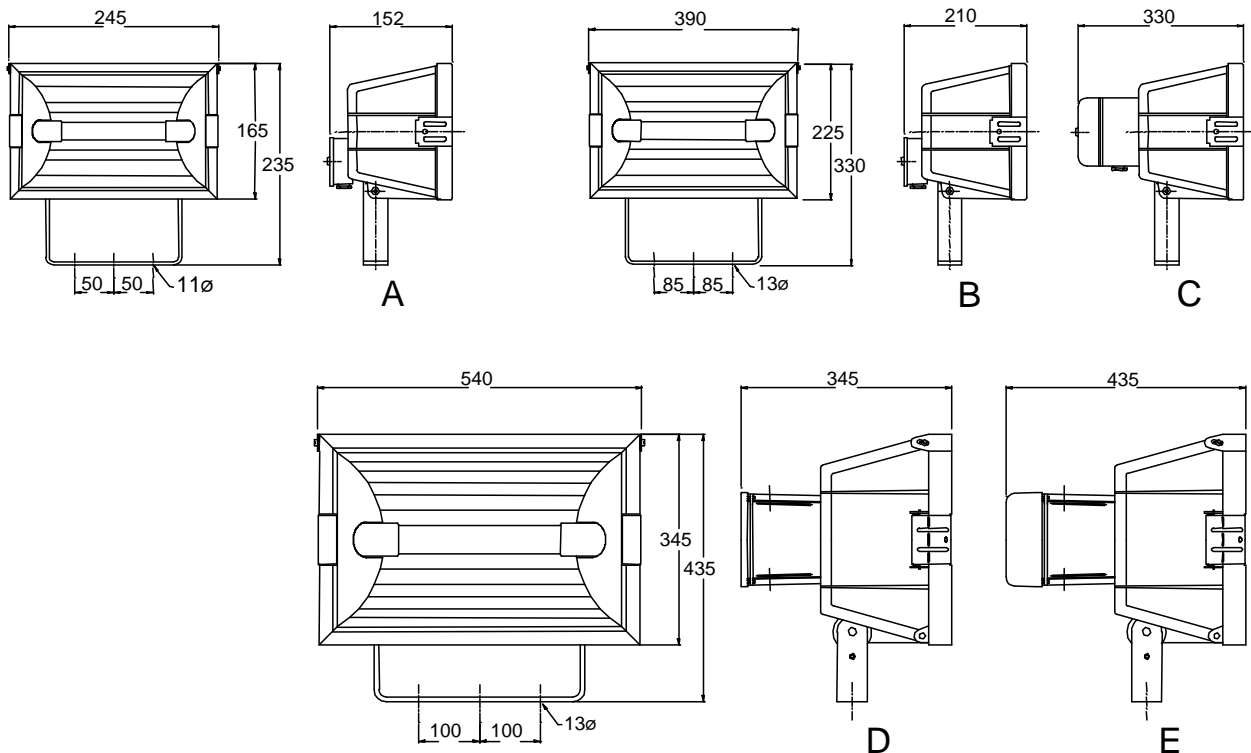


INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

604 - Lightweight Aluminium Floodlight Luminaires

Industrial

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 60598-1	
Ingress Protection	Ambient Temperatures	T amb 40°C indoor/50°C outdoor to -40°C (HPS/Tungsten Halogen), -20°C (MBI/MBF)

CE Mark



The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 1994", "The Electromagnetic Compatibility Regulations 1992", the "Waste Electrical and Electronic Equipment Regulations 2006" and the "Equipment and Protective Systems intended for use in Explosive Atmospheres Regulations 1996". [This legislation is the equivalent in UK law of EC directives 2006/95/EC, 2004/108/EC and 2002/96/EC respectively].

1.0 Introduction – 600 Series Lightweight Aluminium Floodlight

1.1 General

The 600 Series Lightweight Aluminium range covers SON/T, SON/E, MBF, MBI/T, MBI/E and Tungsten Halogen lamps. The maximum ambient operating temperatures are 40°C indoor and 50°C outdoor, for other ratings refer to the Technical Department.

Note: *The extensive range of models is as outlined in TABLE 0.
Please specify voltage & frequency when ordering.*

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 should be made in accordance with a code of practice where appropriate. In the UK the requirements of the 'Health & Safety at Work Act' must be met. Lamps must be disposed of in a safe manner. The luminaires are Class 1 and should be effectively earthed. Some of the luminaires are heavy and suitable handling equipment must be provided.

