



PROUDLY
MADE IN THE UK
SINCE 1923



H I G H
M A S T S



A BRIEF HISTORY OF CU PHOSCO LIGHTING

1920s

The company was founded under the railway arches at Broxbourne station by Charles Marques.

1930s

We began producing pre-stressed concrete products and Charles Marques invented the spun concrete process.

1940s

We produced concrete bombs for the RAF to practice with during WW2.

1950s

Phosco was established producing a wide range of outdoor lighting products.

1960s

We produced the first high mast towers and established out contract services division.

1970s

We produced the first passively safe lighting columns and won the prestigious Queens Award for Export.

1980s

We produced the first tapered tubular columns.

1990s

We established a joint venture in China, producing high masts for the Chinese market.

2000s

We started production of masts for wind turbines.

2010s

We started developing our award winning LED lighting systems.

2020s

We celebrate 100 years of British manufacturing in 2023.

Introduction

CU Phosco Lighting is a family business dedicated to providing exterior lighting solutions since 1923.

We have been designing and manufacturing steel high masts for customers around the world for over sixty years. We can offer a full package from lighting design through to installation service for your total lighting project needs.



Our philosophy:

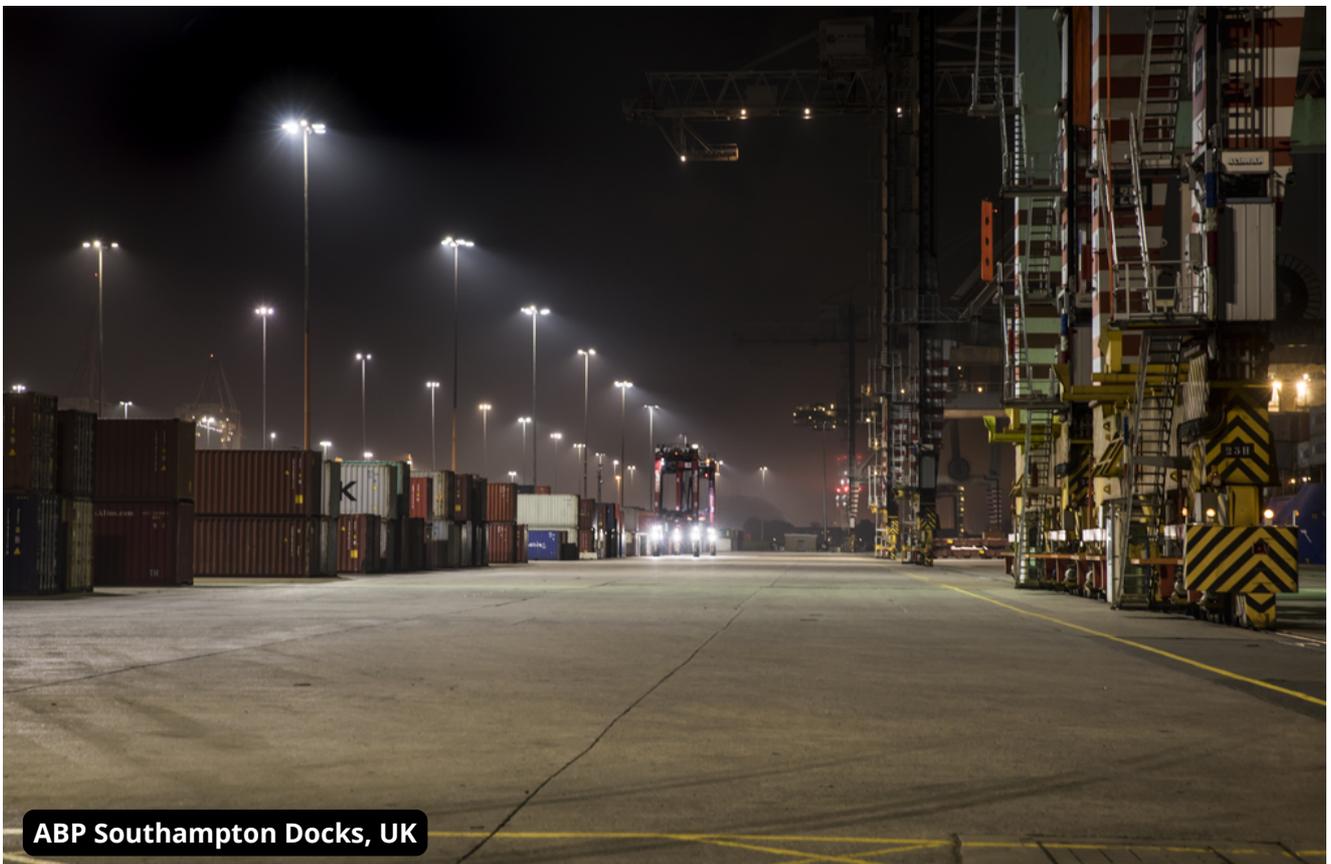
Simplicity, Reliability and Safety

Our offer:

- Raising and lowering masts and fixed head masts.
- Mast heights of 8m up to 60m.
- Standard masts and bespoke masts designed specifically for your project requirements (for example, high wind loads, seismic conditions).
- Stadium masts.
- CCTV masts.
- Telecommunication masts.

