Chalmit lighting

INDUSTRIAL

INDUSTRIAL LIGHTING

PRODUCT GUIDE

PROTECTA

SURFACE-MOUNTED FLUORESCENT

The Protecta is a robust GRP fluorescent with high IP rating designed for use in the most arduous marine environments.
It is constructed from a GRP body and quick-release GRP clamp bar which secures the hinged clear polycarbonate diffuser. All of the control gear is mounted onto the reflector/gear-tray which is fitted to the body. Ease of access to the lamps ensures that installation and maintenance times are kept to a minimum.
Amongst the available options is a small bayonet lampholder for an emergency tungsten lamp or a red running light which is for night vision purposes. Both operate from a separate supply.
ATEX Categories 2 & 3 (Zones 1 & 2) hazardous area versions are available which are commonly used on FPSO's and FSO's.
(Refer to Chalmit hazardous area catalogue)

STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**GRP body with clear polycarbonate diffuser and brass suspension points**
Entries:	**4 x M20 cable entries through gland plates (2 each end)**
Internal Wiring:	**Heat resistant wiring up to 105 ^{0}C max**
Termination:	**3 core 6mm^{2} max conductors with looping and through wiring.**
Reflector/Gear-tray:	**White polyester painted zinc coated steel**
Mounting:	**Two M8 brass inserts on rear of body**
Control Gear:	**Switch start copper/iron control gear and PFC capacitor**
Relamping:	**Via quick-release diffuser clamp and hinged diffuser**
Electrical Supply:	**230V 50Hz (always state V/Hz when ordering)**

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
PRGI/118/BI	1x18W	T8 Fluorescent	G13	6 Kgs
PRGI/218/BI	2x18W	T8 Fluorescent	G13	6.1 Kgs
PRGI/136/BI	1x36W	T8 Fluorescent	G13	9.6 Kgs
PRGI/236/BI	2x36W	T8 Fluorescent	G13	9.8 Kgs

* Stainless steel body versions are available also. Their catalogue nos. commence PRSI.

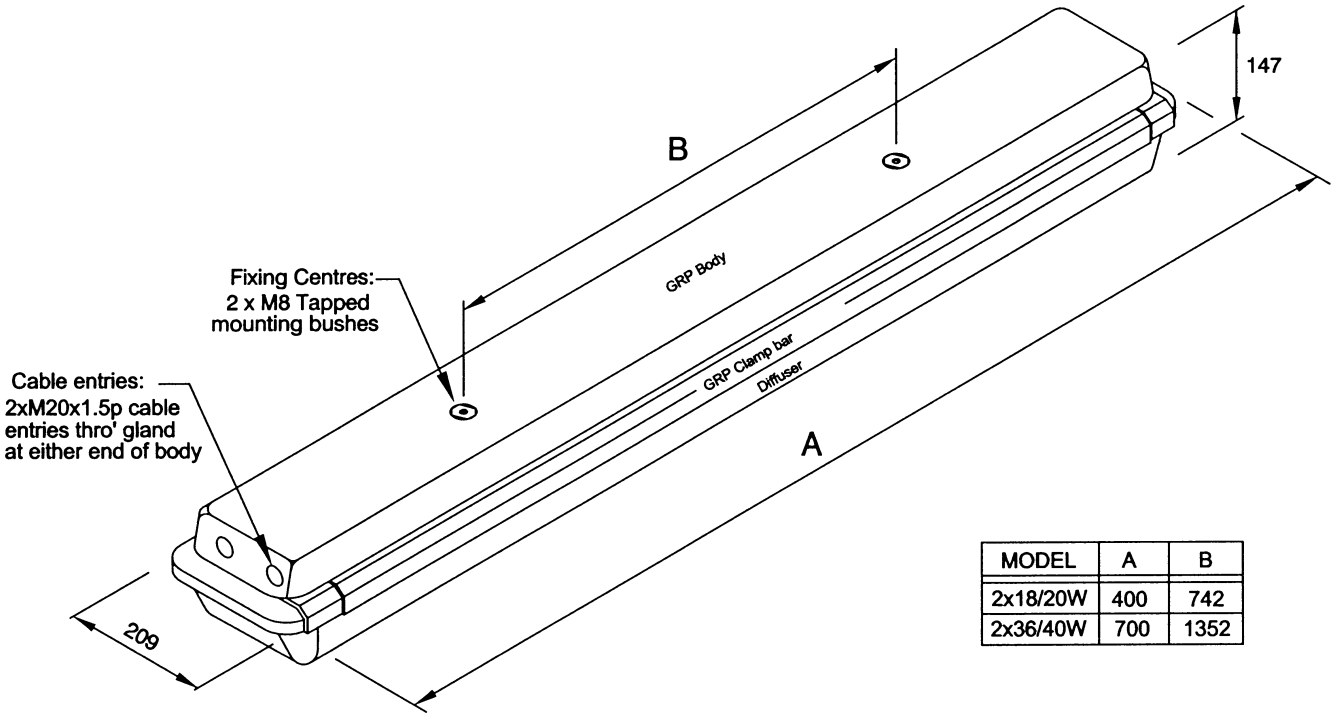
OPTIONS - Suffix to Catalogue No.

/--- Specific voltage - Copper/iron ballasts : 110,120,220,240,254(18W Models) 220,240,254(36W Models)
- High frequency ballasts : 120 to 277
- dc supplies : 12, 24, 110 (18W Models) 12, 24 (36W Models)

/60 60Hz (copper/iron ballasts only)
/ES Electronic start (copper/ iron ballasts only)
/HF High frequency ballast. 220-240V 50/60Hz as standard.
/EL Extra live termination (Compatible with 4-core switched emergency models)
/DC dc supply voltage
/MF Mains fuse
/3P 3 phase termination facility (not available if looping is required)

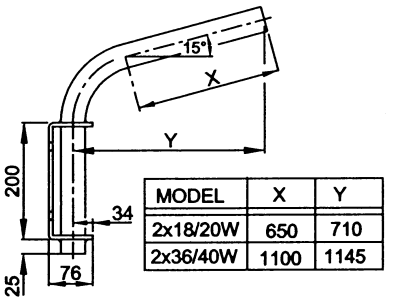
ACCESSORIES (Ordered separately)

	CATALOGUE ORDER CODE
18W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0008**
36W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0012**
Pole mounting bracket assembly kit	**SPRO4-0003**
Offset ceiling bracket assembly kit	**SPRO4-0002**



MODEL	A	B
2x18/20W	400	742
2x36/40W	700	1352

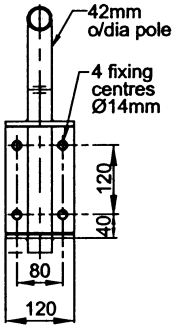
ACCESSORIES (All stainless steel)

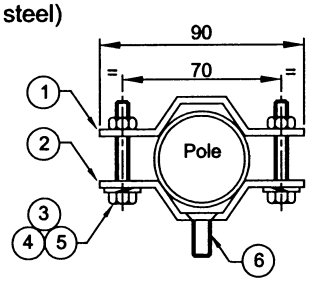


MODEL	X	Y
2x18/20W	650	710
2x36/40W	1100	1145

i) Wall-mounted outreach bracket
NPRO4-0008 - 18/20W models
NPRO4-0012 - 36/40W models

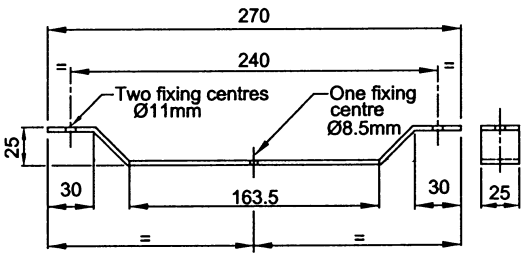
(for use with SPRO4-0003
Pole mounted bracket assembly)





ii)Pole-mounted bracket assembly
SPRO4-0003 (2 per luminaire)
(Can be used with any pole 38-50 dia)

Item	Description
1	Top clamp
2	Bottom clamp
3	M6 Hex screw
4	M6 Hex nut
5	M6 Spring washer
6	M8 Countersunk screw



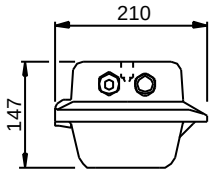
iii) Offset ceiling mounted bracket
SPRO4-0002 (2 per luminaire)
(Includes 2xM8x16Lg hex screws
and 2xM8 shakeproof washers)

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

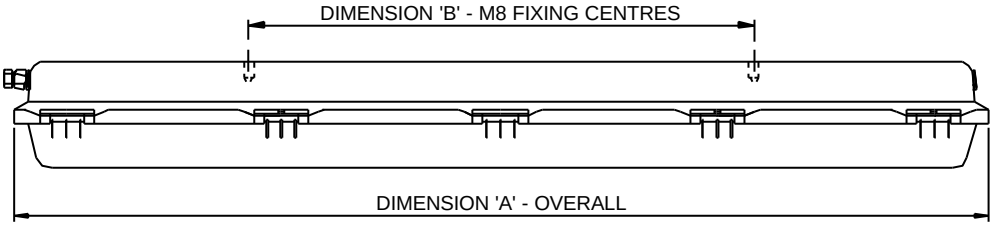
Protecta Safe Area Fluorescent Luminaire

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.

MODEL SIZE	DIMENSION 'A'	DIMENSION 'B'
2x18/20W	742	400
2x36/40W	1352	700



TWO M20x1.5p CABLE ENTRIES THRO' GLAND PLATES AS STANDARD AT EITHER END OF THE BODY



NON-EMERGENCY MODELS AND EMERGENCY MODELS WITH INTERNAL BATTERY PACK

CE

0.0 Specification

Type Of Protection	N/A
Area Classification	Non-Hazardous
Standard	BS EN 60598 Pt 1
	Temperature Range T amb 50ºC
Ingress Protection	IP66/67 to BS EN 60529

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992.
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - Protecta Safe Area Fluorescent Luminaire

The Protecta Safe Area fluorescent luminaires are surface mounted or suspended, utilising the two tapped holes on base of body, with the facility of an integral battery back-up for emergency use. Normal operation is mains supply two lamps on, switching to one lamp on battery back-up, local switching of the mains lamps, the emergency lamp only being energised on mains failure. Emergency duration: to BS EN 60598 2.22, as per order. They are mainly used in harsh environments, and are constructed using a corrosion resistant glass reinforced polyester body attached to an injection moulded polycarbonate diffuser by hinges and a special clamp. The control gear and lampholders are mounted on a removable tray which for maintenance has hanging straps.

Note : *Ratings using copper/iron switch start control gear are as indicated in TABLE 0.*

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation. Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations.
In the UK the requirements of the *'Health and Safety at Work Act'* must be met.
Handling and electrical work associated with this product to be in accordance with the *'Manual Handling Operations Regulations' and 'Electricity at Work Regulations, 1989'*. Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

12mm, 8mm and 4mm flat blade screwdriver.
Suitable spanners for installing cable glands.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies and Control Gear

The supply voltage and frequency should be specified when ordering. A maximum voltage variation of +6%/-6% on the nominal is expected. Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. ***Care is needed connecting to the nominal 230V UK public***

supply. The user must determine the actual underlying site supply and purchase or adjust accordingly. Normally, luminaires for 230V and 240V, 50Hz rating and which use a conventional copper/iron choke, are supplied with a tap.
If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on the high side.
Luminaires fitted with electronic control gear are suitable for a rated supply between 220 and 240V, 47-63Hz, and for higher voltages to order. The safety limits are +10% of this. The supply would normally be expected to lie within +/-6% of rated. The lamp supply is regulated, therefore the light output over the range is substantially unchanged.
Some luminaires are available for operation on dc and 110/130V and 277V ac. Operation from dc should be checked with the Technical Department before ordering. Electronic gear has integrated power factor correction to >0.95.

Warning : *Luminaires are assessed and/or tested for EMC requirements. This is based on the disposition of entry cables and, where appropriate, through wiring arrangements as supplied or specified. Users must take care not to introduce wiring into parts of the apparatus materially different to that which could be reasonably inferred from the disposition of fixed supply terminals and specified through wiring.*

3.4 Lamps
Lamps are bi-pin fluorescent tubes having the following ratings, 18W and 36W (T8) 26mm diameter tubes.

3.5 Mounting
Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation.

3.6 Cable Connection

3.6.1 Cables
The temperature conditions of the supply cable entry point are such that 70ºC (ordinary PVC) cable can be used. On models where there is no fixed through wiring supplied by Chalmit, but where there is a looping facility on the gear tray, any supply wiring passing through the body must either have a rating of 130ºC or have sleeving fitted which has a 130ºC rating. 300/500V cable ratings are adequate and no special internal construction is necessary. Where MCB's are used, the type with the higher short time tripping current ratio used for motor starting and lighting should be specified. The standard maximum looping size is 2.5mm² with options of 4mm² through wiring. An internal earth tag can be fitted to the cable gland.

3.6.2 Cable Glands
Cable glands when installed should maintain the desired IP rating of the enclosure.

3.7 Electrical Connections
Luminaires are available for looping and through wiring. The through rating is 16A. Terminals for 4mm² and 6mm² are available. State which on order. If work is to be done on any luminaire which has already been connected to the electrical system, it must be isolated from the system. The diffuser cover is swung down and removed if convenient by swivelling back as far as possible and the reflector tray is then slid out after releasing the locking screws. This gives access to the mains terminals. Luminaires with terminal blocks have L N E, where appropriate.

3.7.1 Installation of HF and Emergency
Following the mounting of the apparatus and the connection of the supply cable the unit ***cannot*** be insulation tested. When the unit is ready for operation the mains and the battery connections must be made, the unit is

supplied with the battery disconnected. After commissioning the unit can be shut down for a long period without loss of function.

3.8 Servicing and Operation

3.8.1 Opening and Closing the Cover

The procedure for opening the cover is as follows:
Insert the tool into one of the slots in the clamping bar with the end of the tool located into the outer flange of the body as a fulcrum point, a wide blade screwdriver is recommended. Gently lever the tool away from the diffuser, the clamping bar will begin to open. Insert the tool in the other clamping bar slot and gently lever away from the diffuser, the clamping bar will open and the cover will be retained by the hinge. Should difficulty be experienced, reinsert the tool in the first slot and repeat the procedure.
The procedure for closing and securing the cover is as follows :
Ensure the hinge mechanism is clear of any obstruction and then swing the diffuser into the closed position. Support the diffuser in position whilst pushing the clamp bar over the edge of the diffuser. Apply even pressure at both ends of the bar and press the bar over centre.

3.8.2 Removal and Replacement of Clamping Bar (if required)

Open the luminaire as above and remove the diffuser or let it swing down. Press the clamping bar towards the closed position, tip forward beyond the closed position and the clamping bar will be released from the body. To replace the clamping bar, put in position on the body with the front edge pointing as far inwards as it will go. Click the bar outwards and bring back to the normal closed position. The clamping bar should then be secured in position, open the clamping bar fully by using hand or screwdriver pressure (avoid damaging the gasket), the clamping bar is then ready to accept the normal closure of the diffuser.

3.8.3 Releasing the Reflector/Gear Tray

Loosen the four fixing screws retaining the reflector/gear tray and slide over keyhole slots. The tray will hang on the retaining cords without stressing the wiring between body and tray. Replace in reverse order.

3.8.4 Fitting lamps

The bi-pin lamps are fitted in rotating lampholders. The lamp should be pushed firmly down into the lampholder and rotated 90º. If the lamp does not rotate check that it is completely positioned into the lampholder. There will be a slight click when the lampholder reaches the 90º position. Before inserting bi-pin lamps ensure the lamp pins are not slack in the end cap.

3.8.5 Commissioning

Energise the mains and check that both lamps light when the supply is energised.

3.9 Inspection and Maintenance

On battery models, we recommend that the battery duration is checked periodically.

Important : *Isolate the mains supply and disconnect the battery terminal before carrying out any work.*

3.9.1 Replacement of Electronic Ballast and Invertor Unit *(Where Fitted)*

The electronic ballast and invertor contain no replaceable parts. Should it be found necessary to replace these parts, the following procedure should be adopted:
Ensure that the luminaire is isolated from both mains and battery supplies, otherwise a risk of shock may occur. Disconnect the leads on the ballast at the terminal block. Undo the ballast securing screws and washers and withdraw the ballast from the gear body. Replace in reverse order. Replacement of the invertor is identical.

3.9.2 Routine Examination

The luminaire must be de-energised before opening. Individual organisations will have their own procedures. What follows are guidelines based on our experience :

1 Ensure lamps are lit when energised by mains supply.
2 Visually check diffuser cover for damage, this should only be cleaned using a damp cloth to avoid static, and only use recommended detergents for polycarbonate. If the polycarbonate is discoloured or damaged a new diffuser cover must be fitted.
3 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are any signs of water ingress, the luminaire should be opened up, dried and any likely ingress points eliminated by re-gasketting or other replacements.
4 Check cable gland for tightness and nip up if required.
5 Check any external and internal earths.
6 Check all terminations are firmly screwed down, tighten if necessary.
7 Check clips visually for any damage and replace, if necessary.
8 If it has been suspected that the luminaire has suffered mechanical damage, a stringent workshop check on all components should be made. All components can be removed from the luminaire for inspection.

4.0 Electrical Fault Finding and Replacement

The supply must be isolated before opening the luminaire.
Any live fault finding must be done by a competent electrician and, if carried out with luminaire in place, under a permit to work.
The control gear can be tested for continuity of connections with a low voltage tester.
If lamps go out repeatedly, and replacement lamps do not work or expected life is reduced, the control gear should be returned for replacement/testing.
On re-assembly all faulty/damaged wiring should be replaced and connections checked. If an electronic starter is fitted it will cut out if lamps are defective. Ordinary starters will blink continuously.

5.0 Disposal of Material

The unit is made from combustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All electrical components and the body parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

5.1 Lamps

Fluorescent lamps in modest quantities are not "special waste". They should be broken up in a container to avoid injury. Avoid inhaling dust.

Important : *Do not incinerate lamps.*

5.2 Battery Disposal

Nickel cadmium batteries are defined as 'controlled waste' under the hazardous waste regulations and disposer needs to observe a 'duty of care'.
Batteries can be returned to the manufacturers for re-cycling. They must be stored and transported safely and any necessary pollution control forms completed prior to transportation. Take care to fully discharge batteries before transporting, or otherwise ensure that there can be no release of stored energy in transit. For further details refer to our Technical Department.

0.0 Tables 0

Table 0 Ratings – Copper/Iron Switch Start Control Gear Refer to Section : 1.0

No. off Lamp	Lamp Watts	Lamp Circuit Type	Power Consumption Watts	PFC µf	Line Current
1	18	Series	24.3	4	0.16
2	18	Parallel	48.6	6	0.32
2	18	Series	42.0	4	0.23
1	36	Series	42.0	4	0.23
2	36	Parallel	84.0	8	0.46

Note: *For information on high frequency ballasts contact the Technical Department.*

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Kempson, Bedford. MK42 7SH.

Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

PROTECTA E

EMERGENCY FLUORESCENT

The Protecta E is a robust GRP fluorescent with high IP Rating designed for use in the most arduous marine environments.
It is constructed from a GRP body and quick-release GRP clamp bar which secures the hinged clear polycarbonate diffuser. All of the control gear is mounted onto the reflector/gear-tray which is fitted to the body. Ease of access to the lamps ensures that installation and maintenance times are kept to a minimum.
The Protecta E comes complete with integral 3-hour Ni-Cad battery back up. The incoming mains supply to the luminaire has the facility to have two live supplies : continuous live(Lc) which supplies constant power to the battery and switched live(Ls)which is for external switching,allowing the luminaire to be locally switched off without the emergency battery pack unintentionally operating the lamps. If external switching is not required Lc and Ls are made common at the mains terminal block.
ATEX Categories 2 & 3 (Zones 1 & 2) hazardous area versions are available which are commonly used on FPSO's and FSO's.
(Refer to Chalmit hazardous area catalogue)

STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**GRP body with clear polycarbonate diffuser and brass suspension points**
Entries:	**4 x M20 cable entries through gland plates (2 each end)**
Internal Wiring:	**Heat resistant wiring up to 105 ^{0}C max**
Termination:	**3 or 4 core 6mm^{2} max conductors with looping and through wiring.**
Reflector/Gear-tray:	**White polyester painted zinc coated steel**
Mounting:	**Two M8 brass inserts on rear of body**
Control Gear:	**18W Models - High frequency ballast & inverter c/w battery pack**
	36W Models - Copper/iron ballast c/w battery pack
Relamping:	**Via quick-release diffuser clamp and hinged diffuser**
Electrical Supply:	**18W Models - 220-240V 50/60Hz**
	36W Models - 230V 50Hz (always state V/Hz when ordering)

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
PRGI/118/BI/EM	1x18W	T8 Fluorescent	G13	8.1 Kgs
PRGI/218/BI/EM	2x18W	T8 Fluorescent	G13	8.3 Kgs
PRGI/136/BI/EM	1x36W	T8 Fluorescent	G13	12.2 Kgs
PRGI/236/BI/EM	2x36W	T8 Fluorescent	G13	12.4 Kgs

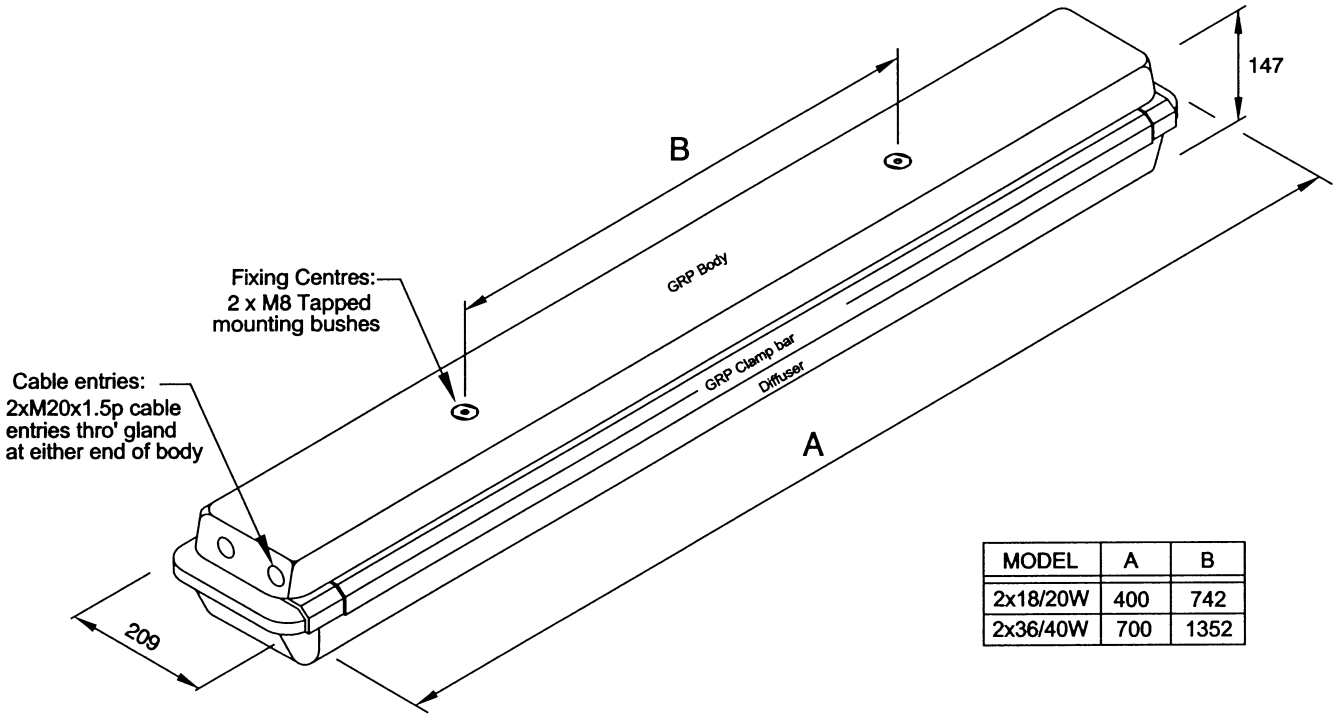
* Stainless steel body versions are available also. Their catalogue nos. commence PRSI.

OPTIONS - Suffix to Catalogue No

/--- Specific voltage - Copper/iron ballasts : 220,240,254(36W Models only)
- High frequency ballasts : 120 to 277

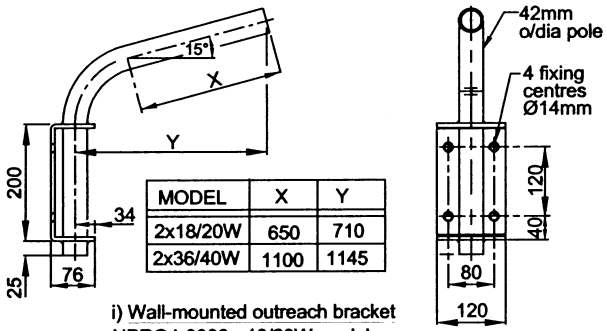
/60 60Hz (copper/iron ballasts only)
/ES Electronic start (copper/ iron ballasts only)
/HF High frequency ballast. 220-240V 50/60Hz as standard.
/NM Non-maintained (single lamp models only)
/MF Mains fuse
/3P 3 phase termination facility (not available if through wiring is required)

ACCESSORIES (Ordered separately)	CATALOGUE ORDER CODE
18W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0008**
36W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0012**
Pole mounting bracket assembly kit	**SPRO4-0003**
Offset ceiling bracket assembly kit	**SPRO4-0002**



MODEL	A	B
2x18/20W	400	742
2x36/40W	700	1352

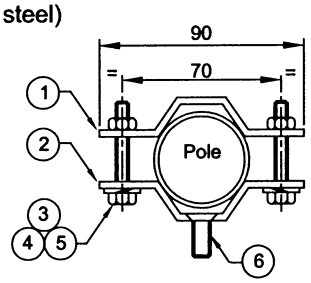
ACCESSORIES (All stainless steel)



MODEL	X	Y
2x18/20W	650	710
2x36/40W	1100	1145

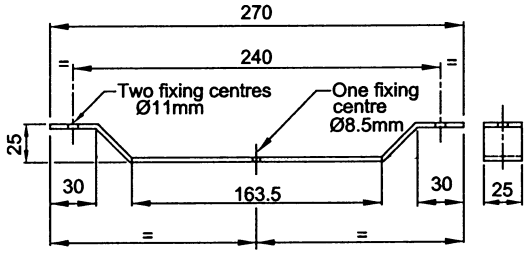
i) Wall-mounted outreach bracket
NPRO4-0008 - 18/20W models
NPRO4-0012 - 36/40W models

(for use with SPRO4-0003
Pole mounted bracket assembly)



ii)Pole-mounted bracket assembly
SPRO4-0003 (2 per luminaire)
(Can be used with any pole 38-50 dia)

Item	Description
1	Top clamp
2	Bottom clamp
3	M6 Hex screw
4	M6 Hex nut
5	M6 Spring washer
6	M8 Countersunk screw



iii) Offset ceiling mounted bracket
SPRO4-0002 (2 per luminaire)
(Includes 2xM8x16Lg hex screws
and 2xM8 shakeproof washers)

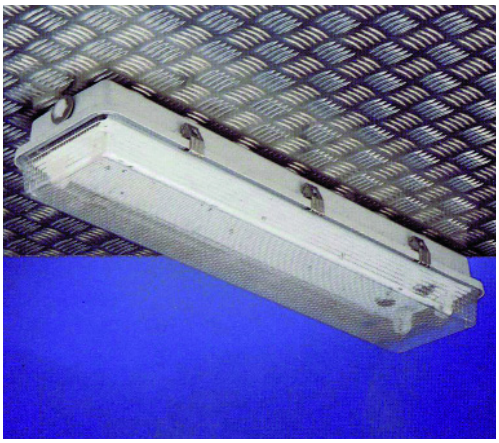
STERLING

SURFACE-MOUNTED FLUORESCENT

INTERIOR

The Sterling is a quality and cost effective single and twin fluorescent range with GRP bodies and polycarbonate diffusers which are secured with stainless steel clips allowing rapid access for installation and maintenance. The Sterling range is available in 18W, 36W and 58W T8 Fluorescents as either emergency or non-emergency models. Emergency models have their own integral Ni-Cad battery pack. For night vision purposes there is the option of a red running light which operates from a separate supply.

ATEX Category 3(Zone2) hazardous area versions are available. (Refer to Chalmit hazardous area catalogue)



STANDARD SPECIFICATION

Ingress Protection:	**IP65 to EN 60529**
Enclosure:	**GRP body and clear polycarbonate diffuser**
Entries:	**2xØ20mm clearance holes(one either end)**
Internal Wiring:	**Heat resistant wiring up to 105 °C max**
Termination:	**3 core 4mm² max conductors (4 core on emergency models)**
Relector/Gear-tray:	**White polyester painted zinc coated steel**
Mounting:	**Through Ø8mm clearance holes. Sealing washers are provided.**
Control Gear:	**Switch start copper/iron control gear and PFC capacitor**
Relamping:	**Via diffuser**
Electrical Supply:	**230V 50Hz (always state V/Hz when ordering)**
Battery duration:	**3 Hours (emergency models)**

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
STGI/118/BI	1x18W	T8 Fluorescent	G13	2.2 Kgs
STGI/218/BI	2x18W	T8 Fluorescent	G13	3.3 Kgs
STGI/136/BI	1x36W	T8 Fluorescent	G13	3 Kgs
STGI/236/BI	2x36W	T8 Fluorescent	G13	4.5 Kgs
STGI/158/BI	1x58W	T8 Fluorescent	G13	4 Kgs
STGI/258/BI	2x58W	T8 Fluorescent	G13	6.5 Kgs
STGI/118/BI/EM	1x18W	T8 Fluorescent	G13	4.0 Kgs
STGI/218/BI/EM	2x18W	T8 Fluorescent	G13	3.6 Kgs
STGI/136/BI/EM	1x36W	T8 Fluorescent	G13	4.8 Kgs
STGI/236/BI/EM	2x36W	T8 Fluorescent	G13	7.1 Kgs
STGI/158/BI/EM	1x58W	T8 Fluorescent	G13	6.1 Kgs
STGI/258/BI/EM	2x58W	T8 Fluorescent	G13	8.1 Kgs

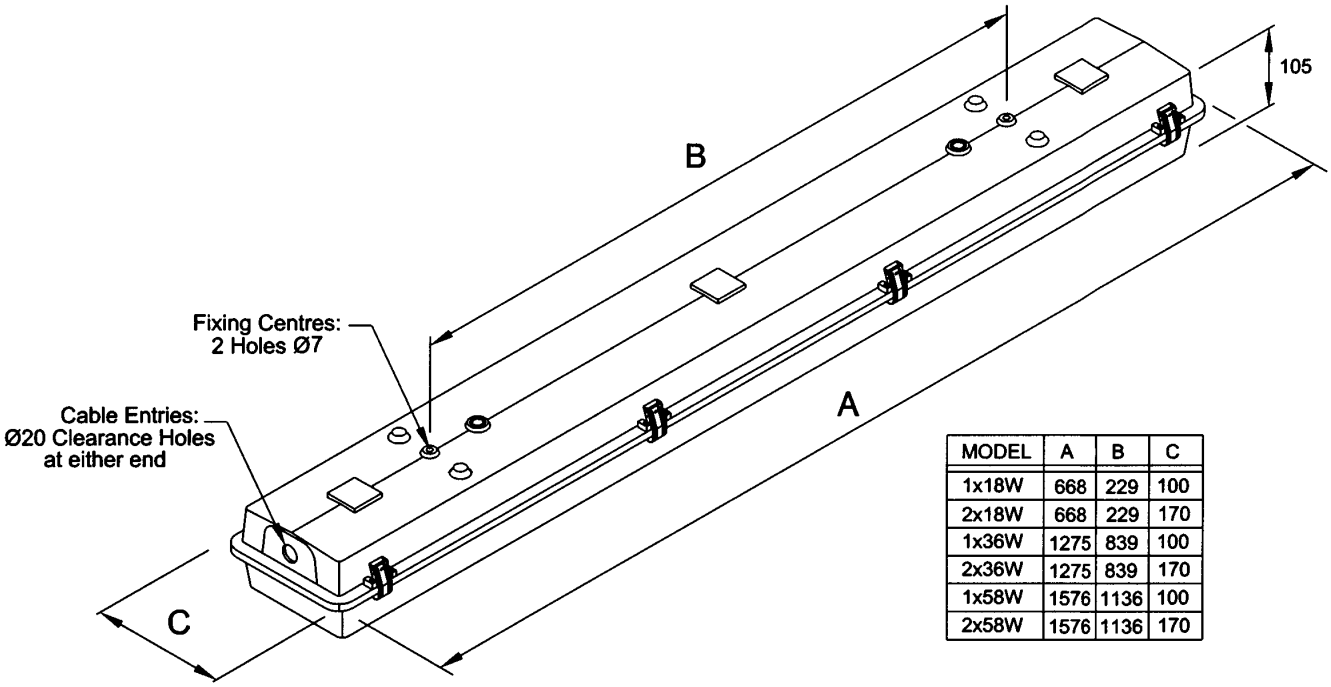
i) Maintained emergency single lamp models are in twin lamp bodies.
ii) 18W Emergency models are available with a high frequency ballast only.