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 +10%/-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 customer specification or selected tapings 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. 10V Max. drop is desirable for HPS and advised for MBI.

In some cases the luminaires have multi-tapped control gear which can be set to a range of 50 and 60Hz voltages. The tapings 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, tapings should be set on a high side as this will increase lamp life. For MBI lamps to maintain consistent colour, the tap should be set not higher than 10V above the supply. 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 used, which are different to the service supplies, the tapings should be re-set. If not, advice on the effect of these temporary supplies should be sought from the Technical Department.

Incandescent lamps must be selected for the supply voltage. Running at over the rated voltage will reduce life.

3.4 Lamps

The high pressure sodium and mercury vapour lamps are of a standardised type. There is no preference between make or colour. For 250W MBI the 3.0A lamp is used. Metal halide lamps are not standardised in the 400W rating. Current floodlights have the 3.5A lamp setting and lamps which can be run satisfactorily at that rating are to be used (OSRAM). As 400W SON ballasts are introduced for the MBI application the same "compatible" lamp can be used. The 604, 634 and 635 uses tubular HPS and MBI lamps. The lamp is mounted in the focus (rear) position on the lampholders bracket. The 606, 626 and 636 use elliptical lamps both HPS (SON) HPMV (MBF/U) and MBI. The elliptical lamps are mounted in the forward position. Care must be taken to fit the correct lamp in order to obtain the designed photometric performance. **HPS and MBI lamps must 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 interval. Where ballasts contain a thermal cut-out to protect against rectification of lamps the cycle will be of longer duration if rectification occurs.

If discharge luminaires are burned continuously, they should be switched off occasionally to allow old lamps to re-ignite, rather than possibly rectify with detrimental effects on control gear. The above information is current at the time of printing.

The development of lamps and control is ongoing and detailed advice on lamp performance can be obtained from the lamp supplier or from Chalmit.

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

If the control gear supplied for 70W or 150W HPS is for low voltage use (110, 120V), it should be matched with low voltage ANSI spec S55 lamps. Normal European lamps will not operate properly with this type of gear, as their arc tube voltage does not match the gear voltage. One supplier of this type of lamp is GE/Lucalox. The codes for the lamps are as follows: 70W HPS-LU70/MED, 150W HPS-LU150/55.

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 arrangement 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. If other than horizontal, the lamp should be checked for suitability at the attitude.

Note: *Refer to TABLE 0 for the weights and windages of the various models.*

3.6 Cabling and Cable Glands

3.6.1 Cables

The temperature conditions at the supply cable entry point are such that 70°C (ordinary PVC) cable can be used. The standard conductor section is 4mm² max. All models are suitable for standard 300/500V cable.

3.6.2 Cable Glands

Cable glands and sealing plugs when installed must maintain the IP rating. The user must ensure that the assembly fulfils the above requirement.

3.7 Cabling and Fitting Lamps

Access for fitting lamps is by removing the front cover. The front cover is released by undoing the toggle clips using a screwdriver or a peg through the hole in the clip. Lamps must be of the correct type and firmly screwed into place. Particular care must be taken with double end Fc 2 cap lamps to insert straight and parallel to avoid breakage of the end of the lamp. Tungsten Halogen lamps with R7s caps should not be touched on the envelope with bare hands. The cover is replaced and the toggle clips snapped over. Access for cabling is from the terminal box or control gear box. The screws are loosened and the cover removed, the screws should remain captive. Before cabling, any voltage tap re-selection required 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 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, cover screw torque 2Nm. Before replacing the cover a final check should be made in the connections.

3.8 Inspection and Maintenance

Routine inspection should be carried out at a minimum of 2 year 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 and isolated before maintenance. 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. 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 cable gland for tightness and nip up if necessary. Check supply cables for damage.
- 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 have a firm grip and need firm pressure to latch home.
- 5 Clean the lampglass.

Every three years, or more frequently depending on experience, the control gear box cover should be removed. The internal connections should be checked for tightness and any sign of corrosion or overheating. Any suspect components should be replaced. The cover gasket should be examined and if it has hardened or lost elasticity, it should be completely removed and replaced by a new one.

3.9 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 discolouration as a sign of overheating.

