Chalmit lighting

# HAZARDOUS AREA LIGHTING

## PRODUCT GUIDE

Emergency Petrochemical Specialist Applications Marine Portable Nuclear
Oil & Gas Pharmaceutical Harsh and Hazardous Environmental Temporary
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# CHALMIT LIGHTING A LEADING LIGHT FOR TODAY'S INTERNATIONAL HAZARDOUS AREA REQUIREMENTS


Chalmit Lighting, formerly known as Andrew Chalmers and Mitchell was formed in 1910 as a supplier of marine equipment to shipyards in the west of Scotland. Today the company is one of the largest and most respected hazardous area and marine lighting companies in the world and supplies product internationally through sales offices and agents located in over 40 countries.

In 1998 Chalmit joined the Hubbell group allowing Chalmit and Killark to team up and offer a global range of competitive IEC and NEC products suitable for hazardous area lighting and apparatus installations on any continent and complying with all international codes and standards.

# TECHNICAL INTRODUCTION

This technical guide outlines the design and use of equipment protected against the ignition of hazardous atmospheres formed from gases, vapours or dusts. The information given applies specifically to Chalmit products and is also a general guide.

The guide refers to equipment and methods complying with safety practices being used throughout the world. This material is included both for completeness and because Chalmit operates throughout the world supplying all lighting requirements in conjunction with group company Killark located in the US. Chalmit hazardous area products are designed and manufactured in accordance with good engineering practices and to well established construction standards for explosion protected apparatus. The equipment must be selected, installed, maintained and disposed of in accordance with any regulation or legislation appropriate to its use. Reference must be made to the data sheets and the certification applying to each individual product.

The guide also refers to construction standards and application codes. The correct application of protected apparatus is a specialist subject and these notes must be treated as being only informative. In addition to the Chalmit technical information users must themselves study the relevant codes of practice and construction standards.

Installation operation and maintenance manuals (IOM) are enclosed with each product and are available on request. These contain information essential to the safe use of the apparatus and must be read and understood by installers and users before putting equipment into service. Much of the information is also available on the Chalmit web site. Usually this will be for the latest version of a particular range. If detailed information on superseded product is needed Chalmit should be contacted directly.

**National Regional and International Standards**
In the text, reference is generally made to European standards, Euro-normes [EN] which are prepared by CENELEC. Almost all work on hazardous area and equipment standards is now being carried out by IEC and those Euronormes which are not already technically identical to IEC will become so in their next editions. The EN series EN 50014 etc will be renumbered in the IEC 60079-series. In this edition of the catalogue, the EN references are retained for uniformity although in many cases the EN is already technically identical to the IEC equivalent. Where appropriate the IEC number is given in brackets but the IEC standard referenced may not be exactly identical to the EN.

## Index to Technical Introduction

## Methods of explosion protection for electrical equipment in explosive gas atmospheres

This catalogue contains a selection of lighting and ancillary equipment suitable for use in areas where explosive atmospheres may occur.

Explosive atmospheres can be ignited by sparks or hot surfaces arising from the use of electrical power.

Other possible sources of ignition are electrostatic discharges and frictional sparking. The hot surfaces can be those of enclosures, components and light sources. Under fault conditions electrical connections may become over-heated and cause arcs or sparks. In addition, sparks may be the result of the inadvertent discharge of stored energy or from switching contacts.

A number of methods of protecting against ignition have been established and these have been codified in construction standards. These codes enable manufacturers to design apparatus of a uniform type and have it tested by certification authorities for compliance with the standards.

The basic methods of protection are summarised in Table 1.

| Method | Type Of Protection |
|---|---|
| Designed to prevent any means of ignition arising | Ex e Increased Safety<br>Ex nA (or Ex N) Non Sparking |
| Designed to limit the ignition energy of the circuit | Ex i Intrinsic Safety<br>Ex nL Energy Limitation |
| Designed to prevent the explosive mixture reaching a means of ignition | Ex m Encapsulation<br>Ex p Pressurisation<br>Ex o Oil immersion<br>Ex nR (or Ex N) Restricted Breathing |
| Designed to prevent any ignition from spreading outside of the apparatus | Ex d Flameproof Enclosure<br>Ex q Powder Filling<br>Ex nC Non Incendive |

Table 1 Methods of explosion protection

## General requirements EN 50014 [IEC 60079-0]

The standard EN 50014 contains general requirements common to most of the series of standards for the protection sub-groups. Apparatus will comply with the general requirements except where they are excluded or varied by the individual protection standard. Where standards are independent, some requirements of EN 50014 are often incorporated directly or cross-referenced.

## Ex o "Oil immersion" Protection EN 50015 [IEC 60079-6]

This is a technique primarily used for oil filled switch-gear. The spark is formed under oil, and venting is controlled. The oil acts as an insulating medium.

## Ex p "Pressurised Apparatus" Protection EN 50016 [IEC 60079-2]

One type of pressurisation maintains a positive static pressure inside the apparatus to prevent entry of gas and another maintains a continuous flow of air or inert gas to neutralise or carry away any explosive mixture entering or being formed within the enclosure. Essential to these methods are continuous monitoring systems to ensure their reliability and purging schedules on installation and following opening.

## Ex q "Powder Filling" Protection EN 50017 [IEC 60079-5]

This technique involves the mounting of potentially incendive components in an enclosure filled with sand or similar inert powder. The sand prevents explosive ignition. It was originally developed to protect heavy duty traction batteries. It is now primarily of use where the incendive action is the abnormal release of electrical energy by the rupture of fuses or failure of components used in electronic apparatus. The likelihood of possible incendive failure of the components is assessed and precautions taken to minimise it. Usually Ex q is used for discrete sub-assemblies and components inside Ex e apparatus.

## Ex d "Flameproof Enclosure" Protection EN 50018 [IEC 60079-1]

The potentially incendive parts are contained within an enclosure into which the explosive atmosphere can enter but which will contain any resultant explosion and prevent its transmission outside of the enclosure.

## Ex e "Increased Safety" Protection EN 50019 [IEC 60079-7]

Normally sparking components are excluded. Other components are designed to substantially reduce the likelihood of the occurrence of fault conditions which could cause ignition. This is done by reducing and controlling working temperatures, ensuring the electrical connections are reliable, increasing insulation effectiveness and reducing the probability of contamination by dirt and moisture ingress.

## Ex i “Intrinsic Safety” Protection EN 50020 [IEC 60079-11]

The circuit parameters are reliably controlled to reduce potential spark energy below that which will ignite the specific gas mixture. This includes the occurrence of one (coded ib) or two (coded ia) component faults and consequent failures in the circuit. It should be noted that this method does not entirely protect against the local over-heating of damaged connections or conductors. These should be kept sound and suitably enclosed against damage.

## Ex m “Encapsulation” Protection EN 50028 [IEC 60079-18]

Potentially incendive components are encapsulated, usually by organic resins, which exclude the explosive atmosphere and control the surface temperature under normal and fault conditions. The likelihood of overheating and disruptive failure of the components is assessed and precautions taken to minimise any effect on the protection.

## Ex s “Special” Protection

This method, being by definition special, has no specific rules. In effect it is any method which can be shown to have the required degree of safety in use. Much early apparatus having Ex s protection was designed with encapsulation and this has now been incorporated into EN 50028. In addition, the Ex s coding is often used when apparatus has been assessed to one of the individual parts of the CENELEC series but does not exactly comply with it whilst achieving equivalent safety. Ex s protection has been commonly used for Zone 0 and Zone 1 applications and its use was contained in BS 5345, the now superseded UK code of practice. Ex s is a coding referenced in IEC 60079-0.

## Ex n “Non Sparking” Protection EN 50021 [IEC 60079-15] [Ex N “Non Sparking” Protection BS 4533 Section 102.51 (Luminaires) and BS 4683 Part 3]

Precautions are taken with connections and wiring to increase reliability, though not to as high a degree as for Ex e. Where internal surfaces are hotter than the desired T rating they can be tightly enclosed to prevent the ready ingress of an explosive atmosphere. This is the “restricted breathing enclosure” technique. Its employment also means that high ingress protection ratings of IP65 and above are built into the design.
When made to EN 50021 the coding Ex nR denotes that the protection method employs a restricted breathing enclosure. The restricted enclosure may be confined to the part of the apparatus containing the hot components such as lamps. Where the normal non-sparking construction is used the coding is nA. There are other sub codes nL, energy limitation and nC non incendive, which refer to simplified forms of other protection methods listed above. The codes are used individually. EN 50021 is free standing and is not a sub section of EN 50014. The Ex n [Ex N] methods have been developed specifically for the design of apparatus used in the remotely hazardous area, Zone 2. Ex n meets the basic requirements for ATEX category 3.

## Enclosures protecting against the ignition of atmospheres containing dusts.

At present the protection methods used against the ignition of explosive atmospheres formed by air and dust do not have specific protection codes but work is going on in IEC and individual protection concept standards for dust hazards are in preparation. The Ex prefix is not used. For more detail refer to the section specifically concerning dusts. Most of the gas protection techniques will in practice protect against dust ignition but the enclosure method, where dust is effectively excluded and the external surface temperature defined, is generally used for lighting. In the product data this is referred to as “dust protected enclosure”.
Work on the establishment of sub codes and their defining standards is underway in IEC and should be expected to eventually result in identical CENELEC standards with sub coding designating the dust protection methods.

## Classification of hazardous areas and the use of protected apparatus

Codes of practice have been established for the classification of the potential hazards, the selection of suitable equipment to protect against the hazard and its installation and maintenance. The codes of practice list the methods of protection which, used individually or in combination, may be employed to achieve an acceptable margin of safety.
What follows mainly concerns the use of apparatus protected against the ignition of hazardous atmospheres formed from gases and vapours in air at normal atmospheric pressures. Dust is treated separately in a later section.

The hazardous areas are classified in Table 2 according to EN 60079-10.

| Zone | Description |
|---|---|
| Zone 0 | An area in which an explosive atmosphere is continuously present or for long periods. |
| Zone I | An area in which an explosive atmosphere is likely to occur in normal operation. |
| Zone 2 | An area in which an explosive atmosphere is not likely to occur in normal operation and if it occurs it will exist only for a short time. (Zone 2 is often described as the 'remotely hazardous' area.) |

Table 2 Hazardous Areas Classification

The deployment of protected apparatus in hazardous areas classified to EN 60079-10 is summarised according to EN 60079-14 in table 3

| Zone | Type of Protection Assigned to Apparatus |
|---|---|
| 0 | Ex ia and types of protection suitable for Zone 0 as constructed to EN 50284. |
| 1 | Any type of protection suitable for Zone 0 and Ex d, Ex ib, Ex p, Ex e, Ex q and Ex m (Also see notes on Ex s protection) |
| 2 | Any type of protection suitable for Zone 0 or 1 and Ex n, Ex N and Ex o (Also see notes on Ex s protection) |

Table 3 Selection of Protected Apparatus in Hazardous Areas generally according to EN 60079-14

## The EU ATEX directives

The relevant directives of the EU are:

- 94/9/EC Equipment and protective systems intended for use in potentially explosive atmospheres.
- 99/92/EC Minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

The directives are adopted into national law by the individual member states. Some candidate entrant states have also aligned their national regulations with ATEX.

