

FLOOD AND AREA LIGHTING

**Floodlights for
security, work and
play
Control gear boxes**

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Phosco
LIGHTING

A practical guide to planning and installation for contractors

OR

what installers need to know

Exterior Floodlighting

Introduction

WHY FLOODLIGHTING?

All contractors are at some time required to light an exterior. Luminaires with a unidirectional light distribution are often the only solution; but which floodlight/lamp combination is right when just one maker lists over 250 alternatives?

HOW MUCH FLOODLIGHTING?

Enlightened clients may specify illumination (illuminance) as horizontal lux and basic calculations can quickly establish the likely scale of the installation. However, the contractor will usually be briefed to simply 'light the area'. The erstwhile I.E.S. (now C.I.B.S.) publish recommended levels for various tasks, typically:

Car Parks — Industrial — 5 to 20 lux.
Commercial — up to 50 lux.

The level and source colour selected will be influenced by such factors as adjacent street lighting and type of usage. E.g. Is the parking regular (office block) or occasional (supermarket)? Is there a security risk? Will large vehicles use the facility? Having established a target illuminance —

HOW IS IT ACHIEVED?

There are three methods:

- Throw up a floodlight and hope for the best — recommended when the client can be relied upon never to visit the site after dark.
- Calculation, using published data, based on the following formulae:
- Consult the experts.

Calculation, using published data, based on the following formulae:

$$\begin{aligned} \text{* Average horizontal illuminance} &= \frac{\text{Total lamp lumens} \times \text{utilisation factor (u.f.)}}{\text{Area in square metres}} \\ \text{in lux over area} &= \frac{\text{x maintenance factor (m.f.)}}{\text{Area in square metres}} \end{aligned}$$

OR

$$\begin{aligned} \text{Number of fittings} &= \frac{\text{Illuminance*} \times \text{area}}{\text{Lamp lumens} \times \text{u.f.} \times \text{m.f.}} \end{aligned}$$

*Useful lumens applied per square metre of surface. (Ft/Candles or lumens/ft² x 10.76 = Lux).

Total lamp lumens — lighting design lumens of chosen lamp (from maker's catalogue) multiplied by number of lamps proposed.

Utilisation factor — measure of useful light reaching the area. Can be as low as 20% (factor 0.2) and is rarely higher than 50% (0.5). Lighting from well outside the area, or if the area is narrow, a low factor might be used; a high factor may apply if the lighting point is in the centre of a large area or close to the edge of an area with the main beam directed into the centre. Otherwise a factor of 0.35 can be used with confidence.

Maintenance factor — compensates for depreciation of output due to dirt etc. and can be taken as 0.8 for all except the most onerous atmospheres.

This basic advice applies most happily to floodlights with fan-shaped beams, a mode commonly available. Obviously the method will only be of practical value if the mounting height is correct. For rough guidance, the spacing between adjacent poles or fixings should not exceed twice the mounting height and when lighting from both sides of an area the spacing between opposite poles should preferably not exceed 5:1. Fig 1 shows an alternative basic method in diagrammatic form — but what happened to method iii? This is the free design service offered by most manufacturers. Computer based schemes are common and modern techniques can produce results very close to those forecast, frequently allowing tighter economic solutions with obvious benefits to the customer.

Average illuminance — Lux (Lumens per square metre)	Floodlight mounting height — metres						
	5	6	8	10	12	15	18
400W SON/T	47	32	18	12	8	5	4
400W MBI/H	27	19	11	7	5	3	2
750W TH	15	10	6	4	3	2	1
1000W TH	21	15	8	5	4	2	1.5
250W SON/T	25	17	10	6	4	3	2
150W SON/T	14	10	5	4	3	2	1
35W SOX	4	3	2	1	0.75	0.5	0.33

Figures in italics — not normally recommended at this mounting height.

Utilisation Factor: 0.5

The above when used in conjunction with the diagram below, shows the average level of illuminance for particular mounting heights that can be obtained from floodlight using lamps as detailed. To calculate the number of floodlights required to illuminate an area to a chosen illumination level, divide the lux value in the table into the total lux level required, this will give an approximation of the number of floodlights needed.

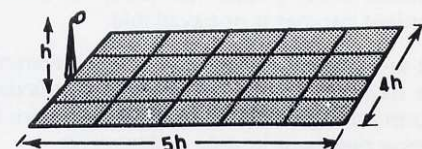


Fig 1: quick guide to the average level of illuminance with asymmetric floodlight.

continue over

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HOW IS THE PLANNED SCHEME REALISED?

Whether the design method is empirical, scientific or a mixture of both, the contractor must install for maximum performance, electrically and mechanically. In aiming, the floodlights must be set at the planned azimuth and vertical angles. Some manufacturers provide aiming sights and/or protractor scales, others provide none. Aiming by guesswork, particularly in daylight, is seldom satisfactory. Aiming by results for decorative work sharpens the theoretical plan but for areas a more precise method is required. In the absence of built in aids an improvised aiming device should direct the main beam at the design point in the area. Main beams usually emerge normal to the front casing but there are exceptions; if in doubt side viewing at night will often show the main beam clearly. The designed aiming angles must not be restricted by the supporting structure and it is well to ensure compatibility at the design stage.

The varieties of lamp types available are many and varied.

Just three of the traps awaiting an installer are:

- i. Tubular Tungsten Halogen must be operated horizontally.
- ii. High Pressure Sodium designated SON and SON/T, like Mercury tubular (MB/U and elliptical (MBF/U), give different distributions and the use of the correct type is critical. Available now is a double capped variant and this can further confuse the unwary.
- iii. Even if superficially interchangeable, not all lamps and control gear from different manufacturers are necessarily compatible and caution is necessary.

Use of correct cable and fuse rating is important when installing discharge lamps where starting currents can be up to twice the running current. Sequence starting of multi-lamp systems can reduce the feeder size. Some lamps require a very high voltage starting pulse which must be contained within appropriate insulation such as P.V.C. Ordinary tough rubber or mineral sheathing will fail. This restriction only applies to the control/gear lamp connection which should not be greater than 20 metres. At greater lengths the self capacitance of the cable may inhibit starting unless the ignitor is fixed within or adjacent to the fitting. The Electricity Board may need consulting if capital works are involved; will this involve extra cost even if 'off peak'?

The whole electrical installation including cable routing must be to I.E.E. Regulations. Final testing is basic but it must not be assumed that because a system is working that all is well — lamps and control gear may operate for a time at the wrong voltage and even if cross connected.

MOUNTING SYSTEMS

For Ground Mounting ensure a firm fixing on a concrete base or short pole upstand. Control gear in pits can be successful if the gear has a secondary housing and the pit is above the water table. Allowance must be made for azimuth aiming before locking the floodlight with a second fixing. Anti-vandal covers and/or wire guards are usually required.

In Wall Mounted installations ensure that the fixing can accommodate the azimuth aiming angle if this is other than 90°, e.g. if the angle is 45° the wall bracket must project to allow for this with some tolerance for adjustment. Corner brackets where practicable allow greater flexibility for aiming. If control gear is required this will either be 'in hood' or mounted adjacent if a convenient parapet is not available.