Any fault finding must be done by a competent electrician and, if carried out with the luminaire 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. For luminaires with 600W SON/T lamps fitted, the 600W "Plus" lamp is now the only one available. Older luminaires may have trouble striking this lamp. Refer to Chalmit for replacement ignitors and advice. 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 materials 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. A HT sleeve is fitted to the ignitor cable. 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 seal. If the gasket has deteriorated by softening or permanent set, a new gasket should be fitted.

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 milliseconds; 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. Use MCB's suitable for inrush currents to reduce ratings. The normal capacitor current will probably be the determining factor, 0.076A per μ F 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 inrush currents of 10 x the nominal current.

All calculations must satisfy wiring regulations.

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

A conventional matrix for HBC fuses is outlined in TABLE 2.

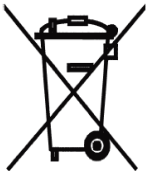
6.0 Disposal of Material

The unit is chiefly made from inert incombustible materials. The capacitor is of the dry film type and does not contain PCB's. The control gear 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. Any disposal must satisfy the requirements of the WEEE directive [2002/96/EC] and therefore must not be treated as commercial waste. The unit is mainly made from incombustible materials. The control gear contains plastic, resin and electronic components. All electrical components may give off noxious fumes if incinerated.

6.1 Lamps

Incandescent 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.

Note: Do not incinerate lamps.



To comply with the Waste Electrical and Electronic Equipment directive 2002/96/EC the apparatus cannot be classified as commercial waste and as such must be disposed of or recycled in such a manner as to reduce the environmental impact.

0.0 Tables 0/1/2

Table 0 Range of Models Refer to Section : 1.1

Cat. No.	Lamps	Lampholder	Weight (Kg)	Windage (m ²)	Body
612-150	150W T/Hal 24V	R7s	2.1	0.041	A
612-300	300W T/Hal 240V	R7s	2.1	0.041	A
612-300	300W T/Hal 110V	R7s	2.1	0.041	A
612-500	500W T/Hal 240V	R7s	2.1	0.041	A
612-500	500W T/Hal 110V	R7s	2.1	0.041	A
613-750	750W T/Hal 240V	R7s	2.1	0.087	B
613-750	750W T/Hal 110V	R7s	4.3	0.087	B
613-1000	1000W T/Hal 240V	R7s	4.3	0.087	B
613-1000	1000W T/Hal 110V	R7s	4.3	0.087	B
613-1500	1500W T/Hal 240V	R7s	4.3	0.087	B
604-70	70W SON/T	E27	7.0	0.087	B
606-70	70W SON/E	E27	7.0	0.087	B
604-150	150W SON/T	E40	10.2	0.087	C
604-250	250W SON/T	E40	11.5	0.087	C
604-400	400W SON/T	E40	19.3	0.185	D
604-600	600W SON/T	E40	24.2	0.185	D
604-1000	1000W SON/T	E40	27.1	0.185	E
606-150	150W SON/E	E40	10.2	0.087	C
606-250	250W SON/E	E40	11.5	0.087	C
606-400	400W SON/E	E40	19.3	0.185	D
634-250	250W MBI/T	E40	11.8	0.087	C
634-400	400W MBI/T	E40	18.0	0.185	D
634-1000	1000W MBI/T	E40	27.1	0.185	E

635-150	150W MBI/TS	R7s	11.4	0.087	C
635-250	250W MBI/TS	Fc2	11.5	0.087	C
635-400	400W MBI/TS	Fc2	17.7	0.185	D
636-250	250W MBI/E	E40	17.0	0.185	D
636-400	400W MBI/E	E40	18.0	0.185	D
626-250	250W MBFU	E40	11.0	0.087	C
626-400	400W MBFU	E40	17.0	0.185	D

Table 1 Starting and Running Currents

Refer to Section : 5.0


Lamp	Start A	Run A	Capacitance µF	Circuit Power (W)
70W HPS	0.55	0.4	10	80
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
1000W HPS	6.9	5.0	100	1080
150W MBI	1.6	0.8	20	175
250W MBI	2.7	1.35	30	280
400W MBI	4.4	2.1	30	440
1000W MBI	7.1	5.2	100	1100
250W MBF	2.8	1.4	15	280
400W MBF	4.4	2.2	20	430

Table 2 Fuse Ratings

Refer to Section : 5.0

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
400W	16A	20A	20A	25A	25A	32A
600W	16A	20A	25A	32A	32A	40A
1000W	20A	25A	32A	40A	50A	63A

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For technical support, please contact: techsupport@chalmit.com

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