OPTIONS - Suffix to Catalogue No.

/--- Specific voltage - Copper/iron ballasts : 110,120,220,240,254(18W Models) 220,240,254(36W & 58W Models)
- High frequency ballasts : 120 to 277 (18W & 36W)
- dc supplies : 12, 24, 110 (18W Models) 12, 24 (36W Models**)**

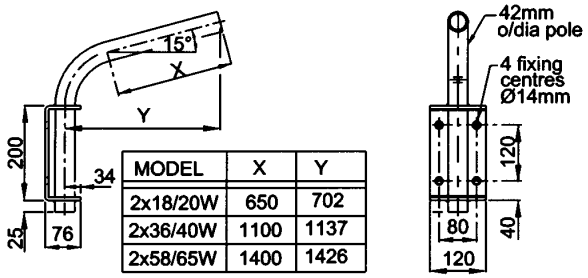
/60 60Hz (copper/iron ballasts only)
/ES Electronic start (copper/ iron ballasts only)
/HF High frequency ballast. 220-240V 50/60Hz as standard.
/EL Extra live termination (Compatible with 4-core switched emergency models)
/DC dc supply voltage
/NM Non maintained emergency (single lamp bodies only)
/MF Mains fuse
/TW Through wiring (36W & 58W models only)
/3P 3 phase termination facility (not available if looping is required)

ACCESSORIES (Ordered separately)	**CATALOGUE ORDER CODE**
18W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0008**
36W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0012**
58W Wall mounting outreach bracket (for use with SPRO4-0003)	**NPRO4-0022**
Pole mounting bracket assembly kit	**SPRO4-0003**
Offset ceiling bracket assembly kit	



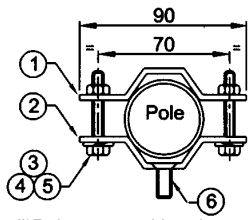
MODEL	A	B	C
1x18W	668	229	100
2x18W	668	229	170
1x36W	1275	839	100
2x36W	1275	839	170
1x58W	1576	1136	100
2x58W	1576	1136	170

ACCESSORIES (All stainless steel)



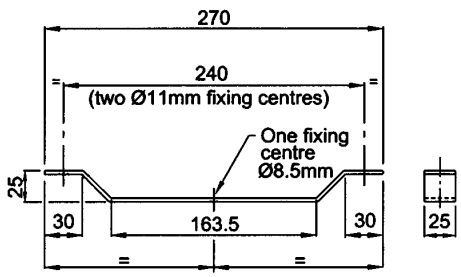
MODEL	X	Y
2x18/20W	650	702
2x36/40W	1100	1137
2x58/65W	1400	1426

i) Wall-mounted outreach bracket
NPRO4-0008 - 18/20W models
NPRO4-0012 - 36/40W models
NPRO4-0022 - 58/65W models
(for use with SPRO4-0003
Pole mounted bracket assembly)



ii)Pole-mounted bracket assembly
SPRO4-0003 (2 per luminaire)
(Can be used with any pole 38-50 dia)

Item	Description
1	Top clamp
2	Bottom clamp
3	M6 Hex screw
4	M6 Hex nut
5	M6 Spring washer
6	M8 Countersunk screw

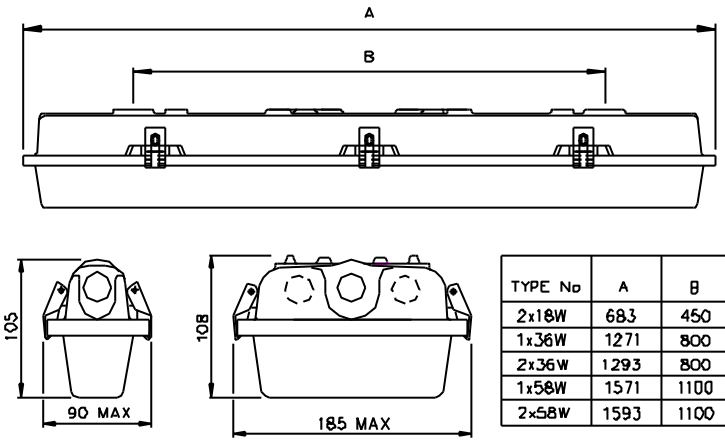


iii) Offset ceiling mounted bracket
SPRO4-0002 (2 per luminaire)
(Includes 2xM8x16Lg hex screws
and 2xM8 shakeproof washers)

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

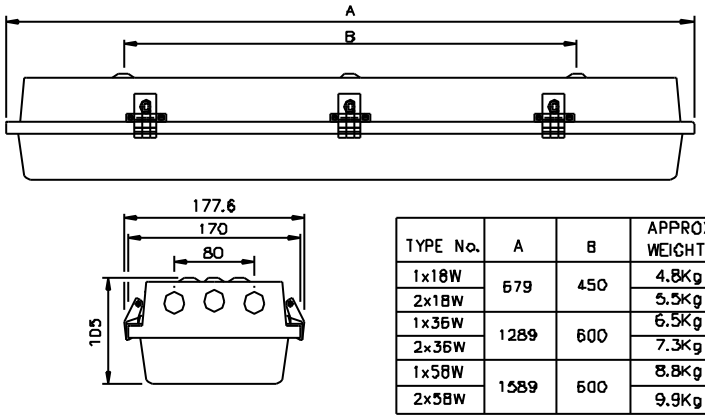
Sterling Safe Area Fluorescent Luminaire

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



TYPE No	A	B	APPROX WEIGHT
2x18W	683	450	3.6Kg
1x36W	1271	800	3.3Kg
2x36W	1293	800	4.8Kg
1x58W	1571	1100	4.3Kg
2x58W	1593	1100	6.5Kg

G.R.P. BODY VERSIONS



TYPE No.	A	B	APPROX WEIGHT
1x18W	679	450	4.8Kg
2x18W			5.5Kg
1x36W	1289	600	6.5Kg
2x36W			7.3Kg
1x58W	1589	600	8.8Kg
2x58W			9.9Kg

METAL BODY VERSIONS

CE

0.0 Specification

Area Classification	Non-Hazardous (Industrial)
Standard	BS EN 60598-1 : 1997
Ingress Protection	IP65 to BS EN 60529

CE Mark — The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992".
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - Sterling Safe Area Fluorescent Luminaire

The Sterling Safe Area fluorescent luminaires are surface mounted or suspended, utilising the 2 holes on base of body. They are mainly used in harsh environments, and are constructed using a corrosion resistant glass reinforced polyester body or a stainless steel body attached to an injection moulded polycarbonate diffuser by self-retaining stainless steel toggle clips. The control gear and lampholders are mounted on a removable tray, which for maintenance has hanging straps.

Note : *Ratings for the GRP body non-emergency versions are outlined in TABLE 0.*
Ratings for Metal Body Non-Emergency versions are outlined in TABLE 1.
Ratings for Emergency versions are outlined in TABLE 2.

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation.
Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations. Installation should be carried out in accordance with the local area code of practice, whichever is appropriate.
In the UK the requirements of the 'Health and Safety at Work Act' must be met.
Handling and electrical work associated with this product to be in accordance with the *'Manual Handling Operations Regulations'* and *'Electricity at Work Regulations, 1989'*. Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

Screwdriver flat blade 12mm and 3mm. Suitable spanners for installing glands.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation of +6%/-6% on the nominal is expected. Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. ***Care is needed connecting to the nominal 230V UK public supply.*** The user must determine the actual underlying site supply and purchase or adjust accordingly. Normally luminaires for 230V and 240V, 50Hz rating are supplied with a tap.

If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on the high side.

3.4 Lamps

Lamps are bi-pin fluorescent tubes having the following ratings, 18W, 36W, 58W (T8) 26mm diameter tubes.

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation.
On mounting the luminaire by using the 11mm ∅ holes, it is the responsibility of the user to ensure that an adequate seal is made to maintain the desired IP rating with a minimum of IP54. Washers are provided. Other mountings are available on request.

3.6 Cable Connection

3.6.1 Cables

The temperature conditions of the supply cable entry point are such that 70ºC (ordinary PVC) cable can be used in most luminaire models. On models where there is no fixed through wiring supplied by Chalmit but where there is a looping facility on the gear tray, any supply wiring passing through the body must either have a rating of 130ºC or have sleeving fitted which has a 130ºC rating. 300/500 volts cable ratings are adequate and no special internal construction is necessary. Where MCB's are used, the type with the higher short time tripping current ratio used for motor starting and lighting should be specified. The standard maximum looping size is 2.5mm² with options of 4mm² through wiring. An internal earth tag can be fitted to the cable gland.

3.6.2 Cable Glands

Cable glands when installed should maintain the minimum IP65 rating of the enclosure. The cable gland should adequately secure the cable in the unit. Sealing plugs for unused entries should be similarly rated and fitted. Two 21mm ∅ holes are provided, suitable for M20 x 1.5 glands, supplied with travelling plugs only. It is the responsibility of the user to ensure that an adequate seal between the gland body and the apparatus is maintained. Tapped entries are available on the stainless steel bodies.

3.7 Cabling

Access for cabling is via diffuser cover, care is to be taken as there is no suspension of diffuser cover. The diffuser clips are undone and the diffuser laid aside. The gear tray is dropped down after rotating the turnbuckles or sliding the screws in the keyholes. The tray can be removed by undoing the spring clips on the suspension cables. The cable glands should be fitted with suitable washers to maintain the desired IP rating. Any earth tag connections should be fitted. The connecting terminals are identified and the conductors should be bared back so that they make full contact in the terminals, but the bare conductor should not be more that 1mm beyond the terminal. Unused terminal screws should be tightened. The cores must be identified by polarity and connected in accordance with the terminal markings. Before re-fitting the cover, a final check on the correctness of connections should be made.
Where switched operation is required on the emergency, remove the link and connect line and switched line separately.

3.7.1 Fitting Lamps

Before opening the diffuser cover ensure that the luminaire is isolated from mains supply. Access for re-lamping is via diffuser cover, care is to be taken as there is no suspension of diffuser cover. Make sure that the correct lamp is selected. The lampholders are tombstone type, place the lamp in the lampholder and rotate 90º in lampholder. When inserting new lamps ensure the pins and lampholder connection is centralised. Replace diffuser cover and snap clips into place.

The emergency unit has no battery isolating arrangement, so if the lamp is replaced with the battery charged, take care ***not*** to touch the lamp cap or pins when removing or refitting the lamp.

3.8 Inspection and Maintenance

3.8.1 Routine Examination

The luminaire must be de-energised before opening. Individual organisations will have their own procedures. What follows are guidelines based on our experience :

1 Ensure lamps are lit when energised by mains supply.
2 Visually check diffuser cover for damage, this should only be cleaned using a damp cloth to avoid static, and only use recommended detergents for polycarbonate. If the polycarbonate is discoloured or damaged, a new diffuser cover must be fitted.
3 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are any signs of water ingress, the luminaire should be opened up, dried and any likely ingress points eliminated by re-gasketting or other replacements.
4 Check cable gland for tightness and nip up if required.
5 Check any external and internal earths.
6 Check all terminations are firmly screwed down, tighten if necessary.
7 Check clips visually for any damage, and replace if necessary.
8 If it has been suspected that the luminaire has suffered mechanical damage, a stringent workshop check on all components should be made. All components can be removed from the luminaire for inspection.

3.9 Electrical Fault Finding and Replacement

The supply must be isolated before opening the luminaire.
Any live fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work.
As the control gear is copper and iron, the fitting can be tested for continuity of connections.
If lamps go out repeatedly, and replacement lamps do not work or expected life is reduced, the control gear should be returned for replacement/testing.
On re-assembly, all faulty/damaged wiring should be replaced and connections checked. The electronic starter will cut out if lamps are defective.

3.9.1 Battery Check and Replacement

The battery is contained in a tube which is sealed. The battery is detached at the plug and socket. Remove the two clamps to release the battery. Re-assembly is in reverse order.

Important : *Take care not to short the leads together as this can cause a fire.*

The emergency duration is 3 hours for all wattages. This will gradually degrade. The battery must be replaced when the duration is not acceptable.
If the electronic unit is healthy, the fuse is intact and the lamp sound, there should always be a little duration which will reoccur after a short period of recharging. The unit should be checked by a substitution.
Take care to fully discharge batteries before transporting, or otherwise ensure that there can be no release of stored energy in transit.

4.0 Disposal of Material

The unit is made from combustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All electrical components and the body parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

4.1 Lamps

Fluorescent lamps in modest quantities are not "special waste". They should be broken up in a container to avoid injury. Avoid inhaling dust.

Important : *Do not incinerate lamps.*

4.2 Battery Disposal

Nickel cadmium batteries are defined as 'controlled waste' under the hazardous waste regulations and disposer needs to observe a 'duty of care'.

Batteries can be returned to the manufacturers for re-cycling. They must be stored and transported safely and any necessary pollution control forms completed prior to transportation. Take care to fully discharge batteries before transporting or otherwise ensure that there can be no release of stored energy in transit. For further details refer to Technical Department.

5.0 MCB Ratings

MCB's allow the use of reduced cable sizes for the supply. The capacitance current is 0.076A per µF at 240V, 50Hz, this may be multiplied by 25 for 250 microseconds for calculation purposes.

Note : *MCB ratings are outlined in TABLE 3.*

0.0 Tables 0/1/2/3

Table 0 Ratings - GRP Body Non-Emergency Versions Refer to Section : 1.0

Model	Lamps	Voltage Range	Circuit Type
STGI/158	1 x 58W T8	220/240V, 50Hz 220/254V, 60Hz	PARALLEL
STGI/258	2 x 58W T8		
STGI/136	1 x 36W T8		
STGI/236	2 x 36W T8		
STGI/118	1 x 18W T8		
STGI/218	2 x 18W T8		
STGI/218			Series

Table 1 Ratings - Metal Body Non-Emergency Versions Refer to Section : 1.0

Model	Lamps	Voltage Range	Circuit Type
STSI/158	1 x 58W T8	220/240V, 50Hz 220/254V, 60Hz	Parallel
STSI/258	2 x 58W T8		
STSI/136	1 x 36W T8		
STSI/236	2 x 36W T8		
STSI/118	1 x 18W T8		
STSI/218	2 x 18W T8		Series

Table 2 Ratings - Emergency Versions Refer to Section : 1.0

Model	Lamps	Circuit Type
STGI/258/EM	2 x 58W T8	Parallel
STGI/236/EM	2 x 36W T8	
STGI/158/EM	1 x 58W T8	
STGI/136/EM	1 x 36W T8	

Table 3 MCB Ratings Refer to Section : 5.0

Number Of Lamps	Lamp Watts	Lamp Circuit Type	Power Consumption Watts	PFC µF	Line Current	Consumption Watts During Charging Power	Emergency Line Current
1	18	Parallel	24.3	4	0.16	---	---
2	18	Parallel	48.6	6	0.32	---	---
2	18	Series	42.0	4	0.23	---	---
1	36	Parallel	42.0	4	0.23	46.0	0.23
2	36	Parallel	84.0	8	0.46	88.0	0.46
1	58	Parallel	66.5	6	0.34	70.5	0.34
2	58	Parallel	133	10	0.68	137.0	0.68

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A Division of Hubbell Lighting Limited

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Email	:	info@chalmit.com
Website	:	www.chalmit.com

Registered Office Ronald Close, Woburn Road Industrial Estate
Kempson, Bedford. MK42 7SH.

Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

ACCLAIM

RECESSED FLUORESCENT

INTERIOR

The Acclaim range of fluorescent luminaires is available in both 18W and 36W twin T8 emergency and non-emergency fluorescents. The mounting and cover details are flexible to allow the luminaire to be recessed into a variety of marine ceilings including fire resistant ceilings up to Solas B15 rating. Emergency models have their own integral Ni-Cad battery pack.
IP23 is the standard IP rating but there is the option of a higher IP rating of IP54 if required.
ATEX Category 2 (Zone 1) hazardous area versions are available. (Refer to Chalmit hazardous area catalogue)

APPLICATIONS: **Suitable for accommodation areas, corridors, and public areas.**

STANDARD SPECIFICATION

Ingress Protection:	**IP23 to EN 60529**
Enclosure:	**White polyester painted zintec body and frame. Clear polycarbonate diffuser**
Entries:	**4xØ20mm clearance holes(supplied plugged)**
Internal Wiring:	**Stranded, heat resistant wiring up to 105 ^{0}C max**
Termination:	**3 core 4mm^{2} max conductors (4 core on emergency models)**
Reflector/gear-tray:	**White polyester painted zinc coated steel**
Mounting:	**Swing out side arms (also suitable for drop rod mounting through Ø9mm holes)**
Control Gear:	**High Frequency control gear**
Relamping:	**Via front cover, secured by pan head screws**
Electrical Supply:	**230V 50Hz (always state V/Hz when ordering)**
Battery duration:	**3 Hours (emergency models)**

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
ACLI/218/BI	2x18W	T8 Fluorescent	G13	16 Kgs
ACLI/236/BI	2x36W	T8 Fluorescent	G13	23 Kgs
ACLI/218/BI/EM	2x18W	T8 Fluorescent	G13	19 Kgs
ACLI/236/BI/EM	2x36W	T8 Fluorescent	G13	27 Kgs

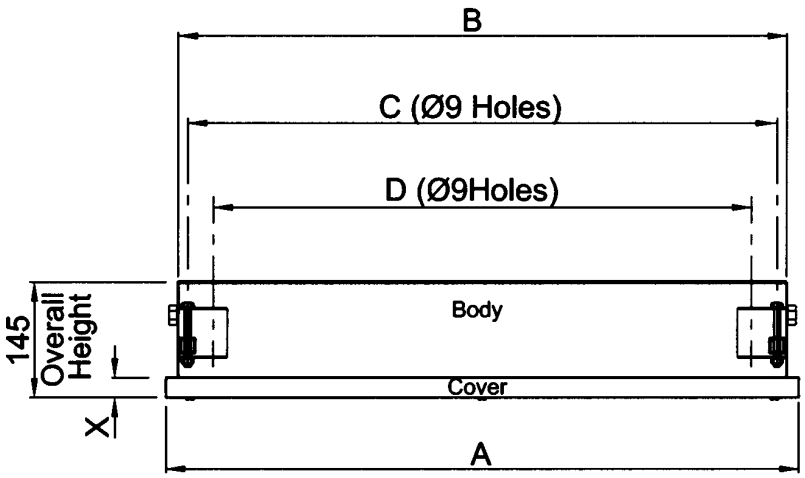
18W Emergency models are available with a high frequency ballast only.

OPTIONS - Suffix to Catalogue No.

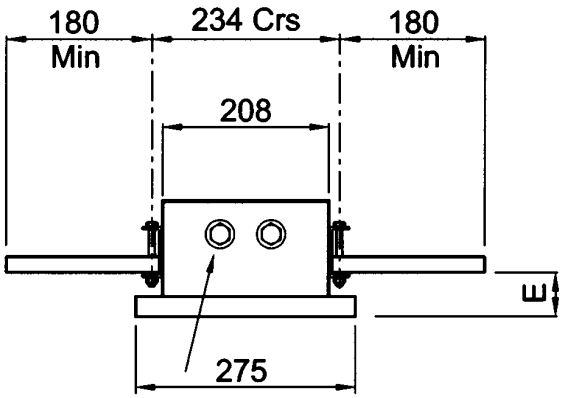
/--- Specific voltage - Copper/iron ballasts : 110,120,220,240,254(18W) 220,240,254(36W)
- High frequency ballasts : 120 to 277

/60 60Hz (copper/iron ballasts only)
/ES Electronic start (copper/iron ballasts only)
/HF High frequency ballast. 220-240V 50/60Hz as standard.
/MF Mains fuse
/TW Through wiring
/M25 M25 Entries
/IP54 IP54
/LG Low glare louvres
/PD Prismatic diffuser

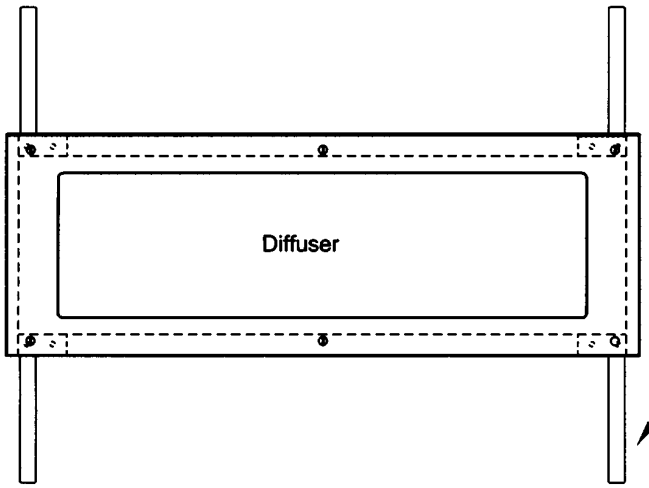
					X=10	X=25
Model	A	B	C	D	E	E
2x18W	750	720	700	600	35 to 70	20 to 55
2x36W	1365	1335	1315	1215		



Cover thickness X is 10mm as standard but is 25mm for M300 ceilings



Cable Entries:
Two M20 clearance holes at either end of body as standard (supplied plugged)



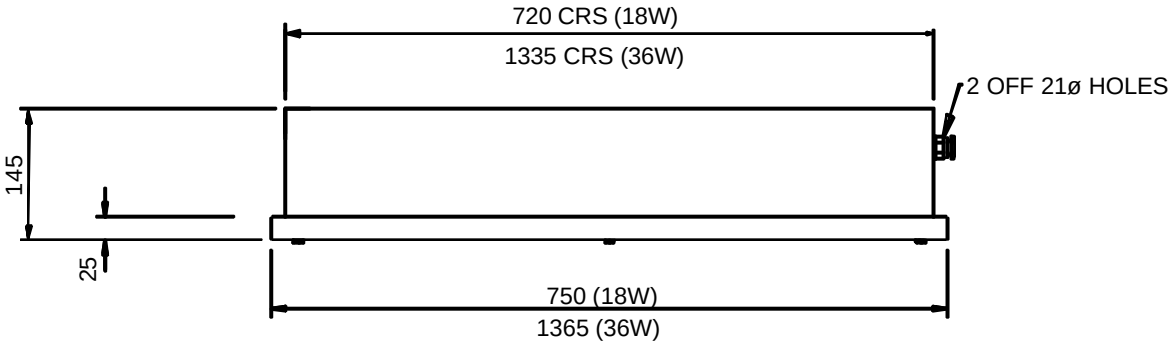
Luminaire Mounting by four adjustable 'swing-out' arms

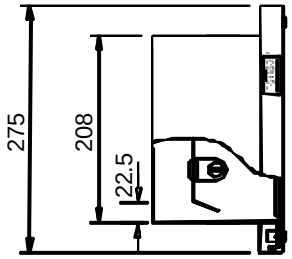
Issue | 02

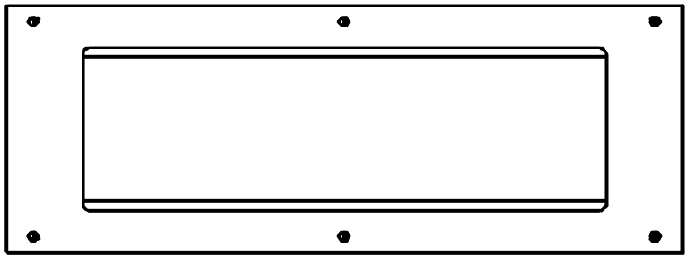
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Acclaim Safe Area Recessible Fluorescent

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.







CE

0.0 Specification

Type Of Protection	N/A
Area Classification	Non-Hazardous
Standard	BS EN 60598:1993
Certificate	T5 Tamb 40ºC
Emergency Duration	BS EN 60598 2.22 (As per order)
Ingress Protection	IP23 to BS EN 60529:1992 (P54 To Order)

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992.
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - ACCLAIM II Safe Area Recessible Fluorescent Luminaire

The Acclaim II Safe Area series is a recessible fluorescent luminaire with the facility of an integral battery back up for emergency use. The luminaire can be constructed to interface with fire resistant ceiling systems to maintain a B15 SOLAS fire rating, care must be taken to maintain this classification. When insulated refer to Chalmit for Tamb ratings, as it affects life and battery performance. Normal operation is mains supply two lamps on, switching to one lamp on battery back up, local switching of the mains lamps, the emergency lamp only being energised on mains failure.

Important : *This range is available in a number of similar but distinctly different versions. Care must be taken to use the correct instructions and spares, if in doubt contact Sales or Technical Department.*

2.0 Storage

Luminaires are to be stored in cool dry conditions preventing ingress of moisture and condensation.
Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations.
Installation should be carried out in accordance with any applicable code of practice or regulations and fitting of specified insulating material is to be adhered too where a specific fire resistance rating is required. In the UK, the requirements of the *"Health & Safety at Work Act 1974"* and *"Electricity at Work Regulations 1989"* must be met.
The luminaires are Class 1 and should be effectively earthed.
Application details on the rating plate must be verified against the requirements before installation.
The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

12mm, 8mm and 4mm flat blade screwdriver.
Suitable spanners for installing cable glands.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

Luminaires fitted with electronic control gear are suitable for a rated supply between 220 and 240V, 47-63Hz, and for higher voltages to order. The safety limits are +10% of this. The supply would normally be expected to lie within +/-6% of rated. The lamp supply is regulated, therefore the light output over the range is substantially unchanged.
Some luminaires are available for operation on dc and 110/130V and 277V ac. Operation from dc should be checked with the Technical Department before ordering. Electronic gear has integrated power factor correction to >0.95.

Warning : Electronic control gear is assessed and/or tested for EMC requirements. This is based on the disposition of entry cables and, where appropriate, through wiring arrangements as supplied or specified. Users must take care not to introduce wiring into parts of the apparatus materially different to that which could be reasonably inferred from the disposition of fixed supply terminals and specified through wiring.
For luminaires fitted with conventional control gear, the supply voltage and frequency should be specified when ordering. The safety limits are +10%. ***Care is needed connecting to the nominal 230V UK public supply.*** The user must determine the actual underlying site supply and purchase or adjust accordingly. Normally luminaires for 230V and 240V, 50Hz rating are supplied with a tap.
If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on the high side.

3.4 Lamps

Lamps are bi-pin fluorescent and can have the ratings 18W, 36W (T8) 26mm or 20W, 40W (T12) 38mm tubes. The bi-pin lampholder accommodates lamps to IEC81 with G13 cap.

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. Where the luminaire is to be part of the ceiling construction, for aesthetic reasons, care is to be taken to ensure that the spacing and height specified by ceiling type is met. When mounting of ceiling support channels, via side arms, they must be secured onto channels by fixing screws. When B15 fire rating is a requirement, all conditions stated by the ceiling manufacturer and Chalmit must be met.

3.6 Cabling and Cable Glands

3.6.1 Cables

The temperature conditions of the supply cable entry point are such that 70ºC (ordinary PVC) cable can be used in all luminaires. 300/500 volts ratings are adequate. The selection of the cable size will be suitable for the fuse rating, which applies to the circuit on the supply side of the control gear. The standard maximum looping size is 6mm^2 with options of 2.5mm^2 or 4mm^2 through wiring. An external M6 earth stud is fitted adjacent to the cable gland.

3.6.2 Cable Glands

Cable glands for entry into enclosures when fitted with any gland to body sealing method and the supply cable, must reliably maintain the IP rating of the enclosure. Two 21mm diameter holes are provided suitable for 20mm entries, one with a plug and seal suitable for permanent use, the other has a travelling plug. M20 entries are standard, other sizes are available on request. The clearance holes are powder coated so if required arrangements must be made to earth cable glands, kits are available and an external earth point is fitted as standard.

3.7 Electrical Connections

Access for the cabling is via removal of front cover and lamp tray. The front cover is secured using 4/10 off M5 captive screws, care to be taken as there is no suspension arrangement on this and the lampholder tray is secured by M5 screws and keyhole slots with suspension, allowing the tray to swing down, giving access to terminal blocks. Install the conductors in the appropriate terminals. Take care not to cut the conductor insulation excessively, 1mm of bare conductor outside the terminal throat is a maximum. Unused terminal screws should be

tightened. Before re-fitting the lampholder tray and front cover, the cores/cable should be neatly tucked away and a final check made on correct connections. If switched operation is used, the bridge is removed or the common live connection separated.

3.8 Installation

Following the mounting of the apparatus and the connection of the supply cable the unit ***cannot*** be insulation tested. When the unit is ready for operation the mains and the battery connections must be made, the unit is supplied with the battery disconnected. After commissioning, the unit can be shut down for a long period without loss of function.

3.9 Fitting Lamps

Before opening the front cover ensure that the luminaire is isolated from the mains supply. Access for re-lamping is via the front cover, care is to be taken as there is no suspension of the cover. Make sure that the correct lamp is selected.

4.0 Inspection and Maintenance

On battery models, we recommend that the battery duration is checked periodically.

4.1 Replacement of Electronic Ballast and Invertor Unit *(Where Fitted)*

The electronic ballast and invertor contain no replaceable parts. Should it be found necessary to replace these parts, the following procedure should be adopted:
Ensure that the luminaire is isolated from both mains and battery supplies, otherwise a risk of shock may occur. Disconnect the leads on the ballast at the terminal block. Undo the ballast securing screws and washers and withdraw the ballast from the gear body. Replace in reverse order. Replacement of the invertor is identical.

Important : *Isolate the mains supply and disconnect the battery terminal before carrying out any work.*

4.2 Routine Examination

The luminaire must be de-energised before opening. Individual organisations will have their own procedures. What follows are guidelines based on our experience :

1 Ensure lamps are lit when energised by mains supply and emergency lamp on battery pack.
2 Visually check cover front for damage, this should only be cleaned using a damp cloth, to avoid static, and only use recommended detergents for polycarbonates. If the polycarbonate is discoloured or damaged, a new cover assembly must be fitted. Additional prismatic diffuser or louvres should be cleaned with a dry cloth. If damaged, they should be replaced.
3 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are any signs of water ingress, the luminaire should be opened up, dried and any likely ingress points eliminated by re-gasketting or other replacements.
4 Check cable gland for tightness and nip up if required.
5 Check any external and internal earths.
6 Check all terminations are firmly screwed down, tighten if necessary.
7 Check battery securing screws are tight, when fitted.
8 Check cover screw washers for wear and tightness of screws.
9 If it has been suspected that the luminaire has suffered mechanical damage, a stringent workshop check on all components should be made. All components can be removed from the luminaire for inspection.

5.0 Disposal of Material

The unit is made from combustible materials. The control gear contains plastic parts. All electrical components and the diffuser parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

5.1 Lamps

Fluorescent lamps in modest quantities are not "special waste". They should be broken up in a container to avoid injury. Avoid inhaling dust.

Important : *Do not incinerate lamps.*

5.2 Battery Disposal

Nickel cadmium batteries are defined as 'controlled waste' under the hazardous waste regulations and the disposer needs to observe a 'duty of care'.

Batteries can be returned to the manufacturers for re-cycling. They must be stored and transported safely and any necessary pollution control forms completed prior to transportation. Take care to fully discharge batteries before transporting or otherwise ensure that there can be no release of stored energy in transit. For further details refer to our Technical Department.

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Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

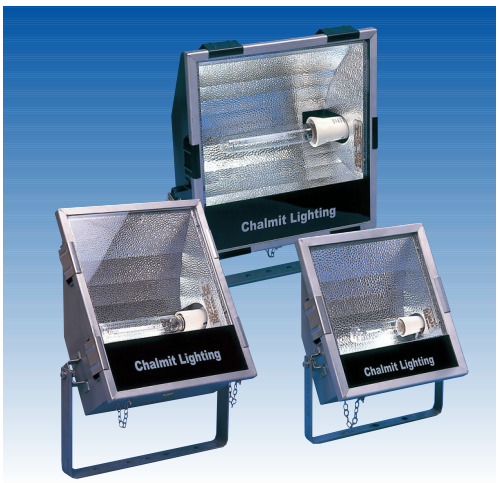
Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

800 SERIES

STAINLESS STEEL FLOODLIGHTS

DECK & EXTERIOR

The 800 series is a floodlight range specifically designed for hostile marine environments. Constructed from 316S31 marine grade stainless steel, the range is fitted with internal control gear and can be quickly relamped by removing the toughened glass front cover via the specially designed front cover clamps. There is the option of a remote gear box for all HPS and metal halide lamp models although for certain models this is standard. Other options include M25 cable entries, auxiliary tungsten halogen lamp, looping, narrow beam reflector and timed cut-out ignitor. For high vibration applications there is the option of a strengthened mounting arrangement for added safety.
ATEX Category 3 (Zone 2) hazardous area versions are available which are commonly used on FPSO's and FSO's
(Refer to Chalmit hazardous area catalogue)



STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**Marine grade 316S31 stainless steel construction**
Entries:	**2 x M20 cable entries**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 ^{0}C**
Termination:	**3 core 4mm^{2} max conductors**
Reflector:	**Wide beam high purity anodised aluminium**
Mounting:	**Adjustable stirrup bracket**
Control Gear:	**Internal (with remote option using control gear box)**
Relamping:	**Via front cover (c/w safety chains) and quick release clips**
Electrical Supply:	**220,230,240,254V 50Hz for SON-T & MBI-T lamp models** **250V Max ac/dc for tungsten halogen lamps** **(always state V/Hz when ordering)**

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
844I/070/HS	70	HPS	E27	12 Kgs
854I/100/HS	100	HPS	E40	18 Kgs
854I/150/MS	150	HPS/Metal halide	E40	18 Kgs
854I/250/MS	250	HPS/Metal halide	E40	19 Kgs
854I/400/MS*	400	HPS/Metal halide	E40	17 Kgs
864I/400/MS	400	HPS/Metal halide	E40	21 Kgs
854I/500/TH	500	Single ended T/Halogen	E40	16.5 Kgs
864I/600/HS*	600	HPS	E40	21 Kgs
864I/2x4/MS*	2x400	HPS/Metal halide	E40	17 Kgs

*** require 501/502 series external control gear box**

The following models are for 120V, 50Hz unless stated.