There are a variety of pole mounting systems available but wherever possible purpose made floodlighting poles should be used. These have the advantage of allowing maximum space for control gear in the base and usually they come complete with neat platform arrangements to take four or more floodlights.

Common problems in pole systems are:

- i. Compatibility of floodlight with pole top arrangements — the installer must be satisfied that the two products, often coming from different suppliers, will together give the required result without improvisation.
- ii. Termination boxes for wiring multi-fitting systems are not always provided. Check that there is a cold wiring box, where necessary, included in the Bill of Quantities. Pole makers rarely supply cutouts, photocells etc. as standard and this must be taken into account when costing.
- iii. Access to the pole for servicing must be considered at an early stage. The options are: hydraulic platform, ladder with fall arrester, pole steps or other means of servicing by climbing. Long life discharge sources can mean that the platforms need be hired at worst, every two years. Winch operated demountable headframes or hinged columns are often used when access is difficult.

HIGH MAST AND TOWER installations are specialised and the contractor, unless experienced in the techniques required, should seek advice. Suffice to say here that in common with pole mounted installations, the setting of correct foundations and the checking of wind loadings for the particular floodlight array in its particular geographic location, on its particular ground, are essential.

MAINTENANCE

Periodic attention is vital, not only to clean fittings and change lamps, but to ensure aiming angles have not altered — especially after unscheduled lamp changes. If the client is likely to use 'in house' maintenance engineers, check that he is satisfied that your installation will comply with the Health and Safety at Work Act.

PLANNING FOR THE FUTURE

The installation of floodlighting can be expensive and it is sometimes advisable to recommend to clients on a tight budget that their installation should be planned to their projected requirements and their money spent now on structures and cabling, phasing in the lighting cost, which can be incremental, as finance becomes available. There are many installations operating today where upgrading is required but the cost for recabling and replacement poles is prohibitive.

Floodlighting can change our lives and it is worth planning the installation carefully, however small this may be. New amenities and increased security can show benefits to the community out of all proportion to the minimal running costs often involved.

PHOSCO WALLBOX P525

Three position reflector system.
Cast aluminium body.
Polycarbonate visor.
Easy mounting by separate fixing plates for
wall or column arrays.
Choice of finishes.
IP54.
Optional mini photo-cell.

Lamp types: Up to 250 watts tubular lamps,
double or single capped. SON or MBI.
TLOR - 0.795. DLOR 0.755.
Main beam: 60°/65°/70° from downward
vertical.
Peak intensity: 700 cds/klm.
Horizontal spread: 150° to 1/10th peak.

Designed for city centres, areas, car parks
(open, multistorey or underground). Tunnels
and underpasses, bridges and overpasses.

AN ARCHITECTURAL LIGHT BOX FOR WALL OR COLUMN MOUNTING



Isolux diagram is for 6m mounting height
with 250w SON double capped lamp
(LDL 25,200).

Reflector set at 65° (middle position).

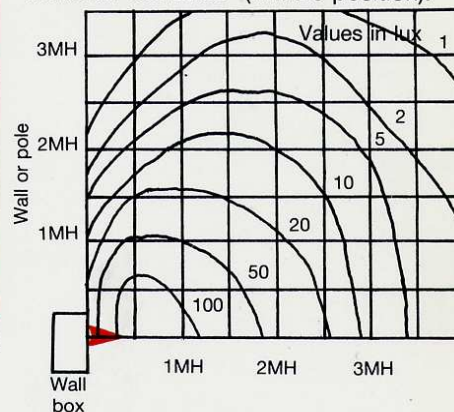
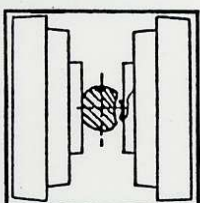
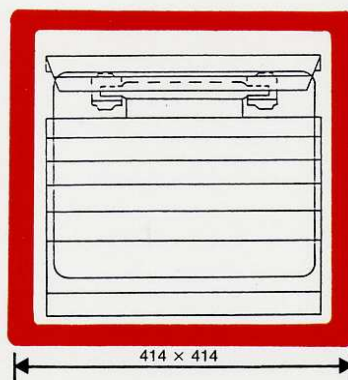


Table of conversion factors for other lamps and
mounting heights.

HEIGHT	250w SON	150w SON	250w MBI	150w MBI 100w SON
5m	1.44	0.81	0.98	0.55
6m	1.00	0.56	0.68	0.38
8m	0.56	0.31	0.38	0.21
10m	0.36	0.20	0.24	0.14



Pole mounting view from
above.



Weight with 250w
SON control gear:
16.5Kg.

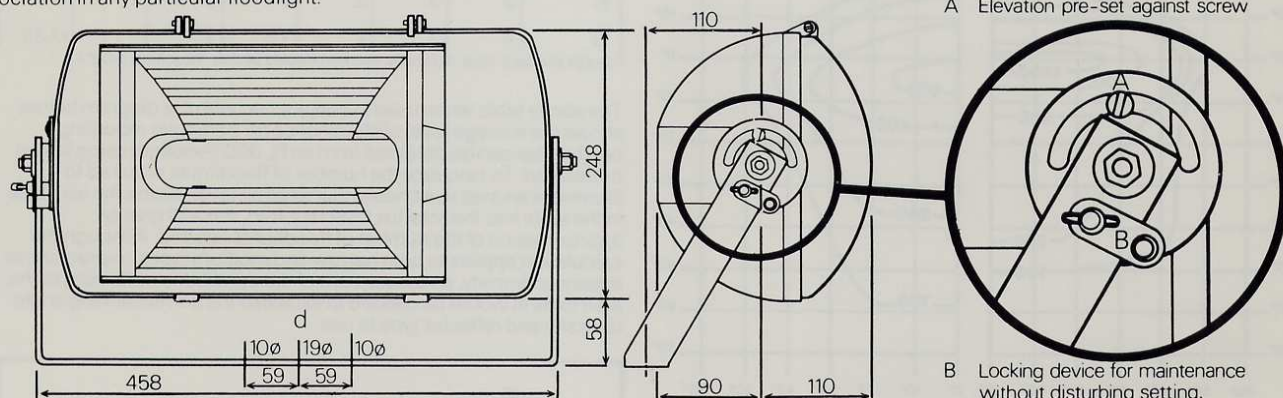
Floodlight SON/T, MBI/H, SOX Tungsten Halogen

The body and cover frame are corrosion resistant LM6 - M aluminium alloy castings, finished stove enamel grey. A toughened, heat resisting clear glass front is securely retained in the cover frame and sealed with durable heat resisting compound. The curved front glass and cover frame has been designed to ensure a minimal temperature difference on the glass, thus eliminating the hot spots usually associated with flat glass covers which can be detrimental to the qualities of the glass. Good heat dissipation is encouraged providing favourable conditions for maintenance of lamp operation at optimum temperature for maximum efficacy. The cover frame is attached to the body by stainless steel hinge pins and secured by two captive stainless steel screws. A gasket of resilient silicone rubber is provided for complete weather protection.

