IOM – 503 - HIGH WATTAGE FLOODLIGHT (IND)

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS
503 - High Wattage 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.

600W SON/T Version
0.0 Specification

<table>
<thead>
<tr>
<th>Type Of Protection</th>
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</tr>
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<tbody>
<tr>
<td>Standards</td>
<td>EN 60598-1</td>
</tr>
<tr>
<td>Area Classification</td>
<td>Non-Hazardous</td>
</tr>
<tr>
<td>Ambient</td>
<td>see table 1</td>
</tr>
<tr>
<td>Ingress Protection</td>
<td>IP66/67 to EN 60529</td>
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</tbody>
</table>

CE Mark

The CE marking of this product applies to "The Electrical Equipment (Safety) Regulations 2006", "The Electromagnetic Compatibility Regulations 2004", the "Waste Electrical and Electronic Equipment Regulations 2006". [This legislation is the equivalent in UK law of EU directives 2014/35/EU, 2014/30/EU, 2012/19/EU respectively].

M Poutney  Technical Manager

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 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

3.1 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.

3.2 Special conditions for Installation.

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

3.4  Electrical Supplies
The discharge lamp luminaires are supplied from separate 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. 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 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.

In the case of the HPS lamp the ignitor is fitted in a box attached onto the foot mounting bracket, care should be taken to ensure the lid orientation is correct to align gasket and sealing edge on body. 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. 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.

3.5  Lamps
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.

Chalmit recommends Philips 1000W lamps 390mm long. 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 operating 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 burnnt 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.

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.

3.6  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.
3.7 Cabling and Cable Glands

3.7.1 Cables
The temperature conditions at the supply cable point are such that 70°C cable can be used in all the luminaires. The cable between the luminaire and the ignitor/junction box is a high temperature rated cable and is able to withstand the starting impulse. The Chalmit cable supplied/fitted meets the requirements of the application and when fitted into the cable glands supplied ensure the IP rating.

3.7.2 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.

3.8 Cabling and Fitting Lamps
Access for lamping is via the end plate at the opposite end to the cable gland.

3.9 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.

3.10 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. If 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.
10. After checking terminals within Ignitor box on leg, care should be taken to ensure the lid orientation is correct to align gasket and sealing edge on body. To assist alignment an “I” is stamped across the lid and the body. The lid should be fitted so that the “I” aligns.

3.11 Electrical Fault Finding and Replacement
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 milli seconds; 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 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.

6.0 Disposal of Material
The unit is mostly made from incombustible materials. 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. Any disposal must satisfy the requirements of the WEEE directive [2012/19/EU] 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 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.

To comply with the Waste Electrical and Electronic Equipment directive 2012/19/EU 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.
Tables 0/1

Table 0  **Lamp Ranges and Ambient Temperature Ratings**

<table>
<thead>
<tr>
<th>Lamp</th>
<th>Ambient Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>600W SON/T</td>
<td>T amb -30°C to +60°C</td>
</tr>
<tr>
<td>1000W SON/T</td>
<td>T amb -30°C to +40°C</td>
</tr>
<tr>
<td>1000W MBI</td>
<td>T amb -30°C to +40°C</td>
</tr>
<tr>
<td>2000W MBI</td>
<td>T amb -30°C to +40°C</td>
</tr>
</tbody>
</table>

Refer to Section : 1.0

Table 1  **Starting and Running Currents**

<table>
<thead>
<tr>
<th>Lamp</th>
<th>Lamp A</th>
<th>Start A</th>
<th>Run A</th>
<th>Capacitance µF</th>
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</thead>
<tbody>
<tr>
<td>600W SON/T</td>
<td>6.06</td>
<td>5.6</td>
<td>3.1</td>
<td>60</td>
</tr>
<tr>
<td>1000W SON/T</td>
<td>10.6</td>
<td>6.9</td>
<td>5.0</td>
<td>100</td>
</tr>
<tr>
<td>1000W MBI</td>
<td>8.6</td>
<td>6.9</td>
<td>5.0</td>
<td>100</td>
</tr>
<tr>
<td>2000W MBI</td>
<td>10.3</td>
<td>15.8</td>
<td>9.9</td>
<td>100</td>
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<tr>
<td>2000W MBI</td>
<td>9.6</td>
<td>8.9</td>
<td>5.6</td>
<td>30</td>
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Refer to Section : 5.0
**EU-Declaration of conformity**

**UE-Déclaration de conformité**

**EU-Konformitätserklärung**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Chalmit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>388 Hillington Road, Glasgow, G52 4BL Scotland UK</td>
</tr>
</tbody>
</table>

**Product**

503 Floodlight Industrial

**Catalogue**

503I/***/** Example: 503I/600/HS/IG

**Area Classification**

Non- Hazardous

**Ingress Protection**

IP66/67

**Ambient**

-30°C to +***°C (see Table 0)

### Terms of the directive:

<table>
<thead>
<tr>
<th>Prescription de la directive:</th>
<th>Standard &amp; Date Certified to</th>
<th>Normes date Déclaré</th>
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<tr>
<td>Bestimmungen der Richtlinie:</td>
<td>Standard &amp; Datum Zertifiziert nach</td>
<td>Standards Datum erklärt</td>
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- **2014/30/EU** Electromagnetic compatibility
- **2014/30/UE** Compatibilité électromagnétique
- **2014/30/EU** Elektromagnetische Verträglichkeit
- **2014/35/EU** Low voltage equipment
- **2014/35/UE** Équipements électriques à bas voltage
- **2014/35/EU** Niederspannungsgeräte / -systeme
- **2012/19/EU** Waste of electrical and electronic equipment
- **2012/19/UE** Déchets d’équipements électriques et électroniques
- **2012/19/EU** Entsorgung der elektrischen und elektronischen Geräte / Systeme
- **2011/65/EU** RoHS II Directive

On behalf of the Chalmit, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms to all technical and regulatory requirements of the above listed directives.

En tant que représentant du fabricant Chalmit, je déclare qu’à la date où les équipements accompagnant cette déclaration sont mis sur le marché, ceux-ci sont conformes à toutes les dispositions réglementaires et techniques des directives énumérées ci-dessus.

Hiermit bestätige ich, im Namen von Chalmit, dass am Tag der Lieferung des Produkts/der Produkte zusammen mit dieser Erklärung das Gerät/die Geräte alle technischen und regulativen Anforderungen der oben aufgeführten Direktiven erfüllt.

**Name and Date**

Mark Poutney 14/07/2016

**Technical Manager**

**Nom et Date**

**Directeur technique**

**Name und Datum**

**Technischer Leiter**

**Quality Management System Accreditation:**

ISO 9001

**Système de Management Qualité Accréditation:**

ISO 14001

**Qualitätsmanagementsystem Akkreditierung:**

**Environmental Management System.**

Lloyd’s Register

**Certificate No./Certificat N°/Zertifikat Nr.**

LRQ 4005876