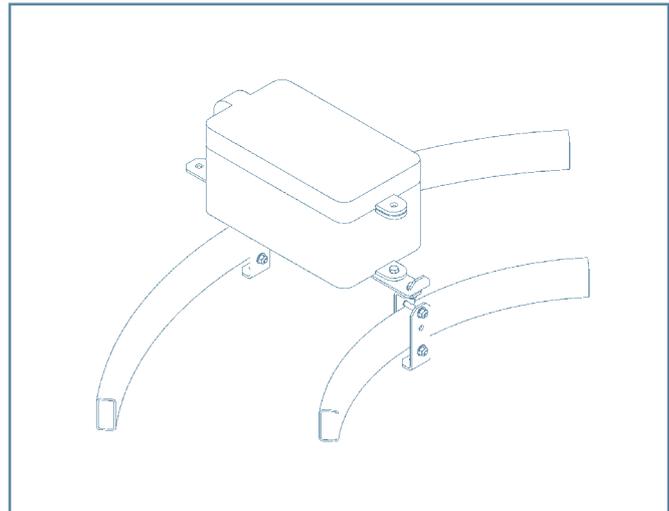
Electrical equipment support kit

- The kit is suitable both for the junction boxes connecting the power supply to the floodlights and for the enclosures for the ballast boxes. They are pre-drilled with several oblong holes to suit most existing brands.

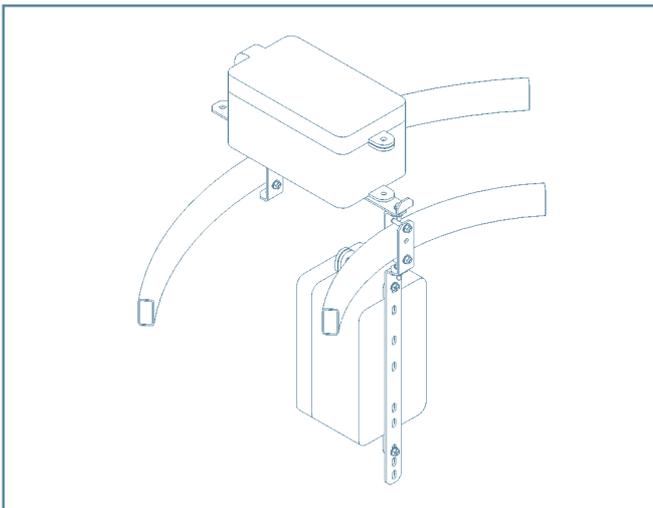
All the boltwork is stainless steel.



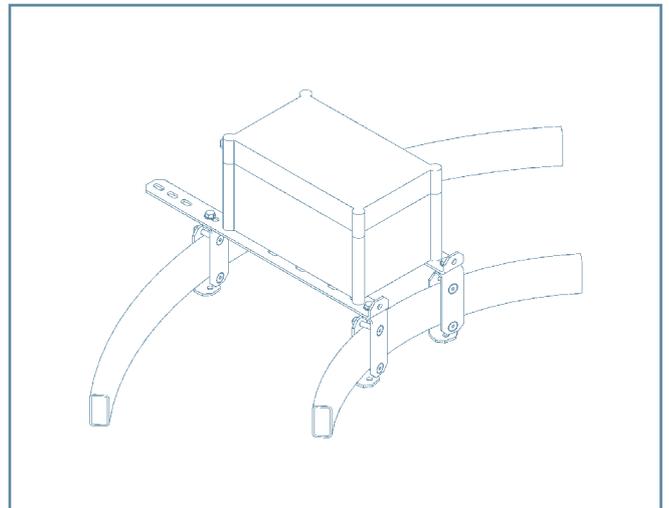
2-hole hanging box kit



2-hole upright box kit



2-hole upright and hanging box kit



4-hole box kit

The electrical supply

- **The electrical supply consists of:**

- >1 to 3 power cables
- >1 junction box per supply
- >1 16 A interlock switch per supply cable
- >(except in the case of 18 conductors)

Valmont do not supply the floodlighting fittings, the enclosure for them, the equipment at the foot of the mast protecting the electrical supply, the individual protective devices nor the earthing equipment.

- **Position of the equipment:**

Depending on requirements, it can be designed in several configurations: :

- Electrical equipment mounted on the headframe.
- Electrical equipment mounted on the headframe but with individual protection at the foot of the mast in a separate cabinet (not supplied).
- Electrical equipment at the foot of the mast in a separate cabinet (not supplied).