Three versions of internal reflectors of brightened and anodised high quality aluminium provide narrow, medium or wide spread beams as required. The body is mounted on a galvanised angled steel stirrup, and a pre-set device (B r. Pat.) is provided at one end whereby the required angle of beam elevation can be set and secured. A dial at one end indicates the angle of elevation and a separate locking tab permits the body of the floodlight to be rotated when required for maintenance or lamp replacement, and restored to its initial setting.

The floodlight is available with a straight stirrup instead of the angled type as shown, which may be more suitable for certain applications where rotation through 360° in azimuth is required e.g. for high mast lighting applications. The lampholder is pre-wired with one metre of 3 core silicone rubber cable which passes through a weatherproof gland in the body for connection to the control gear. In the tungsten halogen version a terminal box is mounted on the stirrup of the floodlight for cable connections.

A baffle plate is available for fixing to the interior of the cover frame. This restricts light emission above the horizontal and provides essential cut-off for certain applications. An internal louvre is also available to restrict lateral emission. Two baffle plates and internal screening can be provided for special applications. Since baffle plates and louvres are both fitted internally they cannot be used in association in any particular floodlight.



Catalogue No.	Beam Type	Lampholder	Lamp
FL300/1	Narrow	GES	
FL 300/2	Medium	GES	400 watt SON/T or MBI/H
FL 300/3	Wide	GES	
FL 301/1	Narrow	2 x R7s	
FL301/2	Medium	2 x R7s	750/1000 watt Tungsten Halogen
FL301/3	Wide	2 x R7s	
FL 303/1	Narrow	GES	
FL 303/2	Medium	GES	250 watt SON/T
FL 303/3	Wide	GES	

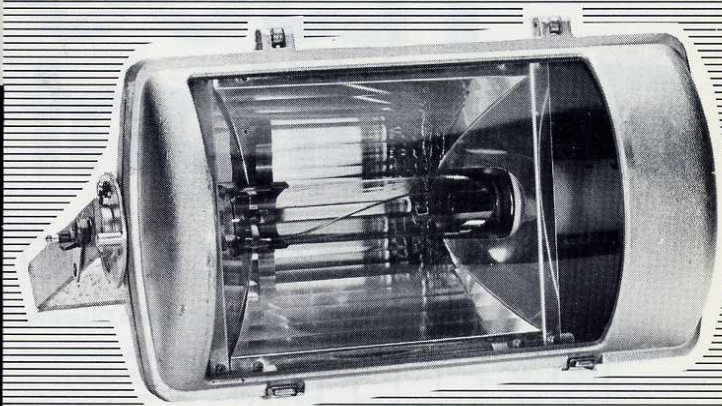
Catalogue No.	Beam Type	Lampholder	Lamp
FL 304/1	Narrow	GES	
FL 304/2	Medium	GES	150 watt SON/T
FL 304/3	Wide	GES	
FL 305/1	Narrow	B.C.	
FL 305/2	Medium	B.C.	35 watt SOX
FL 305/3	Wide	B.C.	

Add Suffix B for baffle plate

Add Suffix L for louvre

Special variants of the FL300 range are available to accommodate 70 watt SON and double ended linear discharge sources up to 400 watt rating.

WEIGHT OF ALL VARIANTS (Floodlight only) 6.4kg



Mk 2 Version

FL300N and WB520N control gear box now available for Zone 2 hazardous areas classification EXnII for 150/250/400 w SON/T lamps.

ZONE 2
BASEEFA Cert No's 86382/3X

**For SON/T, MBI/H, SOX
& Tungsten Halogen**

LIF-DESIGN COUNCIL AWARD

I.P. Classification:- I.P. 54

Phosco
LIGHTING

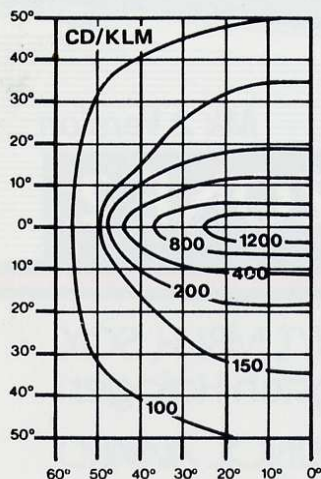
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FL 300

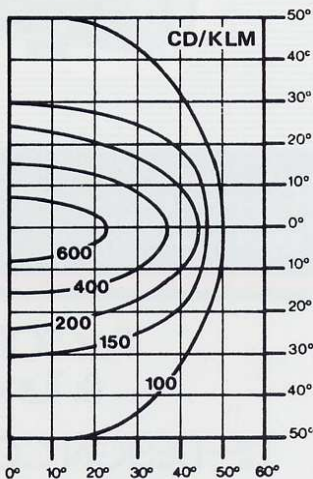
FL300 Floodlight

Photometric Data

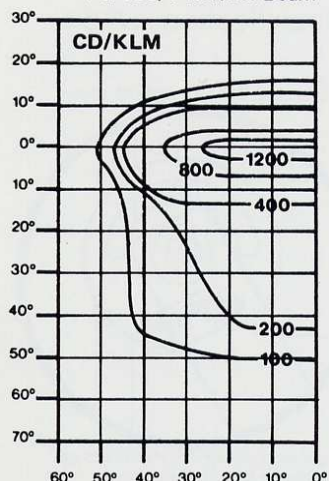
Typical Iso-Candela Diagrams



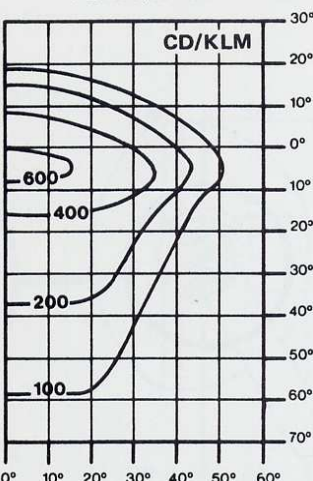
FL 300/1 Narrow Beam



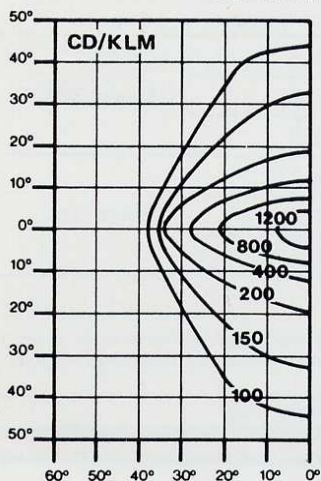
FL 300/2 Medium beam



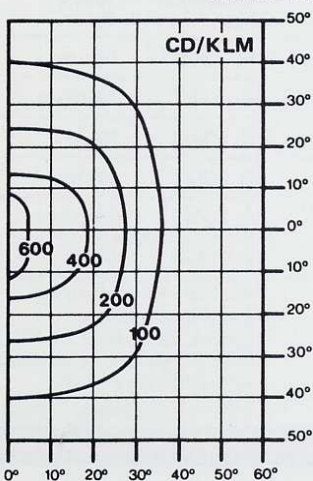
FL 300/1 B Narrow beam with baffle



FL 300/2 B Medium beam with baffle



FL 300/1 L Narrow beam with louvre



FL 300/2 L Medium beam with louvre

PHOTOMETRIC TABLES

Data under FL300/3 are provisional

Optics	Beam angle to 1/10 peak			Beam factor	Peak intensity CD/KLM	Recommended vertical aiming
	Hori-zontal	Above peak	Below peak			