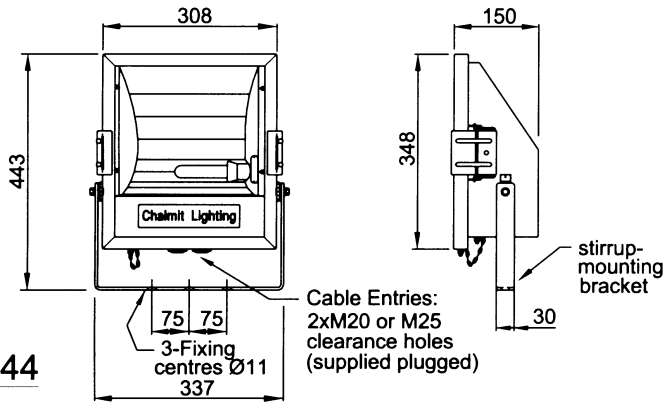
Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
864I/150/MS/120**	150	HPS/Metal halide	E40	18 Kgs
864I/250/MS/120**	250	HPS/Metal halide	E40	19 Kgs
864I/400/MS/120***	400	HPS/Metal halide	E40	17 Kgs

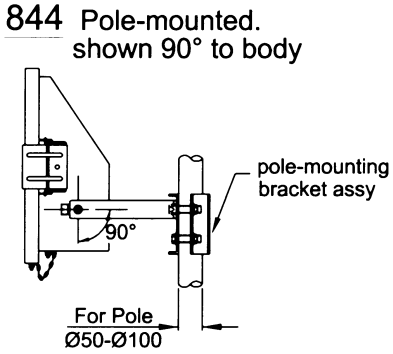
**** Internal control gear & transformer** ***** Supplied c/w remote gear-box. Details on request.**

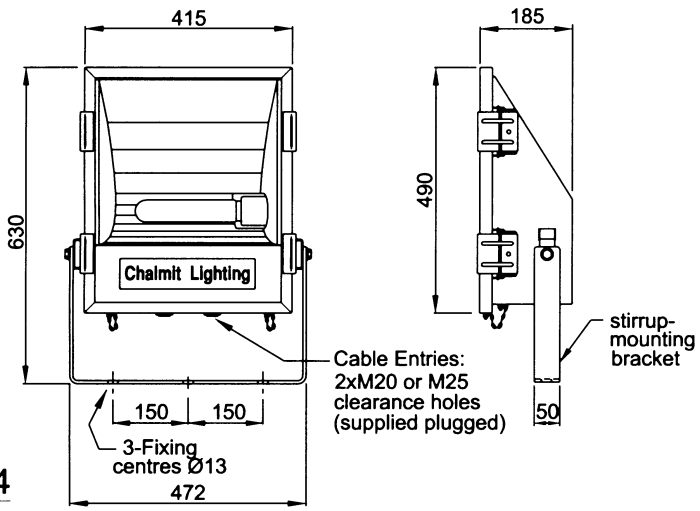
OPTIONS - Suffix to Catalogue No.

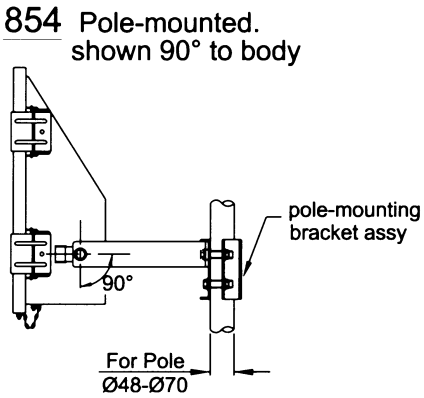
/---	Specific voltage (200,210)
/60	60Hz
/M25	2xM25 Entries
/AL	Auxiliary tungsten halogen lamp
/N	Narrow beam reflector
/TI	Timed cut out ignitor
/ST	Strengthened mounting arrangement.

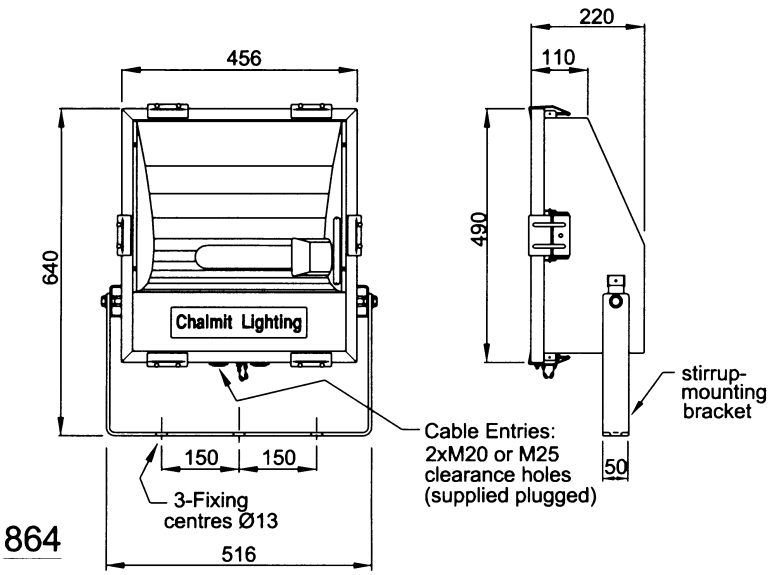
ACCESSORIES (Ordered separately)	**CATALOGUE ORDER CODE**
844 Pole mounting bracket assembly (inc fixings)	**S8444-0002**
854 Pole mounting bracket assembly (inc fixings)	**S2400-0002**
864 Pole mounting bracket assembly (inc fixings)	**S2400-0002**
844 Wire guard (Ordered with luminaire)	**S8444-0005**
854 Wire guard (Ordered with luminaire)	**S8544-0004**
864 Wire guard (Ordered with luminaire)	**S8644-0004**
844 Anti-glare shield (Ordered with luminaire)	**S8444-0001**
854 Anti-glare shield (Ordered with luminaire)	**S8544-0002**
864 Anti-glare shield (Ordered with luminaire)	**S8644-0002**

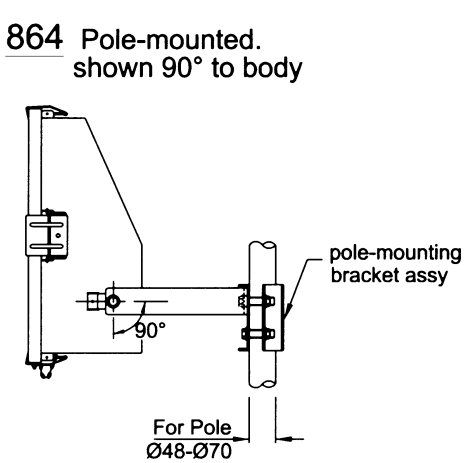








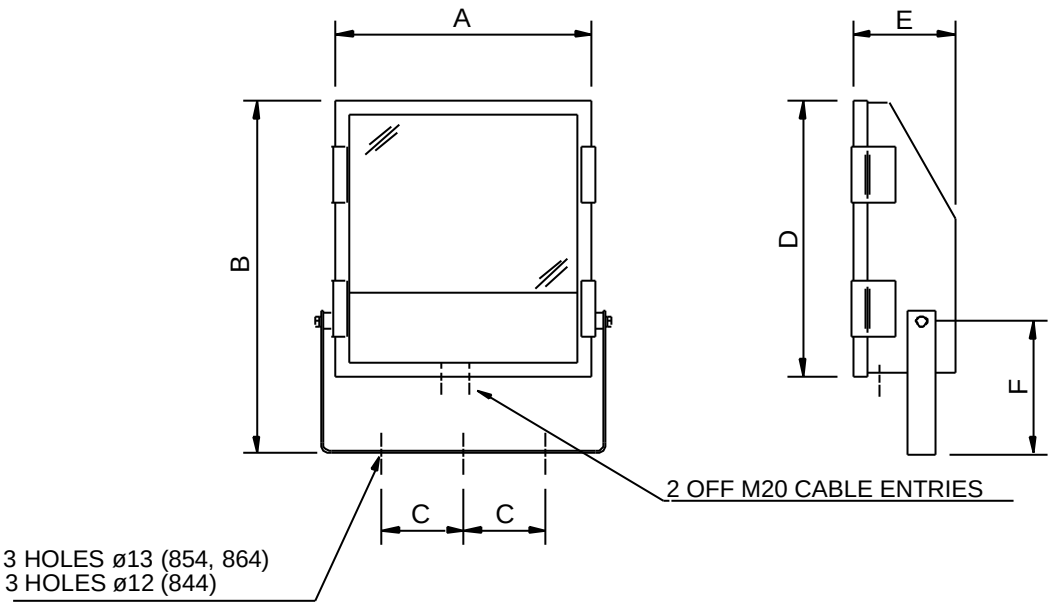




INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

800 Series Stainless Steel Floodlight

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



DIMENSIONS	844I 70/100W	854I 150/250/400W	864I 400/600W
A	308	415	465
B	443	630	640
C	75	150	150
D	348	490	500
E	175	185	190
F	175	260	260

CE

0.0 Specification

Area of Application	Non-hazardous
Standard	BS4533 Section 102.1 : 1990, Section 102.5 : 1990
Ingress Protection	IP66/67 to BS EN 60529: 1992

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992.
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction – 800 Series Stainless Steel Floodlight

The type 844I, 854I and 864I floodlights are manufactured in marine grade 316 stainless steel and are designed for use in marine or hostile environments. The maximum recommended operating ambient (tamb) is 40ºC for indoors or still air and 50ºC for outdoors or where situated in free moving air.

Note : *All the floodlights in this series are suitable for tubular lamps only.*
The range of models is outlined in TABLE 0.

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation. Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.1 General

Installation must be made in accordance with good electrical procedure and local codes of practice. In the UK the requirements of the “Health and Safety at Work Act” and “The Electricity at Work Act” must be met. The luminaires are Class 1 and should be effectively earthed. The luminaires are heavy and suitable handling equipment must be employed during installation.

3.2 Tools

Suitable spanners for installing cable glands, 3mm and 5mm flat blade screwdriver.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation of +6%/-6% on the nominal is expected. In some cases, the luminaires have multi-tapped control gear which can be set to a range of 50 and 60Hz voltages.
The tappings are shown on the control gear and the limits are shown on the rating plate. If the equipment is located in the high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is relocated. If in doubt, tappings should be set on the high side.
10V Max drop is desirable for HPS and advised for MBI. All the HPS and MBI circuits use SIP (superimposed pulse) ignitors. This means that there are only two connections to the choke making the tap selection obvious.
Where shore or construction site supplies are different to the service locations supplies used, tappings should be re-set . If not, advice on the affect of these temporary supplies should be sought from the Chalmit Technical Department.

3.4 Mounting

Luminaries should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. The foot mounting or rear mounting arrangements should be secured with lock washers or self-locking nuts and bolts. The luminaire should be mounted with the lamp axis horizontal. Any aiming angle may be used. The luminaire should not be mounted with the gear positioned above the lamp if at all possible.

Note: *The weights of the various models are indicated in TABLE 0***.**

3.5 Lamps

The high pressure sodium lamps are of a standardised type. There is no preference between make or colour. The 844I model has an E27 lampholder, the 854I and 864I models have an E40 lampholder.
MBI lamps are not standardised in the 250W and 400W range. For MBI the 3.0A 250W lamp and the 4.2A 400W lamp is used.
Only tubular lamps should be used. Both specular (plain) and dispersive (mottled) reflectors are available for all luminaires and should be specified when ordering.
Anti-glare shields are available for all types but must be ordered with the equipment, as the fixings are not standard. Care must be taken to fit the correct lamp in order to obtain the designed photometric performance.
HPS and MBI lamps should be replaced shortly after they do not light. The indication of the end of life for HPS lamps is “cycling”, where the lamps goes out then re-ignites after a minute or so interval. If discharge luminaires are burned continuously, they should be switched off occasionally to allow old lamps to fail to re-ignite, rather than possibly becoming diodes with possible detrimental effects to control gear. The above information is current at time of printing. The development of lamps and control gear is ongoing and detailed advice on lamp performance can be obtained from the lamp supplier or from Chamlit. HPS and MBI circuits should not be energised without a lamp fitted. HPS and MBI lamps with internal ignitors must not be used.

3.6 Cabling and Cable Glands

The temperature conditions of the supply cable entry point are such that 70ºC (ordinary PVC) cable can be used in all the standard range luminaires. The maximum looping size is 2.5mm² with 6mm² single entry as standard. Two entry points capable of accepting 20mm ∅ glands are standard. It is the responsibility of the user to ensure that the correct cable size and fuse rating are used.
Cable glands where installed should maintain the IP rating of the luminaire and if using metal glands, should be of suitable material or suitably protected to meet any prevailing environmental conditions. Plastic glands may be used except in cases where the earth is provided by means of the cable armour in which case a suitable metal gland should be employed. Care should be taken to ensure that a good contact is made between the gland and the body of the luminaire.
It is the responsibility of the user to ensure that an adequate seal is made between the gland and the body to maintain the IP rating.

3.7 Cabling and Fitting Lamps

Access for cabling and fitting lamps is by removing the front cover. Before removing the cover on any occasion, check that the cover support chain is sound.
The cover is released by undoing the two toggle clips using a screwdriver or a peg through the hole in the clip. Reselect the voltage tappings if necessary.
Install the conductors in the appropriate terminals. Take care not to cut back the insulation excessively, 1mm bare conductor outside the terminal is a maximum.
Any unused terminal should be fully tightened.
When the cabling is complete, make a final tightness and connection check.
Lamps must be of the correct type and firmly screwed into place. The cover is replaced and the toggle clips snapped over.

3.8 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 12 monthly intervals and more frequently if conditions are severe. The time between lamp changes could be very infrequent and this is too long a period without inspection.

3.8.1 Routine Examination

The equipment must be de-energised before maintenance. Individual organisations will have their own procedures. What follows are guidelines based on Chalmit's experience :

1 Ensure the lamp is lit when energised and that the lampglass is not damaged.
2 When de-energised and left to cool there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated by re-gasketting.
3 Check all cable glands for tightness and nip up if necessary.
4 Check all cover toggle clips for tightness. If they appear slack, re-set by bending the angle between the long sides of the clips until they require firm pressure to lock into place.
5 Clean the lampglass.

3.9 Electrical Fault Finding and Replacement

Control gear will not normally go open circuit unless it has first overheated; the signs of this are obvious, being severe discoloration of the paint of the gear and cracks in any exposed insulation. Similarly, a bad contact at the lamp cap will usually result in discoloration as a sign of overheating.
Any fault finding must be carried out by a competent electrician. With HPS the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an attempt to start effect in the lamp and a buzzing sound from the ignitor.
It will be unusual not to have other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder is sleeved with H.T. sleeving and this must be kept in place.

4.0 Overhaul

The unit is largely made of material which are very corrosion resistant. This allows the unit to be completely stripped, mechanically cleaned, then re-built with new electrical parts as required. The internal wiring is 1.0mm² flexible, silicone rubber insulated. If the cover gasket has deteriorated by softening or permanent set, a new cover assembly should be fitted. As an alternative, replacement gasket strip can be obtained from CHALMIT but to fit this, care is needed. The old gasket should be removed and remaining adhesive scrapped off with a chisel type blade.
New strips are cut full length on the short sides and neatly butted on the long sides. The gasket pieces are fixed in place and the butt joint sealed with silicone R.T.V. The cover assembly is left unclipped on top of a body with a sheet of thin polythene between it and the body to avoid adhesion. After a few hours the cover is removed and allowed to cure in free air for 24 hours.

5.0 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch on to normal after 4 minutes; rectification effects caused by asymmetrical cathode heating for a few seconds after starting, this effect is random and very variable. With the availability of MCBs with a wide range of

characteristics, the individual engineer can make a better judgement of what is required. The normal capacitor current will probably be the determining factor 0.076A per µF at 240V, 50Hz (adjust for other volts by multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current.
All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are as indicated in TABLE 1.*
A conventional matrix for HBC fuses is outlined in TABLE 2.

6.0 Disposal of Material

The unit is made chiefly from inert incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All the electrical components may give off noxious fumes if incinerated. Care must be taken to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

6.1 Lamps

Discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2

Table 0 Ratings Refer to Section : 1.0

Model	Lamp Type	Weight kg
844I	70W SON/T & MBI-T	10
854I	100W SON/T	21
	150W SON/T	22
	250W SON/T & MBI-T	23
	400W SON/T*	20
864I	400W SON/T & MBI-T	26
	600W SON/T*	23

** Ignitor only fitted. Remote gear box required.*

Table 1 Starting and Running Currents Refer to Section : 5.0

Lamp	Start A	Run A	Capacitance mF	Circuit Power (W)
70W HPS	0.55	0.4	10	80
100W HPS	1.0	0.56	10	117
150W HPS	1.45	0.8	20	175
250W HPS	2.35	1.3	30	285
400W HPS	4.0	2.2	40	445
600W HPS	5.6	3.1	60	645
150W MBI	1.6	0.8	20	175
250W MBI	2.7	1.35	30	285
400W MBI	4.0	2.2	40	445

Table 2 Fuse Ratings Refer to Section : 5.0

Lamp Wattage	Number of Lamps					
	1	**2**	**3**	**4**	**5**	**6**
70W	4A	4A	4A	4A	4A	4A
100W	4A	4A	6A	10A	10A	10A
150W	4A	6A	10A	10A	16A	16A
250W	10A	16A	16A	20A	20A	20A
400W	16A	20A	20A	25A	25A	32A
600W	16A	20A	25A	32A	32A	40A

Note : *Minimum Power Correction Factor : 0.85*

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Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

NEXXUS

HEAVY DUTY BULKHEAD

DECK & EXTERIOR

The Nexxus bulkhead luminaire is suitable for H.I.D, incandescent and compact fluorescent lamps. Its construction consists of a black-painted marine grade die cast aluminium LM6 alloy body with a heat resistant prismatic glass cover, silicone rubber sealing gasket and stainless steel fixings.
The Nexxus bulkhead offers a compact and versatile solution in many applications especially those with high levels of dirt and/or moisture. They are simple to install,easy to maintain and durable.

ATEX Category 3 (Zone 2) hazardous area versions are available. (Refer to Chalmit hazardous area catalogue)

APPLICATIONS: **Ships decks, car decks, walkways, ports & harbours**

STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**Epoxy painted aluminium alloy LM6 body with prismatic glass lens, silicone rubber gasket and stainless steel fixings**
Entries:	**3 x M20 cable entries**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 °C**
Termination:	**3 core 6mm² max conductors with looping or through wiring.**
Reflector:	**High purity anodised aluminium**
Mounting:	**4 x Ø7mm clearance holes in body fixing channel.**
Control Gear:	**Internal copper/iron ballast with ignitor and PFC capacitors (H.I.D lamp models)**
Relamping:	**Via front glass cover secured by four stainless steel screws**
Electrical Supply:	**220-240V 50Hz (50W HPS lamp model)** **220/230/240/254V 50Hz (70W & 80W models)** **240V 50Hz (CFL models) 250V Max ac/dc (GLS lamp model)**

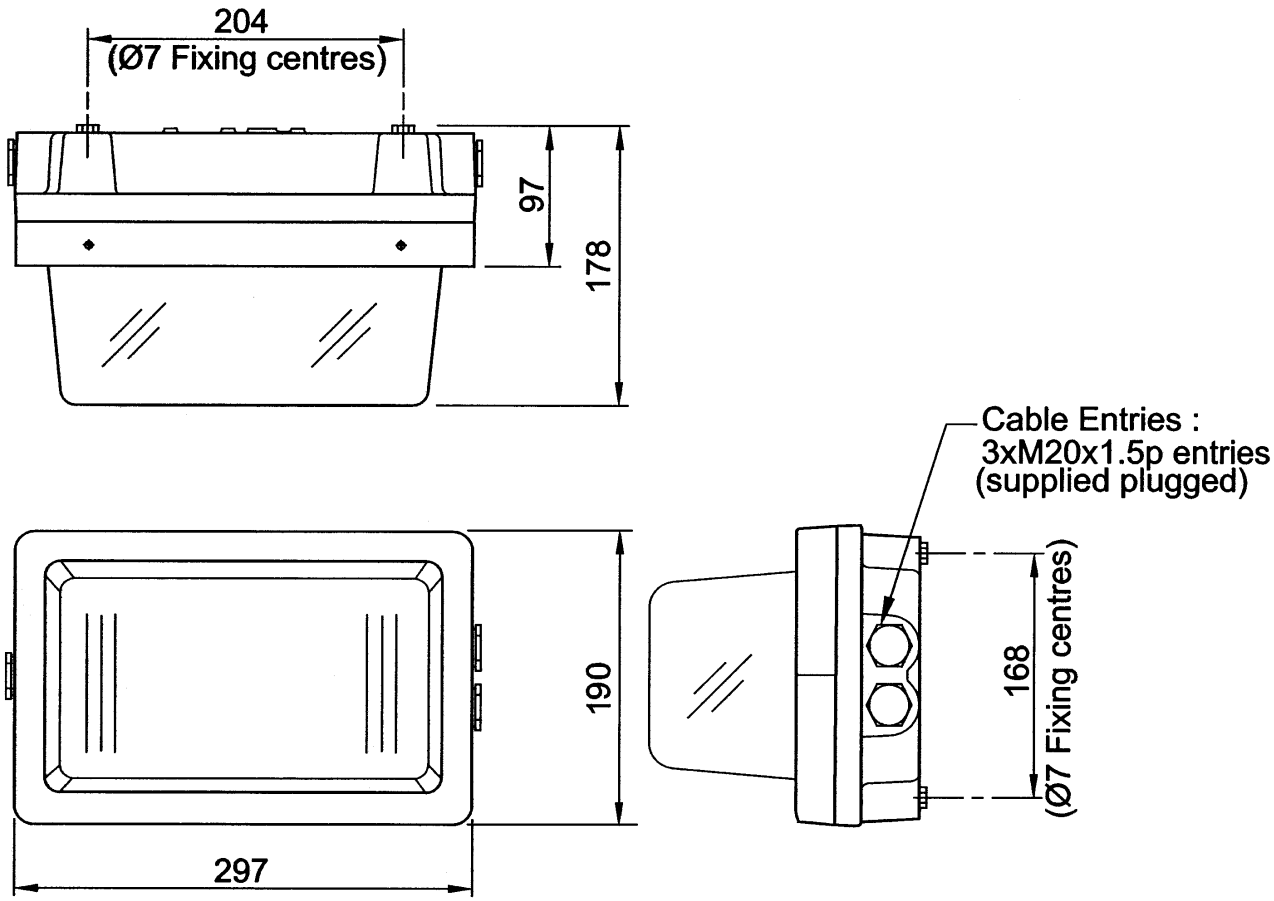
STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
NEXI/050/HS	50	HPS	E27	6.5 Kgs
NEXI/070/MS	70	HPS/Metal halide	E27	7 Kgs
NEXI/080/MV	80	MBFU	E27	6.5 Kgs
NEXI/113/CF	1x13W	CFL	G24	5.5 Kgs
NEXI/118/CF	1x18W	CFL	G24	5.5 Kgs
NEXI/126/CF	1x26W	CFL	G24	5.5 Kgs
NEXI/213/CF	2x13W	CFL	G24	6 Kgs
NEXI/218/CF	2x18W	CFL	G24	6 Kgs
NEXI/226/CF	2x26W	CFL	G24	6 Kgs
NEXI/200/GL	200W	GLS	E27	5 Kgs

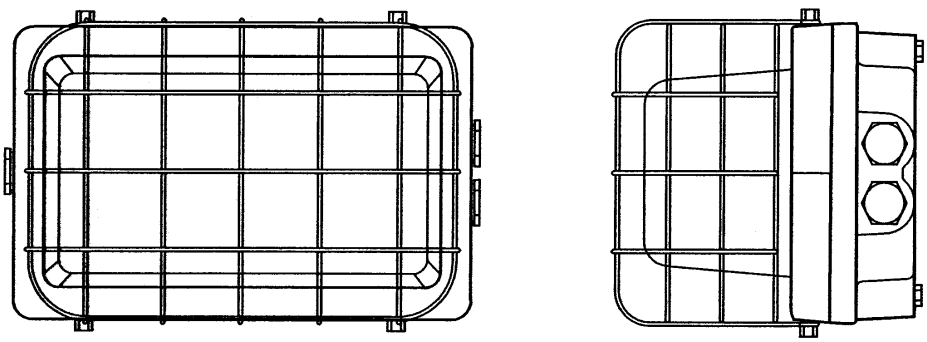
OPTIONS - Suffix to Catalogue No.

/--- Specific voltage (208,254)
/60 60Hz
/TI Timed cut out ignitor
/MF Mains fuse

ACCESSORIES (Ordered separately)	**CATALOGUE ORDER CODE**
Wire Guard Kit (inc.fixings)	**SNEX1-0001**



Accessories

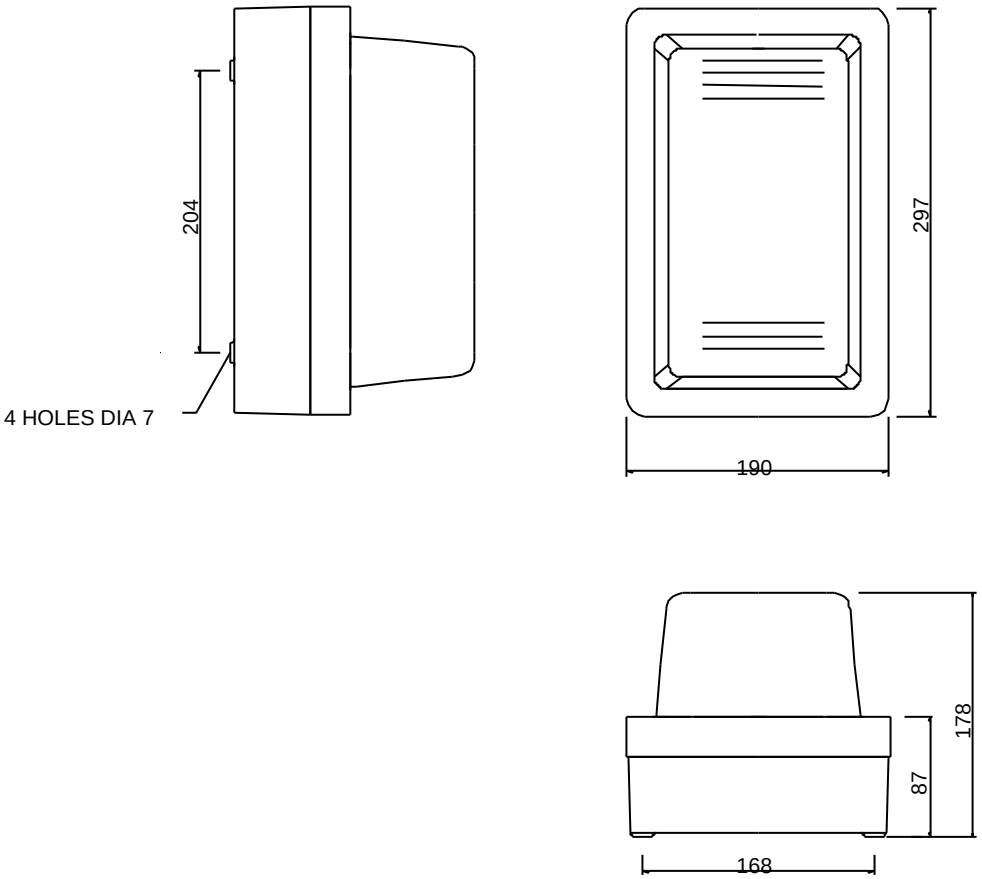


Wire Guard Kit (including fixings)

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Nexxus Industrial Bulkhead Luminaire

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



CE

0.0 Specification

Standard	BS EN 60598
Ingress Protection	IP66 and IP67 to BS EN 60529
CE Mark CE	The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992".

1.0 Introduction - Nexxus Industrial Bulkhead Luminaire

1.1 Application

The luminaire should not be used where there are environmental, vibration or shock conditions above the normal for fixed installations. The gaskets should not be exposed to hydrocarbons in liquid or high concentration vapour states.

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations. In the UK, the requirements of the *'Health and Safety at Work Act'* must be met.
Handling and electrical work associated with this product to be in accordance with the *'Manual Handling Operations Regulations'* and *'Electricity at Work Regulations, 1989'*. Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The luminaires are quite heavy and suitable means of handling on installation must be provided.
Details on the rating plate must be verified against the application requirements before installation. The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

Suitable spanners for installing cable glands.
3mm and 5mm flat blade screwdriver.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The supply voltage and frequency should be specified when ordering, a maximum voltage variation of +6%/-6% on the nominal is expected. (The safety limit for T rating is +10%). Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. The user must determine the **actual** underlying site supply and purchase or adjust accordingly. ***Care must be taken if connecting to the nominal 230V UK public supply.*** In some cases, the luminaires have multi-tapped control gear which can be set to a range of 50 and 60 Hz voltages. The tappings are shown on the control gear and the limits are shown on the rating plate. If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected to obtain the best lamp performance, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is relocated. If in doubt, tappings should be set on the high side. 10V Max. drop below the actual tapping is desirable for HPS and required for MBI. All circuits use S.I.P. (superimposed pulse) ignitors. This means that there are only two connections to the choke, so tap selection is obvious. Where supply conditions include significant harmonics, the PFC can be omitted. Where shore or construction site supplies are used, which are different to the service location supplies, tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Technical Department.

3.4 Lamps

The discharge lamps used are of a standardised type. There is no preference between make or colour. The compact fluorescent lamps are of the four pin type. The compact fluorescent lamps use G24q type caps, which vary with lamp wattage and are secured with a retaining bracket. Philips lamps must be used to obtain a correct fit. Care must be taken to fit the correct new and replacement lamps in order to preserve the certification conditions and obtain the designed photometric performance. The lamp type is shown on the rating plate. ***Lamps should be replaced shortly after they do not light.*** One indication of the end of life for HPS lamps is 'cycling', where the lamp goes out then re-ignites after a minute or so interval. If discharge luminaires are burned continuously, they should be switched off occasionally to allow old lamps to fail to re-ignite, rather than possibly become diodes with detrimental effects to control gear. The above information is current at the time of preparation. The development of lamps and control gear is ongoing and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit.

Important : *HPS and MBI circuits should not be energised without a lamp fitted.*
HPS and MBI lamps with internal ignitors must not be used.

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. The rear mounting arrangements should be secured with lock washers or self-locking nuts and bolts. Any mounting attitude may be used.

3.5.1 Weights

Note : *Weights for the various types are outlined in Table 3.*

3.6 Cabling and Cable Glands

3.6.1 Cables

The terminals are suitable for standard conductor section up to 6mm² max. All models are suitable for looping. Standard 300/500V cable is suitable.

Note: *Through wiring when used, is subject to a maximum current of 16A.*

3.6.2 Cable Glands

Cable glands and sealing plugs when installed must maintain the ingress protection rating of the enclosure. Rubber sealing washers and steel compression washers are provided with the unit to seal between the gland body and the luminaire. The body torque value is 12Nm. The user must ensure that the assembly fulfils the above requirement. Entries suitable for M20 cable glands are standard.

3.6.3 Cable Gland Types

Refer to the cable gland manufacturers catalogue for information with regard to compatibility with cable types. Refer also to Chalmit for the assessment of other suitable types, these will be covered by a manufacturers declaration.

3.7 Cabling and Fitting Lamps

Access for cabling and fitting lamps is by removing the front cover. The cover is released by unscrewing the four screws using a screwdriver. Reselect the voltage tappings if necessary. Install the conductors in the appropriate terminals. Take care not to cut back the insulation excessively, 1mm bare conductor outside the terminal is a maximum. Any unused terminal should be fully tightened. When the cabling is complete, make a final tightness and connection check. Lamps must be of the correct type and firmly screwed into place. The cover is replaced and the screws tightened down.

3.7.1 Fused Terminal Blocks

When a fused terminal block has been fitted, 2.5mm² cable maximum and single entry only, no looping.

3.8 Inspection and Maintenance

Visual inspection should be carried out at a minimum of 12 monthly intervals and more frequently if conditions are severe. The time between lamp changes could be very infrequent and this is too long a period without inspection.