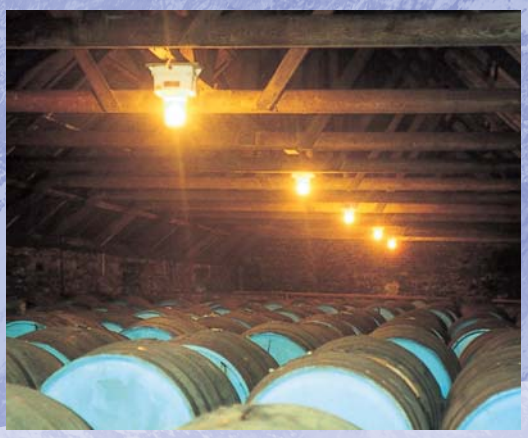
ATEX covers hazards arising from the use of both electrical and mechanical equipment in potentially explosive atmospheres. The ATEX equipment directive and the accompanying health and safety directive, specifying the protection of workers, apply to the European Union and are in operation from July 2003. The safety directive requires hazardous areas to be subjected to a risk analysis, classified into Zones and suitably equipped.

The manufacturer must make a declaration of compliance with the equipment directive and apply the CE mark before the product can be placed on the market in the EU. The individual governments of the member states appoint "notified bodies" to carry out testing and certification. Apparatus is divided into Equipment Groups (I for mining and II non-mining), the ignitable component of the explosive atmosphere, Gas (G) and Dust (D) and Categories 1, 2 and 3. The Categories provide respectively, very high, high and normal levels of protection against ignition. The Categories should be considered as achieving the level of protection obtained by applying the existing protection techniques (Ex d, Ex e etc). Alternatively, the existing techniques can be replaced or supplemented by new concepts and engineering judgements made by the manufacturers in the design and construction of the apparatus. Where required, this would be validated by notified bodies performing an EC type examination of the product.

In practice, the Categories are equated to suitability for Zones. The actual category of apparatus specified by the user for a Zone will depend on the overall risk assessment. The Zoning considers only the probability of the occurrence of an explosive atmosphere, its extent and duration. It does not consider the consequential effects of an ignition having taken place or of the environment. Apparatus will be marked with the Grouping and Category in addition to the marking required by the individual protection standards.
The Chalmit range of products falls within Group II for industrial applications and covers designation as Category 2 or 3. This means that products will generally be suitable for use in Zone 1 and 2 areas as defined by the codes of practice for zoning such as EN 60079-10 (IEC 60079-10) and selection, EN 60079-14 (IEC 60079-14) etc.
Currently EN 60079-14 does not refer to categories so the protection code of the apparatus is used as listed in the standard or the category can be equated as being suitable for a specific Zone as detailed in the directive. These codes of practice provide the user with guidance in selecting apparatus needed to obtain the degree of safety that is required for the particular hazardous area application.

## The EU ATEX directives (Continued)

The Euro-normes (EN) have been updated for ATEX but as the updating mainly consisted of a cross reference to the ATEX categories this did not affect the standards technically except where co-incidental technical amendments were made. Compliance with the Euro-norme gives a presumption of compliance with those aspects of the directive covered by the standard. These are "The Essential Health and Safety Requirements" EHSR's. Lists of standards giving a presumption of compliance with the directive are published in the official journal (OJ) of the EU. The European Commission web site contains a large quantity of material concerning the directives along with the actual directive itself and the guidelines for its application.



An EC type examination by a notified body is mandatory for Category 1 and 2 electrical equipment but not for Category 3. Chalmit have chosen to obtain a certificate of compliance from a third party for Category 3 equipment in order to promote customer confidence and continue the long standing practice that Chalmit has used for Ex N apparatus. The designation EC can not be used for certification of Category 3 apparatus. In the data the term "type examination" rather than "EC type examination" is used for Category 3 apparatus.

The relationship between Categories and applications is shown in Table 4.

| Category | Degree of Safety | Design Requirement | Application | Expected Zone of Use |
|---|---|---|---|---|
| 1 | Very high level of Safety | Two independent means of protection or safe with two independent faults | Where explosive atmospheres are present continuously or for lengthy periods | Zone 0 (gas) and Zone 20 (dust) |
| 2 | High level of Safety | Safe with frequently occurring disturbances or with a normal operating fault | Where explosive atmospheres are likely to occur | Zone 1 (gas) and Zone 21 (dust) |
| 3 | Normal level of Safety | Safe in normal operation | Where explosive atmospheres are likely to occur infrequently and be of short duration | Zone 2 (gas) and Zone 22 (dust) |

Table 4 ATEX Categories and Applications

## Marking of ATEX product and CE mark

The product carries the ATEX marking which includes the CE mark, CE Ex, the Group, the Category and the Category sub-group G or D. The product also carries the normal coding, Ex d etc. and the surface temperature and ambient temperature (Tamb) ratings. The Group also forms part of the marking in the product standards and pre-dates ATEX. The Category is additional to the previous marking. This means that all of the familiar marking is still present. All products carry the general product safety and electromagnetic compatibility CE mark on the product, installation manual or packaging, as appropriate. The marking attests that the product meets the requirements of the Low Voltage and Electro-Magnetic Compatibility (EMC) directives of the EU as transposed into UK law. If the product carries the CE mark for ATEX it is not repeated. The scope of compliance is given in the IOM. Products exported directly outside of the European Community are not required to carry any CE marking but local marking regulations may apply.

## Surface temperature rating and gas grouping

Any explosive mixture can be classified for explosion protection under two main characteristics, temperature of ignition by a hot surface and the spark energy to ignite it. The spark energy of ignition is also related to the intensity of the explosion. This latter property is crucial to the design of the joints in flameproof enclosures (Ex d) and the energy level limit of intrinsically safe (Ex i) and energy limited circuits. Other important subsidiary characteristics are the specific gravity and flash point, which are used in the determination of the area classification.

## Surface temperature for ignition

The surface temperature rating is measured in the most onerous design attitude at the most severe supply voltage condition within the design tolerance. Usually this is +10% of rated voltage for lighting and with any fault or overload condition which could normally occur in service. A normal overload condition for motors is the starting or stalled condition and, for luminaires, the end of life of a lamp. In the case of Ex d, Ex m, Ex q and also restricted breathing Ex nR and dust proof enclosure methods, the maximum temperature is measured on the external surface. In other methods of protection the maximum internal temperature of the apparatus is measured. The explosive mixtures are allocated into broad bands giving the Temperature Classes shown in Table 5.

| Temperature Class | Maximum Surface Temperature °C |
|---|---|
| T1 | 450 |
| T2 | 300 |
| T3 | 200 |
| T4 | 135 |
| T5 | 100 |
| T6 | 85 |

Table 5 Classification of maximum surface temperatures for electrical apparatus EN 50014

For dust protection using the enclosure methods the surface temperature is limited to a given value in °C, the T grouping is not used.

## Gas Group

The gas and vapour mixtures are classified as shown in Table 6. The possible number of chemical compounds is very extensive and the list shown is only representative. The classification shown is that associated with the IEC and CENELEC harmonised standards. The apparatus sub-groupings, A, B and C are only applicable to the design and marking of flameproof, intrinsically safe, energy limited and non incendive apparatus.

| Group | Representative Gases |
|---|---|
| I | All Underground Coal Mining. Firedamp (methane) |
| IIA | Industrial methane, propane, petrol and the majority of industrial gases |
| IIB | Ethylene, coke oven gas and other industrial gases |
| IIC | Hydrogen, acetylene, carbon disulphide |

Table 6 Gas Grouping for Electrical Apparatus EN 50014 and IEC 60079-0

## Protection against the ignition of explosive atmospheres formed from ignitable dust

In this catalogue are products for use with ignitable dusts. Explosives dusts i.e. those not requiring the presence of air to ignite are outside the scope of ignitable dust protection.

With respect to the formation of an explosive atmosphere, the nature of dust is very different to that of gas or vapour. Dust, unlike gas does not disperse, it remains until cleared away by manual means or ventilation and can form layers. Layers of dust can ignite at much lower temperatures than clouds. This is because layers can insulate and increase the temperature and also because layers of some dust are prone to spontaneous combustion. The ignition of layers results in burning which can subsequently translate into an explosion. Layers have the potential to be disturbed and form clouds. Ignition data for dusts is given for clouds and layers. Typically, dust in a cloud form is harder to ignite than gas either by a hot surface or a spark. The maximum allowable surface temperature for apparatus present in dust clouds is de-rated from the actual surface temperature of ignition of the dust. The allowable surface temperature for layers is subject to further de-rating where layers exceed 5mm thick and extra heavy layers require special laboratory investigation by the specifier or user.

When installing floodlights, care must be taken to ensure that the face of the glass is positioned at such an angle that dust can not settle.

Ignitable atmospheres caused by dust may be prevented from arising by ventilation, containment and by good housekeeping. The area classification for dust is similar to that for gas, namely, Zone 20, Zone 21 and Zone 22, depending on the likelihood of a hazardous dust atmosphere being present. As a generality, the zones are smaller than those for gas. Equipment may be marked as suitable for both gas and dust hazards. If the apparatus carries marking for both dust and gas this does not mean both at the same time. The simultaneous presence of ignitable dust and gas is subject to special consideration and its potential for ignition must be investigated by a qualified person.

## Protection against the ignition of explosive atmospheres formed from ignitable dust (continued)

The dust ignition protection method for products in this catalogue is by enclosure to IP6X or IP5X as appropriate. IP6X is required for ATEX Category 1 and 2 and for conducting dusts in any Category. Conducting dust ingress can cause incendive insulation failure. IP5X is a minimum for Category 3. The surface temperature is limited to a given value in ºC and the T grouping is not used. Currently the most recent enclosure standard is EN 50281-1-1 and is used for Chalmit apparatus to ATEX. The selection standard is EN 50281-1-2. and the area classification standard EN 50281-3.

It should be noted that the dust protection methods for the EU after ATEX comes into force are not identical with those of the rest of the world. The reference standards are set by the user and may be EN, IEC or a USA standard. Chalmit apparatus will generally comply with the IEC 61241 series of standards for Practice A. The user must specify to which standard the product is required to comply. The standards are under further development and significant changes will take place during the period when this catalogue is current.

Reference is also made in this catalogue to products for use in NEC Class II and Class III locations. NEC dust protected products are to UL 844. The construction and testing is different to that specified in the Euro-norme but is very similar to the alternative Practice B given in the IEC standard. The main differences are gasket dimensions, thermal testing with a layer of dust and ingress testing using a heating and cooling cycling method.

## International Standards

Two distinct groups of apparatus standards used world-wide are the IEC/EN (Euronorme) series of standards and those used in the USA and areas influenced by US practice. Almost all work on hazardous area and equipment standards is now being carried out by IEC and those Euronormes which are not already technically identical to IEC will become so in their next editions. The EN series EN 50014 etc will be renumbered in the IEC 60079-series. Many countries which have their own national standards have adopted the IEC standards in their entirety or incorporated material from them.

The practice in the US is different because it developed separately from the rest of the world. The US engineering practice, legal requirements, regulations and the use of approval organisations such as UL, FM and ISA mean that, whilst the safety principles are much the same as in the rest of the world, the detail is significantly different. The US code of practice is the National Electrical Code NEC) and the 'standard' exclusively used, until recently, for luminaires is ANSI/UL844. This standard integrates the designation of the hazardous area in which apparatus is designed to be used and the protection method. For lighting purposes the types of protection are a flameproof type and a non-sparking type. These are used in Class 1 Division 1, and Class 1 Division 2 areas which are broadly equivalent to Zone 1 and Zone 2 respectively. Dust and fibre hazards are Classes II and III.

The only basic technical difference between these and the equivalent IEC/EN standards is that the ANSI/UL844 'non-sparking' technique, known as 'enclosed and gasketed', does not use the restricted breathing method. This is one factor which accounts for the generally higher surface temperature ratings of ANSI/UL844 listed apparatus and the practical need for a greater number of temperature sub-divisions. Another factor is that the standard specifies higher test pressures for flameproof equipment. In the case of HID luminaires this results in the lampglass being smaller and the surface temperature inevitably hotter.