Environment:

- 100% recyclable or reusable materials.
- Designed to meet exact requirements, therefore no unnecessary use of raw materials.
- With proper maintenance masts can last well beyond their design life. We have masts in the field in good working order after 50 years.



Our production

- Everything is designed and made by us.
- Dedicated high mast production facilities.
- Quality assurance to BS EN ISO 9000.
- Masts are designed to Professional Lighting Guide 07 (based on Eurocodes EN 1991-1-4).
- Masts can also be designed checked to international standards.

Raising and Lowering System

Simple - Safe - Reliable



Advantages

- Uses our patented In-tension winch system.
- No work at elevated heights – easy floodlight installation and hassle-free maintenance all done at ground level.
- No latches = nothing to get stuck.
- Can use in confined spaces – no need for base hinge clearance area.
- Wire ropes kept in tension = healthy wire ropes.
- No dividers or compensators.
- Factory prepared wire ropes & power cable rigging sets.
- Light and portable power tool to be used with the winches

One stop shop:

In addition to manufacturing high masts we.....



Manufacture floodlights



Manufacture lanterns



Provide lighting design services



Provide Installation supervision services



Maintenance guidance and support

The Mast

Luminaire Carriages for Raising and Lowering Masts

- Luminaires are mounted on a luminaire carriage made from structural circular sections.
- Carriage also acts as an electrical cabling conduit.
- Fitted with arms for mounting the luminaires and junction box mounting plates.
- A rubber bumper is fitted to protect the mast shaft during the raising and lowering operations.