FL300/1 narrow beam with SON/T & MBI/H lamps

Without baffle	100	28	28	0.55	1600	65° to 75°
With baffle	100	13	50	0.55	1550	65° to 75°
With louvre	70	34	37	0.30	1520	65° to 75°

FL300/2 medium beam with SON/T & MBI/H lamps

Without baffle	101	51	51	0.54	670	45° to 65°
With baffle	101	24	62	0.48	625	45° to 65°
With louvre	75	45	45	0.36	620	45° to 65°

FL300/3 wide beam with SON/T & MBI/H lamps

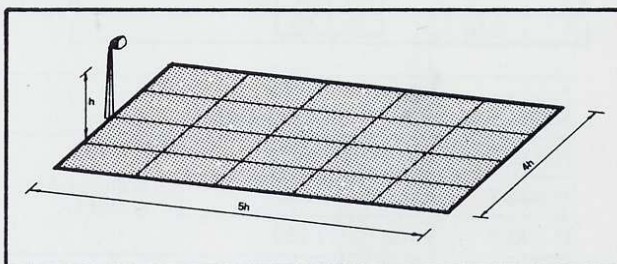
Without baffle	104	52	52	—	288	30° to 45°
With baffle	104	26	63	—	250	30° to 45°
With louvre	75	45	45	—	248	30° to 45°

QUICK GUIDE TO AVERAGE LEVEL OF ILLUMINANCE WITH ONE FL300 FLOODLIGHT

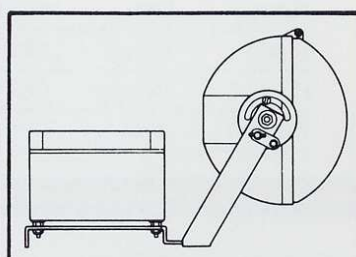
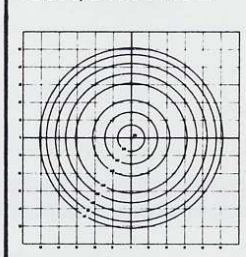
Floodlight mounting height metres	Average illuminance — Lux (Lumens per square metre)						
	400w SON/T	400w MBI/H	750w TH	1000w TH	250w SON/T	150w SON/T	35w SOX
5	47	27	15	21	25	14	4
6	32	19	10	15	17	10	3
8	18	11	6	8	10	5	2
10	12	7	4	5	6	4	1
12	8	5	3	4	4	3	0.75
15	5	3	2	2	3	2	0.5
18	4	2	1	1.5	2	1	0.33

Figures in italics — not normally recommended at this mounting height

The above table when used in conjunction with the diagram below, shows the average level of illuminance for particular mounting heights that can be obtained from an FL 300 floodlight using lamps as detailed. To calculate the number of floodlights required to illuminate an area to a chosen illumination level, divide the lux value in the table into the total lux level required, this will give an approximation of the number of floodlights needed. Although the calculation applies to both narrow and medium types, in practice, to ensure uniformity, an assessment of the conditions pertaining to the area to be lit would be needed to establish the correct aiming angle, diversity and reflector type to use.



Typical Iso-Candela for FL 300/3 Wide Beam.



CONTROL GEAR, CONTROL GEAR BOXES AND LAMPS.

Phosco floodlights are normally supplied complete with lamps and control gear where applicable. A range of control gear boxes is available (see separate leaflet), and these may be attached to the floodlight by a special fixing bracket available as an extra.

The data given are typical and do not guarantee individual product performance and/or characteristics. Phosco products are offered subject to the Company's Conditions of Sale, a copy of which may be obtained on request.

Floodlight

SON/T & HPI/T

The body ends are made of corrosion resistant LM6—M aluminium alloy castings, finished stove enamel grey. These ends are united by extruded aluminium sections to BS 1474. A toughened heat resisting clear glass front is securely retained in the cover frame and a gasket of silicone rubber prevents the ingress of dust and moisture. The curved front glass has been designed to ensure a minimal temperature difference thus eliminating the hot spots usually associated with flat glass covers which can be detrimental to the qualities of the glass. Good heat dissipation is encouraged providing favourable conditions for maintenance of lamp operation at optimum temperature for maximum efficiency.

Two half reflectors, hinged and seated on a resilient silicone rubber gasket give access to the interior. The reflectors which are made of extruded anodised aluminium are available in narrow or medium spread beams as required. The body is mounted on a galvanised steel stirrup angled as shown or straight for special applications such as high mast lighting.

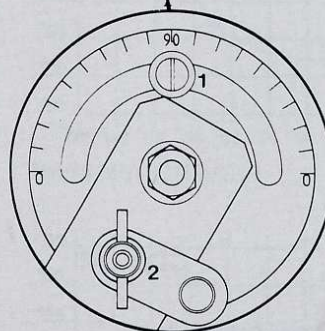
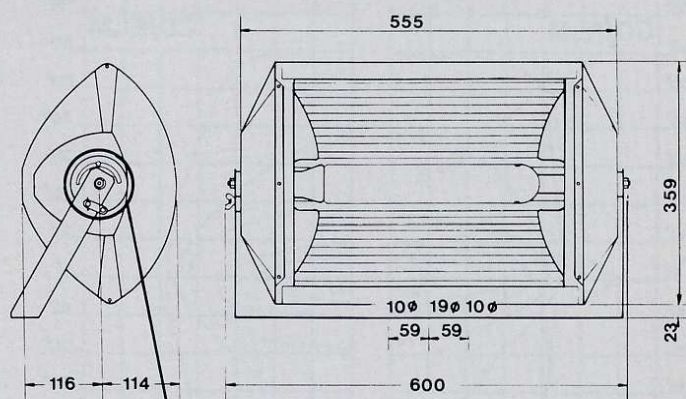
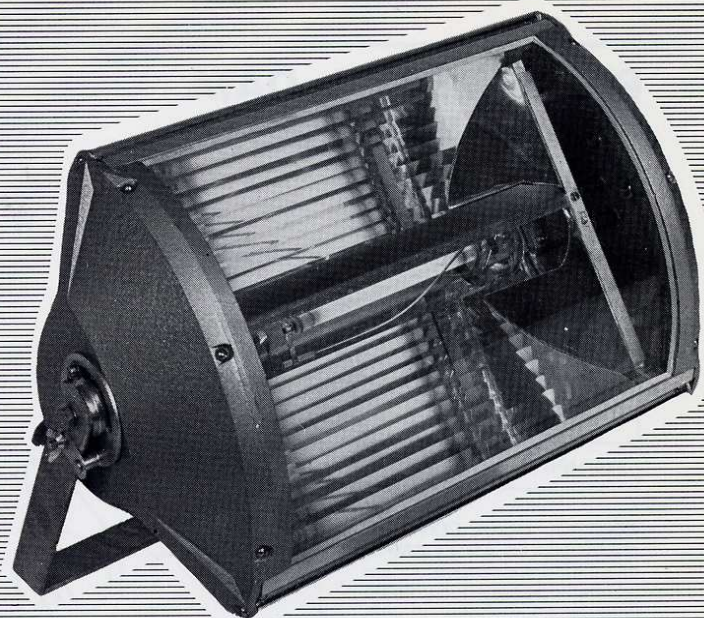
A dial at one end indicates the angle of elevation and a separate locking tab permits the body of the floodlight to be rotated when required for maintenance or lamp replacement and restored to its initial setting.