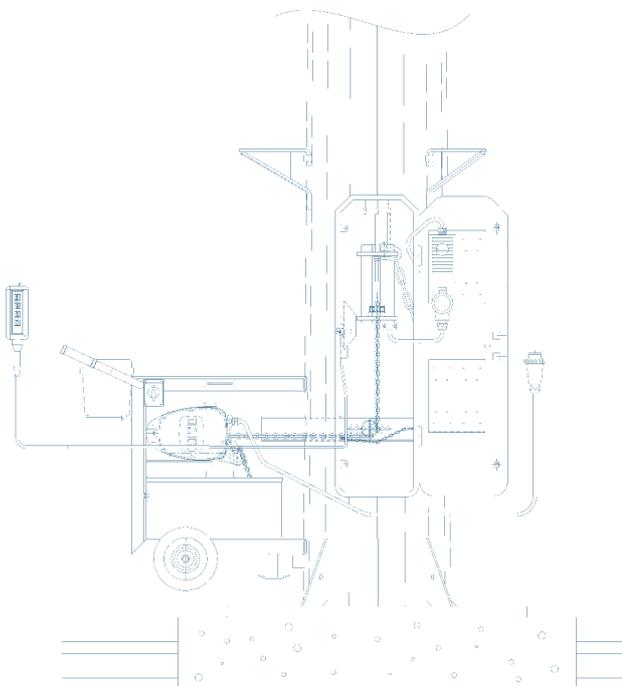
- **Number of supplies:**

- A single electrical supply to light or switch off all the floodlights.
- Two electrical supplies, the second supply being reserved for the aerial beacons or for powering a section of the floodlights.
- Three supplies for lighting floodlights separately (E.g.: Lighting for training, lighting for competitions, anti-panic lighting).

The electrical cables are of different cross-sections depending on the height of the mast, the power to be delivered and the configuration requested.

The standard junction box is set up for 6 single-lamp floodlights and comprises a box with 1 input and 6 output cable glands, a series of terminals and a 16 A electrical socket for testing at ground level. The dimensions of the components comply with the electrical regulations in force.

A 16 A electrical extension cable can be supplied as an option to power the floodlights whilst testing functionality at ground level.



Example with one feeder and electrical equipment at the foot of the mast



Independent hoisting unit

- The independent hoisting unit offers the most economical overall solution, a single unit being capable of serving several masts.