The construction and testing of dust protected enclosures is different to EN but is currently partially incorporated as an additional alternative in the IEC standards.

In both codes the gases and compounds are classified by surface temperature of ignition and grouped into ignition groups for the dimensioning of flameproof joints and for intrinsic safety. The classification and grouping are broadly similar to IEC/EN but differ in detail. The classification and protection cannot be mixed and must be used as complementary pairs. A general comparison between IEC/EN and NEC practice for gas hazard protection is shown in Tables 7 and 8. The US standards are also influenced by the use of conduit wiring systems which, in contrast to cable, form a flameproof distribution method for Class 1 Division 1 and a damage and ingress protected distribution method for Division 2.

The NEC has now introduced the Zone classification concept for gas hazards as an alternative to the Division method. The wiring methods currently remain unchanged. To support this. UL and ISA have now introduced their own IEC based protection standards for use in the alternative Zones. These standards are intended to become single ANSI documents. The objective is that the two systems will run in parallel until the older US system becomes obsolete. This will take many years. The new US standards, although based on IEC, may differ substantially from IEC. Certification to IEC based US standards can not be considered as being the same as to IEC.

Products may be marked for both divisions and zones. Where product complies with the US standard based on IEC the designation AEx is applied on the marking.

The Canadian practice has been a hybrid of US and European. The mining industry in Canada was much influenced by Europe which led to the use of European methods elsewhere. Through the joint accreditation system with the US (NRTL) there is a degree of overlap but the detail of this can not be addressed properly in this introduction. Canada has now adopted the zone system for new construction.

Chalmit is a subsidiary of Hubbell Inc and sells the products of sister company Killark. This means that Chalmit can supply products to US and Canadian standards and codes. The range is comprehensive and encompasses the vast majority of lighting products needed to satisfy applications in hazardous areas throughout the world.

| Maximum Temperature °C | Surface Temperature Classification | |
|---|---|---|
| | EN 50014 | ANSI/UL844 |
| 450 | T1 | T1 |
| 300 | T2 | T2 |
| 280 | 280ºC (T2) | T2A |
| 260 | 260ºC (T2) | T2B |
| 230 | 230ºC (T2) | T2C |
| 210 | 215ºC (T2) | T2D |
| 200 | T3 | T3 |
| 180 | 180ºC (T3) | T3A |
| 160 | 165ºC (T3) | T3B |
| 160 | 160ºC (T3) | T3C |
| 130 | T4 | T4 |
| 120 | 120ºC (T4) | T4A |
| 100 | T5 | T5 |
| 85 | T6 | T6 |

Table 7 Comparison of Surface Temperature Classification IEC and NEC

| Representative Gas | Explosion Group IEC 60079-0 | Explosion Group National Electrical Code |
|---|---|---|
| Acetylene | IIC | A |
| Carbon disulphide | IIC | B |
| Hydrogen | IIC | B |
| Ethylene oxide | IIB | B |
| Hydrogen sulphide | IIB | C |
| Ethylene | IIB | C |
| Acrylo-nitrile | IIA | D |
| Industrial Methane | IIA | D |
| Propane | IIA | D |
| Ethyl acetate | IIA | D |

Table 8 Comparison of Representative Gases in CENELEC and NEC Gas Groups

## The IEC Ex Scheme

The IEC has introduced an international certification scheme based on the use of IEC standards. This is now becoming established and has an increasingly large group of participants including all the major manufacturing countries. In each member country, test laboratories and certification bodies are being vetted and are joining the scheme. These organisations will accept each other's test reports prepared under the scheme and, in due course, where appropriate, issue certificates of conformity with IEC standards. The certificates will carry the IEC certification mark. The ultimate objective is the acceptance of one certificate regardless of origin to show that explosion proof apparatus is safe for use. The growth of the scheme is driving forward the process of changing the IEC standards to become uniformly acceptable.

## Ingress protection

The surface temperature classification and gas grouping are the primary safety considerations. A major secondary parameter is protection against the ingress of solid bodies and liquids. In some cases the degree of ingress protection (IP) forms part of the standard requirement of the explosion protection method.
Where apparatus is used in dirty or wet conditions, high resistance to ingress contributes to the reliability of explosion protection in that electrical faults within the apparatus are often the result of water ingress.
Where Chalmit products are concerned, the appropriate standard is EN 60529 (IEC 60529).
The definitions of the IP code are summarised in Table 9. It will be noted that many Chalmit luminaires have both IP66 and IP67 ratings. This is because the IP66 test can be more severe than IP67 for some constructions. The US has a system using the ANSI/NEMA 250 code which is similar but also contains tests for corrosion resistance.

| First Digit Numeral | Degree of Protection (Foreign Bodies) | Second Digit Numeral | Degree of Protection (Liquids) |
|---|---|---|---|
| 0 | No protection | 0 | No protection |
| 1  | Protection against ingress of large solid foreign bodies | 1  | Protection against drops of water |
| 2  | Protection against ingress of medium sized solid foreign bodies | 2  | Protection against drops of liquid falling at any angle up to 15° from vertical |
| 3  | Protection against ingress of small solid foreign bodies greater in diameter than 2.5mm | 3  | Protection against rain falling at any angle up to 60° from the vertical |
| 4  | Protection against ingress of small solid foreign bodies greater in diameter than 1mm | 4  | Protection against splashing. Liquid splashed from any direction shall have no harmful effect |
| 5  | Protection against the ingress of dust in an amount sufficient to interfere with satisfactory operation of the enclosed equipment | 5  | Protection against water projected by nozzle from any direction |
| 6  | Complete protection against ingress of dust | 6  | Protection against powerful water jets |
| | | 7  | Protection against temporary immersion in water |
| | | 8  | Protection against indefinite immersion in water. Tests to be agreed between supplier and customer. |

Table 9 Definition of Ingress Protection

## Resistance to mechanical damage

The individual protection standards also contain minimum levels of resistance to mechanical damage as measured by test methods producing an impact energy measured in Joules or Newton metres. The tests are conducted at both below the lowest permitted ambient temperature and above the highest. 10 Joules is equivalent to 1 Kilogram dropped from a height of 1 metre. A 25 mm diameter hemispherical steel impact piece is used. Chalmit equipment usually exceeds the minimum level by a substantial margin.

The standards usually contain two levels of impact resistance these being appropriate to high and low risk of impact. The selection will depend on the mounting position. If the apparatus is only suitable for low impact the certificate is suffixed X or the information is included in the installation information.

| Part of apparatus tested | Impact energy in Joules | | | |
|---|---|---|---|---|
| | EN 50014 | | EN 50021 (1999) | |
| | High risk of mechanical danger | Low risk of mechanical danger | High risk of mechanical danger | Low risk of mechanical danger |
| Enclosures and Guards | 7 | 4 | 3.5 | 2 |
| Light transmitting parts without guard | 4 | 2 | 2 | 1 |
| Light transmitting parts with guard when tested without guard | 2 | 1 | 1 | 0.5 |

Table 10 Impact Energy Requirements for EN 50014 and EN 50021 Group II Apparatus

## Compliance with general product standards

Luminaires are designed to comply with normal product construction standards, such as EN 60598, where the requirements do not conflict with those in the Ex protection standard. This also applies to internal components such as lampholders, terminals and control gear. Apparatus complying with the individual product standard will have its internal components operating within their rated performance when operated at the maximum rated ambient temperature. This contributes to the reliability and, ultimately, the safety of the installation.
Compliance with product standards is the normal method of claiming compliance with the Low Voltage Directive of the EU.

## Operational temperatures

The operational temperature limits, Tamb, are based on both product function and the Ex protection standards. As a general guide the normal upper limit is 40ºC but some equipment is rated at other temperatures which may be linked to the surface temperature rating or the temperature limit of operation. The normal lower limit for Ex products is -20ºC unless otherwise noted on the certificate or data. 40ºC to -20ºC is the standard level given in EN 50014 and if these are the limits, the product does not need to be marked with the Tamb.

Where the range is other than 40ºC to -20ºC the upper and lower limits are both marked. The lowest certified Tamb is not always the actual lowest temperature for functional operation, especially for luminaires where the lamp may not be suitable because of temperature limitation. In some cases the lowest temperature for Ex use is lower than that at which the lamp will start or the product will function properly. The lower limits of operation and starting for lamps and for batteries can be obtained from Chalmit. A guide is -40ºC for HPS, -30ºC for Metal halide, -25ºC for Mercury vapour, as low as -30ºC for fluorescent depending on the control gear used and -10ºC for battery operated equipment.

## 'X' suffix on certificate

Some products carry a suffix 'X' after the certificate number. This denotes "special certification conditions". These are given on the certificate and in the installation manual. The conditions usually relate to cable entry, operation, lamps, orientation, installation position and location, impact level or maintenance. They must be observed by the user.

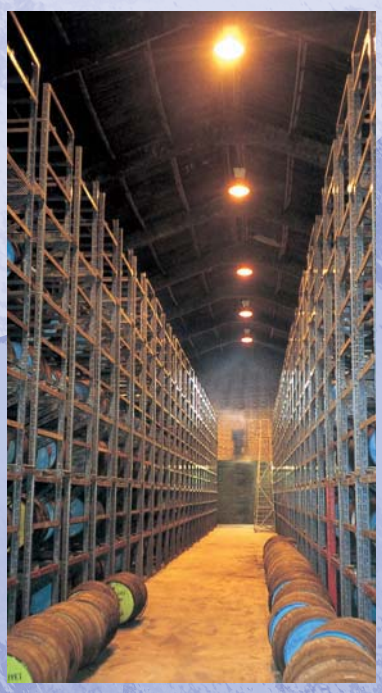
## Delayed opening

In those cases where internal temperatures are greater than the T rating or where energy is stored in electrical components, a delay before opening is marked on the apparatus. This will give a minimum time limit to be observed following the interruption of electrical power. This allows for cooling and discharge of energy. It applies most practically to Ex d apparatus.

For Category 3 apparatus, opening times are not usually given as it is inferred that an explosive atmosphere is unlikely to occur during maintenance operations.

## Cabling and cable glands

Ex d floodlights and well-glass luminaires in this catalogue feature indirect entry via Ex e terminal enclosures. This means that the terminal chamber is separated from the main chamber by a flameproof barrier. Cable glands must satisfy the requirements for Ex e entry with reference to IP rating and impact. The cables must satisfy any requirement laid down in an installation code of practice. Where the entry is via an indirect Ex d terminal chamber or directly into an Ex d enclosure, Ex d cable glands must be used. The method for selecting cable gland types for Ex d is set out in the code of practice EN 60079-14.



Where glands are fitted as part of the apparatus, the diameter of the supply cables used must be suitable for accommodation within the cable glands supplied. If not correct they must be replaced by the user. The terminal size and looping facility available is shown in the product data sheets and IOM. Where there is an option, the requirement must be stated on the order. Apparatus is usually despatched with one or more permanent entry plug(s) and one travel plug which will keep out moisture during transport, storage and initial installation. Ex nR and Ex N apparatus with a restricted breathing enclosure is provided with a means of achieving the gas-tight seal needed to attain the protection method. It is the responsibility of the user to ensure that the cable entry system is satisfactory.

In relation to cable temperature, some products require to be supplied by cables with temperature ratings above 70ºC (ordinary PVC), particularly where the product is rated for higher ambient temperatures. The cable temperature is shown on the rating plate and in the installation manual. The rating is based on the maximum rated ambient. Where cable temperatures exceed 70ºC at the maximum rated ambient, Chalmit now gives the actual temperature rise at the cable entry. The user can relate this to the actual operating condition and select appropriate cables. At their own discretion users may choose to adjust the cable temperature ratings of those products with specific cable temperatures on this basis.