Arrowed letters on the aiming quadrant indicate the horizontal beam position for angled (Letter A) or straight (Letter B) stirrup.

The lampholder is prewired with one metre of 3 core silicone rubber cable which passes through a weatherproof gland in the body for connection to the control gear.

A baffle plate is available for fixing to the interior of the cover frame. This restricts light emission above the horizontal and provides essential cut-off for certain applications.

An internal louvre is also available to restrict lateral emission. Single baffle plates and louvres can be used in conjunction within the same fitting. Two baffle plates and internal screening can be provided for special applications such as airport apron lighting.



1 Elevation pre-set against screw

2 Locking device for maintenance without disturbing setting

Weight: (floodlight only) **8.75 kg.**

Projected Area: **0.21 m²**

I. P. Classification: **54**

Catalogue no.	Beam Type	Lampholder	Lamp
FL310/1	Narrow	GES	1000w SON/T or 1000w HPI/T
FL310/2	Medium	GES	

Add Suffix B for baffle plate
Add Suffix L for louvre

NOTE:— Standard baffle plates and louvres can be used in combination.

Special variants of the FL310 range are available to accommodate double ended linear discharge sources.

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FL310

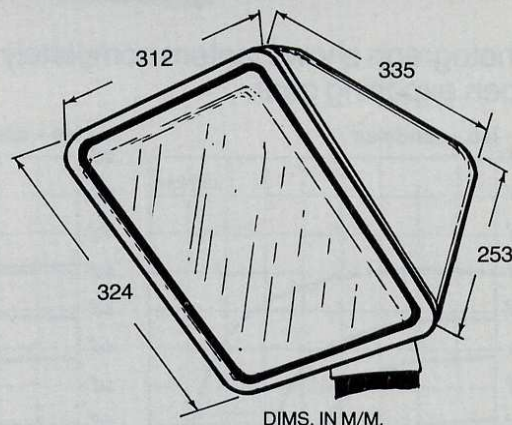
Nightfighter Floodlight

SPECIFICATION

A high quality floodlight for external installation using either high pressure sodium (SON) or mercury (MBF) lamps. Control gear is contained inside a hood separated from lamp housing, for additional safety. The lampholder is heavy duty ES type. The beam is adjustable 30° vertically. A clear acrylic weatherproof front cover protects the lampholder from corrosion and is vandal resistant. The main body casting is made of LM6 cast aluminium. A variety of fixings are available for wall, ground or pole mounting. (See table).

I.P. Classification: 54

Main beam vertically adjustable between 40° and 70°.



Diffused lamps are normally supplied
clear types are available to order
in 70 and 110w. SON ratings.

ORDERING DETAILS:—

CATALOGUE No.	LAMP	Weight:—complete with control-gear
FL320	50w. SON	7.3 kg.
FL321	70w. SON	8.2 kg.
FL321Q	70w. SON or SON/T with ignitor for quick restrike	8.3 kg.
FL322	18w. SOX	7.0 kg.
FL323	50w. MBF	7.1 kg.
FL324	80w. MBF	7.5 kg.
FL325M	125w. MBF	9.0 kg.
FL325S	110w. SON diffuse or clear	9.0 kg.

FIXING DETAILS:—

REF. No.	TYPE OF FIXING
A	For vertical or horizontal scaffold poles, adjustable for diameters 35 - 50mm
B50	Spigot caps for post top mounting 50mm dia.
B76	Spigot caps for post top mounting 76mm dia.
D	Wall or ground mounting bracket

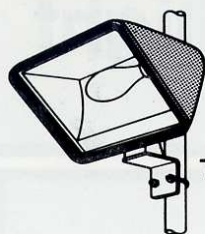
When ordering add Fixing Detail eg. FL320/B50

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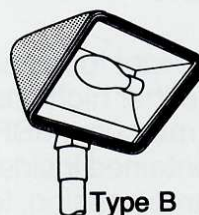
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Great Amwell
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Telex 81398

FL320/5

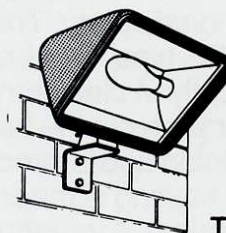
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Type A



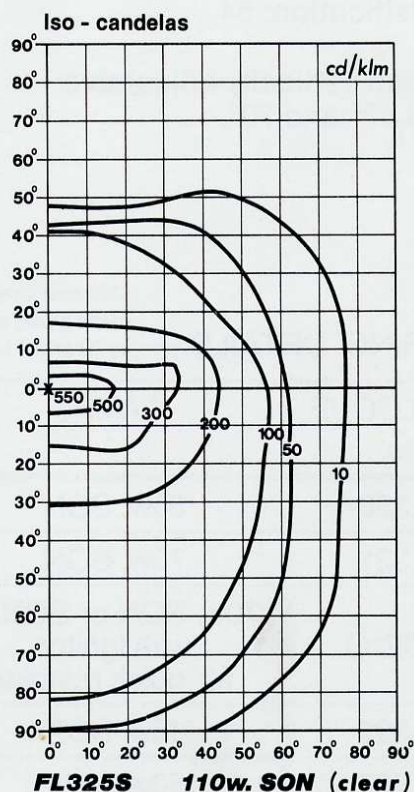
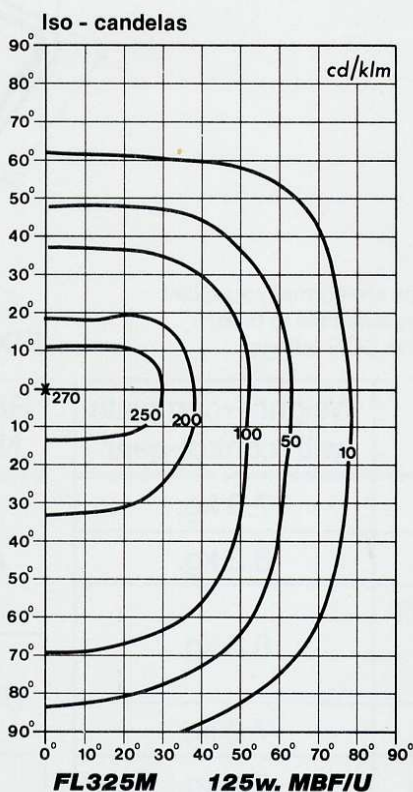
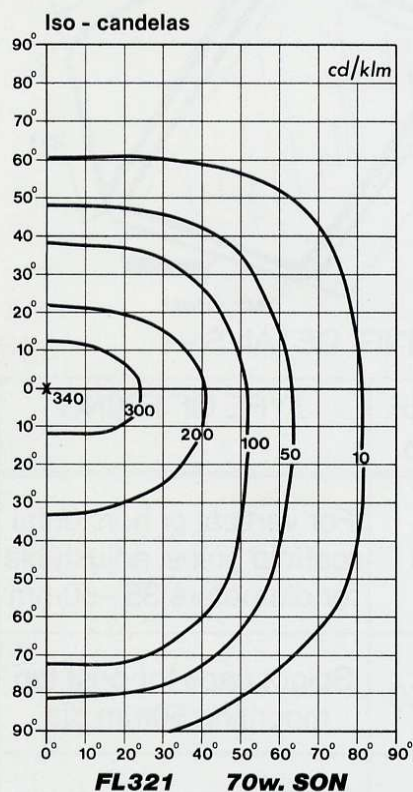
Type B



Type D

Photograph shows lantern completely open exposing gear

Type of fixings available.