3.8.1 Routine Examination

The equipment must be de-energised before opening. Individual organisations will have their own procedures. What follows are guidelines based on our experience :

1. Ensure the lamp is lit when energised and that the lampglass is not damaged.
2. When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated by re-gasketting.
3. Check the cable gland for tightness and nip up if necessary.
4. Check all cover screws for tightness and nip up if necessary.
5. Clean the lampglass.
6. When relamping, check that the cover gasket has not softened or become excessively deformed. If in doubt, replace (*See Section 4.0*).

3.9 Electrical Fault Finding and Replacement

The supply must be isolated before opening the luminaire.
In most instances, the faults are simple, namely loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has first over-heated; the signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, a bad contact at the lamp cap will usually result in discoloration as a sign of overheating. Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work. With HPS and MBI, the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an attempt to start effect in the lamp and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder is sleeved with H.T. sleeving and this must be kept in place.

3.9.1 Thermal Protector

Thermal protectors may be included. If the lamp goes on and off over a timescale of several minutes, this could be the thermal protector operating. The causes are defective lamps/diode effects, gross over voltage or the choke beginning to fail and this should be investigated directly (*See Section 3.4*).

4.0 Overhaul

The unit is largely made of materials that are very corrosion resistant. This allows the unit to be completely stripped, cleaned, then re-built with new electrical parts as required. The internal wiring is 1.0mm² flexible, silicone rubber insulated. An H.T. sleeve is fitted to the ignitor cable. All the spares required are available. Please state the model number and lamp details. The seal is between the glass and the base. The glass is retained in the cover frame by stainless steel clips. If the sealing gasket has deteriorated by softening or permanent set, a new sealing gasket should be fitted, which can be obtained from Chalmit. To fit this, care is needed, the old gasket should be removed and remaining adhesive scraped off. The gasket is fixed in place to the body with a small amount of silicone RTV.

5.0 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode heating for a few seconds after starting, this effect is random and very variable. With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required. Use MCB's suitable for inrush currents to reduce ratings. The inrush current can be calculated where circuit conditions are known. The nominal capacitor current will probably be the determining factor, 0.076A per µF at 240V, 50Hz (adjust for other supply volts by multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current. All calculations must satisfy wiring regulations.

Note: *Starting and running currents for 240V, 50Hz are as indicated in Table 1.*
A conventional matrix for HBC fuses is outlined in TABLE 2.

6.0 Disposal of Material

The unit is mostly made from incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins All electrical components and the body parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

6.1 Lamps

Incandescent lamps, fluorescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in a container to avoid possible injury from fragmentation. This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2/3

Table 0 Range

Wattage	Lamp	Lamp Cap
50W	SON	E27
70W	SON, MBI	E27
100W	SON/E, MBI	E27 / E40
80W	MBFU	E27
160W	MBTF	E27
100W	GLS	E27
150W	GLS	E27
200W	GLS	E27
13W	CFL-DE	G24q-1
2 x 13W	CFL-DE	G24q-1
18W	CFL-DE	G24q-2
2 x 18W	CFL-DE	G24q-2
26W	CFL-DE	G24q-3
2 x 26W	CFL-DE	G24q-3

Table 1 Starting and Running Currents Refer to Section : 5.0

Lamp	Start A	Run A	PFC µF
50W HPS	0.35	0.28	10
70W HPS	0.55	0.40	10
70W MBI	0.55	0.40	10
80W MBF	0.50	0.43	8

Table 2 Fuse Ratings Refer to Section : 5.0

Lamp	Number of Lamps					
	1	2	3	4	5	6
50W HPS	4A	4A	4A	6A	6A	10A
70W HPS	4A	4A	4A	6A	6A	10A
70W MBI	4A	4A	4A	6A	6A	10A
80W MBF	4A	4A	4A	6A	6A	10A

Table 3 Weights Refer to Section : 3.5.1

Lamp Type	Weight
HPS/MBI	7.5kg
CFL-DE	7.0kg
GLS/ MBTF	5.2kg
MBFU	6.3kg

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Website	:	www.chalmit.com

Registered Office Ronald Close, Woburn Road Industrial Estate
Kempson, Bedford. MK42 7SH.

Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

ECLIPSE JUNIOR

WELLGLASS

The Eclipse Junior is a lightweight wellglass range suitable for discharge lamps up to 100W and GLS lamps up to 150W which offer a compact lighting solution where all round lighting is needed in positions having limited space and access. They have a lightweight corrosion resistant die cast aluminium alloy hinged body and lid with a lamp glass which is unscrewed for quick access when relamping. Direct ceiling-mounted is standard but stanchion-mounted and wall-mounted versions are available on request

ATEX Category 3 (Zone 2) hazardous area versions are available. (Refer to Chalmit hazardous area catalogue)

APPLICATIONS: **Engine rooms.**

STANDARD SPECIFICATION

Ingress Protection:	**IP66 to EN 60529**
Enclosure:	**Die cast aluminium alloy body with glass lens.**
	Silicone rubber gasket. Stainless steel fasteners.
Entries:	**2 x M20 Cable Entries**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 ^{0}C**
Termination:	**3 core 6mm^{2} max conductors with looping.**
Mounting:	**Ceiling mounted as standard**
Control Gear:	**Internal copper/iron ballast with ignitor and PFC capacitor (H.I.D lamp models)**
Relamping:	**Via screwed lamp glass.**
Electrical Supply:	**220/230/240/254V 50Hz (70W & 80W models)**
	220/230/240V 50Hz (50W & 125W models)
	250V Max ac/dc (GLS lamp model)

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
ECJI/050/HS	50	HPS	E27	5.5 Kgs
ECJI/070/MS	70	HPS/Metal halide	E27	6 Kgs
ECJI/080/MV	80	MBFU	E27	6 Kgs
ECJI/125/MV	125	MBFU	E27	6.5 Kgs
ECJI/150/GLS	150	GLS	E27	5 Kgs

OPTIONS - Suffix to Catalogue No.

/---	Specific voltage (220,230,254,260)
/60	60Hz
/W	Wall-mounted version
/ST	Stanchion mounted version

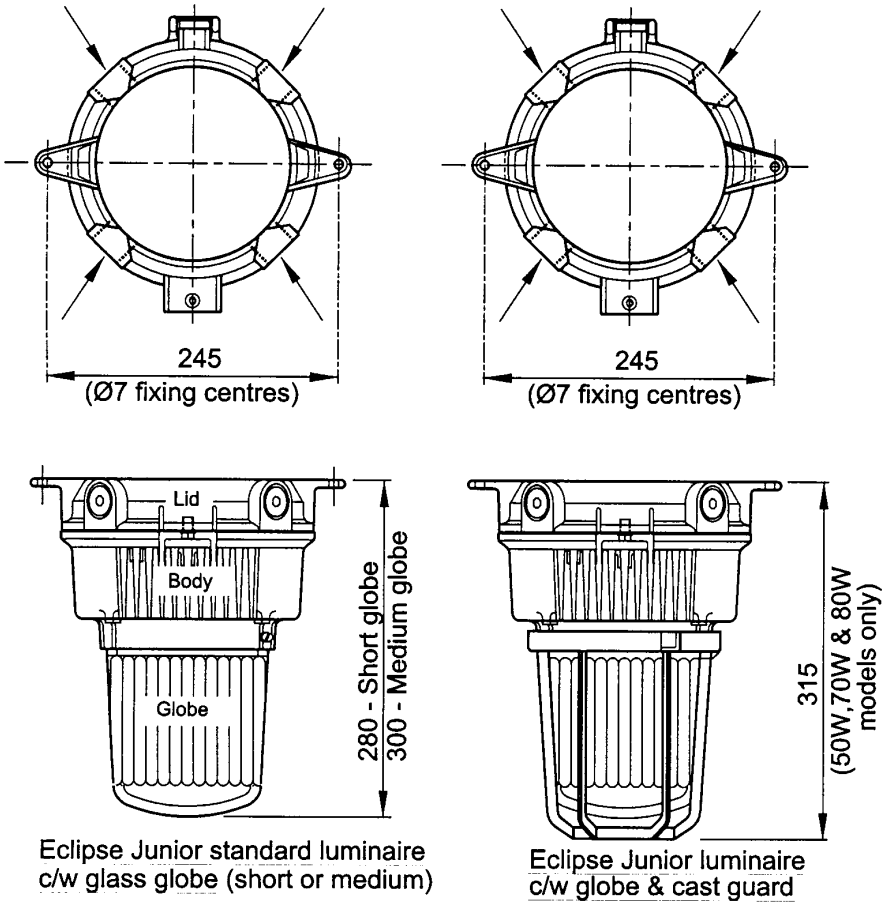
ACCESSORIES (Ordered separately)

Cast guard (except 125W model)

CATALOGUE ORDER CODE

CECJ7-0003

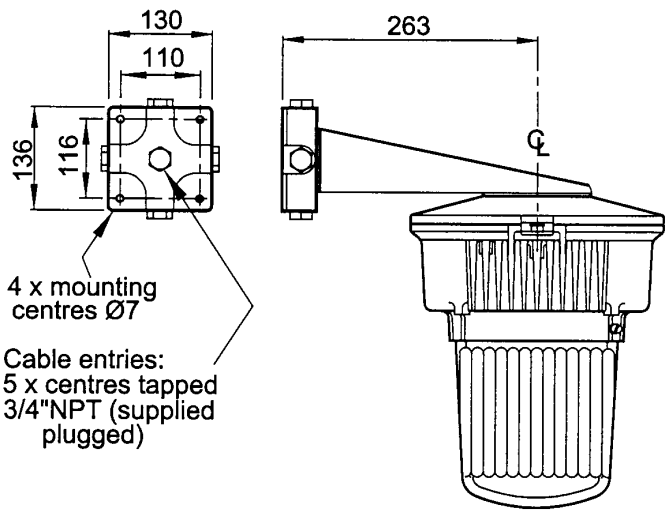
Cable Entries:
4 x M20x1.5p entries
2 x permanent plugs
1 x temporary plug for mains supply
1 c/w removable plug for looping (if required).



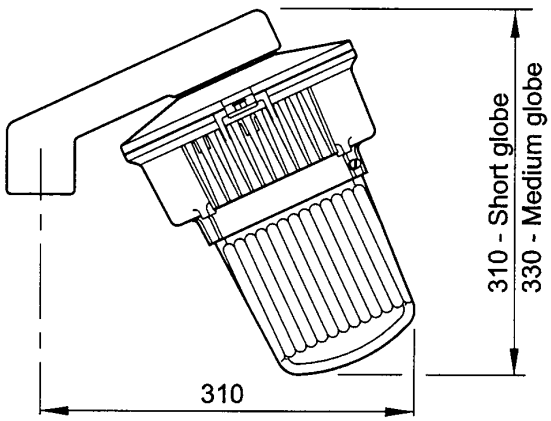
Eclipse Junior standard luminaire c/w glass globe (short or medium)

Eclipse Junior luminaire c/w globe & cast guard

STANDARD CEILING-MOUNTING ARRANGEMENT



Wall mounting arrangement



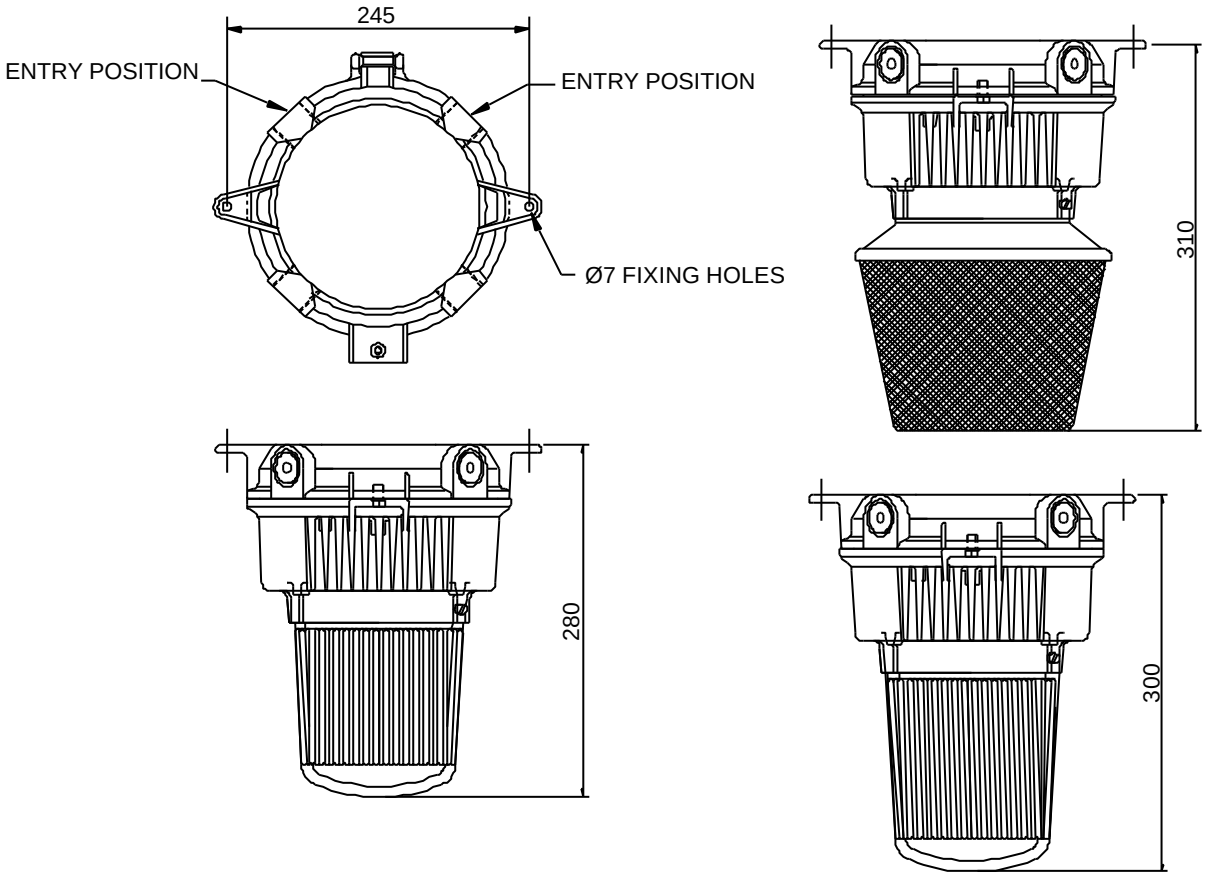
Stanchion mounting arrangement to suit a pole threaded 1¼ " NPT

ALTERNATIVE MOUNTING ARRANGEMENTS

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

Eclipse Junior Safe Area Wellglass

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



CE

0.0 Specification

Standard	BS EN 60598
Ingress Protection	IP66 to BS EN 60529

CE Mark 

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992.
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - Eclipse Junior Safe Area Wellglass

A lightweight wellglass luminaire suitable for use in hostile, industrial environments, available with various mounting arrangements to ease access and maintenance of the control gear enclosure and assist when installing or maintaining in high or difficult areas. The enclosure is painted aluminium with a fluted glass globe lens or optional prismatic glass refractor. All screws and bracketry are manufactured from stainless steel or corrosion resistant aluminium.

Note: *The range of lamp options available are as indicated in TABLE 0.*

1.1 Application

The luminaire should not be used in conditions where there are environmental, vibration or shock conditions above the normal for fixed installations.
The gaskets should not be exposed to hydrocarbons in liquid or high concentration vapour states.

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. In the UK the requirements of the *'Health and Safety at Work Act'* must be met.
Handling and electrical work associated with this product to be in accordance with *the 'Manual Handling Operations Regulations'* and *'Electricity at Work Regulations, 1989'*. Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The luminaires are quite heavy and suitable means of handling on installation must be provided.
Certification details on the rating plate must be verified against the application requirements before installation. The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

A flat blade screwdriver to open the end cover.
Strap wrench to tighten/loosen the diffuser.
3mm and 5mm flat blade screwdriver. Pliers, knife, wire and strippers/cutters.
A spanner suitable for fitting cable glands.

3.3 Electrical Supplies

The supply voltage and frequency should be specified when ordering, a maximum voltage variation of +6%/-6% on the nominal is expected. Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. The user must determine the ***actual*** underlying site supply voltage and purchase or adjust accordingly. ***Care must be taken if connecting to the nominal 230V UK public supply.***
In some cases, the luminaires have multi-tapped control gear that can be set to a range of 50 and 60Hz voltages.

The tappings are shown on the control gear and the limits are shown on the rating plate. If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected to obtain the best lamp performance. Care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is relocated. If in doubt, tappings should be set on the high side. 10V max. drop is desirable for HPS and required for MBI. All circuits use S.I.P. (superimposed pulse) ignitors. This means that there are only two connections to the choke, so tap selection is obvious. Where supply conditions include significant harmonics the PFC can be omitted.
Where shore or construction site supplies are used, which are different to the service location supplies, tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Technical Department.

3.4 Lamps

The discharge lamps used are of a standardised type. There is no preference between make or colour. The Eclipse Junior uses **tubular** HPS and HPS compatible MBI lamps, elliptical MBF lamps, GLS and compact fluorescent lamps. Note that the use of diffuse elliptical lamps will alter the photometric performance of the luminaries. Care must be taken to fit the correct new and replacement lamps in order to preserve the designed photometric performance. The lamp type is shown on the rating plate. ***Lamps should be replaced shortly after they do not light.*** One indication of the end of life for HPS lamps is 'cycling', where the lamp goes out then re-ignites after a minute or so interval. If discharge luminaires are burned continuously, they should be switched off occasionally to allow old lamps to fail to re-ignite, rather than possibly become diodes with detrimental effects to control gear (*See Section 3.9.1*).
The above information is current at the time of preparation. The development of lamps and control gear is ongoing and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit.

Important : *HPS and MBI circuits should not be energised without a lamp fitted. HPS and MBI lamps with internal ignitors must not be used.*

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. The wall mounting or ceiling mounting arrangements should be secured with lock washers or self-locking nuts and bolts. The pole mounting version must be mounted so as to maintain the IP rating.

3.5.1 Weights and Windages

Note : *Weights and Windages for the various types are outlined in TABLE 3.*

3.6 Cabling and Cable Glands

3.6.1 Cables

The standard conductor section is 6mm² max. The pendant and pole mounts are not suitable for looping. Standard 300/500V cable is suitable.

3.6.2 Cable Glands

Where brass cable glands are used in a corrosive environment, cadmium or nickel plating should be used. Sealing plugs for unused entries should be similarly rated and fitted. Entries suitable for M20 cable glands are standard. Entries suitable for M25, 3/4" or 1" NPT are available to special order.

3.7 Cabling and Fitting Lamps

Before fitting lamps or opening the luminaire, the luminaire must be de-energised and isolated from the supply.
Access for cabling is by removing the mounting adapter. The end cover is released by undoing the screw using a flat blade screwdriver. Reselect the voltage tappings if necessary. Install the conductors in the appropriate terminals. Take care not to cut back the insulation excessively, 1mm bare conductor outside the terminal is a maximum. Any unused terminal should be fully tightened. When the cabling is complete, make a final tightness and connections check. The cover is replaced and the screws tightened down.

The lamp is replaced by removing the diffuser. Lamps must be of the correct type and firmly screwed into place.

3.8 Inspection and Maintenance

Visual inspection should be carried out at suitable intervals and more frequently if conditions are severe. The time between lamp changes could be very infrequent and this is too long a period without inspection.

3.8.1 Routine Examination

1 Ensure the lamp is lit when energised and that the lampglass is not damaged.
2 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated by re-gasketting.
3 Check the cable gland for tightness and nip up if necessary.
4 Clean the lampglass.

3.9 Electrical Fault Finding and Replacement

The supply must be isolated before opening the luminaire.
In most instances, the faults are simple, namely loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has first over-heated; the signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, a bad contact at the lamp cap will usually result in discoloration as a sign of overheating.
Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work. With HPS and MBI, the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an attempt to start effect in the lamp and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder is sleeved with H.T. sleeving and this must be kept in place.

3.9.1 Thermal Protector

Thermal protectors may be included in the ballast. If the lamp goes on and off over a timescale of several minutes, this could be the thermal protector operating. The causes are defective lamps/diode effects, gross over voltage or the choke beginning to fail and this should be investigated directly (*See Section 3.4*).

4.0 Overhaul

The unit is largely made of materials that are very corrosion resistant. This allows the unit to be completely stripped, cleaned, then re-built with new electrical parts as required. The internal wiring is 1.0mm² flexible, silicone rubber insulated. An H.T. sleeve is fitted to the ignitor cable. All the spares required are available. Please state the model number, lamp and optical details. The seal at the end cover is held within a groove by silicone R.T.V. If the gaskets have deteriorated by softening or permanent set, new gaskets should be fitted, which can be obtained from Chalmit. To fit the mounting adapter gasket, the old gasket should be removed and remaining adhesive scraped off. The gasket is fixed in place with silicone R.T.V. to the body. The end cover is then tightened down.

5.0 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors can be up to 25 x the rated capacitor current and lasts 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode heating for a few seconds after starting, this effect is random and very variable. With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required. Use MCB's suitable for inrush currents to reduce ratings. The inrush current can be calculated where circuit conditions are known. The nominal capacitor current will probably be the determining factor, 0.076A per µF at 240V, 50Hz (adjust for other supply volts by multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current. All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are outlined in TABLE 1.*
A conventional matrix for HBC fuses is outlined in TABLE 2.

6.0 Disposal of Material

The unit is mostly made from incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All electrical components and the body parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

6.1 Lamps

Discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in a container to avoid possible injury from fragmentation. This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

Table 0 Range Refer to Section : 1.0

Wattage	Lamp	Lamp Cap
50W	SON/T	E27
70W	SON/T, MBI/T	E27
80W	MBF	E27
100W	SON/T, MBI/T	E27
125W	MBF	E27
100W	GLS	E27
150W	GLS	E27
13W	CFL-DE	G24q
18W	CFL-DE	G24q
26W	CFL-DE	G24q

Table 1 Starting and Running Currents Refer to Section : 5.0

Lamp	Start A	Run A	PFC µF
50W HPS	0.35	0.28	10
70W HPS	0.55	0.4	10
70W MBI	0.55	0.4	10
80W MBF	0.5	0.43	8
100W HPS	1	0.56	10
100W MBI	1	0.56	10
125W MBF	1	0.66	10

Note : *Minimum power factor correction: 0.85*

Table 2 Fuse Ratings Refer to Section : 5.0

Lamp Wattage	Number of Lamps					
	1	2	3	4	5	6
50W	4A	4A	4A	6A	6A	10A
70W	4A	4A	4A	6A	6A	10A
80W	4A	4A	4A	4A	6A	10A
100W	4A	4A	6A	10A	10A	10A
125W	4A	6A	6A	10A	10A	10A

Table 3 Weights and Windages Refer to Section : 3.5.1

	Type			
	SON/T, MBI/T	MBF	GLS	CFL-DE
Weight	6.4kg	5.7kg	4.8kg	5.5kg

Windage	0.15m^2	0.15m^2	0.15m^2	0.15m^2

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Registered Office Ronald Close, Woburn Road Industrial Estate
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Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

DEXLUX

STAINLESS STEEL FLOODLIGHTS

DECK & EXTERIOR

The Dexlux floodlight range is constructed from 316S31 marine grade stainless steel and is designed for hostile marine environments. They are available with a wide range of both tungsten halogen lamps.

In addition to being compact and lightweight, there are a number of additional options such as anti-vibration damper assembly, anti-glare shield and wire guard making the Dexlux an extremely popular marine floodlight range

APPLICATIONS: Ships decks, ports and harbours

STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**316S31 marine grade stainless steel body with toughened glass window, silicone rubber gasket and GRP terminal box.**
Entries:	**1 x 20mm clearance hole in junction box.**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 ^{0}C**
Termination:	**3 core 6mm^{2} max conductors**
Reflector:	**Wide beam high purity anodised aluminium**
Mounting:	**Stirrup bracket**
Control Gear:	**N/A for tungsten halogen models.**
Relamping:	**Via front cover and quick release clips.**
Electrical Supply:	**250V Max ac/dc**

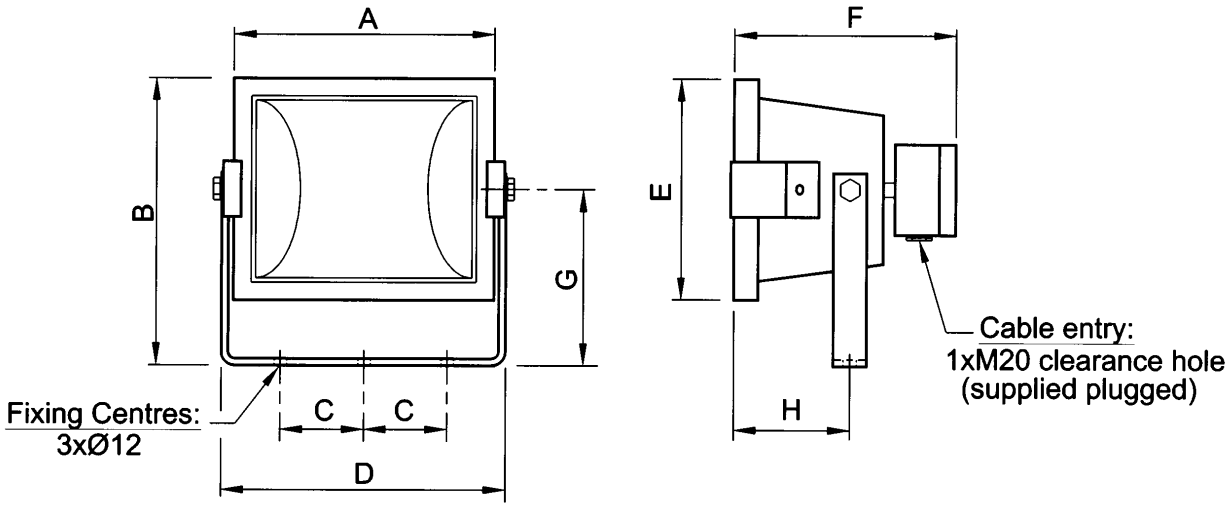
STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
DEXI/200/TH	200	Tungsten-Halogen	R7s	5 Kgs
DEXI/500/TH	500	Tungsten-Halogen	R7s	6.5 Kgs
DEXI/1000/TH	1000	Tungsten-Halogen	R7s	9 Kgs

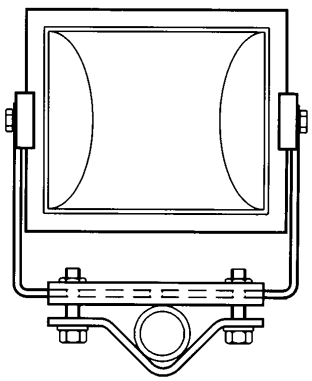
OPTIONS - Suffix to Catalogue No

/M25 25mm cable entry

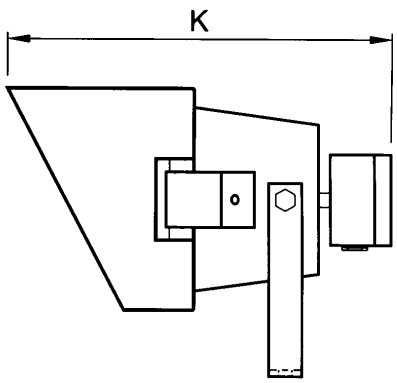
ACCESSORIES (Ordered separately)	**CATALOGUE ORDER CODE**
Anti-vibration damper	**S8000-0001**
Pole-mounting bracket assembly (inc. fixings)	**S8134-0002**
Anti-glare shield (ordered with luminaire)	**S8134-0001**



	Dimensions (mm)								
Model	A	B	C	D	E	F	G	H	K
DEXI/200/TL	235	275	75	230	200	200	175	105	370
DEXI/500/TL	290	275	75	325	200	200	175	105	370
DEXI/1000/TL	385	347	75	435	295	235	200	155	405
DEXI/150/MS	415	347	75	435	295	235	200	155	405
DEXI/250/MS	415	347	75	435	295	235	200	155	405
DEXI/400/MS	415	347	75	435	295	235	200	155	405



Pole-mounted
(for poles Ø48-64)



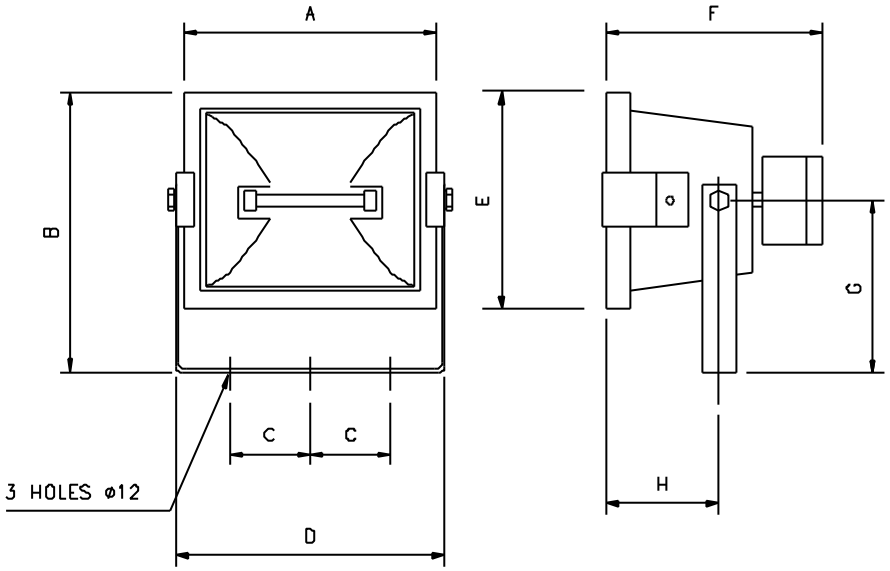
Anti-glare shield

Issue | 00

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

DEXLUX Tungsten Halogen Floodlight

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



DIMENSIONS	DEXI/200/TH 200W	DEXI/500/TH 500W	DEXI/1000/TH 1000W
A	235	290	385
B	275	275	347
C	75	75	75
D	250	325	435
E	200	200	295
F	200	200	235
G	175	175	200
H	105	105	155

CE

0.0 Specification

Area Classification	Non-Hazardous (Industrial)
Standard	BS4533 Section 102.1 : 1990, Section 102.5 : 1990
Construction	Marine Grade Stainless Steel Body with toughened safety glass
Lamp Type	Linear Tungsten Halogen
Ingress Protection	IP67 to BS EN 60529 : 1992
CE Mark	The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992. [This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - DEXLUX Tungsten Halogen Floodlight

The Dexlux series is a compact, stainless steel marine floodlight range suitable for a variety of linear tungsten halogen lamps.

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation. Any specific instructions concerning emergency luminaires must be complied with.

3.1 General

Installation should be carried out in accordance with statutory regulations in force in that area. In the UK the requirements of the “Health & Safety at Work Act and the Electricity at Work Act” should be met. The floodlights are Class 1 and should be effectively earthed. Lamps should be disposed of carefully.

3.2 Tools

Suitable spanners for installing cable glands, 3mm and 5mm flat blade screwdriver.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The floodlights may be used with a variety of voltages or supply frequencies but care must be taken to ensure the correct lamp is chosen to suit the supply. The lamp should not be operated over 106% rated voltage except under abnormal conditions. Using a lamp not suited to the supply voltage will have a serious effect on the lamp life and may lead to overheating of components within the floodlight. Tungsten halogen lamps are voltage sensitive and the nominal lamp life will be significantly reduced when the voltage goes above the nominal value. Similarly, light output will reduce below the nominal voltage.
Tungsten halogen lamps can fail to short circuit, so cables must be adequately fuse protected. Inrush current can be ten times the nominal, so surge resistant fuses are needed.

3.4 Mounting

Luminaries should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. This will usually consist of mounting points and aiming angles. The luminaire should be mounted using the bracket(s) supplied and secured using shakeproof washers or self-locking nuts and bolts. If mounting the lamp in anything other than the horizontal axis, then the lamp manufacturer should be consulted to ensure that this is permissible.

3.5 Cabling and Cable Glands

The temperature conditions of the supply cable entry point are such that 70ºC (ordinary PVC) cable can be used in all the standard range luminaires with terminal boxes. The maximum looping size is 2.5mm² with 6mm² single entry as standard. One single 20mm gland entry is supplied as standard and the facility exists to drill other entry points in the terminal box. Care must be taken to ensure any additional holes line up with the earth continuity strip within the terminal box. It is the responsibility of the installer to ensure that the correct cable size and fuse rating are used.
Cable glands where installed should maintain the IP67 rating of the enclosure and if using metal cable glands, should be of suitable material or suitably protected to meet any prevailing environmental conditions. Plastic glands may be used except in cases where the earth is provided by means of the cable armour, in which a suitable metal

gland should be employed. In this case, care should be taken to ensure correct contact is made between the gland and earth continuity strip inside the terminal box.
It is the responsibility of the user to ensure that an adequate seal is made between the gland and the terminal box.

3.6 Cabling and Fitting Lamps

Access for fitting lamps is by removing the front cover. The DEXI/200 model also allows access to the lamp holders, which have three different mounting positions to facilitate different lamp lengths. The reflector will also have to be removed to allow this modification and this is achieved by removing the central screw.
The cover is removed by undoing the two toggle clips using a screwdriver or a rod through the hole in clip to lever it off. Care should be taken to ensure that fingers do not touch the glass tube of the lamp as this could reduce the lamp life. On completion, the cover is replaced and the toggle clamps snapped into position.
Access for cabling is via the terminal box cover, which is removed by undoing the four cover screws. Install the conductors in the appropriate terminals. Take care not to cut back the insulation on the conductors excessively, 1mm bare conductor showing outside the terminal is a maximum. Any unused terminal should be fully tightened. Finally replace the cover, checking the gasket before tightening the screws.