For Ex nR luminaires in this catalogue complying with EN 50021 [IEC 60079-15] the cable glands which may be used are listed in the certificate pertaining to that piece of apparatus. This is to ensure that the restricted breathing properties are maintained. A list of suitable cable glands is given in the installation leaflet supplied with the product and available on request from Chalmit.

Where cables do not enter directly into the restricted breathing enclosure the designation is Ex nA nR and special glands are not required, however the ingress protection and impact requirements must be met. Information on this can be found in the individual product installation leaflet.

## Lamps and control gear

Lamps fall into two broad categories, incandescent lamps where the light is generated by a hot wire element and discharge lamps where the light is generated by an electrical discharge enclosed in a containment vessel usually referred to as the arc tube. Discharge lamps either produce light directly from the hot gas discharge, as is the case with high pressure sodium and metal halide, or by conversion from UV to visible light using a phosphor which absorbs one wavelength and emits another. Phosphors are used in fluorescent and mercury vapour lamps. Apart from some specialist “induction” lamps where the plasma is generated by an external magnetic field, the electrical arc in discharge lamps is formed between electrodes within a vessel or arc tube. Discharge lamps are divided into two types. Low pressure lamps with an evacuated glass vessel filled with inert gas at low pressure and a small amount of metal, usually mercury, and high pressure types where the quartz or ceramic arc tube is filled with sodium, mercury and sometimes a cocktail of rare earth metals which vapourise at high temperature.

The high pressure types have an outer evacuated enclosure to reduce heat loss and protect against the severe corrosion which would occur if the hot arc tube were to be exposed to the atmosphere. The electric arc is unstable so control gear is needed to stabilise it, hence the common term “ballast”. Some discharge lamps are designed so that they can be initiated at normal mains supply voltage but the optimisation of output and efficiency usually means that an enhanced voltage is needed to initiate the arc. Depending on the requirement, this is produced by resonant circuits which boost the voltage during starting or by a separate ignitor producing a high voltage pulse. Fluorescent lamps have cathodes which are usually pre-heated providing ionisation to aid initiation of the arc.

Light emitting diodes (LED) produce light directly by using solid state technology. These are being developed rapidly and have now reached output levels and efficiency where they can be used for illumination rather than decoration and indication. The efficiency is still low but the life can be very long.

The different types of lamps have various characteristics: instant light-slow run up; instant re-strike-long delay: good-poor colour rendering (colour rendering is a method of comparing colours as they appear under a given lamp with their appearance in natural daylight); long-medium life; high-low efficiency; cost; size; fragility; ability to run at low or high temperature; vibration resistance; maximum power; etc. Some lamps are so hot or so bulky that their use must be confined to certain types of Ex protection.

No single lamp type is ideal for all lighting applications but a combination of fluorescent and powerful high intensity discharge lamps will accomplish most tasks. The user must select the combination of light source and protection which suits the application. Table 10 gives a summary of lamp characteristics and their application as applied to general Ex usage. It must be stressed that this is a broad summary and that considerations of lamp economics are both complex and subjective. This applies especially to views on economical life.

The lamp output shown is given in lumens. The lumen is a unit of light which quantifies the amount of luminous power in the visible range. Large diffuse light sources such as fluorescent and coated HID types can not readily be focussed. The ability of the lamp and luminaire to deliver the light to a working surface varies considerably with the lamp type, reflector and luminaire design.

As a generality, the smaller power lamps of each type have lower efficiency and shorter lives, often significantly so. The lamp manufacturers provide large amounts of data but the tables of lamp mortality combined with the reduction of output over the lamp life (lumen depreciation) need to be studied carefully to make a refined judgement. The amount of switching is also an important factor.

| Lamp Type | Tubular Fluorescent and 2 leg compact | Compact Fluorescent | High pressure sodium | Metal Halide | Mercury vapour | Incandescent. GLS and Tungsten-halogen |
|---|---|---|---|---|---|---|
| Lamp Power range W | 18 to 58W | 9 to 55W | 70 to 1 kW | 70 to 2kW | 80 to 400W | 40 to 200W |
| Output range Lumens | up to 6000 | up to 4800 | 6000/130000 | 5000/200000 | 3400/22000 | 375/3100 |
| Physical size | Long | Small | Small to medium | Small to medium | Medium | Medium |
| Temperature of lamp | Cool | Cool | Hot | Very hot | Medium | Medium to very high |
| Efficiency lumens per circuit watt | up to 90 | Up to 85 | Up to 125 | Up to 90 | Up to 70 | Up to 21 |
| Instant light | Yes | Yes | No *(2) | No | No | Yes |
| Lumen depreciation | Slow | Slow | Negligible | Quick | Slow | Negligible |
| Colour rendering Ra | Good up to 90 | Good up to 90 | Poor up to 40 | Good up to 90 | Fair up to 65 | V Good 95/100 |
| Economical life max (hours) | 40000*(1) | 12000 | 30000 | 12000 | 10000 | 1000 |
| Ability to be focussed for floodlighting | No | Limited | Good (tubular) | Good (tubular) | Limited | Some (tubular linear) |
| Emergency operation | Easy | Easy | No | No | No | Very easy (but inefficient) |
| Vibration resistance | Medium | Medium | Good | Good | Good | Poor |
| Most common Ex protection methods | Ex nA Ex e | Ex n Ex d | Ex d Ex nR | Ex d Ex nR | Ex d Ex nR | Ex e Ex d Ex nR |
| T amb range ˚C | -20 to 55 | -20 to 55 | -50 to 60 | -30 to 55 | -20 to 55 | -50 to 60 |
| Common T ratings | T6 to T4 | T6 to T4 | T4 to T2 | T4 to T2 | T4 to T2 | T6 to T2 |

Table 11 Summary of Lamp Characteristics and their Application

* (1) Most fluorescent lamps have an economical life of 15000 hrs but some higher specification lamps are available which can run economically for up to 40000 hours

* (2) HPS lamps are available which have two arc tubes in parallel inside the same envelope and are commonly known as “twin arc” lamps. They give 15% light output immediately after a brief supply interruption which extinguishes the lamp. They also give a longer service life.

## Lamp standardisation

Most IEC type lamps are now standardised in form and cap dimensions even when, as newly developed lamps, they are not included in a standard.

The US type lamps are generally somewhat different and are designed for use with US control gear. Some US fluorescent lamps are superficially identical to IEC lamps but may not run reliably on IEC control gear and vice versa. Some US HPS lamps are identical in operating characteristics with IEC lamps but others have different operating characteristics. US and IEC lamp-cap sizes are often different.

US metal halide lamps usually have quite different operating characteristics to European lamps and there are many varieties. Most must be operated on US control gear and sometimes a specific make of control gear if warranties are to be valid. Great care must be taken with the use of all metal halide lamps and details of their application will be found in the instruction manuals.

Most products for IEC applications in the catalogue are designed to use metal halide lamps compatible with HPS (SON) ballasts. Lamps will also run satisfactorily provided they are compatible with both HPS and MBFU ballast impedances. In all cases check control gear for compatibility. If in doubt with metal halide lamps refer to Chalmit.

Care must also be taken with the specification of compact fluorescent lamps, particularly whether they need to have a starting switch in the lamp. Most of the luminaires in the catalogue use 4-pin compact fluorescent lamps without internal starter switches. HPS/SON lamps with internal ignitors must not be used in Ex n or Ex N equipment. All Chalmit HID luminaires are suitable for use with twin arc HPS/SON lamps.

Please consult Chalmit if there are any uncertainties concerning lamps.

## Lamp disposal

Lamp disposal is not regulated in the UK. Although lamps contain some mercury they are not currently in any category of special waste. Lamps should be broken up in an enclosed vessel before being sent for further disposal. There may be local regulations on waste disposal. In due course there will be an EU directive on waste re-cycling which will apply to lamps. In anticipation of this, a scheme for re-cycling bulk quantities of lamps is available in the UK, details of where lamps can be disposed of can be obtained from Chalmit.

## Control gear and electrical supplies

Incandescent, tungsten-halogen and MBTF(self ballasted discharge) lamps are matched to the supply available and must be ordered accordingly. Discharge lamps are matched to the supply by the use of control gear. The control gear may be suitable for a single rated voltage or, by having taps or by a 'universal' or regulating design, may be suitable for a range of rated voltages. Usually discharge lamps will be standardised, refer to the section on lamps for possible miss-match. Supplies will have a tolerance on the rated or nominal voltage and, in general, the lamps will have a shorter life and produce more light when the actual voltage is higher than rated. This effect is reduced or eliminated with full regulation, usually by electronic control. Electronic control is now common for fluorescent lamps and this gives additional benefits in efficiency and lamp life. There are technical and operational problems with the use of electronic control for HID lamps. In particular these concern the temperature limitations of economical electronic power supplies. Also the efficiency benefits are proportionately much lower than for fluorescent lamps. For these reasons electronic control for high power HID lamps is some way in the future. Operation above rated voltage will also reduce the life of control gear and enclosures, especially where operation is continuous and at the maximum allowable Tamb. The product standards are currently based on having a normal maximum variation of +/- 6% and an extreme variation of +/-10% of rated voltage.

There is a problem in the UK caused by the rationalisation of nominal supply to 230V throughout the EU. The nominal supply in the UK is now 230V whereas the actual measured supply usually remains at or near 240V. Most Chalmit products will have a number of taps which can be selected to match the actual average supply voltage. Continuous operation at more than 6% above of the nominal control gear setting is not advised. To avoid this occurring the ordering of equipment for the actual site voltage or with taps or the use of control gear having regulated operation is required. Most Chalmit products with wound control gear are power factor corrected to values greater than 0.85 depending on the lamp and supply voltage and frequency. PFC can be omitted where supplies have large harmonic components which could damage capacitors. Products with electronic control gear have a power factor near unity. Further information is contained in the product installation manuals. Most Chalmit control gear for high pressure discharge lamps now has thermal protection against the possible effects of rare faults occurring when lamps reach the end of their life.

## Emergency lighting

Some luminaires for emergency lighting are contained in the catalogue. Where remote battery supplies are available these can supply tungsten or tungsten-halogen lamps of appropriate rating from dc supplies. Luminaires such as Protecta, Acclaim, 216, and Sterling having electronic ballasts, can power fluorescent lamps from dc supplies. Most of the remaining range can be run at mains ac voltage from a UPS but the characteristics of the UPS must be compatible with those of the luminaire. For details of operation where full information is not included in the catalogue refer to Chalmit. The Protecta, 261E, Acclaim and Sterling luminaires are also available with integral, self contained nickel-cadmium batteries to provide illumination on ac mains failure. The output is a given percentage of the full luminaire output depending on the lamp size chosen and the duration required.

## Applications

The Chalmit range of lighting products uses a wide range of lamps, each of which is suited to its particular application. The use of high intensity discharge lamps in floodlighting and high bay applications reduces the number of luminaires required with a consequential reduction in the amount of installation and maintenance time as well as cost. The Chalmit range also includes a number of luminaires for single point or local illumination and those using fluorescent lamps provide instant illumination of good light quality using low cost sources. The HID sources allow a compact luminaire construction that will reliably attain a high degree of ingress protection. Many fluorescent sources and the smaller HID sources can be housed in luminaires having plastic enclosures and these have additional applications in certain corrosive environments. The wide range of products and lamps ensures that Chalmit can supply the correct luminaire for the application.