The data given is typical and does not guarantee individual product performance and/or characteristics.

COMPARE THESE LDL LUMEN OUTPUT VALUES:—

Tungsten Halogen
300w.
500w.

LDL
5000
9500

Mercury or High Pressure Sodium
50w. MBF
50w. SON
80w. MBF
70w. SON
125w. MBF
110w. SON

LDL
1900
3100
3650
5510
5850
11,000

Spaceflood

SPECIFICATION

A high quality floodlight for pole or wall mounting on a vertical spigot using either high pressure sodium or mercury (including MBI) lamps. Control gear is contained inside the body separated from the lamp by the variable reflector.

ADJUSTABLE REFLECTOR SYSTEM

Two principal reflectors of high quality anodised aluminium. Main reflector internally adjustable in five steps to give peak intensities up to 72° from the downward vertical with wide horizontal spread to 180°. The variable reflector system ensures consistent cut-off characteristics. Side reflectors: White stove enamelled zinc coated sheet steel.

MATERIALS

Main Body: LM6-M corrosion resistant aluminium
Fixed Window: Toughened glass
Canopy: G.R.P.

Hinges & Securing Clips: Stainless steel
Gasket: Resilient elastomer
Weatherproof rating: IP34
Electrical rating: Class 1
Where appropriate the incorporated control gear includes ignitor.

FINISH

Canopy: White
Body: Silver Hammer
Other colour combinations available to special order.

FIXINGS

The main body of SPACEFLOOD has a 76mm x 76mm socket for pole or wall bracket spigot mounting.
Wall bracket: WB 543
Details of extended or corner wall brackets are available on request.

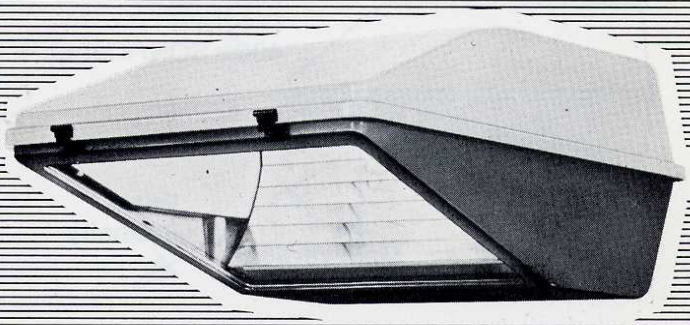
DIMENSIONS

Weight inc. 400w SON/T
Control gear = 16Kg
Projected area: side 0.09m²
end 0.109m²
Photocell facility available if required.

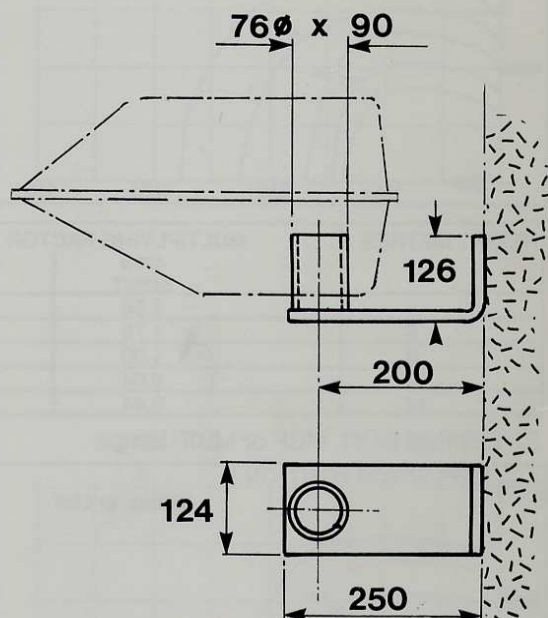
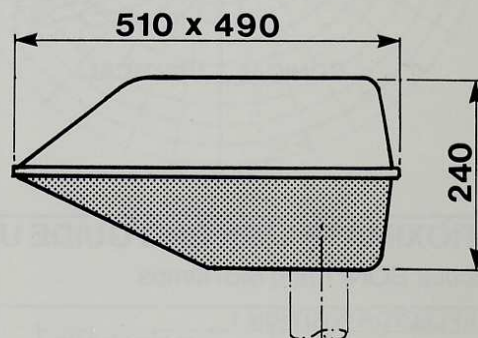
ORDERING DETAIL

Reference: FL345 SPACEFLOOD
State lamp and control gear required.

150w	250w	400w
SON/T	SON/T	SON/T
SON	SON	MBI
	MBI or MBIF	
	MBF	



The Spaceflood is fixed in one position and the adjustable internal reflector beams the light where you want it