3.7 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 12 monthly intervals and more frequently if conditions are severe. The time between lamp changes could be very infrequent and this is too long a period without inspection.

3.8 Electrical Fault Finding and Replacement

With Tungsten Halogen lamps the faults are normally of a relatively simple nature, namely loose or broken connections or unserviceable lamps.
Any fault finding must be carried out by a competent electrician and should spares be required, these can be obtained direct from Chalmit.

4.0 Overhaul

The unit is largely made up of materials which are very corrosion resistant. This allows the unit to be completely stripped, mechanically cleaned, then rebuilt with new electrical parts as required. The internal wiring is 1.0mm flexible, silicone rubber insulated. A high temperature sleeve is fitted to both lamp holder cables. All the spares required are available. Please state the model number, lamp and reflector details. The seal at the cover is between the glass and the body. The glass is retained in the cover frame by silicone R.T.V. adhesive. If the cover gasket has deteriorated by softening or permanent set, a new cover assembly should be fitted.
As an alternative, replacement gasket strip can be obtained from Chalmit but to fit this, care is needed. The old gasket should be removed and remaining adhesive scraped off with a chisel type blade.
New strips are cut full length on the short sides and neatly butted on the long sides. The gasket pieces are fixed in place and the butt joint sealed with silicone R.T.V. The cover assembly is left unclipped on top of a body with a sheet of thin polythene between it and the body to avoid adhesion. After a few hours the cover is removed and allowed to cure in free air for 24 hours. The assembly should be tested for air tightness on a test body before being fitted to an overhaul unit.

5.0 Fuse Ratings

Information regarding fuse/mcb ratings should be obtained from the lamp manufacturer of the protective device employed. If using mcb's, care must be taken to ensure that the correct type is used to take into account the inrush current of the lamp. It is the responsibility of the installer to ensure that the installation is suitably protected.

6.0 Disposal of Materials

The unit is chiefly made from inert incombustible materials.
All the electrical components may give off noxious fumes if incinerated. Lamps must not be incinerated. Care must be taken to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

6.1 Lamps

Incandescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.
Important : *Do not incinerate lamps.*

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Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

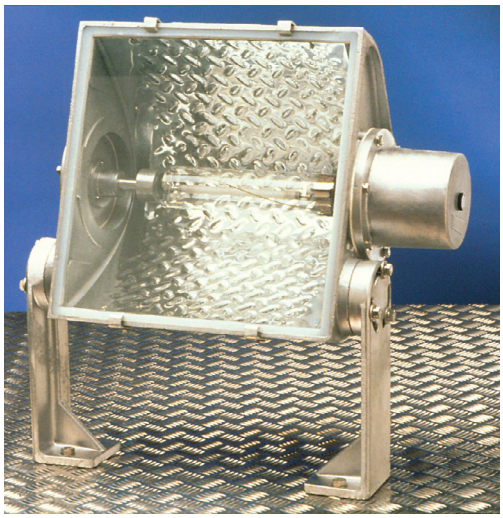
Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

503

FLOODLIGHT

DECK & EXTERIOR

The 503 is a high power floodlight designed for the most arduous marine environments. It is suitable for 600W and 1000W HPS lamps and tungsten halogen lamps up to 2000W. For HPS lamp models, the control gear is housed in a separate control gear box. When required,the ignitor can be mounted in a box on the floodlight allowing control gear to be situated further from the floodlight and eliminating the need for expensive high voltage cable between the floodlight and control gear box.
The 503 has a robust, corrosion resistant, low pressure die cast LM6 aluminium alloy enclosure (a PTFE protective coating can be applied if required) with a toughened glass window and silicone sealing. The use of the 503 will give extremely high levels of illumination from a small number of floodlights, greatly reducing installation and maintenance costs.
Zone 2 ExN versions are available
(Refer to Chalmit hazardous area catalogue)



APPLICATIONS: **Ships decks and holds, ports and harbours**

STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**Marine grade aluminium LM6 alloy body with toughened glass window, silicone rubber gasket**
Entries:	**1 x M20 cable entry**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 ^{0}C**
Termination:	**3 core 4mm^{2} max conductors**
Reflector:	**Wide beam high purity anodised aluminium**
Mounting:	**Foot mounted**
Control Gear:	**Refer to 502 control gear box for models with HPS lamps.**
Relamping:	**Via end cover secured by stainless steel screws**
Electrical Supply:	**250V Max ac/dc for tungsten halogen lamps** **For models with HPS lamps see 502 control gear box V/Hz range.** **(always state V/Hz when ordering)**

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
503I/600/HS	600	HPS	E40	25 Kgs
503I/1000/HS	1000	HPS	E40	25 Kgs
503I/2000/TH	2000	Single ended T/Halogen	E40	25 Kgs
503I/2x4/MS	2x400	HPS/Metal halide	E40	27 Kgs

OPTIONS - Suffix to Catalogue No.

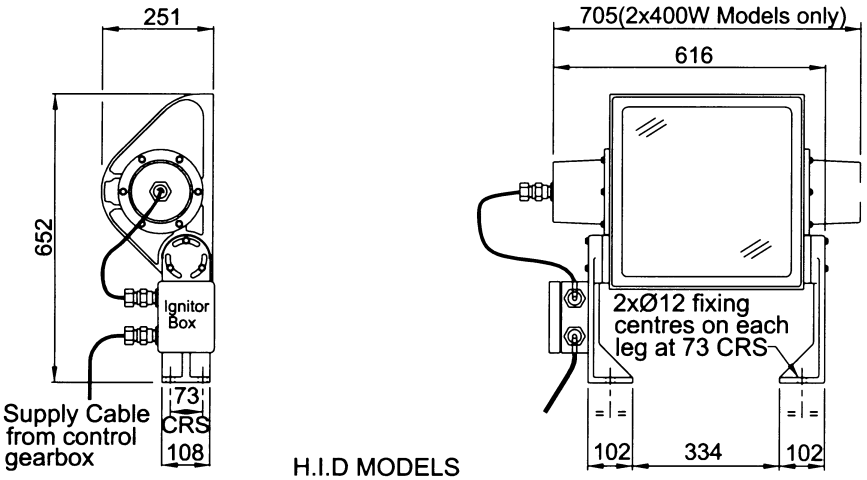
/IG Integral leg mounted ignitor

/P PTFE Coating

/N Narrow beam reflector

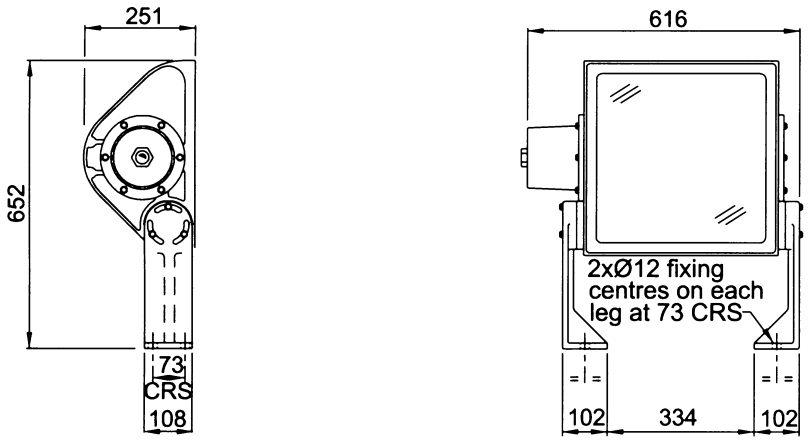
ACCESSORIES (Ordered separately)

	CATALOGUE ORDER CODE
Pole-mounting bracket	**S2000-0007**
Swinging jib bracket	**S2000-0019**
Anti-glare shield	**S5030-0007**
Wire Guard	**S5030-0008**

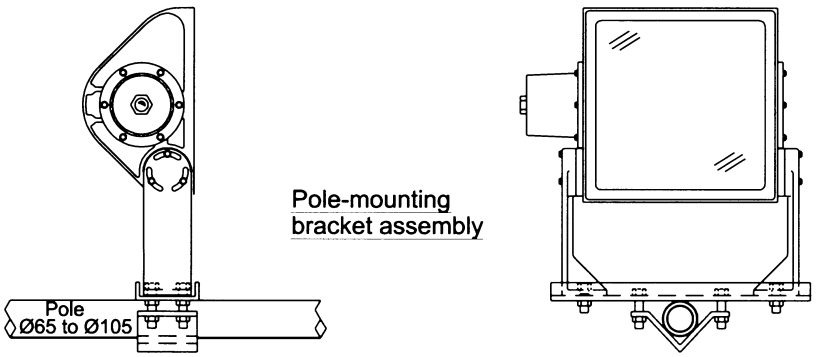


H.I.D MODELS

Note: Ignitor Box on leg, as shown, is optional.
As standard, the ignitor is located in the control gear box

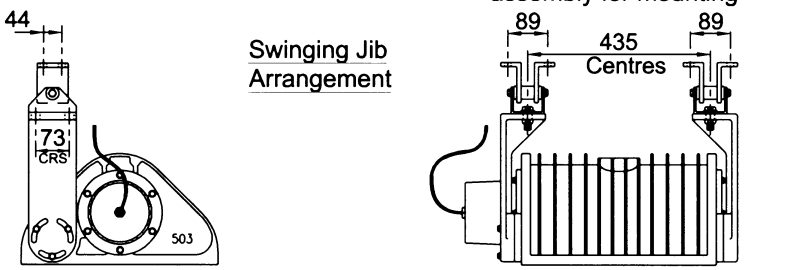


TUNGSTEN HALOGEN MODELS
(Or H.I.D models without ignitor box)



Pole-mounting bracket assembly

There are two pairs of Ø14mm fixing centres at 89 centres on each swinging jib assembly for mounting



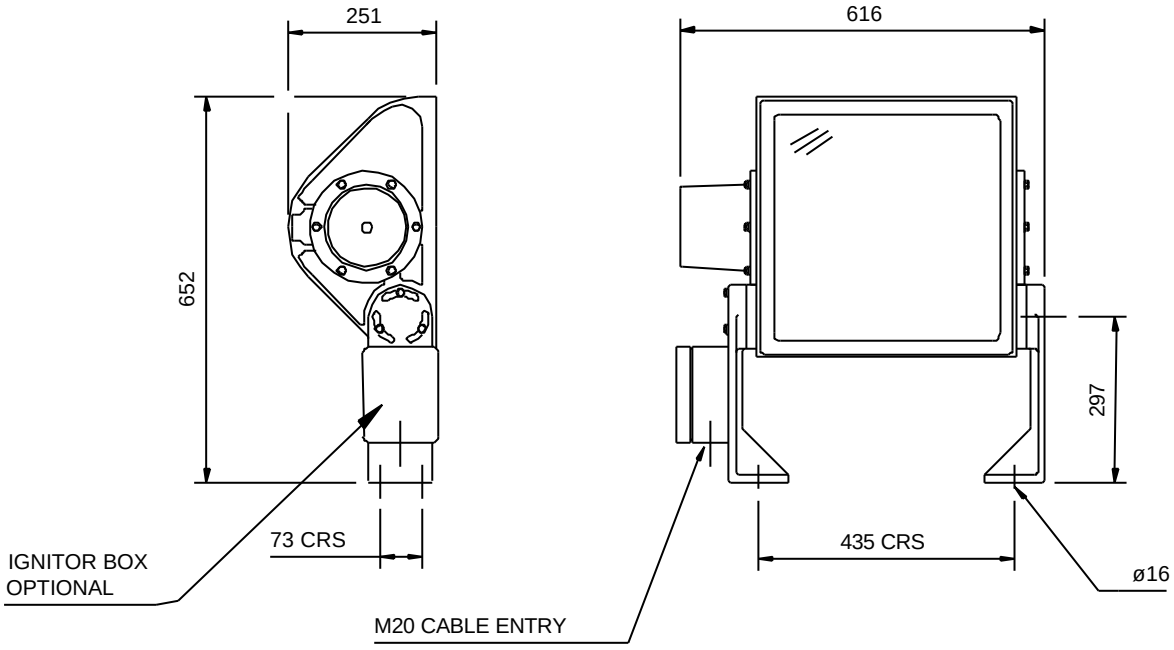
Swinging Jib Arrangement

Issue | 00

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

503 High Wattage Floodlight

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



WEIGHT	ALUMINIUM LM6	GUNMETAL LG2
	25kg	73kg

WINDAGE AREA: 0.22m^2

CE

0.0 Specification

Area Classification	Non Hazardous
Standard	BS4533 Section 102.1
Ingress Protection	IP66 and IP67 to BS EN 60529

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992".
[This legislation is the equivalent in UK law of EC directives 73/23EEC, 89/336/EEC and 94/9/EC respectively].

1.0 Introduction - 503 High Wattage Floodlight

The 503 series of Industrial floodlights are designed for area lighting applications. The maximum ambient temperature is as shown. The unit is used in conjunction with a 500 series control gear box or 700 series control gear box.

Note : *Lamp ranges and ambient temperature ratings are as indicated in TABLE 0.*

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation.
Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.0.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations. Installation should be carried out in accordance with good electrical procedure and local code of practices.
In the UK the requirements of the *'Health and Safety at Work Act'* must be met.
Handling and electrical work associated with this product to be in accordance with the *'Manual Handling Operations Regulations'* and *'Electricity at Work Regulations, 1989'.* Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The luminaires are quite heavy and suitable means of handling on installation must be provided.
The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.1 Special conditions for Installation.

3.1.1 Special conditions for safe use

1 The method of cable entry shall be such as to retain the ingress protection properties of the luminaire. In particular, if conduit entry is used, a stopper gland shall be inserted in the conduit.
2 Mercury vapour lamps shall be used only in conjunction with ballasts complying with BS 4782 or other appropriate specification.
3 High pressure sodium lamps shall be used only in conjunction with ballasts which limit the power input to a lamp to its rated value, when operating at the rated supply voltage. The ignitor circuit shall not produce a pulse voltage in excess of 4.5kV peak.

Note: *Unless authoritative information to the contrary is available from the manufacturer of a particular lamp, it must be assumed that the use of a lamp with an internal ignitor will infringe this requirement.*

4 For luminaires fitted with high pressure mercury vapour lamps or tungsten halogen lamps, the cable from the luminaire to the adjacent leg mounted junction box or the control gear box shall be suitable for 150ºC (Silicone Rubber or better).

5 For luminaires fitted with high pressure sodium lamps, the cable from the luminaire to the adjacent leg mounted junction box or the control gear box shall be suitable for 120ºC and shall comply with one of the following :

a) Glass braided cores (300/500V grade to Table 10 of *BS 6500*), formed in a 3-core cable with an outer sheath selected from Table 8 in *BS 6500.*

b) 450/750V grade cable to Table 8 in BS 6500 but with the thickness of the outer sheath increased to approximately 1½ times the value given in the table.

6 With the exception of Item 5a), the cores of the incoming cable shall be sleeved with the glass braided sleeving provided by the manufacturer.

Note : *The cable standards quoted are now obsolete or superseded by later editions. We can interpret the cable requirements as 150ºC or 120ºC, as appropriate. For HPS luminaires, the cable carrying the ignition pulse should be 600/1000V rating. The Chalmit Type 4891 cable meets all requirements.*

3.2 Tools

3mm and 5mm flat blade screwdriver.
14mm and 15mm A/F spanners.
Suitable spanners for installing cable glands.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The discharge lamp luminaires are supplied from separate 500/700 series control gear boxes. The installation and operating instructions for these boxes are dealt with in a separate leaflet.

The supply voltage and frequency should be specified for the control gear box when ordering. The Tungsten Halogen luminaires are suitable for lamps in the range 220/240V ac and dc. The correct lamp for the supply must be used. Incandescent lamps must be selected for the supply voltage. Running at over the rated supply voltage will reduce life and at greater than +10% will compromise the fitting. A maximum voltage variation of +/-6% on the nominal is expected. (The safety limit for operation is +10%). Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. The user must determine the ***actual*** underlying site supply and purchase or adjust accordingly. ***Care is needed in connecting to the nominal 230V UK public supply.***

In some cases, the control gear boxes have multi-tap control gear which can be set to a range of 50 and 60Hz cycle voltages. The tappings are shown on the control gear and the limits are shown on the rating plate. If, the equipment is located in a high or low voltage section of the system, an appropriate voltage tap should be selected to obtain the best lamp performance, but care must be taken to log or mark the equipment so that the tappings can be reset if the equipment is re-located. If in doubt, tappings should be set on the high side.

For Tungsten Halogen sources, the voltage drop calculation will be made to cover the voltage drop from the main supply point. For the MBF lamp the distance from the control gear box to the luminaire does not have a practical limit. The total voltage drop of supply and connection cable should not exceed the values given.

In the case of the HPS lamp the normal maximum distance from the control gear box to the luminaire is 3 metres. If a greater distance is necessary for operational reasons, the model with the ignitor box attached to the foot mounting bracket of the luminaire should be ordered. In this case, a control gear box *without* an ignitor is ordered

to supply the luminaire. A calculation can then be made to cover the voltage drop between the control gear box and the luminaire. 20V maximum nominal drop is acceptable for Tungsten-Halogen and MBF lamps, 10V maximum drop is desirable for HPS. The lamp power will be reduced. In all cases, the calculation is made on the lamp current, not the corrected circuit current.
The HPS circuit uses a SIP (superimposed pulse) ignitor. This means there are only two connections to the choke and the tap selection is obvious.
When the construction site supply is different to that of the service location, the tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Technical Department.

3.4 Lamps

The lamps are of a standardised type and there is no preference between make and colour. When fitting lamps, a check should be made that the lamp steady assembly does not become solid before the access cover has been fully bolted down. There may be some variation in length on the 1000W SON/T lamps available. In the later models, the length variation is catered for by a lamp steady using a spacer. This spacer can be put either on the stem or inside the steady cup to allow for a 2mm shift in the steady spring compression range. The assembly is available for retrofit for older models.
Care must be taken to fit the correct lamp in order that it will operate properly, maintain the certification conditions and obtain the design photometric performance.
HPS lamps should be replaced shortly after they do not light. One indication of the end of life for HPS lamps is "cycling", where the lamp goes out and then re-ignites after a minute or so interval. If discharge luminaires are burnt continuously, they should be switched off occasionally. This allows old lamps to fail to re-ignite, reducing the possibility of them becoming diodes with detrimental effects to the control gear.
HPS lamps and Mercury lamps will have a half life (50% mortality) of up to 24,000 hours but in the case of MBF lamps, the lumen output will by then have decreased to 50% or less. The lumen output of HPS lamps remains substantially constant during the life of the luminaire.
The above information is current at the time of preparation. The development of lamps and control gear is ongoing and detailed advice on the lamp performance can be obtained from the lamp supplier.

Note : *HPS circuits should not be energised without the lamp fitted.*
HPS lamps with internal ignitors must not be used.

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation. This will usually consist of aiming points and aiming angles. The foot mounting brackets should be secured with lock washers or self-locking nuts and bolts.

3.6 Cabling and Cable Glands

3.6.1 Cables

The temperature conditions at the supply cable point are such that high temperature cable must be used in all the luminaires. This is referred to in the special conditions for safe use. In the case of HPS luminaires, the cable between the luminaire and the ignitor must be able to withstand the starting impulse (wherever located). Chalmit Type 4891 cable meets the requirements of the application. The cable make-up must be suitable to ensure the maintaining of the restricted breathing enclosure when the cable gland assembly is fitted.

3.6.2 Cable Glands

Cable glands and sealing plugs when installed must maintain the ingress protection of the enclosure. Rubber sealing washers and steel compression washers are provided with the unit. The user must ensure that the assembly fulfils the above requirement.
Cable entries suitable for M20 cable glands are standard.

3.7 Cabling and Fitting Lamps

Access for cabling is via the top hat shaped cover which carries the lampholder. The cable assembly is screwed into the cover after it has been removed from the luminaire. The lampholder assembly is slackened to allow access. The ignitor output goes to the lampholder centre contact, marked L at the terminal D at the ignitor

3.8 Inspection and Maintenance

Visual inspection should be carried out at suitable intervals, frequently if conditions are severe. The time between lamp changes could be very infrequent and this is too long a period without inspection.

3.8.1 Routine Examination

The equipment must be de-energised before opening. Individual organisations will have their own procedures. What follows are guidelines based on Chalmit's own experience:-

1 Ensure that the lamp is lit when energised and that the lampglass is not damaged.
2 When de-energised and left to cool, there should be no significant sign of internal moisture. I f there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated by re-gasketting. With the type of construction used in the 503, anything other than slight condensation should be very rare.
3 Check the cable gland for tightness and nip up if necessary.
4 Check any external earthing connections.
5 Check the access cover and lamp housing screws for tightness and nip up if necessary. Torque 16Nm. If the covers are removed it is good practice to replace the gasket.
6 Check the silicone sealant used to secure the lampglass. If it has become seriously discoloured or very soft, the luminaire will need to be returned to Chalmit for re-glazing. The material used for glazing has a long life and in normal applications would not be expected to deteriorate. Direct contamination with hydrocarbon oils could cause degradation.
7 Check that the lamp glass retaining clamps are in place and secure. (The purpose of these clamps is to reduce the load on the lamp glass caused by internal pressure build up from the high temperature of the light sources).
8 Clean the lamp glass.
9 When re-lamping, the incoming and lampholder terminals should be checked for signs of overheating and the terminals tightened up.

3.9 Electrical Fault Finding and Replacement

With Mercury and Tungsten Halogen lamps the faults are simple, namely loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has first overheated; signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, a bad contact at the lamp cap will usually result in discoloration as a sign of overheating. Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work. With HPS the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an "attempt to start" flicker effect on the lamp and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be re-checked and any damaged cable replaced. The supply must be isolated.

4.0 Overhaul

The unit is largely made of materials, which are very corrosion resistant. Overhaul consists of cleaning and replacement of gaskets where necessary. All the spares required are available from Chalmit. Please state the model number and lamp type. No unauthorised modifications should be made.

5.0 Fuse Ratings

The following remarks concern HID lamp circuits at the input side of the control gear box. The output side of the control gear box carries the lamp current, not the circuit current. The lamp current is shown in Table 1. This value should be used for any calculations of voltage drop between the control box and luminaire. Where the ignitor for HPS is contained in the control gear box, the cable also carries the starting pulse. The choke acts as a current limiter, therefore there is no means of protecting against a line to neutral fault on the electrical circuit beyond the choke. Extra care must therefore be taken to ensure sound cable installations. The fuse ratings for HID lamp circuits need to take into account three components of circuit current. Current inrush to PFC capacitors, which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current, which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode heating for a few seconds after starting, this effect is random and very variable.
With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required. Use MCB's suitable for inrush currents to reduce ratings. The normal capacitor current will probably be the determining factor, 0.076A per µF at 240V, 50Hz (adjust for other volts by multiplication,x6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current. For T/Hal inrush, use 8 x rated current. All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz. are as indicated in TABLE 1.*

6.0 Disposal of Material

The unit is mostly made from incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All electrical components and the body parts may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

6.1 Lamps

Incandescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.

Note : *Do not incinerate lamps.*

0.0 Tables 0/1

Table 0 Lamp Ranges and Ambient Temperature Ratings Refer to Section : 1.0

Lamp	Ambient Rating
600W SON/T	T amb 60ºC
1000W SON/T	T amb 40ºC
1000W MBI	T amb 40ºC
2000W MBI	T amb 40ºC
700W MBF	T amb 40ºC
2000W T/HAL	T amb 40ºC

Table 1 Starting and Running Currents Refer to Section : 5.0

Lamp	Lamp A	Start A	Run A	Capacitance µF
600W SON/T	6.2	5.6	3.1	60
1000W SON/T	10.6	6.9	5.0	100
1000W MBI	10.6	6.9	5.0	100
2000W MBI	16.5	15.8	9.9	100
2000W MBI Cross Phase	10.3	8.9	5.6	30
700W MBF	5.4	5.6	3.5	30
2kW T/HAL	8.33	approx. x6	8.33	N/A

Chalmit Lighting 388 Hillington Road, Glasgow G52 4BL, Scotland
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Website	:	www.chalmit.com

Registered Office Ronald Close, Woburn Road Industrial Estate
Kempson, Bedford. MK42 7SH.

Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

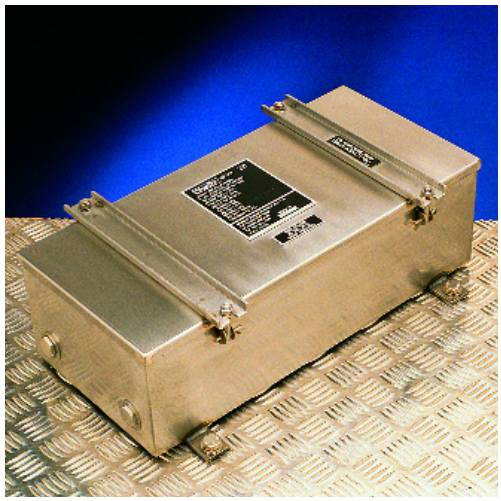
Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

501 & 502

CONTROL GEAR BOXES

The 501 & 502 Control Gear Boxes house the lamp control gear. If required, transformers can be fitted for 110V & 120V supplies. The control gear box allows easy access to the control gear allowing the floodlight to be situated in difficult to reach locations. Both of these control gear boxes are constructed from 316S31 marine grade stainless steel and are suitable for both indoor and outdoor applications where rugged, corrosion resistant construction and reliability are essential.
Cable entry is through 20mm clearance holes as standard or alternatively through tapped cable entry pads. The 501 & 502 are most commonly used for floodlights such as the 503 & 800 Series.

Zone 2 ExN versions are available.
(Refer to Chalmit hazardous area catalogue)



STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**316S31 marine grade stainless steel construction**
Entries:	**3 x 20mm clearance holes**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 ^{0}C**
Termination:	**3 core 4mm^{2} max conductors**
Mounting:	**Base mounting straps**
Control Gear:	**Internal copper/iron multi-tapped ballast and PFC capacitors (Ignitor not fitted on standard models)**
Electrical Supply:	**220,230,240,254V 50Hz (always state V/Hz when ordering)**

STANDARD PRODUCT RANGE

Catalogue No.	Lamp Wattage (W)	Lamp Type	Weight
501I/150/MS	150	HPS/Metal halide	14 Kgs
501I/250/MS	250	HPS/Metal halide	15 Kgs
501I/400/MS	400	HPS/Metal halide	19 Kgs
501I/600/MS	600	HPS	19 Kgs
502I/2x4/MS	2x400	HPS/Metal halide	28 Kgs
502I/1000/HS	1000	HPS	32 Kgs

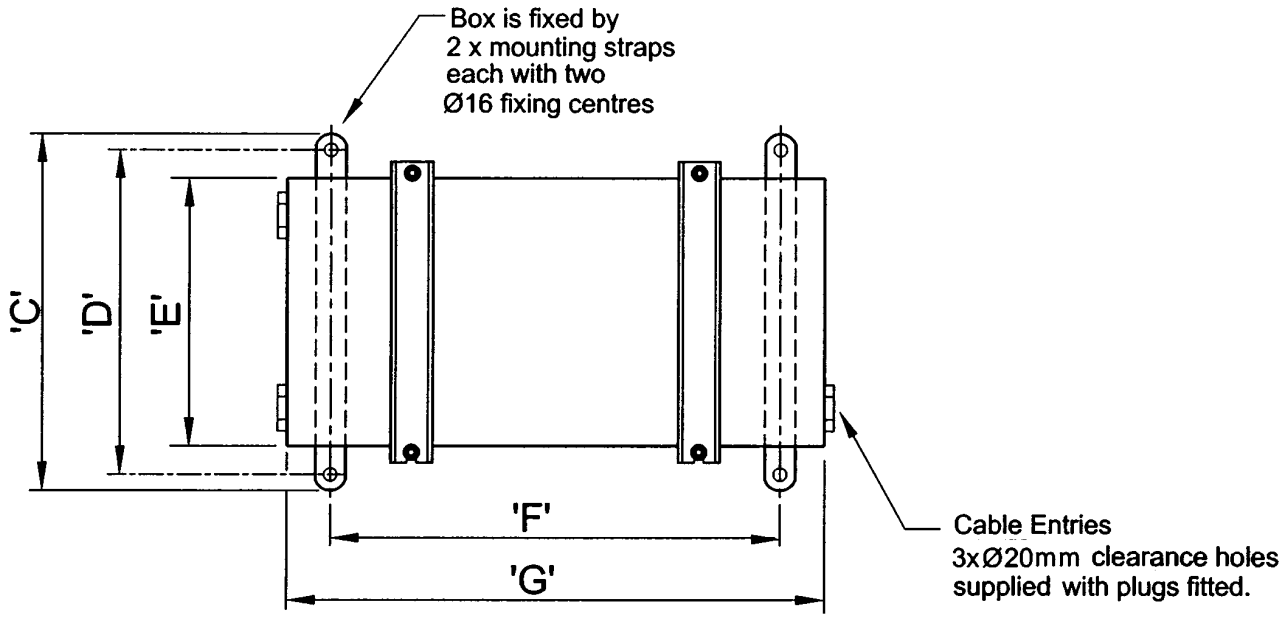
The following models are for 120V,50Hz. For 60Hz further suffix Catalogue No. by /60.

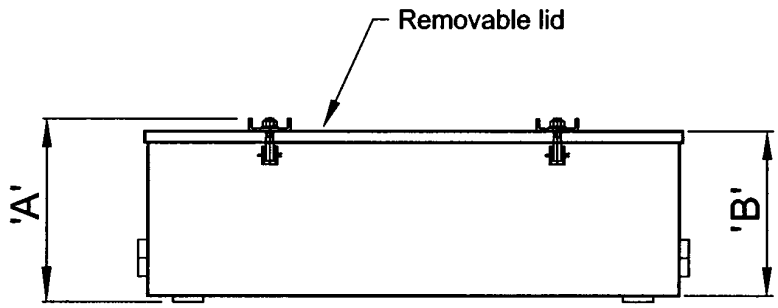
Catalogue No.	Lamp Wattage (W)	Lamp Type	Weight
502I/150/MS/120	150	HPS/Metal halide	21.5 Kgs
502I/250/MS/120	250	HPS/Metal halide	22.6 Kgs
502I/400/MS/120	400	HPS/Metal halide	27.5 Kgs
502I/600/HS/120	600	HPS	36.5 Kgs

OPTIONS - Suffix to Catalogue No.

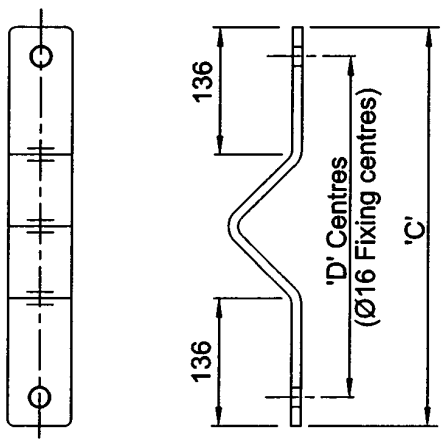
/60	60Hz supply.
/M25	3x25mm entries
/IG	Integral ignitor
/LO	Looping
/NC	No capacitors
/TE	Tapped cable entry plate

ACCESSORIES (Ordered separately	**CATALOGUE ORDER CODE**
501 Pole mounting bracket assembly (inc fixings)	**S5010-0001**
502 Pole mounting bracket assembly (inc fixings)	**S5020-0003**





Model	A	B	C	D	E	F	G
501	171	152	305	279	235	381	502
502	190	174	381	343	283	476	569

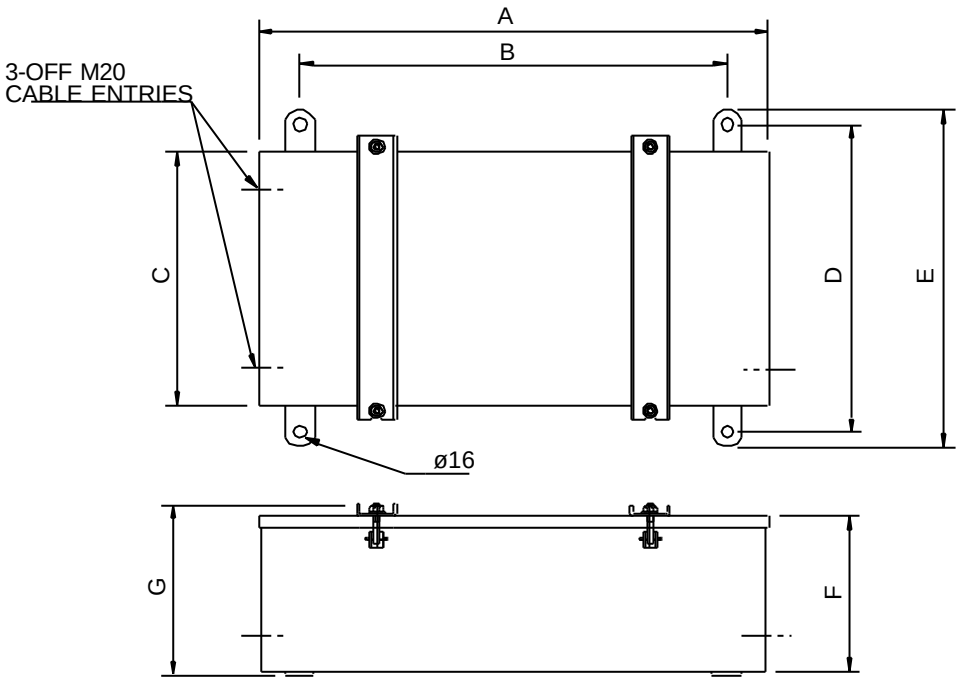


Pole-Mounting Bracket (2-off reqd per Box)
to suit Poles from 48mm to 63.5mm dia
30x5 Stainless Steel Bar

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

500 Industrial Series Control Gearbox

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



BOX TYPE	A	B	C	D	E	F	G
500	460	381	159	203	229	152	171
501	502	381	235	279	305	152	171
502	569	476	283	343	381	174	190

CE

0.0 Specification

Area Classification	Non Hazardous
Standard	BS4662 : 1970
Ingress Protection	IP66 and IP67 to BS EN 60529 (IEC 529)
CE Mark	The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992". [This legislation is the equivalent in UK law of EC directives 73/23EEC, 89/336/EEC and 94/9/EC respectively].