## GLOSSARY

| | |
|---|---|
| **ANSI** | American National Standards Institute |
| **ATEX** | Abr. Directive 94/9/EC Equipment and protective systems intended for use in potentially explosive atmospheres |
| **BASEEFA** | British Approvals Service for Electrical Equipment in Explosive Atmospheres. This was a government organisation that is now closed |
| **BASEEFA 2001** | A private organisation which has taken on much of the work of BASEEFA |
| **BSI** | British Standards Institution |
| **CAA** | Civil Aviation Authority (UK) |
| **CEN** | Committee European de Normalisation |
| **CENELEC** | Committee European de Normalisation Electrique |
| **CIE** | Commision Internationale de Leclairage |
| **CSA** | Canadian Standards Association |
| **EC** | European Communities |
| **EECS** | Electrical Equipment Certification Service (UK). Parent organisation of BASEEFA, now closed |
| **ERA** | The Electrical Research Association (hazardous area testing section became part of ITS) |
| **EU** | The European Union |
| **FM** | Factory Mutual (US) |
| **IEC** | International Electro-technical Commission |
| **IP** | Ingress Protection |

| | |
|---|---|
| **ISA** | Instrument Society of America |
| **ITS** | Intertek Testing Services (formerly part of ERA) |
| **KEMA** | Netherlands Testing Laboratory |
| **NEMA** | National Electrical Manufacturers Association (US) |
| **NRTL** | Nationally Recognised Testing Laboratories (US) |
| **SCS** | SIRA Certification Service (UK) |
| **SOLAS** | Safety of Life at Sea (convention) |
| **T** | Surface Temperature (Max) |
| **Ta/Tamb** | Ambient Temperature |
| **UL** | Underwriters Laboratory Inc. |
| | **LAMP TYPES** |
| **HID** | High intensity discharge |
| **CFL** | Compact fluorescent |
| **MBFU** | Mercury vapour |
| **MBI/HQI** | Metal Halide |
| **MBTF** | Blended mercury vapour |
| **SON/HPS** | High pressure sodium |
| **TH** | Tungsten-halogen |
| **QL** | Induction Lamp |
| **LED** | Light Emmiting Diode |

# PROTECTA III

## Ex e FLUORESCENT

## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The Protecta III luminaire for tubular fluorescent lamps is rugged and high quality.**

**It is constructed using a glass reinforced polyester (GRP) body and polycarbonate diffuser which resist saline and other corrosive environments.**

**Major features of the luminaire are the strength of the enclosure and mounting points together wih the very high degree of ingress protection afforded by the simple reliable construction.**

**All control gear is mounted on the easily removable gear tray for ease of installation and maintenance.**

**The ease of access to lamps and control gear ensures that installation and maintenance will be completed quickly and efficiently.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex eqm (Increased safety Powder filling Encapsulation)** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50014 EN 50017 EN 50019 EN 50028** |
| Certificate: | **EC Type Examination Certificate Baseefa04ATEX0220** |
| Coding: | **II 2 G D EEx eqm II T4 Tamb 55ºC** |
| Enclosure: | **GRP body with polycarbonate cover and brass suspension points** |
| Reflector/Geartray: | **White polyester painted zinc coated steel** |
| Entry: | **4 x M20 cable entries, 2 at each end** |
| Termination: | **3 core 6mm² max. conductor with looping and 16A rating through wiring** |
| Installation: | **Two M8 tapped brass inserts located on rear of body.** |
| Control Gear: | **High Frequency** |
| Relamping: | **Quick release diffuser clamp and hinged cover** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply | **220V - 254V 50/60Hz 220 - 300V dc** |

## Features

**Simple rugged construction**

**Full length easy access diffuser clamp**

**Hinged cover**

**Standard fixing centres**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**dc operation**

**Automatic lamp de-energisation on opening**

**Screwless mains terminals**

**DTS-01 deluge tested**

**Resistant to voltage fluctuations**

**Vibration tested to comply with Lloyds/DNV**

**Gost Approved**

**Cepel Approved**

**IEC Ex Approved**

**CSA Approved**


Chalmit lighting

| | | | |
|---|---|---|---|
| United Kingdom | Tel: +44 (0) 141 882 5555 | Fax: +44 (0) 141 883 3704 | Email: info@chalmit.com |
| Benelux | Tel: +31 (0)302 467 132 | Fax: +31 (0) 302 467 133 | Email: john.van.straalen@planet.nl |
| Abu Dhabi | Tel: +971 2621 3496 | Fax: +971 2631 2152 | Email: rwood@emirates.net.ae |
| Dubai | Tel: +971 4334 2823 | Fax: +971 4334 7974 | Email: albertmf@emirates.net.ae |
| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

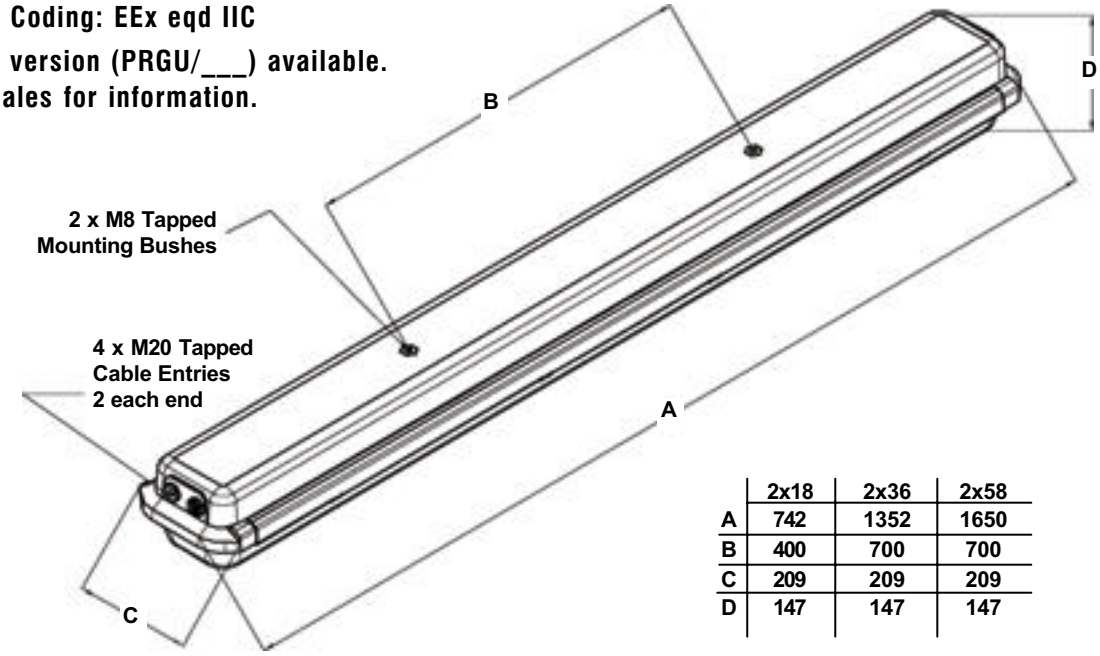
| Std. Cat No. | Part No. | Wattage | Weight |
|---|---|---|---|
| **PRGE/218/BI** | 500231 | 2x18W | 4.2kg |
| **PRGE/136/BI** | 500331 | 1x36W | 9.6kg |
| **PRGE/236/BI** | 500431 | 2x36W | 9.8kg |
| **PRGE/258/BI** | 500831 | 2x58W | 12.0kg |
| **PRGE/218/MO** | 500239 | 2x18W | 4.2kg |
| **PRGE/136/MO** | 500339 | 1x36W | 9.6kg |
| **PRGE/236/MO** | 500439 | 2x36W | 9.8kg |
| **PRGE/258/MO** | 500839 | 2x58W | 12.0kg |

| Options - Suffix to Catalogue No. | |
|---|---|
| **/120** | Specific voltage (110/130) |
| **/SE** | Spigot entry 18W only |
| **/M25** | M25 Entries |
| **/3P** | 3 phase termination facility (Not available if looping required) |
| **/EL** | Extra live termination facility (to match emergency circuit) |
| **/SB** | Stainless steel mounting bush |
| **/LBE** | Looping both sides |

**MO - Mono-pin Lamps**

**Mono-pin Coding: EEx eqd IIC**

**Dust only version (PRGU/___) available. Contact sales for information.**




| | 2x18 | 2x36 | 2x58 |
|---|---|---|---|
| A | 742 | 1352 | 1650 |
| B | 400 | 700 | 700 |
| C | 209 | 209 | 209 |
| D | 147 | 147 | 147 |

| Accessories (Should be ordered separately) | Catalogue Order Code |
|---|---|
| Offset ceiling bracket assembly | **SPRO4-0002** |
| Pole mounting bracket assembly (38/50 diameter poles) | **SPRO4-0003** |
| C' form hook type ceiling bracket assembly | **SPRO4-0005** |
| Flush mounted wall bracket assembly | **SPRO4-0006** |
| Wall mounting outreach bracket (18W spigot entry version) | **NPRO4-0007** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |
| Eyebolt set | **SPRO5-0005** |
| Looping Kit (Allows looping from both ends of luminaire) | **SPROT-0021** |


Chalmit lighting

| | | | |
|---|---|---|---|
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For the latest product information - www.chalmit.com

# PROTECTA III E

## ATEX CATEGORY 2

## Ex e EMERGENCY FLUORESCENT

## ZONE 1 and 21 APPLICATIONS

**The Protecta III emergency luminaire for tubular fluorescent lamps is rugged, technically advanced and high quality.**

**It incorporates comprehensive self testing and an internal battery with the control gear mounted on a gear tray.**

**The emergency light output and duration is outstanding. Protecta is constructed using a glass reinforced polyester (GRP) body and polycarbonate diffuser which resist saline and other corrosive environments. Major features of the luminaire are the strength of the enclosure and mounting points together wih the very high degree of ingress protection afforded by the simple reliable construction.**

**The ease of access to lamps and control gear means that installation and maintenance will be completed quickly and efficiently.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex eqm (Increased safety Powder filling Encapsulation)** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50014 EN 50017 EN 50019 EN 50028** |
| Certificate: | **EC Type Examination Certificate Baseefa04ATEX0220** |
| Coding: | **II 2 G D EEx eqm II T4 Tamb 55ºC** |
| Enclosure: | **GRP body with polycarbonate cover and brass suspension points** |
| Reflector/Geartray: | **White polyester painted zinc coated steel** |
| Entry: | **4 x M20 cable entries, 2 at each end** |
| Termination: | **4 core 6mm² max. conductor with looping and 16A rating through wiring** |
| Installation: | **Two M8 tapped brass inserts located on rear of body** |
| Control Gear: | **High Frequency** |
| Relamping: | **Quick release diffuser clamp and hinged cover** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220V - 254V 50/60Hz** |
| Battery: | **Internal Ni-Cd Battery (6V 4 Ah - 18W, 6V 7Ah - 36W)** |
| Duration: | **90 minutes to EN60598-2-22** |
| Emergency Output: | **30% of one lamp (18W), 25% of one lamp (36W)** |