**WALL BRACKET AS SHOWN
WB 543**

Phosco

Phosco Limited
Ware Hertfordshire
SG12 9TA
Tel: Ware (0920) 2272
Telex: 81398

FL345

Printed by Graphic 8/85/Welwyn Garden City/Hertfordshire

FL444 FLOODLIGHT FOR 1kW & 2kW HID LAMPS

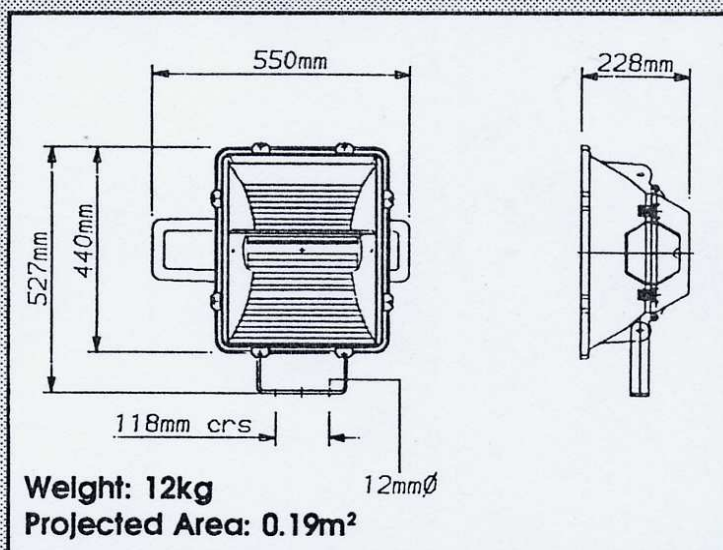
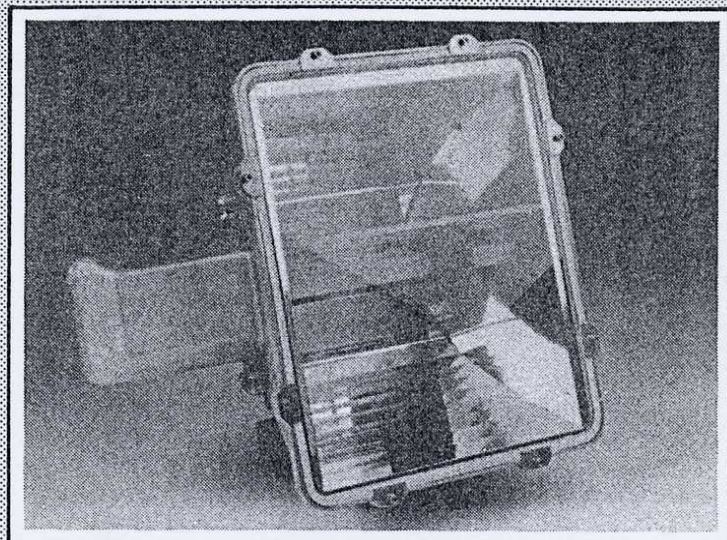
FL444 is designed to provide highly efficient illuminance of large areas using 1kW and 2 kW lamps. The floodlight is particularly suitable for lighting sports complexes and industrial/commercial areas. Usually pole or mast mounted the floodlight may also be fixed direct to structures such as spectator stands and buildings. The distribution is asymmetric in the vertical plane.

SPECIFICATION

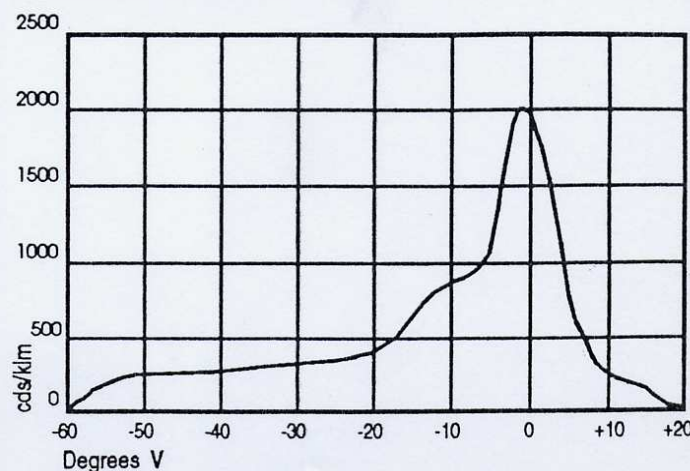
Rating:	Exceeds IP54 (Class I) Complies with BS 4533, 102.5
Body:	LM6 Die Cast Aluminium.
Glass:	Heat resisting and toughened.
Servicing:	Rear access.
Reflectors:	Highly Specular Aluminium.
Wiring Box:	Nylon for 10mm ² cables, Glanded and Gasketed.
Mounting and Aiming:	Galvanised stirrup for supporting or suspending. This arrangement allows the floodlight to be rotated in azimuth and adjusted in elevation.
Control Gear:	Remote in appropriate gear boxes. [Ignitor for 2kW mounted on stirrup].

LAMP TYPES

1kW SON/T - LDL 125000
2kW MBI - Double ended versions by Thorn and Osram [200,000 lm. at 100 hours].



Typical Vertical Polar Curve.



PROJECTOR FLOODLIGHTS

JUNIOR 250/400 Watt discharge lamps.
SENIOR 600/1kW discharge lamps.
SPORTSBEAM 2kW MBI

Medium to long range floodlights mounted on a galvanised steel cradle. The spun aluminium reflector with alternative specular or diffused finish, is protected by a clear toughened glass front sealed with a silicone rubber gasket and retained by a stainless steel ring. A die-cast LM6M aluminium body is attached to the reflector assembly with wing-nuts, keyhole slots in the casting allows quick removal for re-lamping. Cable entry is provided in the cast aluminium detachable end cap and the GES lampholder is mounted on a focusing stirrup. An angle indicating quadrant is fitted to assist in vertical aiming and an indicating baseplate for azimuth angle is available as an optional extra.

IP Classification: 54.

Complies with BS 4533 Section 102.5.

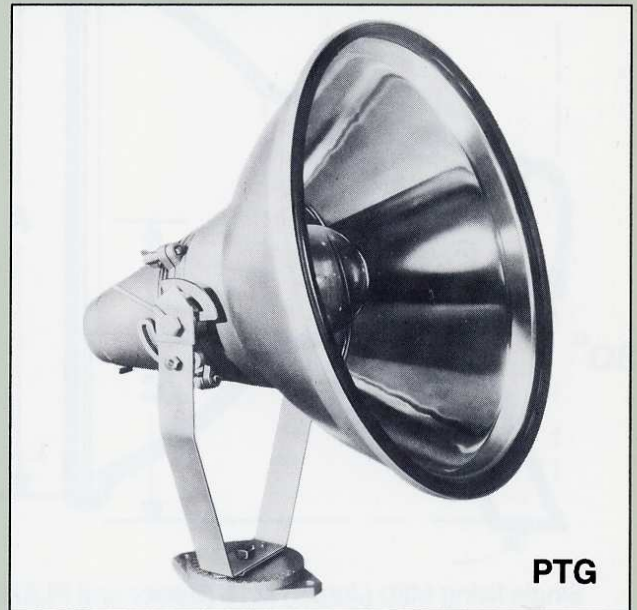
ORDERING DETAILS

Catalogue No.	Reflector	Lamps (Watts)
Junior Projector		
PTG 5216	Specular	250/400 MBF
PTG 5217	Diffuse	400 MBI
		250/400 SON & SON/T
PTG 6292	Specular	Zone 2 versions. Lamp
PTG 6293	Diffuse	Range as above. BASEEFA
		Cert. No. Ex 76058/B.
		classified IP65. Restricted
		breathing. Max. ambient
		temp. 40°C all positions.
Senior Projector		
PTG 4171	Specular	700/1000 MBF or 1000
PTG 4172	Diffuse	MBI/MBIF
PTG 4668	Specular	
PTG 4669	Diffuse	600W SON/T 1000W
		SON & SON/T
Sportsbeam		
FL370	Specular	2kW MBI GES
FL370	Diffuse	2kW MBI GES

Phosco
LIGHTING

Phosco Limited,
Charles House, Great
Amwell, Ware, Herts,
SG12 9TA
Tel: (0920) 462272
Fax: (0920) 461370

The right is reserved to change specifications without prior notice or public announcement.



PTG



FL370



FM 13959

WEIGHT		PROJECTED AREA	
Junior	9.07Kg	Junior	0.16
Senior	12.7Kg	Senior	0.29
FL370	15.0Kg	FL370	0.44

PTG series - FL370

Cast Aluminium Control Gear Boxes

SPECIFICATION

WB 520 for discharge sources up to 400 watt.

WB 530 for discharge sources up to 1000 watt.

WB 550 for discharge sources up to 2000 watt.