1.0 Introduction – 500 Industrial Series Control Gearbox

The 500 Industrial Series of control gear boxes is usually used to power the 400 and 503 series Industrial luminaires. The boxes are fabricated from stainless steel and contain control gear or transformers as appropriate. They are also available without an ignitor in order to be able to power the luminaires with close coupled ignitor units.

Note : *Lamp ranges and temperature ratings are as indicated in TABLE 0.*

2.0 Storage

Luminaires and control gear boxes are to be stored in cool dry conditions preventing ingress of moisture and condensation.
Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations. Installation should be carried out in accordance with good electrical procedures and local code of practices.
In the UK the requirements of the *'Health and Safety at Work Act'* must be met.
Handling and electrical work associated with this product to be in accordance with the *'Manual Handling Operations Regulations'* and *'Electricity at Work Regulations, 1989'.* Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The luminaires are quite heavy and suitable means of handling on installation must be provided.
The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.1.1 Special Conditions Of Use

These special conditions should be read in conjunction with those for the associated luminaire :

1 For use with high pressure sodium lamps, the inter-connecting cable between the control gear box and the luminaire shall be suitable for the duty with the high voltage lamp striking pulse of up to 4.5kV. Subject to other limitations that may be imposed by a particular luminaire, the following cables may be regarded as suitable :
(a) Glass braided cores (300/500V grade to table 10 of BS6500), formed in a 3-core cable with an outer sheath selected from table 8 in BS6500.
(b) 450/750V grade cable to table 8 in BS6500, but with the thickness of the outer sheathing increased to approximately 1½ times the value given in the table.

2 The control gear box should not be used with luminaires which incorporate high pressure sodium lamps with internal ignitors.

Note : *The standards quoted above are now obsolete or replaced by later editions. Reference should be made to the cable requirements of the associated luminaires. The requirements apply to the outgoing cable; the feed cable is not specified and can be ordinary PVC or better. Type 4891 cable meets the requirement to supply the luminaire.*

3.2 Tools

3mm and 5mm flat blade screwdriver, 13mm and 10mm A/F sockets.
Suitable spanners for installing cable glands.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation of +6%/-6% on the nominal is expected. Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. ***Care must be taken connecting to the nominal 230V UK public supply.*** The user must determine the ***actual*** underlying site supply and purchase or adjust accordingly. In most cases, control gear boxes have multi-tap control gear which can be set to a range of 50 and 60Hz voltages. The tappings are shown on the control gear and the limits are shown on the rating plate. If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care should be taken to log or mark the equipment so that the tapping can be reset if the equipment is relocated. If in doubt, tappings should be set on the high side. 20V max. nominal drop is acceptable for mercury vapour and tungsten halogen sources, 10V max. drop is desirable for HPS. The light output will be reduced. The total supply and interconnecting cable drop should not exceed the values given.
All the HPS circuits use S.I.P. (superimposed pulse) ignitors. This means that there are only two connections to the choke, making the tap selection obvious. Where shore or construction site supplies are used, which are different to the service supplies, tappings should be reset. If not, advice on the effect of these temporary supplies should be sought from the Technical Department.

Important : *Circuits must not be energised without the lamp fitted. Lamps must be replaced shortly after they fail to light.*

Incandescent lamps must be selected for the supply voltage. Running at over the rated supply voltage will reduce life and at greater than +10% will compromise the operation of the luminaire/control gear.

3.4 Luminaires

Care must be taken to ensure that the lamp used in the associated luminaire corresponds to the control gear used. ***HPS control gear boxes should not be energised with an unlamped luminaire connected.*** HPS lamps with internal ignitors must not be used. If the control gear box for 150W to 400W HPS luminaires is more than 16 metres from the luminaire, a luminaire with integral or close coupled ignitor is needed. Where "Plus" high output lamps are used, a close coupled ignitor is needed. For 70W and 1000W HPS the maximum distance is 2 metres.

3.5 Mounting

The box should be firmly attached to the structure in a position where access can be gained to install cables and carry out routine maintenance. Any mounting attitude can be used.

3.6 Cabling and Cable Glands

3.6.1 Cables

The output cable must meet the requirements of the associated luminaire. This means that the cable make up must be suitable for maintaining the ingress protection of the enclosure of the luminaire when used in conjunction with the appropriate cable gland.

3.6.2 Cable Glands

The cable glands when installed should maintain the IP rating of the enclosure with a minimum of IP54. The cable gland should adequately secure the cable in the unit, unless provision is made to restrain the cable by other means. It is the responsibility of the user to ensure an adequate seal between the gland body and the apparatus.

Versions of the box are available for single entry and twin entry to loop 4mm^2 cable. Versions suitable for looping 6mm^2 cable are available to special order. The looping requirements should be specified when ordering. Clearance holes for M20 or M25 cable glands are standard. Versions with tapped internal pads are available to special order.

3.6.3 Installation

1 Undo the hexagon nuts securing the hinged lid. The rating plate is fixed to the lid. If the lid is removed to facilitate cabling, take care not to mix it up with lids from other boxes which may have different ratings.
2 Re-select the voltage tappings if necessary.
3 Install the cable glands and cables. If the supplied rubber sealing washer is used, the large stainless steel washer must also be used. The rubber washer can be inside or outside the box.
4 Install the conductors in the appropriate terminals. Take care not to cut back the insulation excessively, 1mm bare conductor outside the terminal throat is a maximum.
5 Any unused terminals should be fully tightened.
6 Check for correct connections and replace the lid.
7 Tighten the lid to the recommended tightening torque (2 lb.ft/2.7Nm). Do not overtighten and distort the lid.

3.7 Inspection and Maintenance

Individual organisations will have their own procedures for inspection and maintenance. What follows are guidelines based on Chalmit's own experience.
Maintenance work and fault finding must be performed by competent personnel under an appropriate permit to work and with the apparatus isolated.
Frequency of maintenance will depend on experience and operating conditions.
Before opening, the box must be electrically isolated.

1 Ensure the control gear box is operating the associated luminaire correctly. If the luminaire is not operated correctly with a serviceable lamp, check the control gear box first for signs of bad connections or overheating. If the box is in good condition and the choke has continuity, check the fault finding procedure for the luminaire. Refer to the luminaire instructions.
2 Open the box. Check for any signs of water ingress. If there is, determine the entry point if possible. Replace the cable gland sealing washers or box lid gasket as appropriate (see below). Clean up and dry out the box before re-energising.
3 Check terminals for tightness and any sign of overheating. Replace the terminals where necessary. If the choke has overheated, it will be badly discoloured. A d.c. resistance check compared with a spare unit will give confirmation of any internal shorting.
4 The capacitors should be checked visually and if intact, and not corroded, should be satisfactory. The only likely fault with shunt capacitors is that the capacitance gradually reduces in the self-healing type or that the fuse blows. Capacitors can be disconnected and given a capacitance check. If capacitance has been lost and is a critical factor in the circuit design, consideration will need to be given to further investigation and the replacement of the capacitors. In those cases where the capacitors are used in conjunction with step-up transformers, the power factor correction is critical as the transformers will draw excess current and overheat if the secondary is uncorrected. If installations using transformers are seen to be "cycling", that is, going on and off, this can be due to the thermal trip in the transformer operating. If the luminaires on the circuit are apparently working normally, an investigation into the capacitance should be made.
5 Check the lid gasket and if there are signs that the gasket is not making a good joint, replace it (see below).
6 Check that the cable glands are tight and nip up if necessary.
7 Refit the lid and re-tighten the nuts to the recommended torque. A dab of grease on the thread is recommended.

8 Check that the rating label is readable and secure. Refit using silicone sealant or other suitable adhesive if necessary.

9 Re-energise and check for correct luminaire operation. Any spare parts needed must be obtained from the manufacturer and unauthorised modifications must not be made. If a lid gasket needs to be replaced, obtain a spare from Chalmit. Remove the old gasket and scrape off any adhesive. The gasket is self-adhesive, remove the self-adhesive backing, put the gasket in place squarely and smooth down.

3.8 Electrical Fault Finding and Replacement

Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work. With mercury and T-H lamps the faults are simple, loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has overheated first and the signs of this are obvious, being severe discolouration of the paint on the gear and cracks in any exposed insulation. Similarly, a bad contact at the lamp cap will result in signs of overheating. With HPS lamps the ignitor can become faulty. If the lamp is fitted and the choke has continuity and the connections are good and correct, they should produce an "attempt to start" flicker effect and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Some boxes have fuses fitted and these should be checked. The supply must be isolated.

3.9 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode heating for a few seconds after starting, this effect is random and very variable.

With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required. Use MCB's suitable for inrush currents to reduce ratings. The normal capacitor current will probably be the determining factor 0.076A per µF at 50Hz (adjust for other volts my multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current. All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are indicated in TABLE 1.*
A conventional matrix for HBC fuses is outlined in TABLE 2.

4.0 Disposal of Material

The unit mostly contains incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All electrical components may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

4.1 Lamps

Incandescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury. This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2

Table 0 Lamp Ranges and Temperature Ratings Refer to Section : 1.0

Model	Lamps	Transformer	Ambient Rating
500	80W MBFU	500VA Auto	T amb 40ºC
	125W MBFU		
	250W MBFU		
	400W MBFU		
501	70W HPS	1250VA	
	150W HPS		
	250W HPS		
	400W HPS		
	700W MBFU		
502	1000W HPS		T amb 35°C
	1000W MBI		
	2000W MBI		
	Up to 400W HPS or MBFU		
		500VA Auto	T amb 40°C

Table 1 Starting and Running Currents Refer to Section : 3.9

Lamp	Lamp A	Start A	Run A	Capacitance µF	Circuit Power (W)
70W HPS	1.0	0.55	0.4	10	80
150W HPS	1.8	1.45	0.8	20	175
250W HPS	3.0	2.35	1.3	30	285
400W HPS	4.6	4.0	2.2	40	445
1000W HPS/MBI	10.6	6.9	5.0	100	1100
2000W MBI	16.5	15.8	9.9	100	2105
2000W MBI Cross Phase	10.3	8.9	5.6	30	2085
80W MBF	0.8	0.7	0.4	8	88
125W MBF	1.2	1.7	0.66	10	145
250W MBF	2.13	2.8	1.4	15	280
400W MBF	3.25	4.4	2.2	20	430
700W MBF	5.4	5.6	3.5	30	740

Note : *The lamp current is that between the control box and the luminaire.*
Start and run currents are corrected.
Minimum power correction factor: 0.85.

Table 2 Fuse Ratings Refer to Section : 3.9

Lamp	**Number of Lamps**					
	1	**2**	**3**	**4**	**5**	**6**
150W HPS	4A	6A	10A	10A	16A	16A
250W HPS	10A	16A	16A	20A	20A	20A
400W HPS	16A	20A	20A	25A	25A	32A
1000W HPS/MBI	20A	25A	-	-	-	-
2000W MBI	25A	-	-	-	-	-
2000W MBI Cross Phase	20A	-	-	-	-	-
700W MBF	16A	20A	25A	32A	32A	40A

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Kempson, Bedford. MK42 7SH.

Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

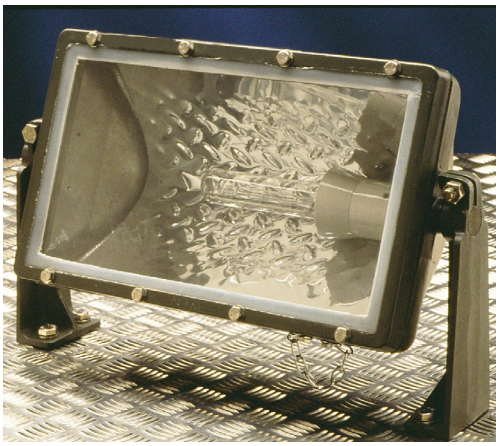
469

FLOODLIGHT

DECK & EXTERIOR

The 469 is a tungsten halogen floodlight for lamps up to 1000W. It has a robust, corrosion resistant marine grade aluminium LM6 alloy enclosure with a toughened glass front cover and stainless steel fasteners, making it ideal for hostile marine environments

APPLICATIONS: Ships decks, holds, ports and harbours



STANDARD SPECIFICATION

Ingress Protection:	**IP66/67 to EN 60529**
Enclosure:	**Marine grade aluminium LM6 alloy body with toughened glass window, silicone rubber gasket**
Entries:	**1 x M20 cable entry**
Internal Wiring:	**Flexible wiring, silicone insulated, heat resistant up to 180 ^{0}C**
Termination:	**3 core 4mm^{2} max conductors**
Reflector:	**Wide beam high purity anodised aluminium**
Mounting:	**Foot mounted**
Control Gear:	**N/A**
Relamping:	**Via front glass cover assembly secured by stainless steel screws**
Electrical Supply:	**250V Max ac/dc**

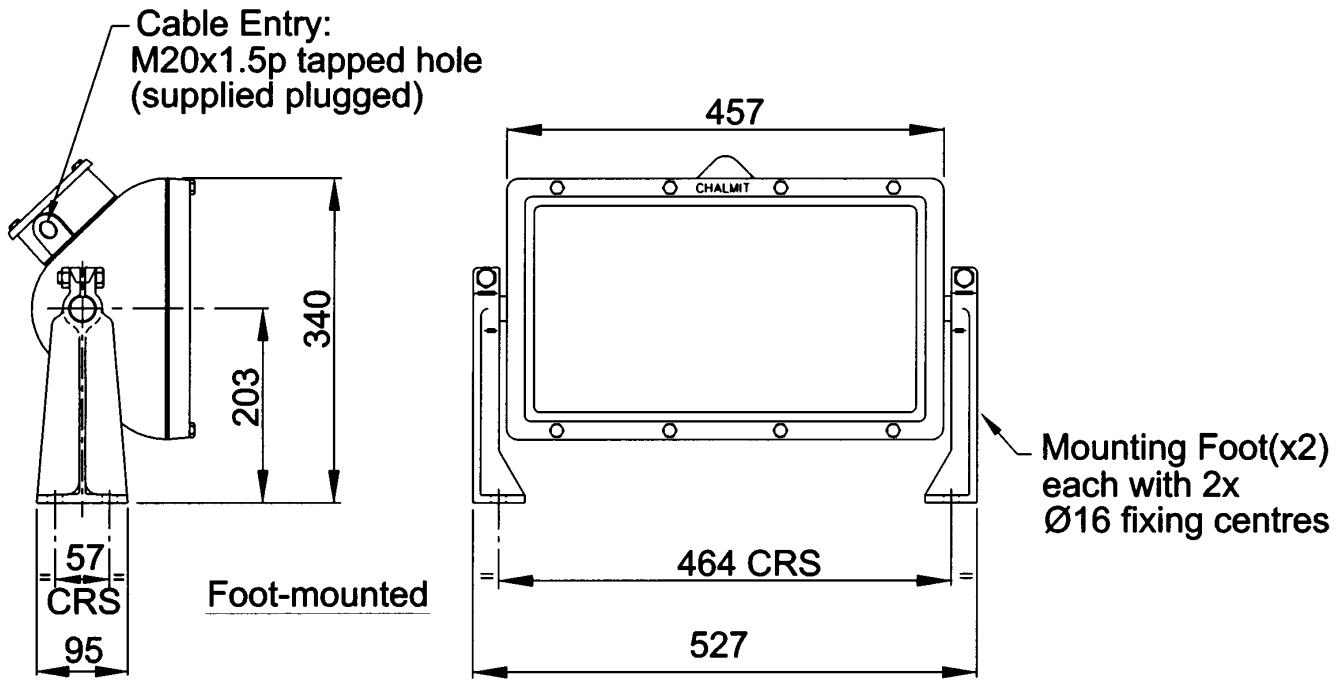
STANDARD PRODUCT RANGE

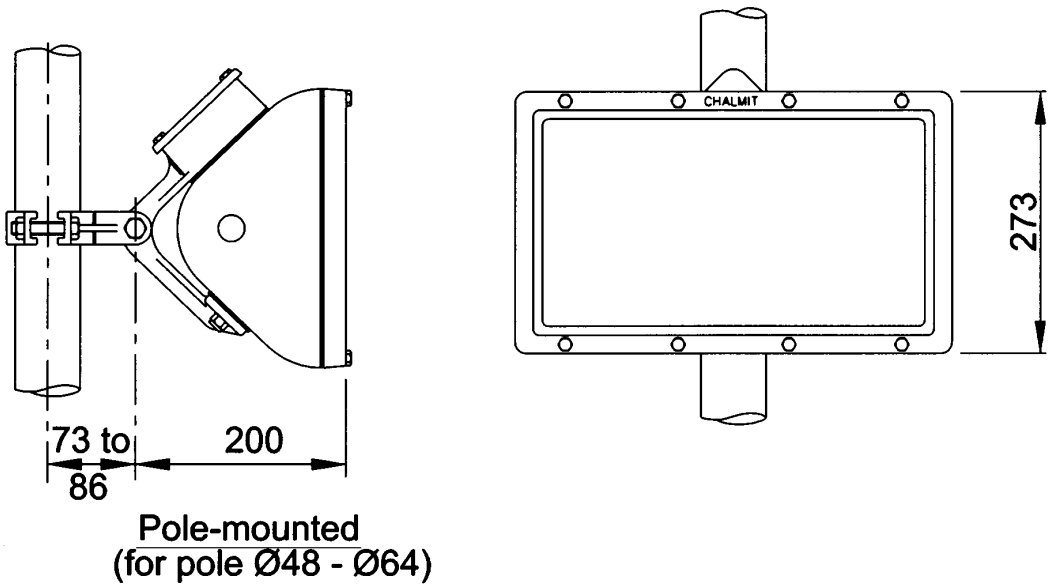
Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
469I/1000/TH	300/500/1000	Single ended T/Hal	E40	10 Kgs

OPTIONS - Suffix to Catalogue No.

/M25	M25 Cable Entry
/N	Narrow beam reflector
/PM	Pole mounted
/P	PTFE Coated

ACCESSORIES (Ordered separately)	**CATALOGUE ORDER CODE**
Anti glare shield	**S4000-0002**
Wire Guard	**E0850-0002**
Swinging Jib Assembly	**S2000-0019**





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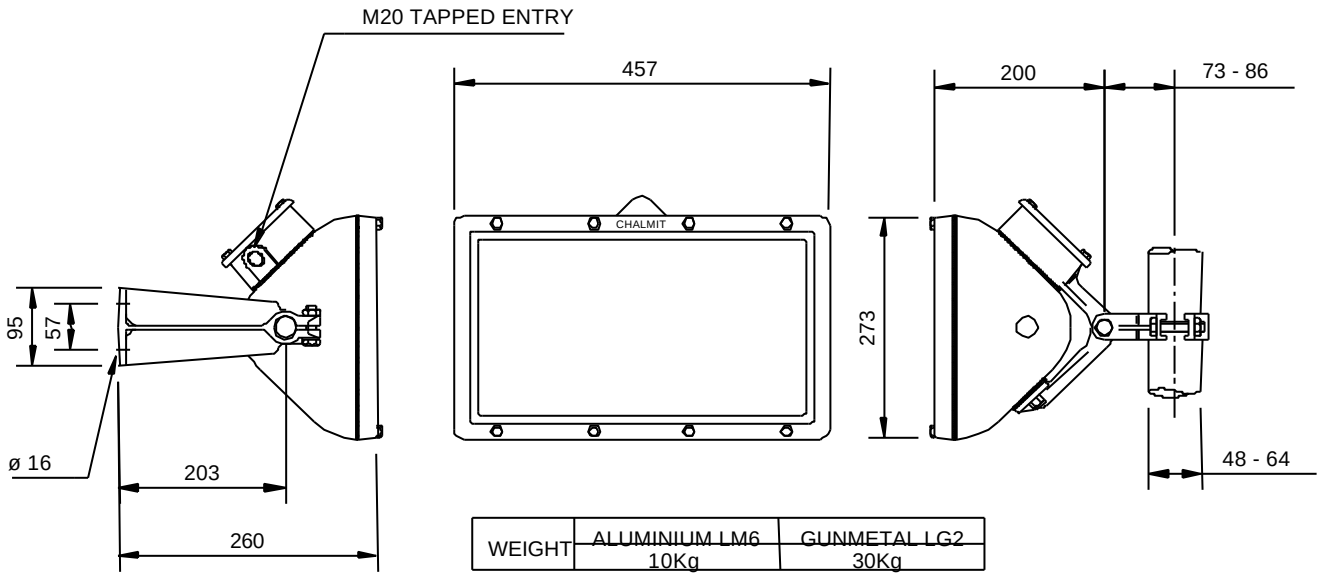
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

400 Series Industrial Floodlight

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



WEIGHT	ALUMINIUM LM6	GUNMETAL LG2
	10Kg	30Kg

WINDAGE AREA: 0.14m^2

CE

0.0 Specification

Area Classification	Industrial (Safe Area)
Standard	BS EN 60598-1
Ingress Protection	IP66 and IP67 to BS EN60529(IEC 529)
CE Mark	The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992", it does not apply to the "Equipment and Protective Systems intended for use in Explosive Atmospheres Regulations 1996". [This legislation is the equivalent in UK law of EC directives 73/23EEC, 89/336/EEC and 94/9/EC respectively].

1.0 Introduction - 400 Series Floodlight

The 400 series of floodlights comprises a range of luminaires for high pressure sodium, mercury vapour and tungsten halogen lamps. The luminaires, other than the tungsten halogen and 70W high pressure sodium types, are supplied from separate gear boxes in the 500 series.

Note : *While the range is comprehensive there are also some special options available, adding to those outlined in TABLE 0.*

Versions of the 484 and 486 150W/400W are also available with the ignitor in a box on the rear of the luminaire. This arrangement allows the use of a remote control gear box, without ignitor, mounted at long distances from the luminaire. For other HPS luminaires in the range supplied by 500 Series boxes with ignitors, the maximum distance allowed is 16 metres (but see note in section 5.4 Lamps). The 70W HPS luminaire has internal control gear.

2.0 Storage

Luminaires and control are to be stored in cool dry conditions preventing ingress of moisture and condensation.
Any specific instructions concerning emergency luminaires must be complied with.

3.0 Installation and Safety

3.1 General

There are no health hazards associated with this product whilst in normal use. However, care should be exercised during the following operations. Installation should be carried out in accordance with the local area code of practice and fitting of specified insulating material to be adhered to where a specific fire resistance rating is required.
In the UK the requirements of the *'Health and Safety at Work Act'* must be met.
Handling and electrical work associated with this product to be in accordance with the *'Manual Handling Operations Regulations'* and *'Electricity at Work Regulations, 1989'.* Your attention is drawn to the paragraphs (i) 'Electrical Supplies', (ii) 'Electrical Fault Finding and Replacement' and (iii) 'Inspection and Maintenance'. The luminaires are Class 1 and should be effectively earthed.
The luminaires are quite heavy, especially in gunmetal version and suitable means of handling on installation must be provided.
Certification details on the rating plate must be verified against the application requirements before installation.
The information in this leaflet is correct at the time of publication. The company reserves the right to make specification changes as required.

3.2 Tools

3mm and 5mm flat blade screwdriver, 19mm A/F spanner.
5/16" and 1/4" BSW spanners.
Suitable spanners for installing cable glands.
Pliers, knife, wire strippers/cutters.

3.3 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation of +/-6% on the nominal voltage is expected. (The safety limit for T rating is +10%). Luminaires should not be operated continuously at more than +6%/-10% of the rated supply voltage of the control gear or tapping. The user must determine the ***actual*** underlying site supply and purchase or adjust accordingly. ***Care must be taken connecting to the nominal 230V UK public supply.*** In nearly all cases, the luminaires will be supplied from 500 series control gear boxes. In most cases, these will have multi-tap control gear which can be set to a range of 50 and 60 Hz voltages. The tappings are shown on the control gear and the limits are shown on the rating plate. If the equipment is located in high or low voltage sections of the system, the appropriate voltage tap should be selected but care must be taken to log or mark the equipment so that the tapping can be reset if the equipment is relocated. If in doubt the tapping should be set on the high side. 20V max. nominal drop is acceptable for MBF and Tungsten-Halogen. 10V max. drop is desirable for HPS. The light output will be reduced. The total supply and interconnecting cable drop should not exceed the values given.
All the HPS circuits use SIP (superimposed pulse) ignitors. This means that there are only two connections to the choke, making the tap selection obvious.
Where shore or construction site supplies which are different from the service locations supplies are used, the tapping should be reset. If not, advice on the effect of these temporary supplies should be sought from our technical department.
The rating nameplates originally specified 250V max. for slave luminaires. Later models have this requirement modified and limit the luminaire to use with 500 series control gear boxes. This eliminates the artificial nameplate voltage rating for the slave luminaires. Calculations need to be made for remote operation at a considerable distance from the control gear box. Voltage drop calculations should be based on the lamp current.
Incandescent lamps must be selected for the supply voltage. Running at over the rated supply voltage will reduce life and at greater than +10% will compromise the T rating.

3.4 Lamps

The high pressure sodium and mercury vapour lamps are of a standardised type. There is no preference between make or colour. All have E40 caps except for the 70W which is E27. The 484 series use tubular lamps and the 486 series elliptical lamps. HPS "Plus" lamps with higher output are now available but these ***will not work*** with luminaires made before 1990 or with a remote ignitor in the control box. Care must be taken to fit the correct lamp in order to maintain the certification conditions and obtain the designed photometric performance.
HPS lamps should be replaced shortly after they do not light. The indication for end of life for HPS lamps is "cycling", when a lamp goes out and then re-ignites after a minute or so interval. If discharge luminaires are burned continuously they should be switched off occasionally to allow old lamps to fail to re-ignite rather than possibly become diodes with possible detrimental effects to control gear. The above information is current at the time of preparation. The development of lamps and control gear is ongoing and detailed advice on lamp performance can be obtained from the lamp supplier.

Important : *HPS circuits should not be energised without a lamp fitted. HPS lamps with internal ignitors must not be used.*

Incandescent lamps must be selected for the supply voltage. Running at over the rated supply voltage will reduce life and at greater than +10% will compromise the T rating.

3.5 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with the lighting design information provided for the installation. This will usually consist of aiming points and aiming angles. The foot mounting arrangement should be secured with lockwashers or self-locking nuts and bolts. The luminaires should be mounted with the lamp axis horizontal. Any aiming angle may be used. The post fixing brackets are designed for use on posts or pipes of 17/8" (48 mm) to 2½" (63 mm) dia. The pole mounting bracket arrangement should be secured with lock washers or self-locking nuts and bolts. The luminaires should be fitted to the post, the clamping nuts lightly tightened and the luminaire positioned so that the light output is directed towards the area to be illuminated. When the correct position is obtained, the nuts should be tightened securely to ensure that the luminaire is fixed correctly to the post. The foot fixing or bulkhead mounting luminaire should be secured by 4 bolts or studs, either ½" BSW (M12) or 5/8" BSW (M16), by using the 4 off 5/8" (16 mm) dia. holes provided on 2¼" (57 mm) x l8¼" (464 mm) centres. By slackening off the nuts on the trunnion brackets, the luminaire can be rotated in the vertical plane through 300°. When the correct mounting angle is determined, the nuts must be re-tightened to clamp the luminaire in position.

3.6 Cabling And Cable Glands

3.6.1 Cables

Standard 300/500V cable is suitable. All the luminaires are suitable for single entry of 4mm^2 maximum cable only. The exception is the 70W, which is available with a looping facility.

3.6.2 Cable Glands

Cable glands and sealing plugs when installed must maintain the IP rating of the luminaire. Where appropriate, rubber sealing washers and steel compression washers are provided with the unit. The user must ensure that the assembly fulfils the above requirement. Entries for M20 cable glands are standard.

3.7 Cabling And Fitting Lamps

Access for fitting lamps is by removing of front cover. Access for cabling is by the terminal chamber cover. Before removing the front cover on any occasion, check that the cover support chain is sound. The front cover is released by undoing the 8 hexagon headed screws. These should be slackened off in turn and then undone fully. Lamps must be of the correct type and firmly screwed into place. When the lamp has been fitted, the gasket should be checked and then the cover fitted into place. Initially the bolts are nipped up and then fully tightened using a diagonal/cross over method. The tightening torque is 16 lb. ft. (22Nm). When fully tightened the gasket should protrude slightly from the edge of the cover at all points. The gasket should not be greased, the bolt threads may be re-greased if required during installation or maintenance.

Access for cabling is via the terminal box cover. The screws are loosened and the cover removed. The conductor ends should be prepared so that the conductors are properly gripped and the bare part of the conductor should not extend more than 1mm beyond the throat. The connection should be made in accordance with the polarity marked and any unused terminal screws should be fully tightened. The lid is refitted, ensuring the gasket is correctly positioned and the screws are then evenly tightened. The tightening torque is 3 lb. ft. (4Nm).

3.8 Inspection and Maintenance

Visual inspection should be carried out at suitable intervals, frequently if conditions are severe. The time between lamp changes could be infrequent and this is too long a period without inspection.

3.8.1 Routine Examination

The equipment must be de-energised and isolated before opening. Individual organisations will have their own procedures. What follows are guidelines based on our experience :

1 Ensure the lamp is lit when energised and that the lamp glass is not damaged. Check for superficial damage to the enclosure.

2 When de-energised and left to cool there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out and any likely ingress points eliminated by re-gasketing.
3 Check the tightness of the main cover screws. Torque 22Nm.
4 Check the supply cable for damage and check the cable glands for tightness and nip up if necessary.
5 Examine the sealant holding the lamp glass into the cover. If possible the consistency of the sealant should be compared with that of a new luminaire. The sealant will become discoloured in time. If the sealant has become very soft when compared with a new unit and is suffering from serious loss of adhesion to the glass, the complete cover assembly will need to be replaced. In general the sealing system has a very long life but users should be aware of possible damage caused by close exposure to hydrocarbon oils.
6 The cover gasket should be checked for softening and if it has become significantly softer than a new unit or sticky, it should be replaced. It should be noted that the 1000W tungsten halogen luminaire has the red silicone rubber gasket.
7 The lamp glass should be cleaned. This is particularly important to avoid the accumulation of dirt or dust causing an increase in the T rating of equipment.
8 If it is thought that the luminaire has suffered mechanical damage, a stringent workshop check should be carried out.
9 When the cover is removed for re-lamping, the lampholder security and connections should be checked. Spare parts are available from ourselves, the model number and lamp size should be given when ordering. No unauthorised modifications should be made.

3.9 Electrical Fault Finding And Replacement

With mercury lamps the faults are simple namely loose or broken connections, un-serviceable lamps or open circuit control gear. (Control gear faults are also covered in the maintenance procedures for the control gear boxes).
Control gear will not normally go open circuit unless it has first overheated; the signs of this are being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly a bad contact at the lamp cap will usually result in discoloration at the site of overheating.
Any fault finding must be done by a competent electrician and if carried out with the luminaire in place, under a permit to work.
With HPS lamps the ignitor can become faulty. If the lamp is fitted, the lamp has continuity and the connections are good and correct, they should produce an "attempt to start" flicker effect in the lamp and a buzzing sound from the ignitor. It would be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before reassembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder issleeved with the HT sleeving and this must be kept in place. The ignition connection goes to the centre of the lamp cap.
The supply must be isolated.

4.0 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current, which together may decline from up to 200% of normal at 10 seconds after switch on to normal after 4 minutes; rectification effects caused by asymmetrical cathode heating for a few seconds after starting, this effect is random and very variable.
With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required. Use MCB's suitable for inrush currents to reduce ratings. The normal capacitor current will probably be the determining factor 0.076A per µF at 240V, 50Hz (adjust for other volts by multiplication, x 6/5 for 60 Hz). For HBC fuses, use 1.5 x normal capacitor current. For T-H inrush, use 8 x rated current. All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are as indicated in TABLE 1.*
A conventional matrix for HBC fuses is outlined in TABLE 2.