## Features

**Battery management, monitoring and automatic self test**

**Simple rugged construction**

**Full length easy access diffuser clamp**

**Standard fixing centres**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**dc operation**

**Automatic lamp de-energisation on opening**

**Screwless mains terminals**

**DTS-01 deluge tested**

**Vibration tested to comply with Lloyds/DNV**

**Resistant to voltage fluctuations**

**Emergency inhibition and mains power off re-start**

**Ability to detect and indicate impending end of emergency lamp life before actual failure**

**Gost Approved**

**Cepel Approved**

**IEC Ex Approved**

**CSA Approved**

Chalmit lighting

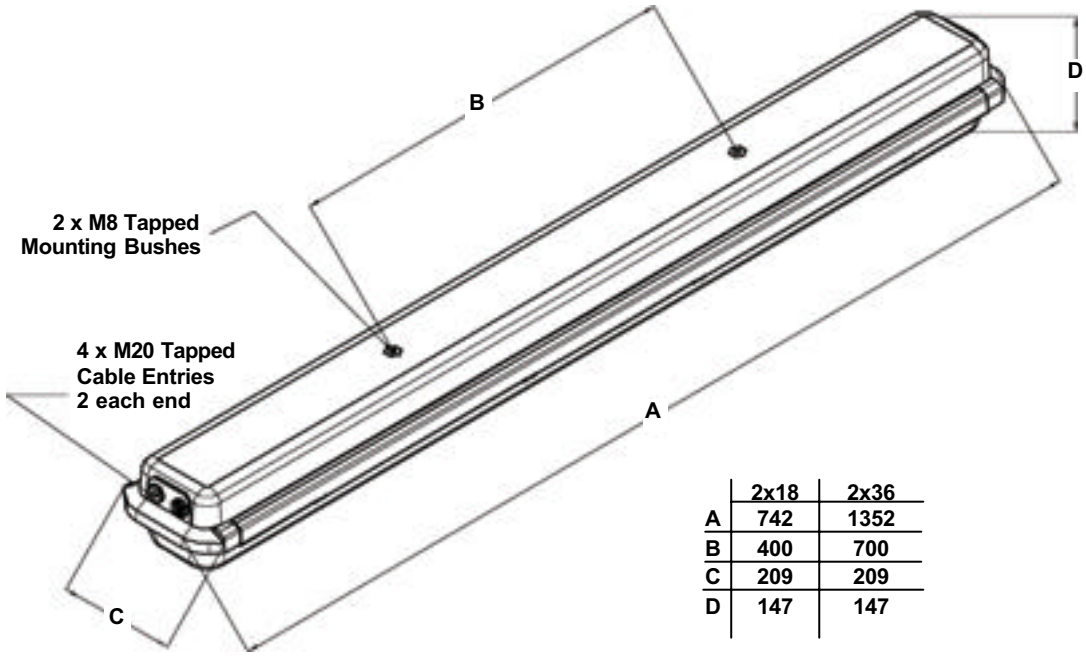
| Std. Cat No. | Part No. | Wattage | Weight |
|---|---|---|---|
| **PRGE/218/BI/EM** | 502231 | 2x18W | 8.3kg |
| **PRGE/236/BI/EM** | 502431 | 2x36W | 12.4kg |
| **PRGE/218/MO/EM** | 502239 | 2x18W | 8.3kg |
| **PRGE/236/MO/EM** | 502439 | 2x36W | 12.4kg |

**MO - Mono-pin lamps**

**Mono-pin coding: EEx eqdm IIC**

**Dust only version (PRGU/___) available.**
**Contact sales for information.**

| Options - Suffix to Catalogue No. | |
|---|---|
| **/120** | Specific voltage (110/130) |
| **/M25** | M25 Entries |
| **/RI** | Remote emergency inhibition facility (External switch ordered separately) |
| **/3P** | 3 phase termination facility (Not available if looping required) |
| **/SB** | Stainless steel mounting bush |
| **/3H** | 3 hour battery |
| **/LBE** | Looping both sides |




| | 2x18 | 2x36 |
|---|---|---|
| A | 742 | 1352 |
| B | 400 | 700 |
| C | 209 | 209 |
| D | 147 | 147 |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Offset ceiling bracket assembly kit | **SPRO4-0002** |
| Pole mounting bracket assembly (38/50mm diameter poles) | **SPRO4-0003** |
| C' form hook type ceiling bracket assembly kit | **SPRO4-0005** |
| Flush mounted wall bracket assembly kit | **SPRO4-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |
| Eyebolt set | **SPRO5-0005** |
| Looping Kit (Allows looping from both ends of luminaire) | **SPROT-0021** |
| Remote Ex switch for emergency inhibition (1 switch controls up to 10 luminaires) | **SPROT-0033** |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# PROTECTA III

## STAINLESS STEEL

## Ex e FLUORESCENT

## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The Protecta III luminaire for tubular fluorescent lamps is also available with a stainless steel body version.**

**This product shares the technical features of the GRP bodied range being rugged and technically advanced. The emergency version has comprehensiveself testing and an internal battery with all the control gear mounted together on a gear tray.**

**Protecta Stainless has excellent durability as it is constructed using 316S31 stainless steel and a polycarbonate diffuser. The product is intended for applications where a risk of mechanical damage or exposure to chemical agents exists.**

**The strong, simple and reliable enclosure affords a high degree of ingress protection. The ease of access to lamps and control gear ensures that installation and maintenance will be completed quickly and efficiently.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex eqm (Increased safety Powder filling Encapsulation)** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50014 EN 50017 EN 50019 EN 50028** |
| Certificate: | **EC Type Examination Certificate Baseefa04ATEX0220** |
| Coding: | **Ex II 2 G D EEx eqm II T4 Tamb 55ºC (45ºC for emergency version)** |
| Enclosure: | **Stainless steel 316S31 body with polycarbonate cover** |
| Reflector/Geartray: | **White polyester painted zinc coated steel** |
| Entry: | **4 x M20 cable entries, 2 at each end** |
| Termination: | **3 core 6mm² max. conductor with looping and 16A rating through wiring (4 core for emergency)** |
| Installation: | **Two M8 tapped stainless steel inserts located on rear of body** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency** |
| Relamping: | **Quick release diffuser clamps and hinged cover** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66 to EN 60529** |
| Electrical Supply: | **220V - 254V 50/60Hz<br>220V - 300V dc (non-emergency only)** |
| Battery: | **Internal Ni-Cd Battery (6V 4 Ah - 18W, 6V 7Ah - 36W)** |
| Duration: | **90 minutes to EN60598-2-22** |
| Emergency Output: | **30% of one lamp (18W), 25% of one lamp (36W)** |

## Features

**Simple rugged construction**

**Hinged cover with easily removeable cover clamps**

**Standard fixing centres**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**Automatic lamp de-energisation on opening**

**Screwless mains terminals**

**Resistance to voltage fluctuations**

**Battery management, monitoring and automatic self test**

**dc operation (non-emergency only)**

**Ability to detect and indicate impending end of emergency lamp life before actual failure**

**Gost Approved**

**IEC Ex Approved**

Chalmit lighting

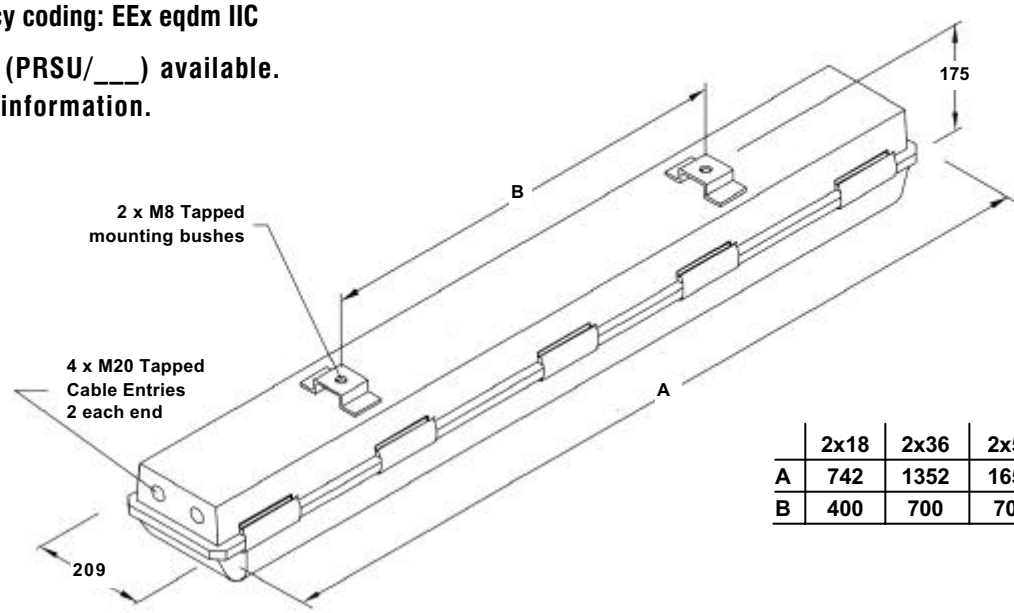
| Std. Cat No. | Part No. | Wattage | Weight |
|---|---|---|---|
| **PRSE/218/BI** | 510231 | 2x18W | 6.0kg |
| **PRSE/136/BI** | 510331 | 1x36W | 8.2kg |
| **PRSE/236/BI** | 510431 | 2x36W | 9.6kg |
| **PRSE/258/BI** | 510831 | 2x58W | 11.8kg |
| **PRSE/218/BI/EM** | 512231 | 2x18W | 9.1kg |
| **PRSE/236/BI/EM** | 512431 | 2x36W | 12.5kg |
| **PRSE/218/MO** | 510239 | 2x18W | 6.0kg |
| **PRSE/136/MO** | 510339 | 1x36W | 8.2kg |
| **PRSE/236/MO** | 510439 | 2x36W | 9.6kg |
| **PRSE/258/MO** | 510839 | 2x58W | 11.8kg |
| **PRSE/218/MO/EM** | 512239 | 2x18W | 9.1kg |
| **PRSE/236/MO/EM** | 512439 | 2x36W | 12.5kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/120** | 110/130V |
| **/M25** | M25 Entries |
| **/3P** | 3 phase termination facility (Not available if looping required) |
| **/EL** | Extra live termination facility (compatible with 4 core switched emergency circuits) |
| **/3H** | 3 hour battery duration |
| **/LBE** | Looping both sides |

**MO - Mono-pin lamps**
**Mono-pin coding: EEx eqd IIC**
**Mono-pin emergency coding: EEx eqdm IIC**

**Dust only version (PRSU/___) available.**
**Contact sales for information.**




| | 2x18 | 2x36 | 2x58 |
|---|---|---|---|
| A | 742 | 1352 | 1650 |
| B | 400 | 700 | 700 |

## Accessories (Should be ordered separately)

| | Catalogue Order Code |
|---|---|
| Offset ceiling bracket assembly kit | **SPRO4-0002** |
| Pole mounting bracket assembly (38/50mm diameter poles) | **SPRO4-0003** |
| C' form hook type ceiling bracket assembly kit | **SPRO4-0005** |
| Flush mounted wall bracket assembly kit | **SPRO4-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |
| Eyebolt kit | **SPRO5-0005** |
| Looping kit (allows looping from both ends of luminaire) | **SPROT-0021** |
| Remote Ex switch for emergency inhibition (1 switch controls up to 10 luminaires) | **SPROT-0033** |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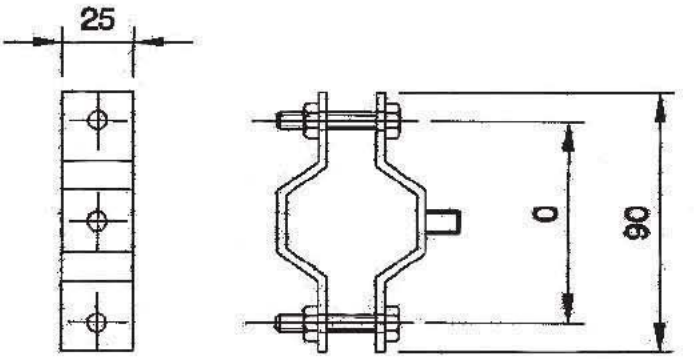
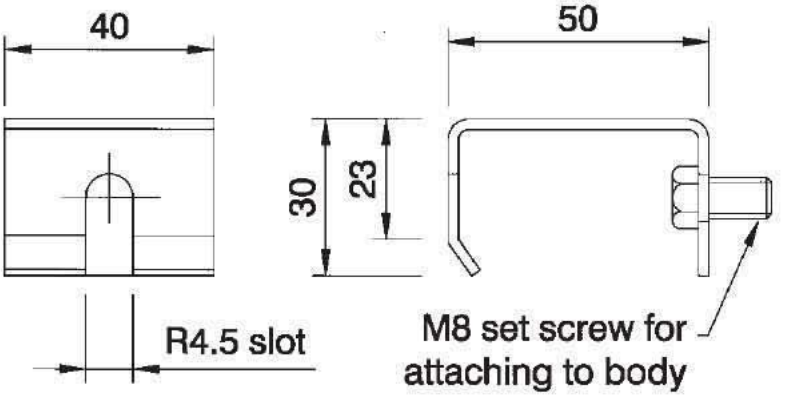
# PROTECTA ACCESSORIES