Supplied prewired with control gear.

BODY

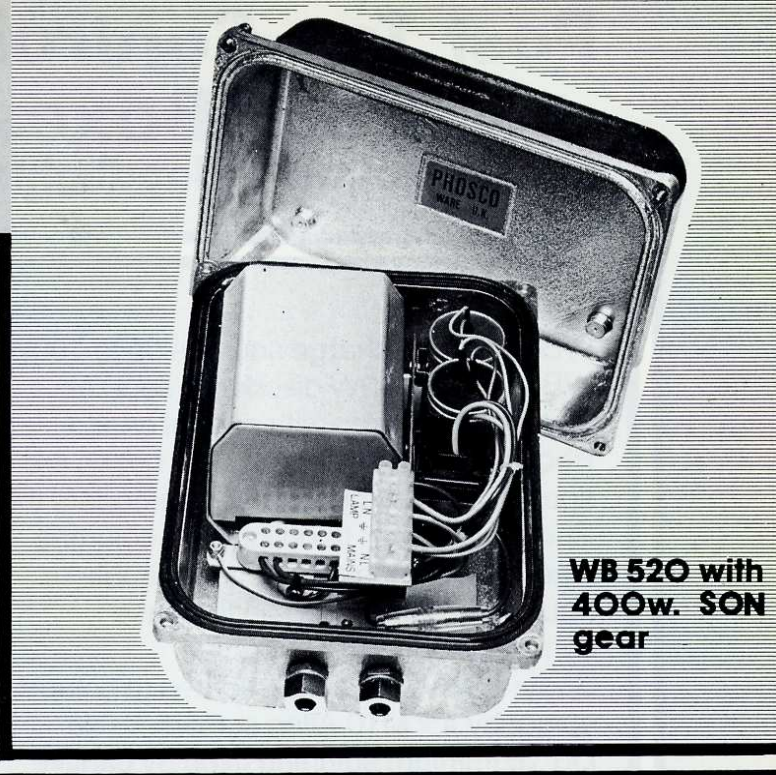
LM6-M die cast alloy.

The lid is fully gasketed and fixed with 4 captive stainless steel screws.

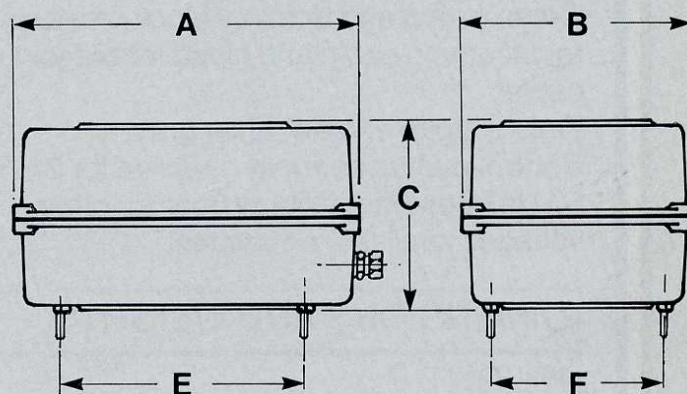
Boxes can be supplied empty, or with geartray only, with or without glands.

I.P. Classification: IP55
(IP65 to special order)

A 2 metre Nylon flexible conduit tube (IP65) is available as a connecting for Phosco control gear boxes providing additional protection to the silicon cable usually supplied with Phosco floodlights.



**WB 520 with
400w. SON
gear**



Dimensions and Weights		WB 520	WB 530	WB 550
LENGTH	A	229mm	351mm	450mm
WIDTH	B	209mm	260mm	275mm
HEIGHT	C	164mm	220mm	202mm
FIXING CENTRES	E x F	210 x 120mm	256 x 165mm	365 x 190mm
FIXING STUDS		6mm dia.	10mm dia.	10mm dia.
Weight: WITHOUT CONTROL GEAR		2.96Kg.	4.4Kg.	5.8Kg.
Weight: fitted with 150w SON C/Gear		7.2Kg.	—	—
Weight: fitted with 250w SON C/Gear		9.5Kg.	—	—
Weight: fitted with 400w SON C/Gear		9.7Kg.	—	—
Weight: fitted with 400w MBI C/Gear		10.5Kg.	—	—
Weight: fitted with 1000w SON C/Gear		—	25.2Kg.	—
Weight: fitted with 1000w MBI C/Gear		—	18.7Kg.	—
Weight: fitted with 2000w MBI C/Gear		—	—	24.2Kg.

Phosco

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WB 520
WB 530
WB 550

Post Top Control Gear Boxes

For Stirrup Mounted Floodlights

WB540 for discharge sources up to 400W.
WB541 for 1000W discharge sources.
Supplied prewired with control gear.
Phosco Post Top control gear boxes are specifically designed to accommodate the Phosco range of floodlights on columns where it is impossible or undesirable to house the control gear in the base compartment.

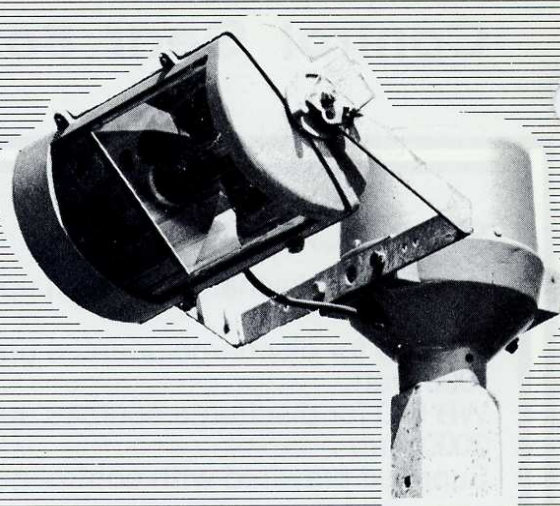
Body; LM6-M casting, secured to column spigot by 4 x M10 Allen screws.

Lid; aluminium spinning fixed by captive stainless steel screws.

Cable clamp and terminal block provided for incoming cable and gland for outgoing cable.

Finish; stove enamel silver grey.

Control gear is normally supplied for 240V 50 Hz operation. Control gear for other voltages available on request.



Phosco Limited reserve the right to amend the design and/or specification without prior notice.

DIMENSIONS AND WEIGHTS	WB540	WB541
HEIGHT	353mm	503mm
DIAMETER	239mm	239mm
SPIGOT ENTRY	76mm x 76mm dia.	76mm x 76mm dia.
FLOODLIGHT FIXING CENTRES	118mm	118mm
FLOODLIGHT FIXING STUDS	M10 dia.	M10 dia.
WEIGHT WITH 150W SON/T C/G	8.7 kg	—
WEIGHT WITH 250W SON/T C/G	11 kg	—
WEIGHT WITH 400W SON/T C/G	11.2 kg	—
WEIGHT WITH 400W MBI C/G	12 kg	—
WEIGHT WITH 1000W SON/T C/G	—	27 kg
WEIGHT WITH 1000W MBI C/G	—	20.5 kg
FLOODLIGHT WEIGHT	FL300 : 6.4 kg	FL310 : 8.75 kg

Phosco

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WB 540 WB 541