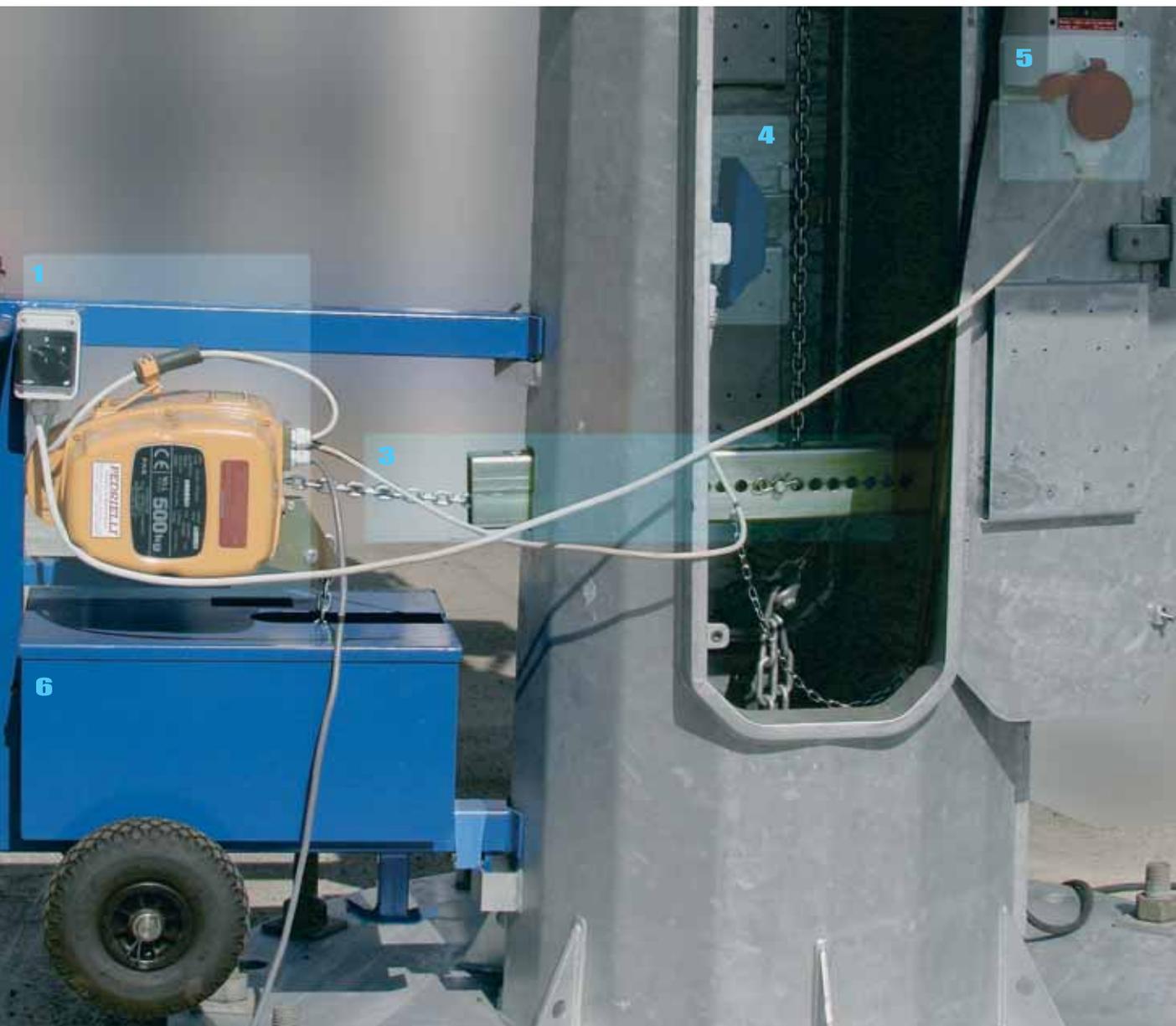
It comprises:

- 1 Electric chain hoist (motor + reduction gear) **(1)**
and control box. **(2)**
 - 1 Length of chain, fastenings and bin
 - 1 Guide profile and return pulley **(3)**
 - 1 End stop **(4)**
 - 1 Power supply cable with 16A male plug **(5)**
 - 1 Detachable trolley, independent of the mast **(6)**
 - 1 Set of Instructions for Use and Safety Instructions which should be read before use.
 - 1 Phase reversal switch
-
- 2 models are available (500 and 1000 kg net load).
In the latter case, the load can be doubled by using a return pulley.
 - The speed of rise/lower of the headframe is 7 m/minute.
 - The motor is powered by a 3-phase 380/400V 50 Hz supply.
If requested, 220V 3-phase or single phase or 60 Hz or tropicalised versions can be supplied.
 - The hoisting unit also exists:
 - as a **built-in version**
I.e. permanently attached in the mast
 - as a **partially built-in version with chain**
I.e. with a reduction gear attached in the mast with the motor detachable. (Small photo to come)

Alliance, Mast



w i t h r i s i n g & l o w e r i n g h e a d f r a m e



● Quality, Safety and Performance

Quality and safety require that:

- The hoist + chain assembly complies with EEC Machine Directives 89/392/ **CE** and F.E.M. (European Mechanical Handling Confederation) rules.
- The exclusive rotor traction system delivers high braking capacity.
- The hoist is fitted with a friction load limiter.
- The headframe cannot be uncoupled without the end stop being connected.
- The double-insulated low voltage control box has a degree of IP65 protection and an emergency stop button.

The masts

The dimensions of the Alliance series masts comply with recommendations for structural calculations for masts for lighting large areas.

They are available in nominal heights of 20, 25, 30, 35, 40 and 45 m. Their other dimensions depend on load, type of surface specified and location.

● Geometry and construction:

The masts have a regular 16-sided polygonal cross-section, giving equal resistance in all directions. The masts are built in two or three parts and assembled on site using tapered jointing.

● Materials:

In order to limit pole diameters, poles are realised with S355 material.

The steel used complies with European Standard EN 10025 and has the following properties: Σ Elastic limit Re 355 N/mm.

A material certificate (Factory Product Compliance Certificate) can be supplied to the customer if requested.