## Pole Mounting Bracket — Cat No. SPRO4-0003

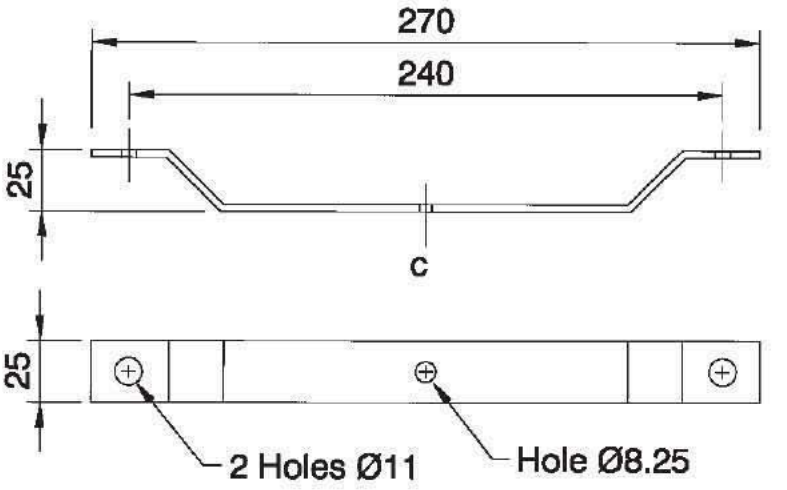



**Pole mounting bracket to suit pole diameter 38mm-50mm**
**Cat No. SPRO4-0003**
**Other sizes available on request.**

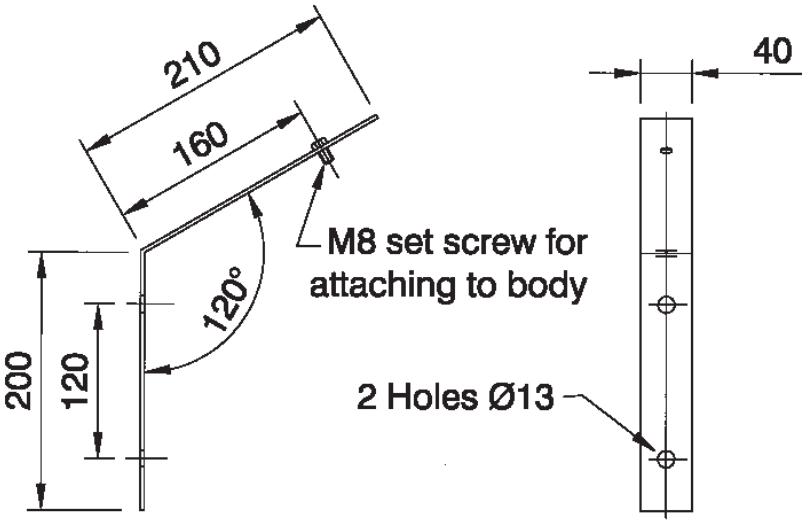
## Hook Type Ceiling Bracket — Cat No. SPRO4-0005



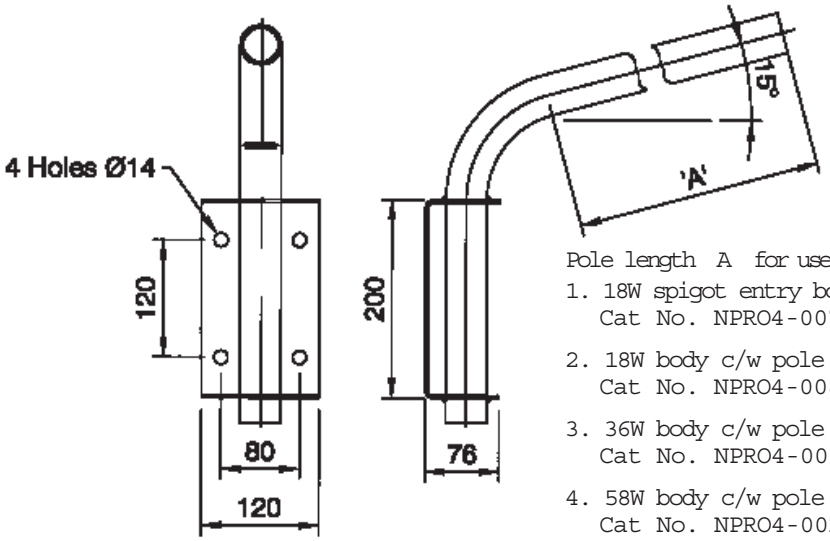

## Ceiling Mounting Bracket — Cat No. SPRO4-0002



## Flush Mounting Wall Bracket — Cat No. SPRO4-0006




## Wall Mounting Outreach Bracket

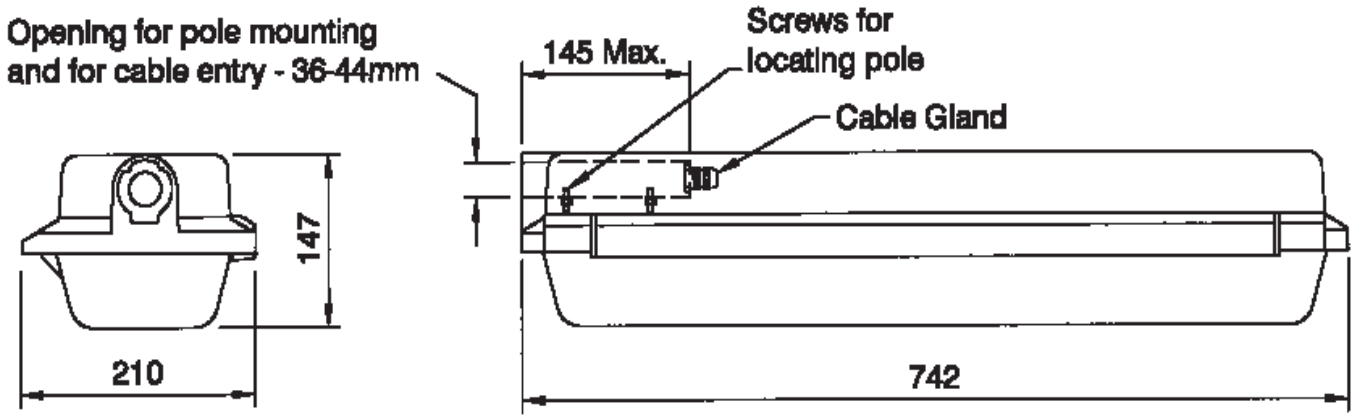



Pole length A for use with the following:

1. 18W spigot entry body, size A = 250mm
   Cat No. NPRO4-007
2. 18W body c/w pole clamps, size A = 650mm
   Cat No. NPRO4-008
3. 36W body c/w pole clamps, size A = 1100mm
   Cat No. NPRO4-0012
4. 58W body c/w pole clamps, size A = 1250mm
   Cat No. NPRO4-0022

Note: Pole clamps for items 2, 3, & 4 must be ordered separately, see product accessories.

## 18W Spigot Entry



# ACCLAIM III

## Ex e RECESSIBLE

## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The Acclaim range of luminaires for fluorescent lamps is available in standard and emergency versions. It is designed for use in offshore accommodation areas and for the pharmaceutical industry where it provides working, emergency and escape lighting.**

**Manufactured from zinc coated sheet steel the luminaire is suitable for installation in fire resistant ceilings up to SOLAS B15 rating.**

**The polycarbonate diffuser is available in clear, prismatic or with a glare control louvre. The mounting and cover details are flexible to allow luminaires to be recessed into a variety of ceiling types.**

**The control gear and batteries are mounted internally on a gear tray and access for lamp replacement and maintenance is simple and easy. The emergency version has excellent light output and duration in accordance with emergency lighting standards.**

**Comprehensive self-testing periodically confirms the availability of sufficient emergency duration.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex eqm (Increased safety Powder filling Encapsulation)** |
| Area Classification: | **Group II Category 2 G D** |
| ATEX Classification: | **Zone 1 and Zone 21 areas to EN60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50014 EN 50017 EN 50019 EN 50028** |
| Certificate: | **EC Type Examination Certificate Baseefa04ATEX0286** |
| Coding: | **II 2 G D EEx eqm II T4 Tamb 55ºC** |
| Enclosure: | **White polyester painted zinc coated steel body and frame. Silicone rubber gasket. Clear polycarbonate diffuser** |
| Reflector/Geartray: | **White polyester painted zinc coated steel** |
| Entry: | **3 x 20mm holes, two at one end and one at the other end** |
| Termination: | **3 core 6mm² max conductor with looping and through wiring facility (4 core on emergency)** |
| Installation: | **Fixed side brackets with swing out arms, with provision for drop rod mounting** |
| Lampholder: | **G13 (Bi pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency** |
| Relamping: | **Via front cover, secured by pan head slotted screws** |
| Burning Position: | **Horizontal** |
| Ingress Protection: | **IP65 to EN 60529** |
| Electrical Supply: | **220V - 254V 50/60Hz<br>220V - 300V dc (non-emergency only)** |
| Battery: | **Internal Ni-Cd battery (6V 4 Ah - 18W, 6V 7Ah - 36W)** |
| Duration: | **90 minutes to EN60598-2-22** |
| Emergency Output: | **30% of one lamp (18W), 25% of one lamp (36W)** |