Fixed Head Assemblies for Fixed Head Masts

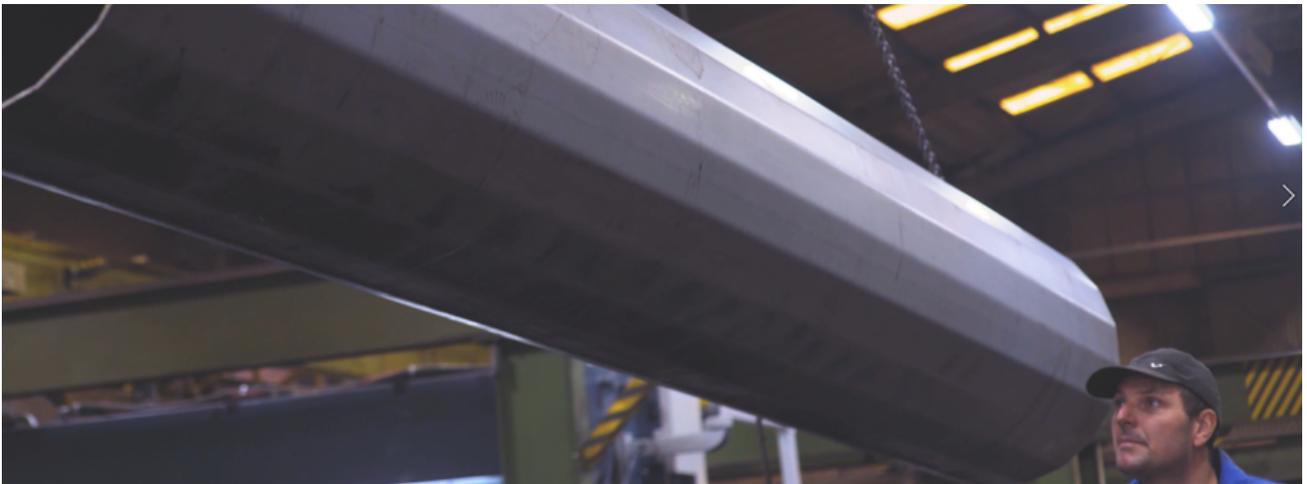
- Fixed head masts are supplied with a suitable head arrangement for mounting the luminaires.
- A platform and ladder or climbing step system can be provided to access the head for maintenance.
- Access to the head could be by MEWP (mobile elevated work platform).
- Access can be made to larger stadium masts via a maintenance cage.



Ta'Qali Training Ground, Malta

Mast Construction

- The mast is a free-standing continuously tapered structure which has the smallest footprint possible fit for purpose.
- Constructed from steel plates cut and folded to form 20-sided sections for on-site assembly.
- No site welding or bolted sections are required.
- Fully reinforced door is located at the base of the mast for access to equipment.
- The door is weather-proof, vandal resistant and has two heavy duty locks.
- The mast is connected to the base flange with a pass-through type multi pass fillet weld on the top side and a sealing weld on the underside.
- Supplementary gussets are provided between bolt holes.
- An earth terminal (12mm diameter stainless steel bolt) is attached to the mast door reinforcement.



Corrosion Protection

- The entire mast is Hot Dip Galvanised after fabrication, internally and externally, in accordance with BS EN ISO 1461.



Raising and Lowering System

Our patented In-Tension Raising and Lowering System means the luminaire carriage can be raised or lowered for installation and maintenance purposes using the permanently installed winch in the base of the mast and a pulley head assembly at the top of the mast.