5.0 Disposal Of Materials

The unit is mostly made from incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear contains plastic parts and polyester resin. The ignitor contains electronic components and synthetic resins. All electrical components may give off noxious fumes if incinerated. Take care to render these fumes harmless or avoid inhalation. Any local regulations concerning disposal must be complied with.

5.1 Lamps

Incandescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2

Table Options Refer to Section : 1.0

Model	Lamp	Watts	Voltage Range	T Rating	T amb Max °c
484/70	SON/T	70	(210/250V, 50 Hz 220/270V, 60 Hz)	T6	40
484/150	SON/T	150	"	T3	40
484/250	SON/T	250	"	T3	40
484/400	SON/T	400	"	T3	40
486/70	SON/E	70	"	T6	40
486/150	SON/E	150	"	T3	40
486/250	SON/E	250	"	T3	40
486/400	SON/E	400	"	T3	25
486/250M	MBFU	250	"	T3	40
486/400M	MBFU	400	"	T3	25
469/300	T-HAL	300	110/125V ac/dc	T3	50
469/500	T-HAL	500	110/125V ac/dc 220/240V ac/dc	T3	40

Table 1 Starting And Running Currents Refer to Section : 4.0

Lamp	Lamp Current A	Circuit Start A	Circuit Run A	Capacitance µF	Circuit Power (W)
70W HPS	1.0	0.55	0.4	10	80
150W HPS	1.8	1.45	0.8	20	175
250W HPS	3.0	2.35	1.3	30	285
400W HPS	4.6	4.0	2.2	40	445
250W MBF	2.13	2.8	1.4	15	280
400W MBF	3.25	4.4	2.2	20	430

Note : *Minimum power correction factor 0.85*

Table 2 Fuse Ratings Refer to Section : 4.0

Lamp Type	Number of Lamps					
	1	2	3	4	5	6
70W	4A	4A	4A	6A	6A	10A
150W	4A	6A	10A	10A	16A	16A
250W	10A	16A	16A	20A	20A	20A
400W	16A	20A	20A	25A	25A	32A

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Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

489

EPDM BULKHEAD

This compact and lightweight EPDM bulkhead range has excellent vibration resistance making it ideal for use in hostile marine environments. The 489 is manufactured from EPDM rubber and has a high impact polycarbonate glass lens to give maximum protection. The range is suitable for compact fluorescent, H.I.D and GLS lamps with a recommended maximum continuous operating ambient temperature of +25°C. Models with GLS lamps can operate at an ambient temperature as low as -40°C. All control gear for compact fluorescent models and H.I.D lamp models is contained within the EPDM enclosure

APPLICATIONS: **Ships decks (fishing vessels in particular), walkways, ports and harbours**

STANDARD SPECIFICATION

Ingress Protection:	**IP65 to EN 60529**
Enclosure:	**EDPM rubber with polycarbonate lens**
Entries:	**1xM20 cable entry**
Termination:	**2 core 1.5mm² conductors (through wiring 2x1mm²)**
Mounting:	**4x9mm clearance holes on two aluminium mounting straps**
Control Gear:	**Copper and iron control gear (H.I.D & compact fluorescent models)**
Relamping:	**Via stainless steel clamp screw**
Electrical Supply:	**240V 50Hz (Compact fluorescents)** **220-240V 50Hz (H.I.D Lamps) 250V Max ac/dc (GLS model)** **(always state V/Hz when ordering)**

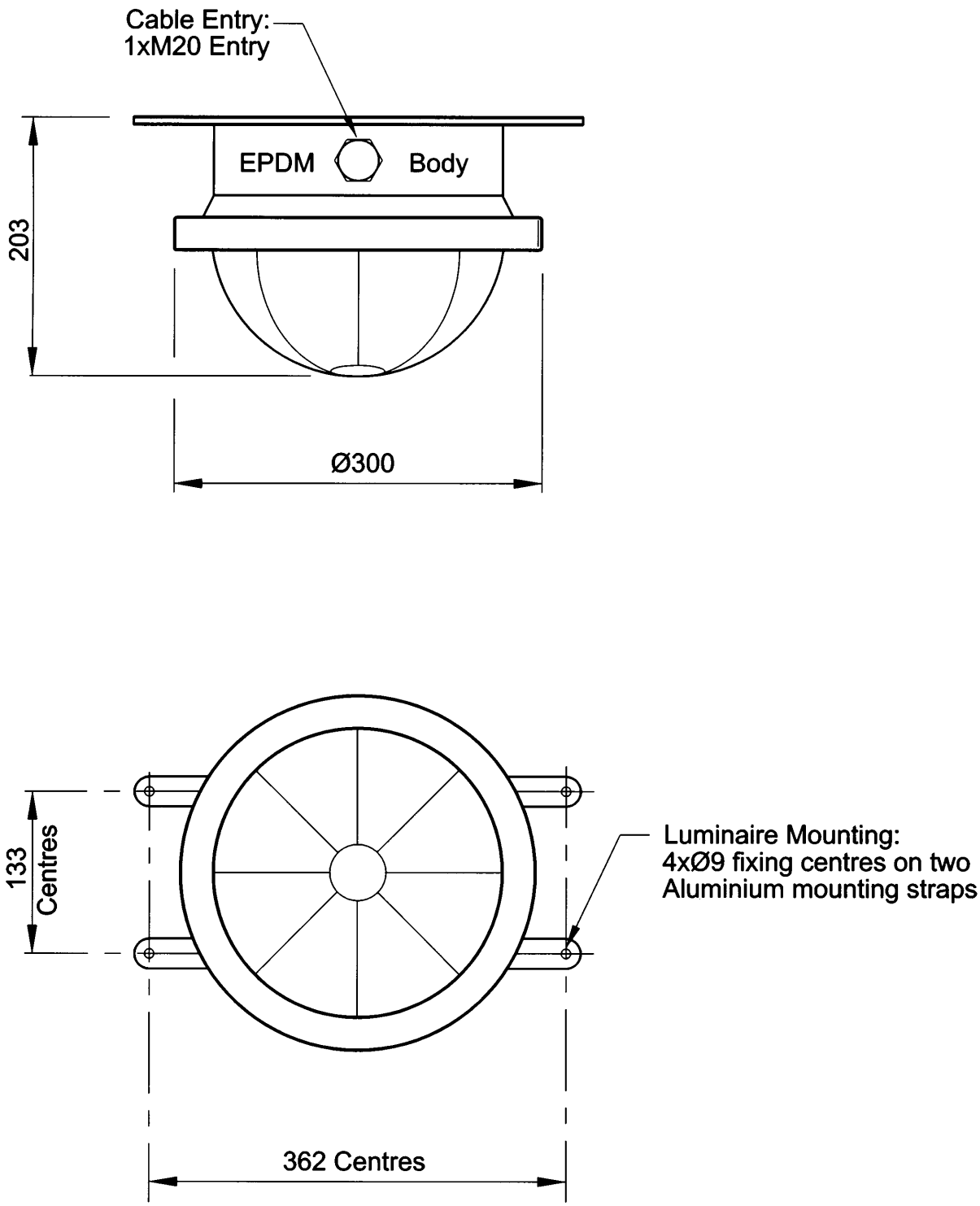
STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
489I/113/CF	1x10/13	CFL	G24	4.0 Kgs
489I/022/CF	22	Circular fluorescent	G10q	4.0 Kgs
489I/050/HS	50	HPS	E27	5.0 Kgs
489I/070/MS	70	HPS/Metal halide	E27	5.0 Kgs
489I/080/MV	80	MBFU	E27	4.6 Kgs
489I/200/GL	200	GLS	E27	4.0 Kgs

OPTIONS - Suffix to Catalogue No.

/LO Looping

/SS Stainless steel mounting straps

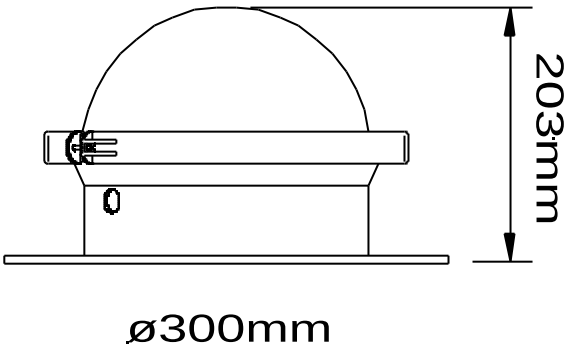

Cable Entry:
1xM20 Entry
EPDM
Body
203
Ø300
133
Centres
Luminaire Mounting:
4xØ9 fixing centres on two
Aluminium mounting straps
362 Centres

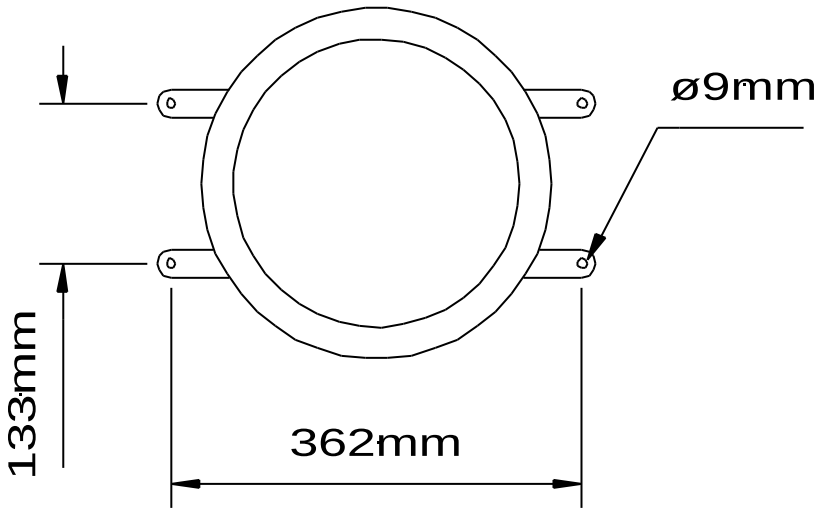
Issue | 00

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

489 EPDM Bulkhead Luminaire

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.





CE

0.0 Specification

Type Of Protection	N/A	
Area Classification	Non-Hazardous	
Standard	BS EN 60598/01	
Certificate	N/A	
Material	Body	EPDM Rubber
	Cover	Injection Moulded Polycarbonate
Temperature Rating	(T amb) 35ºC ceiling mounted, 40ºC wall mounted to -40ºC (HPS/Tungsten Halogen), -20ºC (MBI/MBF), -10ºC fluorescent	
Ingress Protection	IP65 to BS EN 60529	

CE Mark

CE

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992. [This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - 489 Bulkhead

The 489 range is made with EPDM rubber body and polycarbonate cover. The 489H luminaire for portable applications is class II, the other luminaires are class I and must be effectively earthed. The units suitable for GLS lamps can use lamps up to 200W rating with a maximum current of 5A. The fixed luminaires have aluminium mounting brackets as standard, stainless steel can be supplied as an option. Blue and yellow domes are available for Heli-deck marking purposes.

Note : *Lamp ranges are as outlined in TABLE 0.*

2.0 General

Installation should be made in accordance with a code of practice where appropriate. In the UK, the requirements of the 'Health and Safety at Work Act' must be met. Lamps must be disposed of in a safe manner. The luminaires are (except for the 489H) Class I and should be effectively earthed. Some of the luminaires are heavy and suitable handling equipment must be provided.

Important : *For luminaires with electronic ballasts, the ballast must be disconnected before any High Voltage ("Megger") test is made.*

2.1 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation +/- 6% on the nominal is expected. There have been some recent changes in voltage settings and tolerance for nominal supplies in the UK and Europe and these need to be taken into account. The specification for tappings on the control gear or lamps should be such that the supply does not exceed 106% of the nominal control gear setting or lamp voltage for other than abnormal conditions. In some cases, the luminaires have multi-tapped control gear which can be set to a range of 50 and 60Hz voltages. The tappings are shown on the control gear. If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on a high side as this will increase lamp life. All HPS circuits use SIP (superimposed pulse) ignitors. This means that there are only two connections to the choke making the tap selection obvious. Where shore or construction site supplies are used, which are different to the service supplies, the tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Chalmit Technical Department.

2.2 Lamps

The high pressure sodium and mercury lamps are of the standardised type and there is no preference in make or colour. The luminaires using the PLC 13W lamp with electronic ballasts use the four pin type of lamp.
Care is needed to fit the correct lamp in order to obtain the design photometric performance. HPS lamp should be replaced shortly after they do not light. The indication of the end of life for HPS lamps is cycling where the lamp goes out then re-lights after a minute or so. The luminaires are now being fitted with anti-cycling ignitors giving a total of about 80 seconds of ignition during any switching on cycle, to protect against damage by end of life conditions. If discharge lamps are burned continuously, they should be switched off occasionally to allow lamps to fail to re-ignite, rather than possibly become diodes with possible detrimental effects on control gear. The above information was current at the time of printing. The development of lamps and control gear is on-going and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit. HPS circuits should not be energised without a lamp fitted. HPS lamps with internal ignitors must not be used.

2.3 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation.

2.4 Cables

Temperature conditions of the supply cable are such that 70ºC (ordinary PVC) can be used for single entry models. The standard cable section is 2.5mm² max. All models are suitable for 300/500V cable. If the model with looping facilities has been ordered and PVC cable is used, insulating sleeving should be added where the through cable is adjacent to the choke.

2.4.1 Cabling and Fitting Lamps

Access for fitting the lamp is by removing the front cover. The front cover is released by undoing the screw on the clamping band, when the band is replaced it should only be tightened to the stop. Lamps must be of the correct type and screwed or placed firmly into the lamp holder. To gain access to the cabling, the reflector is removed. In the case of fixed luminaires where glands are supplied, the cables should be suitable for making an IP seal in the gland. Where metal cable glands or plastic cable glands are used with the body having the internal frame to support the choke, a large washer should be placed on the outside under the cable gland to prevent the glands from being drawn into the rubber. Where portable luminaires are used, the cable should be of a flexible type with a minimum rating of 85ºC (CSP/ERR) or similar).
Before cabling, any voltage tap re-selection should be made. The conductor ends should be prepared so that the conductors are properly gripped and the bare part of the conductor should not extend to more than 1mm beyond the throat. The connection should be made in accordance with the polarity marking. Any used terminal screws should be fully tightened. Before replacing the cover, a final check of the connections should be made.

3.0 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 2 years interval and more frequently if conditions are severe. The time between lamps changes could be very infrequent and this is too long a period without inspection.

3.1 Routine Examination

The equipment must be de-energised and isolated before maintenance. Individual organisations will have their own procedures. What follows are guidelines based on Chalmit's experience :

1 Ensure the lamp is lit when energised and that the lampglass is not damaged. Check for superficial damage to the enclosure.
2 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated.
3 Check the cable gland for tightness and nip up if necessary. Check supply cables for damage.
4 Clean the lampglass.
5 Every three years, or more frequently, depending on experience, the control gear internal connections should be checked for tightness and any sign of corrosion or overheating. Any suspect components should be replaced.

3.2 Electrical Fault Finding and Replacement

With mercury vapour lamps the faults are simple, namely loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has first overheated; the signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, bad contact at the lamp cap will usually result in discoloration as a sign of overheating. Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work.
With HPS lamps, the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an attempt to start the lamp and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder is sleeved with HT sleeving and this must be kept in place.

3.3 Overhaul

All the spares required are available. Please state the model number lamp and reflector details when ordering. The reflectors vary from between the various models.

4.0 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode emission for a few seconds after starting, this effect is random and very variable. With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required.
The normal capacitor current will probably be the determining factor 0.076A per µF at 240V, 50Hz (adjust for other voltages by multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current.
Tungsten Halogen lamps have high in rush currents of 10 x the nominal current.
All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are as indicated in TABLE 1.*
A conventional matrix for HBC fuses for HPS is outlined in TABLE 2.

5.0 Disposal of Material

The capacitor is of a dry film type and does not contain PCB's. The control gear contains electronic components and synthetic resins. All the electrical components and the body and polycarbonate cover will also give off noxious fumes if incinerated, so care must be taken to render any fumes harmless and avoid inhalation. Any local regulations concerning disposal must be complied with.

5.1 Lamps

Incandescent lamps, fluorescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2

Table 0 Lamp Ranges Refer to Section : 1.0

Cat. No.	Lamps	Lamp Holder	Weight kg	Voltage
489I/22	22W Fluor.	G10q	3.5	240V
489I/200/GL	200W GLS Max.	ES	3.2	25, 50, 110, 200, 220, 240V
489I/50/MV	50W MBFU	ES	4.6	220, 240V
489I/80/MV	80W MBFU	ES	4.6	220, 240V
489I/50/HS	50W SON	ES	5.0	220, 240V
489I/70/HS	70W SON	ES	5.0	220, 240V
489H	200W GLS Max.	ES	3.2	25, 50, 110, 200, 220, 240V
489I/13/CF	13W PLC	G24q	3.5	24, 50, 100, 240V

Table 1 Starting and Running Currents Refer to Section : 4.0

Lamp	Start A	Run A	Capacitance µF	Circuit Power (W)
22W Fluor.	0.21	0.14	6	31
50W HPS	0.41	0.3	8	65
70W HPS	0.55	0.4	10	80
13W PLC	0.11	0.11	-	13.6

Table 2 Fuse Ratings Refer to Section : 4.0

Lamp	Number of Lamps					
	1	2	3	4	5	6
70W HPS	4A	4A	4A	6A	6A	10A
80W MBF	4A	4A	4A	4A	6A	6A

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Registered Office Ronald Close, Woburn Road Industrial Estate
Kempson, Bedford. MK42 7SH.

Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

458

EPDM FLOODLIGHT

This high wattage, weatherproof, robust EPDM floodlight range has excellent vibration resistance making it ideal for use in hostile marine environments. The 458 is manufactured from EPDM rubber with a heavy duty borosilicate front glass and wire guard for maximum protection. The 458 is suitable for GLS and HPS lamps with maximum continuous operating ambient temperature of +25°C. Models with GLS lamps can operate at an ambient temperature as low as -40°C. A 501 control gear box is required for models with HPS lamps.

APPLICATIONS: **Ships decks (fishing vessels in particular), walkways, ports and harbours)**

STANDARD SPECIFICATION

Ingress Protection:	**IP65 to EN 60529**
Enclosure:	**EDPM rubber with borosilicate front glass**
Entries:	**1x10mm cable entry point complete with cable clamp**
Termination:	**2 core 1.5mm² max conductors**
Mounting:	**Via lifting hook (Portable handlamp version)**
	Base-mounted or pole-mounted available as alternatives.
Control Gear:	**N/A**
Relamping:	**Via stainless steel clamp screw**
Electrical Supply:	**250V Max ac/dc (GLS model). For HPS models see 501 Control Gear Box.**
	(always state V/Hz when ordering)
Protection:	**Class II**

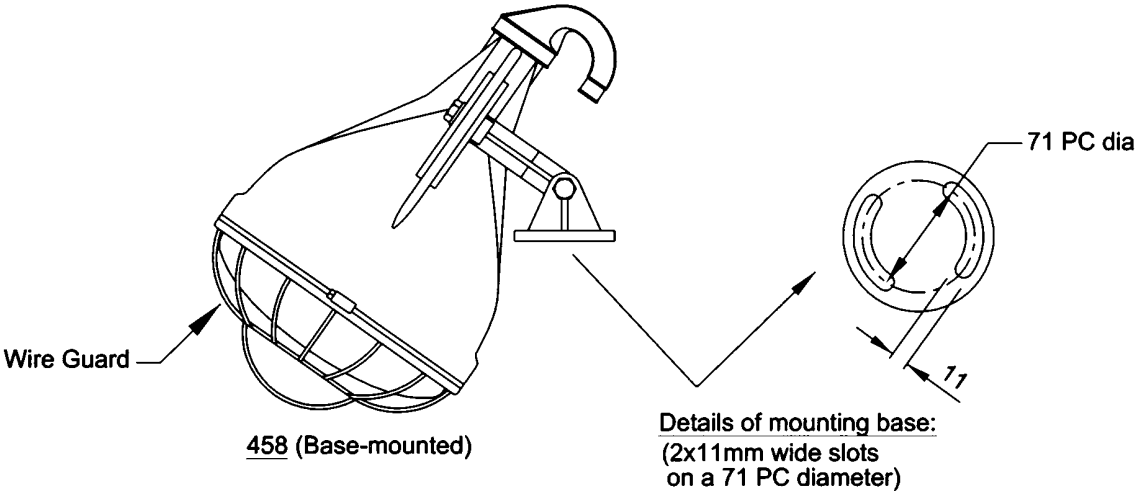
STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
458I/150/HS	150	HPS	E40	4.2 Kgs
458I/250/HS	250	HPS	E40	4.2 Kgs
458I/500/GL	500	GLS	E40	4.2 Kgs

OPTIONS - Suffix to Catalogue No.

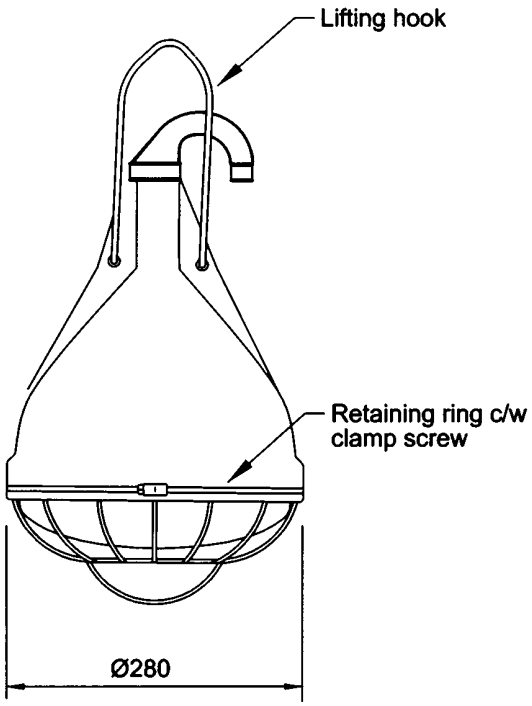
/B Base-mounted

/PM Pole-mounted

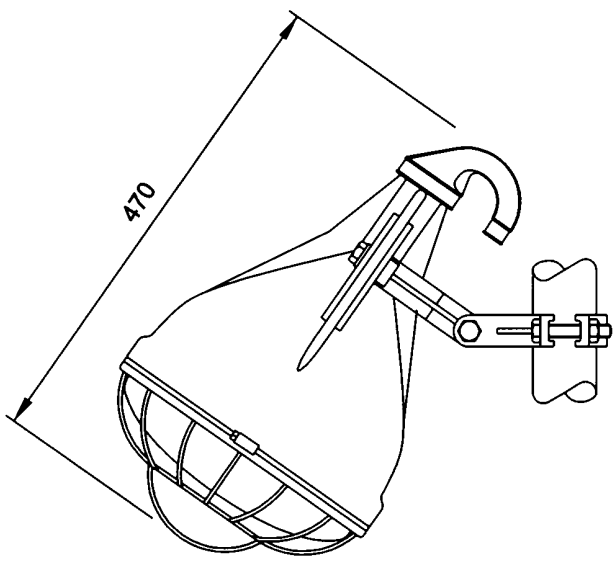


458 (Base-mounted)

Details of mounting base:
(2x11mm wide slots
on a 71 PC diameter)



458(Portable handlamp version)



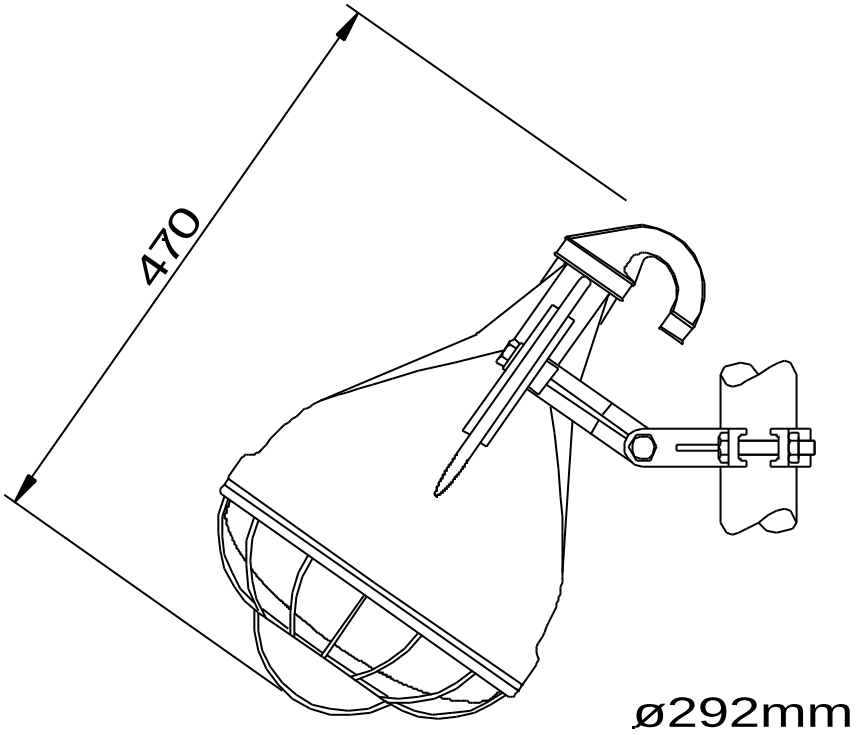
458(Pole-mounted)
For poles Ø48 to Ø64

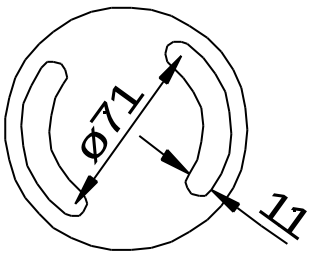
Issue | 00

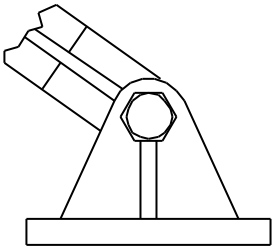
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

458 EPDM Rubber Floodlight

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.







CE

0.0 Specification

Type Of Protection	N/A	
Area Classification	Non-Hazardous	
Standard	BS EN 60598/01	
Certificate	N/A	
Material	Body	EPDM Rubber
	Cover	Injection Moulded Polycarbonate or Borosilicate Glass
Temperature Rating	(T amb) 30ºC, -40ºC (HPS/Tungsten Halogen), -20ºC (MBI/MBF)	
Ingress Protection	IP65 to BS EN 60529	

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992.
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction – 458HG Class II IP65 & 458 IP66 EPDM Rubber Floodlight

The range is made with EPDM rubber body and a polycarbonate or borosilicate glass cover. The 458HG luminaire for portable applications is class II and the other luminaires are class I and must be effectively earthed. The fixed luminaires have an aluminium mounting bracket as standard, stainless steel fixing screws, borosilicate glass cover and guard. The units suitable for GLS and Tungsten Halogen lamps can use lamps up to 500W.

Note : *Lamp ranges are as outlined in TABLE 0.*

2.0 General

Installation should be made in accordance with a code of practice where appropriate. In the UK, the requirements of the 'Health and Safety at Work Act' must be met. Lamps must be disposed of in a safe manner. The luminaires are (except for the 458HG) Class I and should be effectively earthed. Some of the luminaires are heavy and suitable handling equipment must be provided.

Important : *For luminaires with electronic ballasts, the ballast must be disconnected before any High Voltage ("Megger") test is made.*

2.1 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation +/- 6% on the nominal is expected. There have been some recent changes in voltage settings and tolerance for nominal supplies in the UK and Europe and these need to be taken into account.
The specification for tappings on the control gear or lamps should be such that the supply does not exceed 106% of the nominal control gear setting or lamp voltage for other than abnormal conditions. In some cases, the luminaires have multi-tapped control gear which can be set to a range of 50 and 60Hz voltages. The tappings are shown on the control gear.
If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on the high side as this will increase lamp life. All HPS circuits use SIP (superimposed pulse) ignitors. This means that there are only two connections to the choke making the tap selection obvious. Where shore or construction site supplies are used, which are different to the service supplies, the tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Chalmit Technical Department.

2.2 Lamps

The high pressure sodium and mercury lamps are of the standardised type and there is no preference in make or colour. Care is needed to fit the correct lamp in order to obtain the design photometric performance. HPS lamp

should be replaced shortly after they do not light. The indication of the end of life for HPS lamps is cycling where the lamp goes out then re-lights after a minute or so. The luminaires are now being fitted with anti-cycling ignitors giving a total of about 80 seconds of ignition during any switching on cycle to protect against damage by end of life conditions. If discharge lamps are burned continuously, they should be switched off occasionally to allow lamps to fail to re-ignite, rather than possibly become diodes with possible detrimental effects on control gear. The above information was current at the time of printing. The development of lamps and control gear is on going and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit. HPS circuits should not be energised without a lamp fitted. HPS lamps with internal ignitors must not be used.

2.3 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation.

2.4 Cables

Temperature conditions of the supply cable are such that 70ºC (ordinary PVC) can be used for single entry models. The standard cable section is 2.5mm² max. All models are suitable for 300/500V cable. If the model with looping facilities has been ordered and PVC cable is used insulating sleeving should be added where the through cable is adjacent to the choke.

2.4.1 Cabling and Fitting Lamps

Access for fitting the lamp is by removing the front cover. The front cover is released by undoing the screw on the clamping band, when the band is replaced it should only be tightened to the stop. Lamps must be of the correct type and screwed firmly into the lampholder. Access to the cabling is gained by removing the reflector. In the case of fixed luminaires where glands are supplied, the cables should be suitable for making an IP seal in the gland. Where metal cable glands or plastic cable glands are used with the body having the internal frame to support the choke, a large washer should be placed on the outside under the cable gland to prevent the glands from being drawn into the rubber. Where portable luminaires are used, the cable should be of a flexible type with a minimum rating of 85ºC (CSP/ERR) or similar).

Before cabling, any voltage tap re-selection should be made. The conductor ends should be prepared so that the conductors are properly gripped and the bare part of the conductor should not extend to more than 1mm beyond the throat. The connection should be made in accordance with the polarity marking. Any used terminal screws should be fully tightened. Before replacing the cover, a final check of the connections should be made.

3.0 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 2 years interval and more frequently if conditions are severe. The time between lamps changes could be very infrequent and this is too long a period without inspection.

3.1 Routine Examination

The equipment must be de-energised and isolated before maintenance. Individual organisations will have their own procedures. What follows are guidelines based on Chalmit's experience :

1 Ensure the lamp is lit when energised and that the lampglass is not damaged. Check for superficial damage to the enclosure.
2 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated.
3 Check the cable gland for tightness and nip up if necessary. Check supply cables for damage.
4 Clean the lampglass.
5 Every three years, or more frequently, depending on experience, the control gear internal connections should be checked for tightness and any sign of corrosion or overheating. Any suspect components should be replaced.

3.2 Electrical Fault Finding and Replacement

With mercury vapour lamps the faults are simple, namely loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has first overheated; the signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, bad contact at the lamp cap will usually result in discoloration as a sign of overheating. Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work.
With HPS lamps the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an attempt to start the lamp and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder is sleeved with HT sleeving and this must be kept in place.

3.3 Overhaul

All the spares required are available. Please state the model number lamp and reflector details when ordering. The reflectors vary from between the various models.

4.0 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode emission for a few seconds after starting, this effect is random and very variable. With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required.
The normal capacitor current will probably be the determining factor 0.076A per µF at 240V, 50Hz (adjust for other voltages by multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current.
Tungsten Halogen lamps have high in rush currents of 10 x the nominal current.
All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are as indicated in TABLE 1.*
A conventional matrix for HBC fuses for HPS is outlined in TABLE 2.

5.0 Disposal Of Material

The capacitor is of a dry film type and does not contain PCB's. The control gear contains electronic components and synthetic resins. All the electrical components, the EPDM rubber body and polycarbonate cover will also give off noxious fumes if incinerated, so care must be taken to render any fumes harmless and avoid inhalation. Any local regulations concerning disposal must be complied with.

5.1 Lamps

Incandescent lamps and discharge lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2

Table 0 Lamp Ranges Refer to Section : 1.0

Cat. No.	Lamps	Lamp Holder	Weight kg	Voltage
458I/500/GL	500W GLS Max.	E40	4.2	250V Max.
458I/300/TH	300W TH	E40	4.2	250V
458I/500/TH	500W TH	E40	4.2	120V
458I/150/S	150W SON/T	E40	4.2	(Refer to
458I/250/S	250W SON/T	E40	4.2	506 control
458I/250/M	250W MBFU	E40	4.2	gear box)
458HG	Upto 300W GLS	E40	4.0	--

Table 1 Starting and Running Currents Refer to Section : 4.0

Lamp	Lamp Current	Start A	Run A	Capacitance µF	Circuit Power (W)
70W HPS	1.0	0.55	0.4	10	80
150W HPS	1.8	1.45	0.8	20	175
250W HPS	3.0	2.35	1.3	30	285
250W MBF	2.13	2.80	1.4	1.5	280

Table 2 Fuse Ratings Refer to Section : 4.0

Lamp Wattage	Number of Lamps					
	1	2	3	4	5	6
70W	4A	4A	4A	6A	6A	10A
150W	4A	6A	10A	10A	16A	16A
250W	10A	16A	16A	20A	20A	20A

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A Division of Hubbell Lighting Limited

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Registered Office Ronald Close, Woburn Road Industrial Estate
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Registered No. 3650461

Note Chalmit Lighting reserve the right to amend characteristics of our products and all data is for guidance only.