● Galvanising:

The masts are galvanised in compliance with the ISO 1461 standard. Among other elements used, the steels employed are of Class 1 galvanising capability. Galvanising is not carried out until the mast is completely finished. The mast is hot-dip galvanised in order to produce a uniform layer of zinc on both the outside and inside of the mast.

● Construction details:

The mast is fitted with a 1200 x 300 mm clearance reinforced door, positioned 500 mm above the flange, giving access to the hoist and cables, the electricity supply connections and the lifting system. The door is fitted with a lock.

It is delivered with a safety chain fitted with tensioner and shackle to be hung from the support yoke plate of the lifting cables.

3 detachable angle brackets are provided to support the head-frame in its lower position (position for mounting or servicing the floodlights)

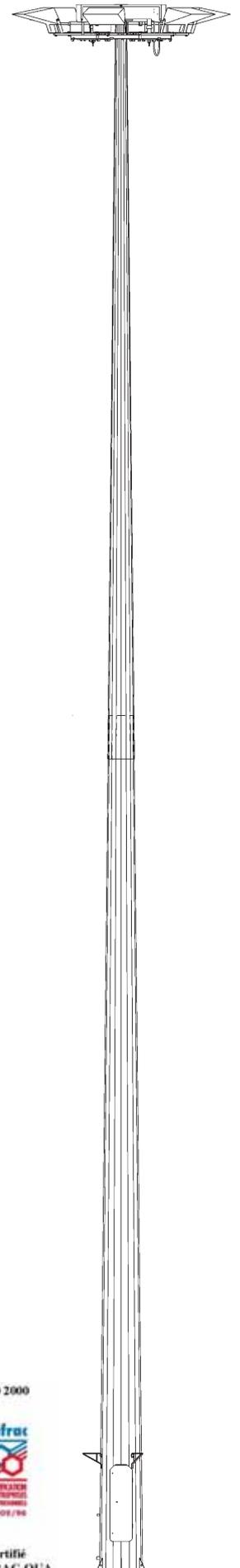
Its base is designed to receive the lifting unit which is either built into the mast or on a detachable trolley.

In standard position, masts will be attached to the ground by means of a flange and fastening rods.

● Quality:

To ensure strict levels of quality and reliability, masts are manufactured on an ISO 9001 V 2000 certificated site. Fabrication and inspection procedures are clearly set out in the quality references.

Alliance, Mast



Minimum visual impact

- To limit the visual impact of the structure, the device can be equipped with an optional bumper cover, covering both the device and the floodlights. The poles can be also designed to support both floodlights and wireless antennas, limiting by this capacity the quantity of poles to install.



Rail systems

- The rail system is distinguished by the use of an external rail running the whole height of the mast and guiding the headframe or the bank of lights during the lifting and descent phases.

It also contains the flat electrical supply cable and is closed at the base by a protective duct. When the structure arrives at the top, 2 centring pins prevent any lateral movement.

The structure is stabilised in the upper position by the application of a voltage to the lifting cable. In the standard version, the trolley running on the rail is fitted with a parachute brake.

The lifting unit may either be **built in** or **independent**.

(see page 10).

The structure supporting the floodlights may either be a headframe, a bank of lights or a star-shaped modular structure, each branch of which can carry 2 lights.

A version with a manual winch and simplified rail is available to carry a video camera or 2 to 4 lamps.



Rail with electric cable mounted on its polyamide trolley



Valmont Services are at your side throughout the project



STUDY

- Help with choosing the right product (fixed or mobile system, access, etc.)
- Structural calculations and dimensions which conform to the regulations in force.
- Calculation of load descents.
- Foundations designed on the basis of a survey of the ground.



CONSTRUCTION

- Site visit and pre-installation advice.
- Delivery and on-site unloading of masts and headframes.
- Technical assistance with setting up, lifting and adjustment.
- Complete assembly and erection of masts and headframes.
- Operating tests.



SERVICING

- Annual mechanical maintenance in accordance with the rules governing "Equipment used for lifting loads at work".
- Renovation of existing installations (headframes, cables, motorisation, winch, etc.)



Valley, Nebraska, USA
Farmington, Minnesota, USA
Salem, Oregon, USA
Charmeil, France
Rive-De-Gier, France
Roma, Italy

Elkhart, Indiana, USA
Denver, Colorado, USA
Selbyville, Delaware, USA
Siedice, Poland
Maarheeze, The Netherlands
Berrechid, Morocco
Monterrey, Mexico

Brenham, Texas, USA
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Gelsenkirchen, Germany
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