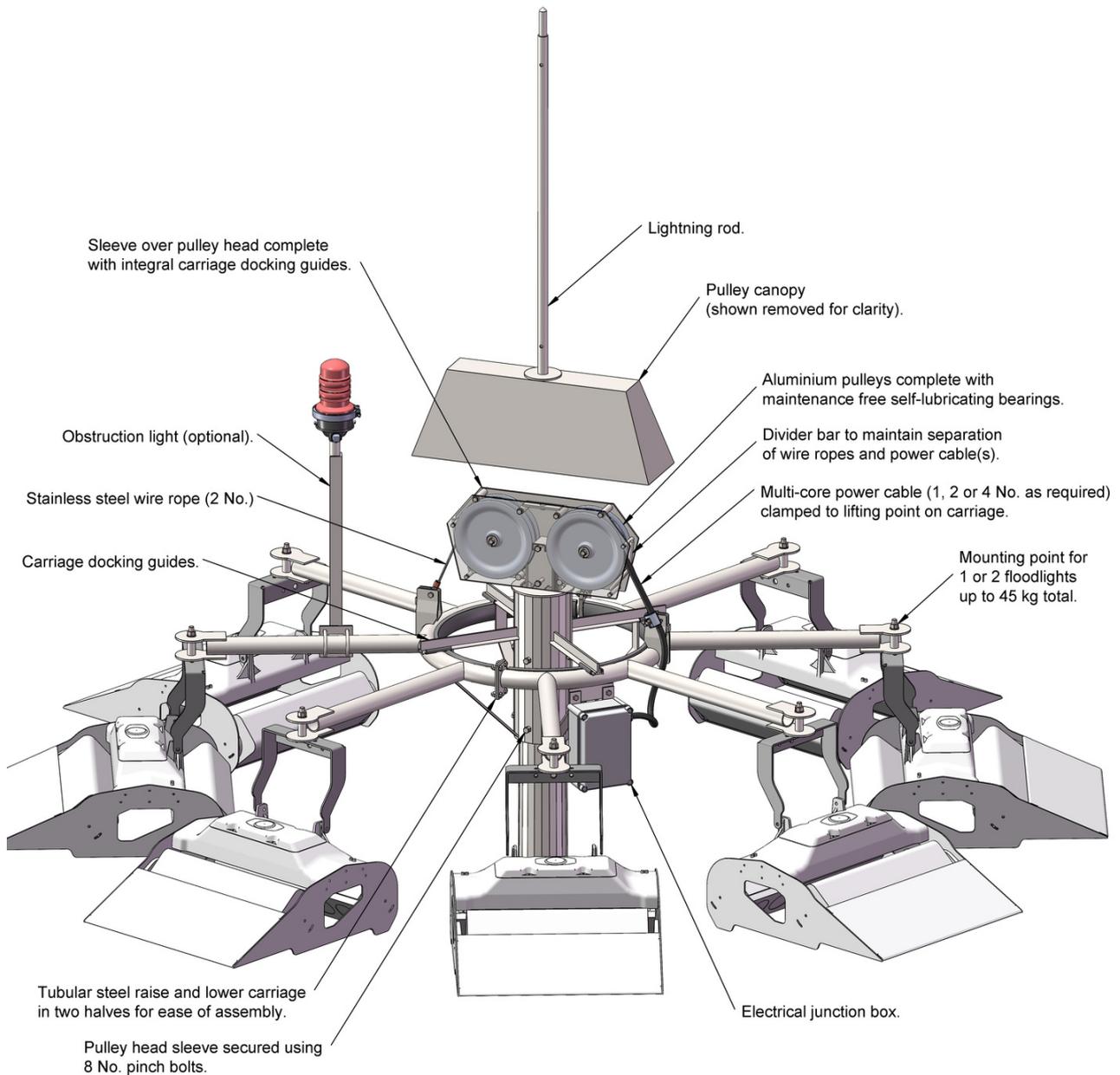
The steel wire ropes suspending the luminaire carriage are always in tension. This prolongs wire rope life and removes the need for latches for security. Latching systems remove tension from the wire ropes and tend to get stuck at the top of the mast. This is why latches are not used in the CU Phosco Lighting system.

The design of the CU Phosco Lighting system allows the wire ropes to be removed and replaced from ground level without necessitating the lowering of the mast.



Hamad Port, Doha, Qatar

Pulley Head Assembly



High Mast Pulley Head Arrangement

- The pulley head is made as a sleeve-over section which slips over the top of the mast shaft
- Protected by a weatherproof canopy.
- Fitted with lantern carriage guides and stops to ensure the correct docking of the lantern carriage.
- Aluminium pulleys with self-lubricating bearings = maintenance-free.
- The pulleys are used to separate the wire ropes and power cables to avoid any entanglement during the raising and lowering process