Hubbell Lighting Inc.

Chalmit Lighting is a leading supplier of Hazardous Area and Marine Lighting products.

487

EPDM FLOODLIGHT

This compact, robust and weatherproof EPDM floodlight range has excellent vibration resistance making it ideal for use in hostile marine environments. The 487 is manufactured from EPDM rubber with a toughened front glass and a wire guard for maximum protection. For submersible operation down to a maximum depth of 18m, an IP68 version is available. The 487 is suitable for GLS lamps up to 200W with a recommended maximum continuous operating ambient temperature of +25 °C and minimum temperature as low as -40°C

APPLICATIONS: **Ships decks (fishing vessels in particular), walkways, ports and harbours**

STANDARD SPECIFICATION

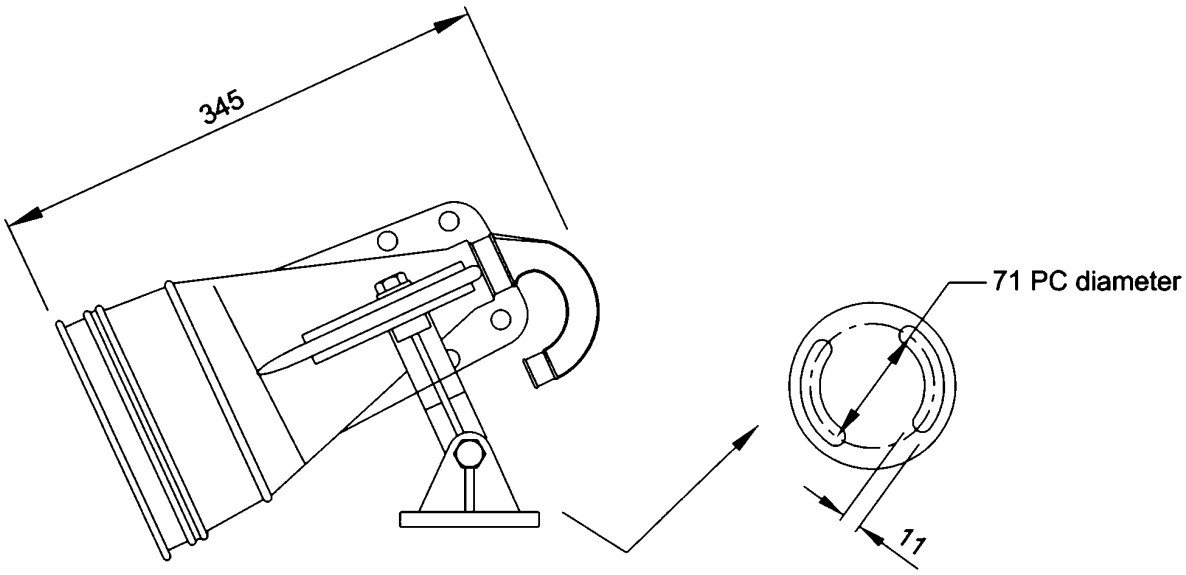
Ingress Protection:	**IP54 to EN 60529 (with guard)**
Enclosure:	**EDPM rubber with toughened front glass**
Entries:	**1x10mm cable entry point complete with cable clamp**
Termination:	**2 core 1.5mm² max conductors**
Mounting:	**Via lifting hook (portable handlamp version)**
	Base-mounted(as illustrated above) or pole-mounted available as alternatives
Control Gear:	**N/A**
Relamping:	**Via stainless steel clamp screw**
Electrical Supply:	**250V Max ac/dc**
	(always state V/Hz when ordering)
Protection:	**Class II**

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
487I/200/GL	200	GLS	E27	4.2 Kgs

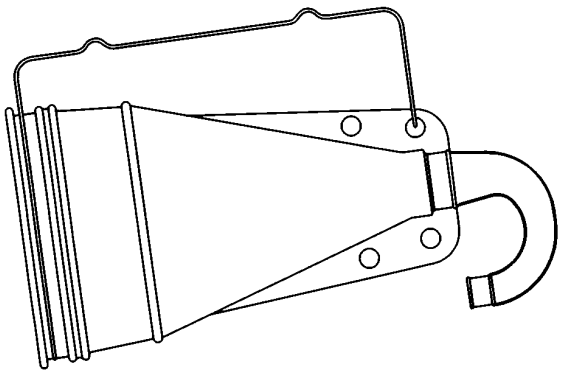
OPTIONS - Suffix to Catalogue No.

/B	Base-mounted
/PM	Pole-mounted
/IP67	IP67 (Silicone sealing ring fitted to glass. No guard fitted)
/SP	IP68 Submersible version

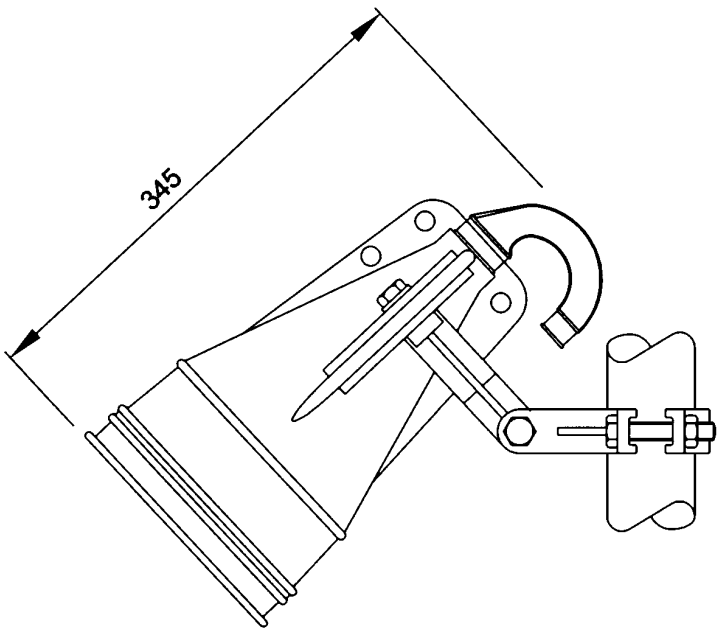


487(base-mounted)

Details of mounting base
2x11mm wide slots
on a 71 PC diameter



487(Portable handlamp version)

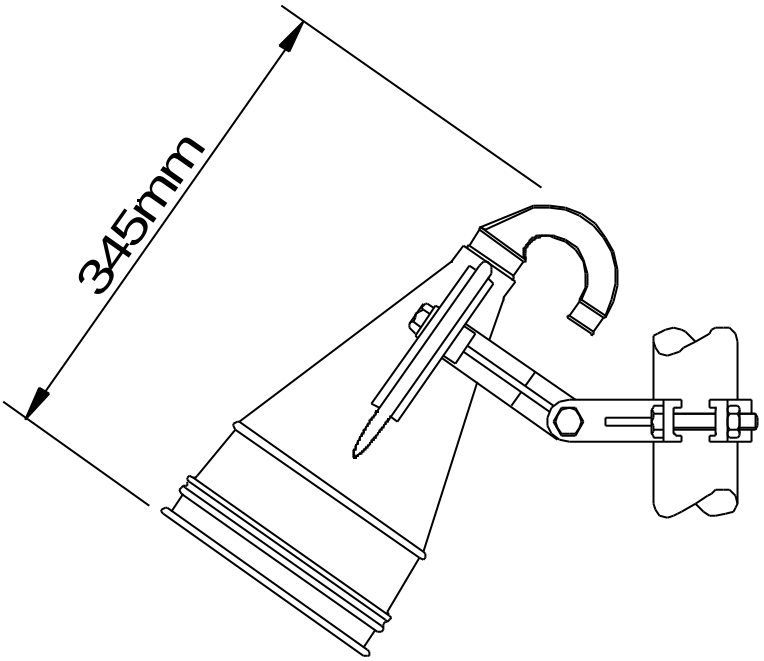


487(pole-mounted)
for poles Ø48 to Ø64

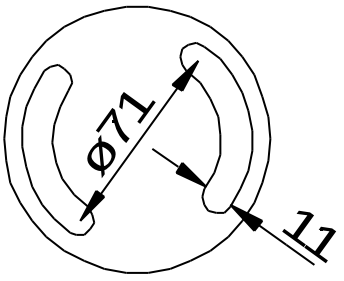
INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

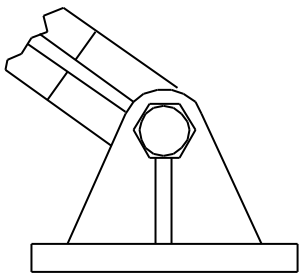
487 EPDM Rubber Floodlight

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



ø178mm





CE

0.0 Specification

Type Of Protection	N/A	
Area Classification	Non-Hazardous	
Standard	BSEN60598/01	
Certificate	N/A	
Material	Body	EPDM Rubber
	Cover	Toughened Glass
Temperature Rating		T amb) 25ºC, -40ºC (HPS/Tungsten Halogen), -20ºC (MBI/MBF), -10ºC
Ingress Protection	IP65 BS EN60529	
CE Mark		The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992", it does not apply to the "Equipment and Protective Systems intended for use in Explosive Atmospheres Regulations 1996". [This legislation is the equivalent in UK law of EC directives 73/23EEC, 89/336/EEC and 94/9/EC respectively].

1.0 Introduction - 487 EPDM Rubber Floodlight

The 487 range is made with EPDM rubber body and toughened glass cover. The 487 H luminaire for portable applications is class II, the other luminaires are class I and must be effectively earthed. The fixed luminaires have aluminium mounting brackets as standard, stainless steel can be supplied as an option. The units suitable for GLS lamps can use lamps up to 200W.

Note : *Lamp ranges are as outlined in TABLE 0.*

2.0 General

Installation should be made in accordance with a code of practice where appropriate. In the UK, the requirements of the 'Health and Safety at Work Act' must be met. Lamps must be disposed of in a safe manner. The luminaires are (except for the 487H) Class I and should be effectively earthed. Some of the luminaires are heavy and suitable handling equipment must be provided.

2.1 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation +/- 6% on the nominal is expected. There have been some recent changes in voltage settings and tolerance for nominal supplies in the UK and Europe and these need to be taken into account.

The specification for tappings on the control gear or lamps should be such that the supply does not exceed 106% of the nominal control gear setting or lamp voltage for other than abnormal conditions. In some cases, the luminaires have multi-tapped control gear which can be set to a range of 50 and 60Hz voltages. The tappings are shown on the control gear.

If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on a high side as this will increase lamp life. All HPS circuits use SIP (superimposed pulse) ignitors. This means that there are only two connections to the choke making the tap selection obvious. Where shore or construction site supplies are used, which are different to the service supplies, the tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Chalmit Technical Department.

2.2 Lamps

The high pressure sodium and mercury lamps are of the standardised type and there is no preference in make or colour. The luminaires using the SON/T and MBFU light source require a 506 control gear box.
Care is needed to fit the correct lamp in order to obtain the design photometric performance. HPS lamp should be replaced shortly after they do not light. The indication of the end of life for HPS lamps is cycling where the lamp goes out then re-ignites after a minute or so. The luminaires are now being fitted with anti-cycling ignitors giving a total of about 80 seconds of ignition during any switching on cycle to protect against damage by end of life conditions. If discharge lamps are burned continuously, they should be switched off occasionally to allow lamps to fail to re-ignite, rather than possibly become diodes with possible detrimental effects on control gear. The above information was current at the time of printing. The development of lamps and control gear is on-going and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit. HPS circuits should not be energised without a lamp fitted. HPS lamps with internal ignitors must not be used.

2.3 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation.

2.4 Cables

Temperature conditions of the supply cable are such that 70ºC (ordinary PVC) can be used for single entry models. The standard cable section is 2.5mm² max. All models are suitable for 300/500V cable. If the model with looping facilities has been ordered and PVC cable is used, insulating sleeving should be added where the through cable is adjacent to the choke.

2.4.1 Cabling and Fitting Lamps

Access for fitting lamp is by removing the front cover. The front cover is released by undoing the screw on the clamping band, when the band is replaced it should only be tightened to the stop. Lamps must be of the correct type and screwed or placed firmly into the lamp holder. To gain access to the cabling, the reflector is removed. In the case of fixed luminaires where glands are supplied, the cables should be suitable for making an IP seal in the gland. Where metal cable glands or plastic cable glands are used with the body having the internal frame to support the choke, a large washer should be placed on the outside under the cable gland to prevent the glands from being drawn into the rubber. Where portable luminaires are used, the cable should be of a flexible type with a minimum rating of 85ºC (CSP/ERR) or similar).
Before cabling, any voltage tap re-selection should be made. The conductor ends should be prepared so that the conductors are properly gripped and the bare part of the conductor should not extend to more than 1mm beyond the throat. The connection should be made in accordance with the polarity marking. Any used terminal screws should be fully tightened. Before replacing the cover, a final check should be made of the connections.

3.0 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 2 years interval and more frequently if conditions are severe. The time between lamp changes could be very infrequent and this is too long a period without inspection.

3.1 Routine Examination

The equipment must be de-energised and isolated before maintenance. Individual organisations will have their own procedures. What follows are guidelines based on Chalmit's experience :

1 Ensure the lamp is lit when energised and that the lampglass is not damaged. Check for superficial damage to the enclosure.
2 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated.
3 Check the cable gland for tightness and nip up if necessary. Check supply cables for damage.
4 Clean the lampglass.

5 Every three years, or more frequently, depending on experience, the control gear internal connections should be checked for tightness and any sign of corrosion or overheating. Any suspect components should be replaced.

3.2 Electrical Fault Finding and Replacement

With mercury vapour lamps the faults are simple, namely loose or broken connections, unserviceable lamps or open circuit control gear. Control gear will not normally go open circuit unless it has first overheated; the signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, bad contact at the lamp cap will usually result in discoloration as a sign of overheating. Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work.
With HPS lamps the ignitor can become faulty. If the lamp is fitted, the choke has continuity and the connections are good and correct, they should produce an attempt to start the lamp and a buzzing sound from the ignitor. It will be unusual to have no other parts available to perform a substitution fault finding routine and this is the normal procedure. Before re-assembling, all connections should be checked and any damaged cable replaced. The ignition connection to the lampholder is sleeved with HT sleeving and this must be kept in place.

3.3 Overhaul

All the spares required are available. Please state the model number lamp and reflector details when ordering. The reflectors vary from between the various models.

3.4 Fuse Ratings

The fuse ratings for HID lamp circuits need to take account of three components of circuit current. Current inrush to PFC capacitors which can be up to 25 x the rated capacitor current and last 1-2 millisecs; lamp starting current including steady capacitor current which together may decline from up to 200% of normal at 10 seconds after switch-on to normal after 4 minutes; rectification effects caused by asymmetrical cathode emission for a few seconds after starting, this effect is random and very variable. With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required.
The normal capacitor current will probably be the determining factor 0.076A per µF at 240V, 50Hz (adjust for other voltages by multiplication, x 6/5 for 60Hz). For HBC fuses use 1.5 x normal capacitor current.
Tungsten Halogen lamps have high in rush currents of 10 x the nominal current.

Note : *All calculations must satisfy wiring regulations.*
Starting and running currents for 240V, 50Hz are as indicated in TABLE 1.
A conventional matrix for HBC fuses for HPS is outlined in TABLE 2.

4.0 Disposal Of Material

The capacitor is of a dry film type and does not contain PCB's. The control gear contains electronic components and synthetic resins. All the electrical components and the body and polycarbonate cover will also give off noxious fumes if incinerated, so care must be taken to render any fumes harmless and avoid inhalation. Any local regulations concerning disposal must be complied with.

4.1 Lamps

The lamp manufacturers produce detailed information on the handling and disposal of discharge lamps. It will be advantageous for the user to obtain copies of this information. For totally enclosed luminaires re-lamped when isolated and using lamps with outer envelopes, the following are the important points. Break the outer envelope when inside a container in a ventilated area. Lamps may currently be considered as normal waste. If there are large quantities there may be local regulations on disposal.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1/2

Table 0 Lamp Ranges Refer to Section : 1.0

Cat. No.	Lamps	Lamp Holder	Weight kg	Voltage
487-25-200G/H	25-200W GLS	ES/BC	2.0	250V Max
487-60-150PAR	60-120W PAR38	ES	2.0	250V Max
487-200TH	200W T/HAL	ES	2.0	250V Max
487-70S	70W SON/T	ES	2.0	(Refer to 506
487-80M	80W MBFU	ES	2.0	control gear box)

Note : *Always state rated supply when ordering gear box.*

Table 1 Starting And Running Currents Refer to Section : 3.4

Lamp	Start A	Run A	Capacitance µF	Circuit Power (W)
70W HPS	0.55	0.4	10	80
80W MBF	0.5	0.43	8	88

Table 2 Fuse Ratings Refer to Section : 3.4

Lamp	Number of Lamps					
	1	2	3	4	5	6
70W SON	4A	4A	4A	6A	6A	10A
80W MBF	4A	4A	4A	4A	6A	6A

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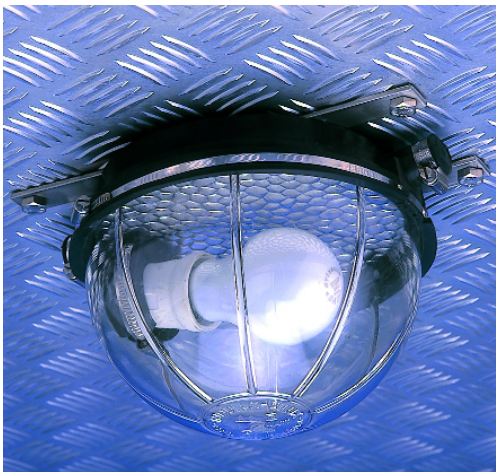
279

EPDM BULKHEAD

This compact and lightweight EPDM bulkhead range has excellent vibration resistance making it ideal for use in hostile marine environments. The 279 is manufactured from EPDM rubber with a high impact polycarbonate lens for maximum protection. For submersible operation down to a maximum depth of 5m, an IP68 version is available. The 279 is suitable for GLS and compact fluorescent lamps with maximum continuous operating ambient temperature of +25 °C. Models with GLS lamps can operate at an ambient temperature as low as -40°C . All control gear for compact fluorescent models is contained within the EPDM enclosure.

APPLICATIONS: **Ships decks (fishing vessels in particular), walkways, ports and harbours**



STANDARD SPECIFICATION

Ingress Protection:	**IP65 to EN 60529**
Enclosure:	**EDPM rubber with polycarbonate lens**
Entries:	**2x10mm cable entry points complete with cable clamps**
Termination:	**2 core 1.5mm² conductors (through wiring 2x1mm²)**
Mounting:	**Via 4x9mm clearance holes on two stainless steel mounting straps**
Control Gear:	**Copper and iron control gear (compact fluorescent models)**
Relamping:	**Via stainless steel clamp screw**
Electrical Supply:	**240V, 50Hz (Compact fluorescent) 12V-250V ac/dc (GLS)**
	(always state V/Hz when ordering)

STANDARD PRODUCT RANGE

Catalogue No.	Wattage (W)	Lamp Type	Lampholder	Weight
279I/107/CF	1x7	PL-S/2P	G23	1.0 Kgs
279I/207/CF	2x7	PL-S/2P	G23	1.2 Kgs
279I/060/GL	60	GLS	E27	0.8 Kgs

OPTIONS - Suffix to Catalogue No.

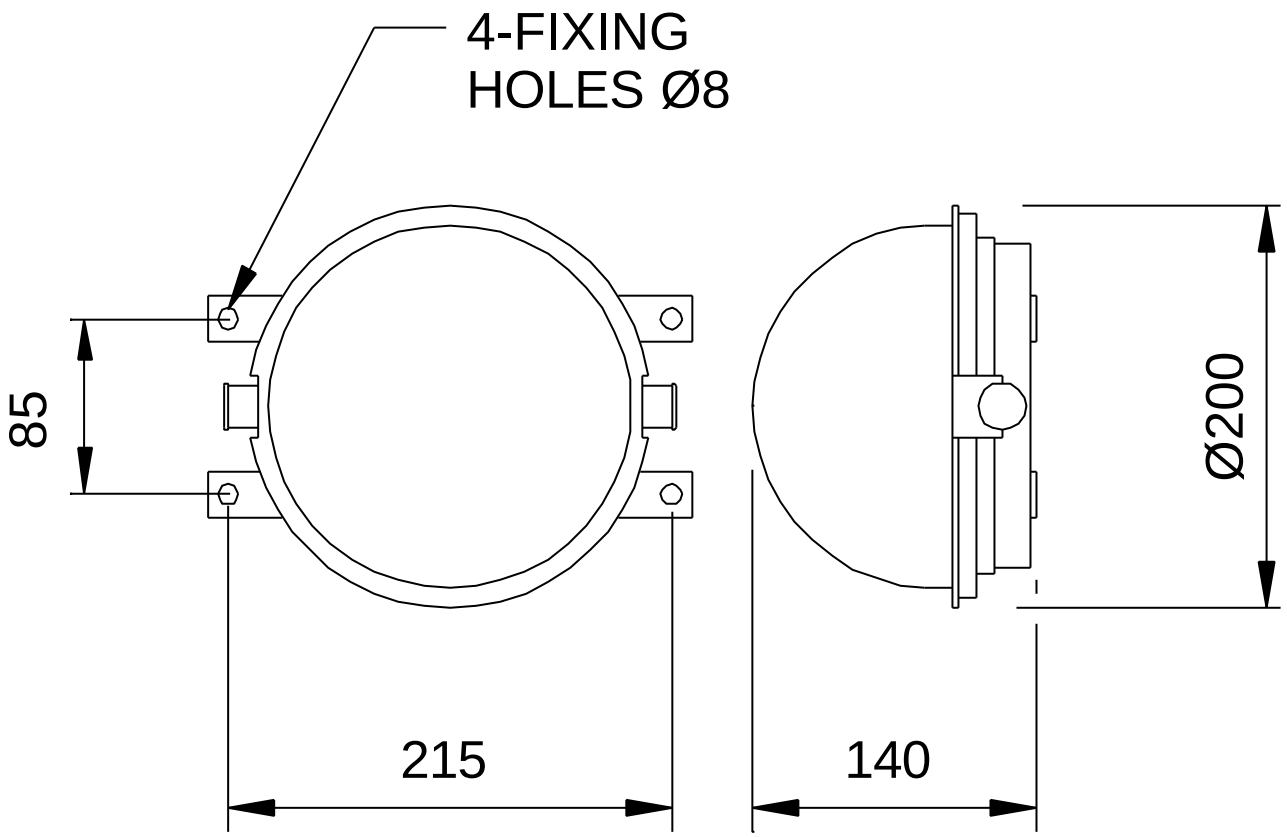
/120/60 120V/60Hz supply (1x7W Model only)

/SP Submersible IP68 version

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

279 EPDM Bulkhead Luminaire

Important : Please read these instructions carefully before installing or maintaining this equipment. Good electrical practices should be followed at all times and this data should be used as a guide only.



0.0 Specification

Type Of Protection	N/A	
Area Classification	Non-Hazardous	
Standard	BS EN 60598/01	
Certificate	N/A	
Material	Body	EPDM Rubber
	Cover	Injection Moulded Polycarbonate
Temperature Rating	(T amb) 35ºC ceiling mounted, 40ºC wall mounted to -40ºC (Tungsten Halogen), -10ºC fluorescent	
Ingress Protection	IP65 BS5490 (IEC 529)	

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994" and "The Electromagnetic Compatibility Regulations 1992".
[This legislation is the equivalent in UK law of EC directives 73/23EEC and 89/336/EEC, respectively].

1.0 Introduction - 279 Bulkhead

The 279 range is made with EPDM rubber body and polycarbonate cover. The 279H luminaire for portable applications is class II, the other luminaires are class I and must be effectively earthed. The units suitable for GLS lamps can use lamps up to 60W rating with a maximum current of 2.5A. The fixed luminaires have stainless steel mounting brackets as standard.

Note : *Lamp ranges are as outlined in TABLE 0.*

2.0 General

Installation should be made in accordance with a code of practice where appropriate. In the UK, the requirements of the 'Health and Safety at Work Act' must be met. Lamps must be disposed of in a safe manner. The luminaires are (except for the 279H) Class I and should be effectively earthed.

2.1 Electrical Supplies

The supply voltage and frequency should be specified when ordering. A maximum voltage variation +/- 6% on the nominal is expected. There have been some recent changes in voltage settings and tolerance for nominal supplies in the UK and Europe and these need to be taken into account. The specification for tappings on the control gear or lamps should be such that the supply does not exceed 106% of the nominal control gear setting or lamp voltage for other than abnormal conditions. In some cases, the luminaires have multi-tapped control gear which can be set to a range of 50 and 60Hz voltages. The tappings are shown on the control gear. If the equipment is located in high or low voltage sections of the system, an appropriate voltage tap should be selected, but care must be taken to log or mark the equipment so that the tapping is re-set if the equipment is re-located. If in doubt, tappings should be set on a high side as this will increase lamp life. Where shore or construction site supplies are used, which are different to the service supplies, the tappings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the CHALMIT Technical Department.

2.2 Lamps

The luminaires using the PL 7W lamp use the two pin lamp version.
Care is needed to fit the correct lamp in order to obtain the design photometric performance. The above information was current at the time of printing. The development of lamps and control gear is on-going and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit.

2.3 Mounting

Luminaires should be installed where access for maintenance is practical and in accordance with any lighting design information provided for the installation.

2.4 Cables

Temperature conditions of the supply cable are such that 70ºC (ordinary PVC) can be used for single entry models. The standard cable section is 1.0mm² max. All models are suitable for 300/500V cable.
Class I luminaires should have a suitable earth connection made at the mounting straps, either externally or internally.

2.4.1 Cabling and Fitting Lamps

Access for fitting the lamp is by removing the front cover. The front cover is released by undoing the screw on the clamping band, when the band is replaced it should only be tightened to the stop. Lamps must be of the correct type and screwed or placed firmly into the lamp holder. To gain access to the cabling, the reflector is removed Where portable luminaires are used, the cable should be of a flexible type with a minimum rating of 85ºC (CSP/ERR) or similar).
The conductor ends should be prepared so that the conductors are properly gripped and the bare part of the conductor should not extend to more than 1mm beyond the throat. The connection should be made in accordance with the polarity marking. Any used terminal screws should be fully tightened. Before replacing the cover, a final check of the connections should be made.

3.0 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 2 years interval and more frequently if conditions are severe. The time between lamps changes could be very infrequent and this is too long a period without inspection.

3.1 Routine Examination

The equipment must be de-energised and isolated before maintenance. Individual organisations will have their own procedures. What follows are guidelines based on Chalmit's experience :

1 Ensure the lamp is lit when energised and that the lampglass is not damaged. Check for superficial damage to the enclosure.
2 When de-energised and left to cool, there should be no significant sign of internal moisture. If there are signs of water ingress, the luminaire should be opened up, dried out, and any likely ingress points eliminated.
3 Check the cable gland for tightness and nip up if necessary. Check supply cables for damage.
4 Clean the lampglass.
5 Every three years, or more frequently, depending on experience, the control gear internal connections should be checked for tightness and any sign of corrosion or overheating. Any suspect components should be replaced.

3.2 Electrical Fault Finding and Replacement

Control gear will not normally go open circuit unless it has first overheated; the signs of this are obvious, being severe discoloration of the paint on the gear and cracks in any exposed insulation. Similarly, bad contact at the lamp cap will usually result in discoloration as a sign of overheating. Any fault finding must be done by a competent electrician and, if carried out with the luminaire in place, under a permit to work.
Before re-assembling, all connections should be checked and any damaged cable replaced.

3.3 Overhaul

All the spares required are available. Please state the model number lamp and reflector details when ordering. The reflectors vary from between the various models.

4.0 Fuse Ratings

GLS lamps have high in rush currents of 10 x the nominal current.
With the availability of MCB's with a wide range of characteristics, the individual engineer can make a better judgement of what is required.
All calculations must satisfy wiring regulations.

Note : *Starting and running currents for 240V, 50Hz are as indicated in TABLE 1.*

5.0 Disposal of Material

The control gear contains electronic components and synthetic resins. All the electrical components and the body and polycarbonate cover will also give off noxious fumes if incinerated, so care must be taken to render any fumes harmless and avoid inhalation. Any local regulations concerning disposal must be complied with.

5.1 Lamps

Incandescent lamps and fluorescent lamps in modest quantities are not "special waste". The outer envelope should be broken in the container to avoid injury.
This applies to the UK, there may be other regulations on disposal operating in other countries.

Important : *Do not incinerate lamps.*

0.0 Tables 0/1

Table 0 Lamp Ranges Refer to Section : 1.0

Cat. No.	Lamps	Lamp Holder	Weight kg	Voltage
279I/107/CF	7W Fluor.	G23	1.0	220/240V
279I/207/CF	2 x 7W Fluor.	G23	1.3	220/240V
279I/060/GL	25 to 60W GLS	ES/BC	0.8	25, 50, 110, 200, 220, 240V

Table 1 Starting and Running Currents Refer to Section : 4.0

Lamp	Start A	Run A	Capacitance µF	Circuit Power (W)
7W Fluor.	0.055	0.05	-	12
2 x 7W Fluor.	0.085	0.08	-	18

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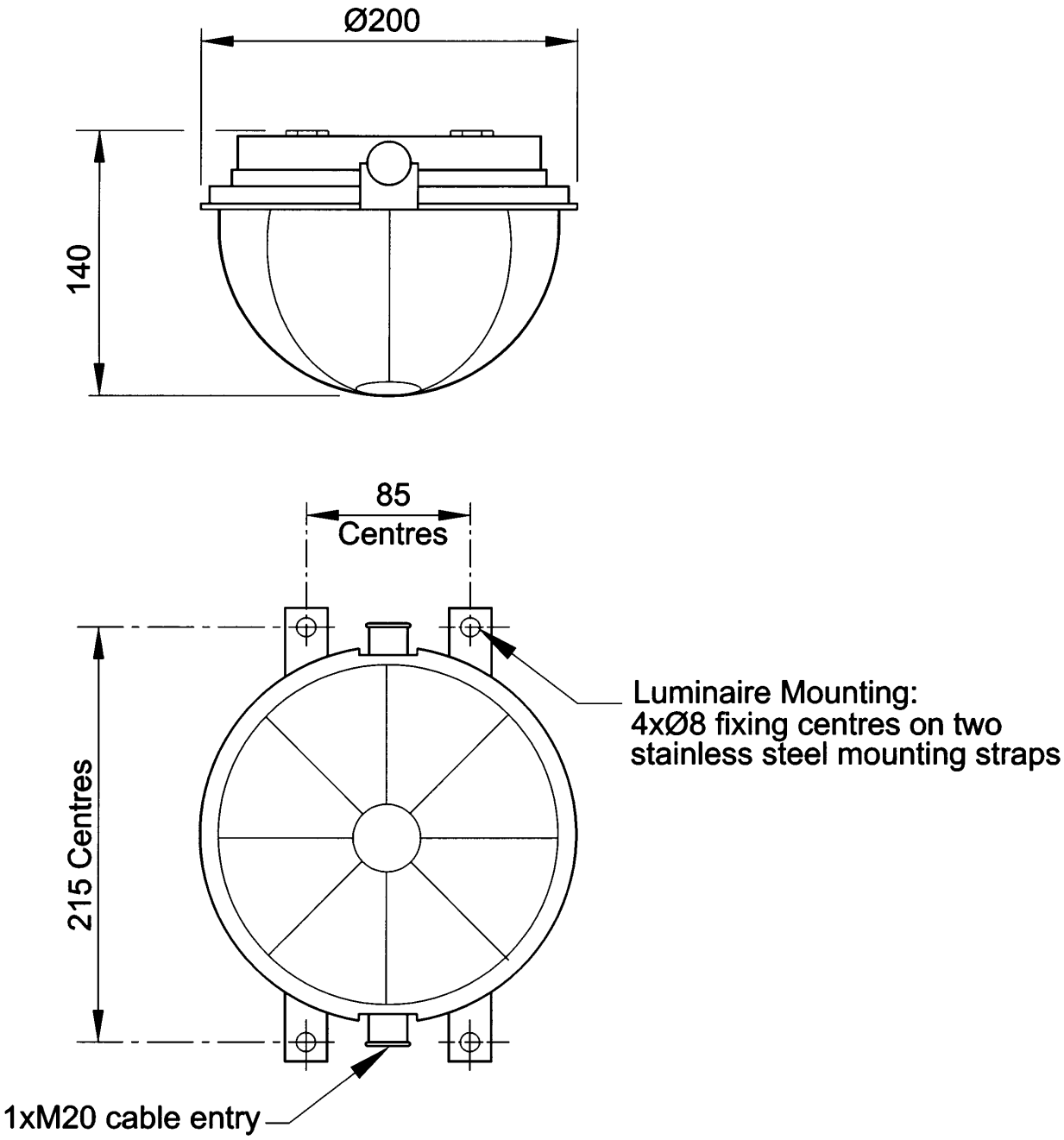
Ø200
140
85
Centres
215 Centres
Luminaire Mounting:
4xØ8 fixing centres on two
stainless steel mounting straps
1xM20 cable entry