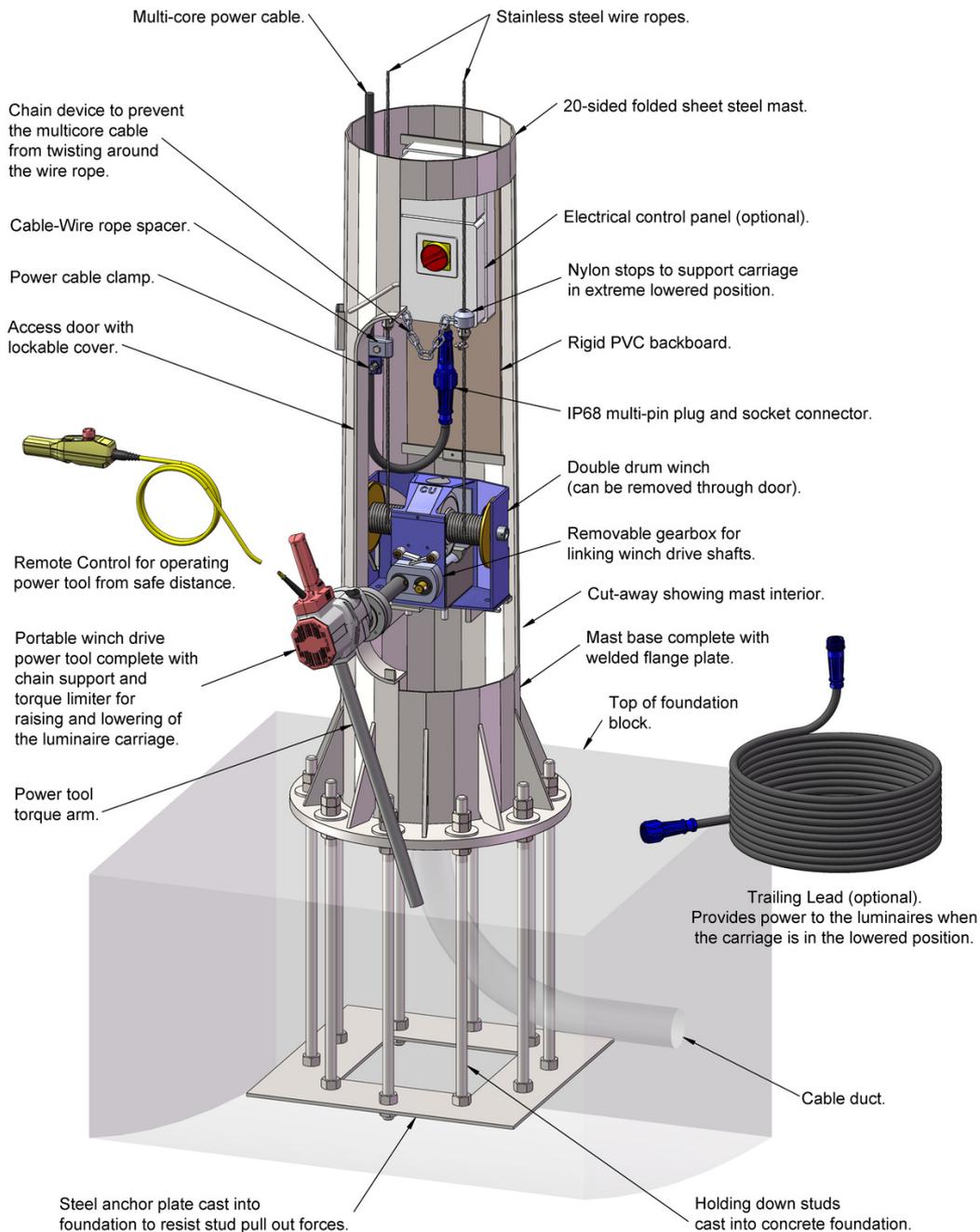
Winch

- The winch is in the base of the mast.
- Double drum winches and Triple drum winches are available.
- Drums are independent, each with its own wire rope.
- Completely self-sustained without the need for any brakes, clutches, or other mechanical devices.
- Safe Working Loads (SWL):
 - Double drum winch: 1000 kgs
 - Triple drum winch: 1500kg.
- Gear ratio of 53:1.
- Design life: 25 years. In reality, can be much longer with correct maintenance and inspections.
- Winches are self-lubricated with oil via an oil bath and come with a dip stick to check the oil level prior to operation.
- The independent drums are joined by a removable gearbox for the full raising and lowering operation.
- The gearbox can be removed for individual final adjustment using a manual handle.
- Each wire rope is connected directly from the winch to the luminaire carriage, no intermediate connections or compensators needed.
- Winches can be operated by either an electric portable motor or manual handle attached to the winch through the door in the base of the mast.
- The drive shafts have a locking pin to prevent the winch from moving when the mast is in service.



Winch Driving Tools

- Multi-speed reversible power tool.
- Supplied with torque-limiting device.
- Remote-control switch allows the luminaire carriage to be raised and lowered from three metres away from the mast.
- Kit provided to support the power tool accurately and securely during operation.
- Manual winding handle with torque limiting device provided for manual operation of the winch.



Stainless Steel Wire Ropes

- Wire ropes are marine grade stainless steel (316).
- Each rope is 6mm or 8mm depending on the lantern carriage load.
- Cut to length and terminated at the factory for ease of installation on site.



Power Cable and Cable Connections

- CU Phosco Lighting raising and lowering masts are supplied with a multicore cable.
- The cable is factory cut and pre-rigged for ease of installation.
- The cable goes over the pulleys at the top of the mast where it is connected to a weatherproof junction box on the luminaire carriage equipped with suitable nylon glands.

Extension Lead

- Raising and lowering masts are supplied with an extension lead or leads of multicore cable.
- Fitted with a plug and socket to enable the luminaires to be tested when in the lowered position.

Foundations

- All masts are supplied with foundation sets.
- Sets are comprised of:
 - grade 8.8 galvanised holding down studs.
 - steel anchor plate for casting into the foundation.
 - precision-made steel template with tubed holes to ensure correct vertical and horizontal stud alignment.

Typical High Mast Headframes

Fixed Head Asymmetrical High Mast



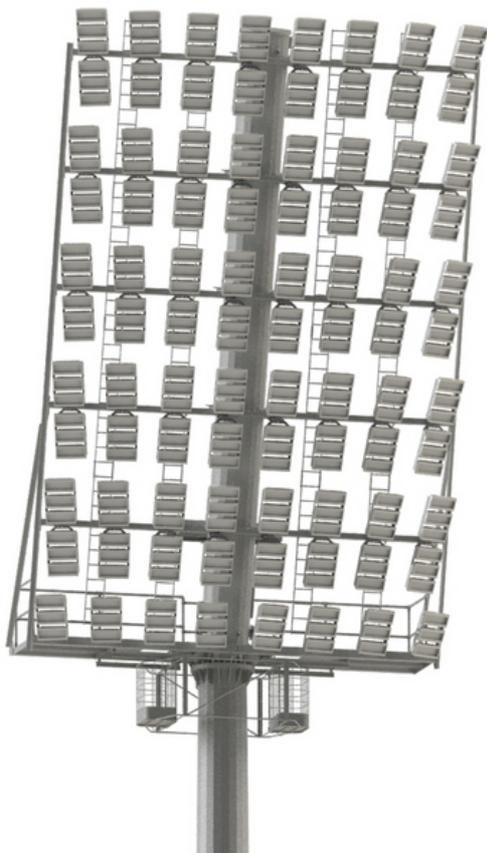
2 x FL810-1 Floodlights

Fixed Head Symmetrical High Mast



12 x FL810-2 Floodlights

Fixed Head Stadium Mast



88 x FL820-3 Floodlights

**Raising & Lowering
Symmetrical High Mast**



8 x FL810-2 Floodlights

**Raising & Lowering
Symmetrical High Mast**



8 x P855 Luminaires

**Raising & Lowering
Asymmetrical High Mast**



12 x FL820-2 Floodlights



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