## Features

**Suitable for various ceiling types**

**Automatic lamp de-energisation on opening**

**Screwless mains terminals**

**Battery management, monitoring and automatic self test**

**Resistant to voltage fluctuations**

**Local switching arrangement as standard**

**Ingress protection to IP65**

**Electronic control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**dc operation (non emergency)**

**3 hour emergency duration (optional)**

**B15 SOLAS fire rating**

**Lloyds fire rating approval for specific ceiling types supplied on request**

**Emergency inhibition and power off re-start**

**IEC Ex Approved**

**CSA Approved**

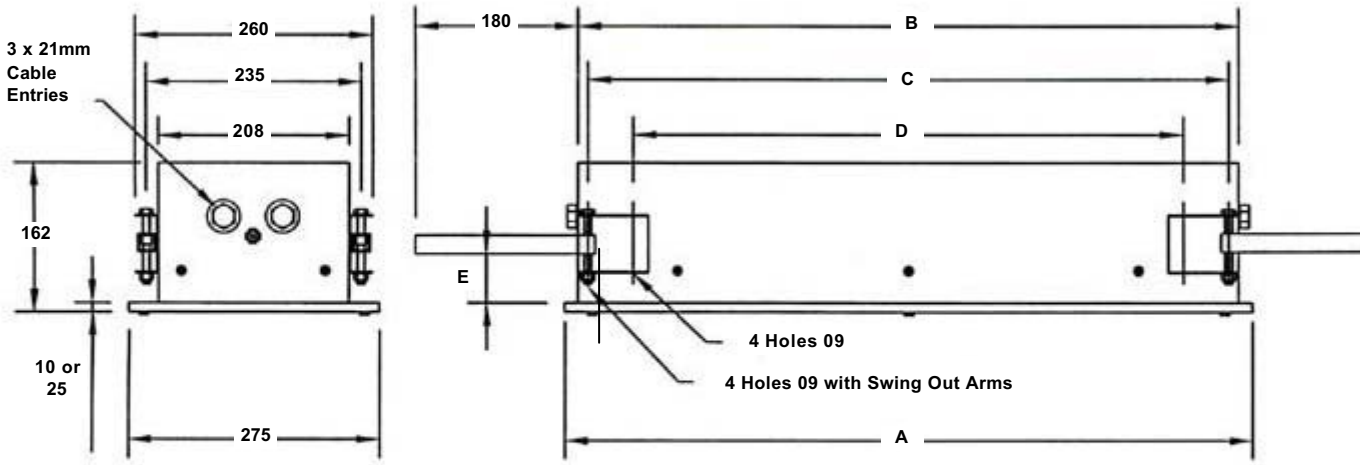
Chalmit lighting

| Std. Cat No. | Wattage | Weight |
|---|---|---|
| **ACLE/218/BI** | 2x18W | 16kg |
| **ACLE/236/BI** | 2x36W | 23kg |
| **ACLE/218/BI/EM** | 2x18W | 19kg |
| **ACLE/236/BI/EM** | 2x36W | 26kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/120** | Specific voltage (110/130) |
| **/25** | 25mm Entries |
| **/RI** | Remote emergency inhibition facility (external switch ordered separately) |
| **/3P** | 3 phase termination facility (not available if through wiring required) |
| **/EL** | Extra live termination facility (compatible with 4 core (switched) emergency circuits) |
| **/LG** | Low glare louvre |
| **/PD** | Prismatic diffuser |
| **/PC** | Plasterboard (solid plank) ceiling |
| **/3H** | 3 hour battery duration |

## Note: Ceiling type must be stated at time of enquiry/order




| | A | B | C | D | E 10mm Cover | E 25mm Cover |
|---|---|---|---|---|---|---|
| 2x18w | 750 | 720 | 699 | 601 | 35 to 70 | 20 to 55 |
| 2x36w | 1365 | 1335 | 1314 | 1216 | | |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# Curie Elite

## Ex e RECESSIBLE

## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The Curie Elite range of luminaires for tubular fluorescent lamps is available in normal and emergency versions. It is designed for use in the pharmaceutical industry where it provides working, emergency and escape lighting. The body is made from zinc coated sheet steel and the diffuser from prismatic polycarbonate with the smooth face outwards. Where it meets the ceiling aperture the body is fitted with a flipper seal which caters for irregularities and provides excellent sealing which meets the requirements of FS209D class 100 clean rooms.**

**The range is flexible to allow luminaires to be recessed into a variety of ceiling types. Versions for standard modular sizes are available.**

**The control gear and batteries are mounted internally on a gear tray and access for lamp replacement and maintenance is simple and easy.**

**The emergency version has excellent emergency light output and duration in accordance with emergency lighting standards. Comprehensive self-testing periodically confirms the availability of sufficient emergency duration.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex eqm (Increased safety Powder filling Encapsulation) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50014 EN 50017 EN 50019 EN 50028** |
| Certificate: | **EC Type Examination Certificate Baseefa02ATEX0117X** |
| Coding: | **II 2 G D EEx eqm II T4 Tamb 50ºC** |
| Enclosure: | **White polyester painted zinc coated steel body and aluminium frame. EPDM rubber gasket. Prismatic polycarbonate diffuser.** |
| Reflector/Geartray: | **White polyester painted zinc coated steel** |
| Entry: | **3 x 20mm diameter holes for cable entries, 2 at one end and 1 at the other end** |
| Termination: | **3 core 6mm² max. conductor with looping and through wiring 16A rating. Emergency version 4 core 6mm² max. conductor with looping and 16A rating through wiring** |
| Installation: | **Fixed side brackets with swing out arms, with provision for drop rod mounting** |
| Lamp Type: | **T8 tubular fluorescent** |
| Lampholder: | **G13 (Bi-pin)** |
| Control Gear: | **High Frequency** |
| Relamping: | **Access via front cover secured by screws** |
| Burning Position: | **Horizontal** |
| Ingress Protection: | **IP65 to EN 60598-1:2000 Satisfies the requirements of FS 209D Class 100 Clean Rooms ISO Standard 1997 Class 5** |
| Electrical Supply: | **220V - 254V 50/60Hz, and 220V - 300V dc non-emergency only** |
| Battery: | **Internal Ni-Cd battery (6V 4 Ah - 18W, 6V 7Ah - 36W)** |
| Battery Duration: | **90 minutes to EN60598-2-22** |
| Emergency Output: | **30% of one lamp (18W), 25% of one lamp (36W)** |

## Features

**Front cover to body seal to IP65**

**Gasket fitted to body at ceiling aperture for sealing to IP65**

**Battery management monitoring & automatic self test**

**Screwless mains terminals**

**Simple and easy access via front cover for lamp replacement and maintenance**

**Suspended gear tray for ease of maintenance**

**Automatic lamp de-energisation on opening**

**Electronic control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**dc operation (non emergency)**

**Local switching arrangement as standard**

**CSA Approved**

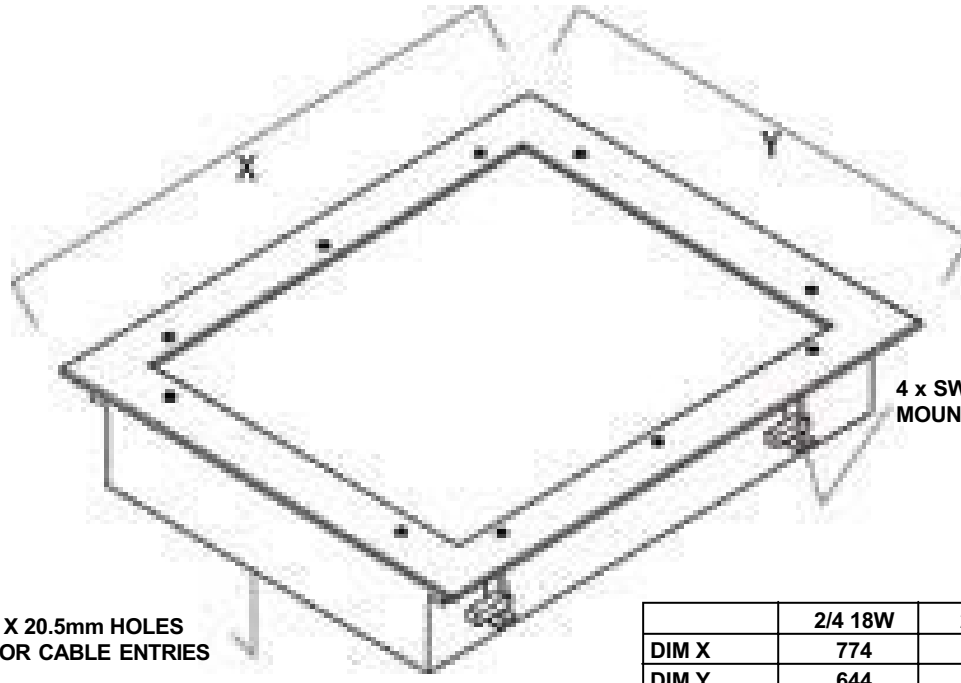
Chalmit lighting

| Std. Cat No. | Wattage | Weight |
|---|---|---|
| **CUEE/218/BI*** | 2x18W | 12.5 |
| **CUEE/418/BI** | 4x18W | 16.0 |
| **CUEE/236/BI** | 2x36W | 16.0 |
| **CUEE/336/BI** | 3x36W | 20.0 |
| **CUEE/436/BI** | 4x36W | 20.0 |
| **CUEE/218/BI/EM** | 2x18W | 14.5 |
| **CUEE/418/BI/EM** | 4x18W | 18.0 |
| **CUEE/236/BI/EM** | 2x36W | 18.0 |
| **CUEE/436/BI/EM** | 4x36W | 22.0 |

***Only available as modular version for /MET or /MST styles**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/120** | Specific voltage (110/120) |
| **/25** | 25mm Entries |
| **/EL** | Extra live termination facility (to match emergency circuit) |
| **/LG** | Low glare louvre |
| **/MET** | Modular – Exposed 'T' ceiling |
| **/MST** | Modular – Spring 'T' ceiling |
| **/2L** | 2 lamp emergency mode (only available in 4 lamp models) |
| **/3H** | 3 hour battery duration |




| | 2/4 18W | 2 x 36W | 3/4 36W |
|---|---|---|---|
| DIM X | 774 | 1383 | 1383 |
| DIM Y | 644 | 402 | 644 |
| APERTURE | 580 x710 | 338 X 1319 | 580 X 1390 |

**NOTE: Contact Sales for dimensional details of modular versions**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# QUAD-F

## Ex d Fluorescent

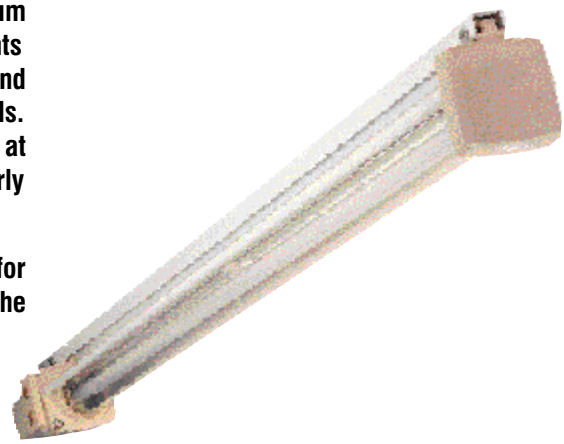
## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The QUAD F is a conventional flameproof luminaire for use with linear and compact fluorescent lamps.**

**Its applications are where white instant light is needed. The aluminium and glass construction is suitable for aggressive chemical environments such as paint spraying, which could otherwise attack plastics. Single and twin lamp versions can be arranged to give high glare free lighting levels. Emergency versions are available to run single lamps up to 58W at reduced power. The emergency version with the 8W lamp is particularly suitable for over door lighting.**

**The design features a single flameproof path giving rapid access for wiring, lamp replacement and to control gear. The cable entry is the simple direct type using flameproof cable glands**



## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex d (flameproof), Ex dm (flameproof encapusulation) emergency version** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and 21 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50014 EN 50028** |
| Certificate: | **EC Type Examination Certificate SIRA02ATEX1356** |
| Coding: | **II 2 G D EEx d IIC (Emer - EEx dm IIC) refer to table for Tamb** |
| Enclosure: | **Zinc alloy body and lampglass ends, boro-silicate glass overtube, epoxy coated steel mounting rail** |
| Reflector/Geartray: | **White polyester painted zinc coated steel** |
| Entry: | **2 x M20 cable entries, (Emergency version 1 x M20)** |
| Termination: | **3 core 4mm² max. conductor with looping 4 core on emergency version (no looping on emergency)** |
| Installation: | **Via steel support rail** |
| Control Gear: | **High Frequency** |
| Relamping: | **Two socket head screws and tapered spigotted flamepath** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **Tubular fluorescent** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply | **220V - 254V 50/60Hz** |

## Features

**Simple rugged construction**

**Hinged cover**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**Resistant to voltage fluctuations**

**Tapered flamepath for easy access to the lamps and terminal chamber**

**Lamp glass suspension when re-lamping**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| | | | |
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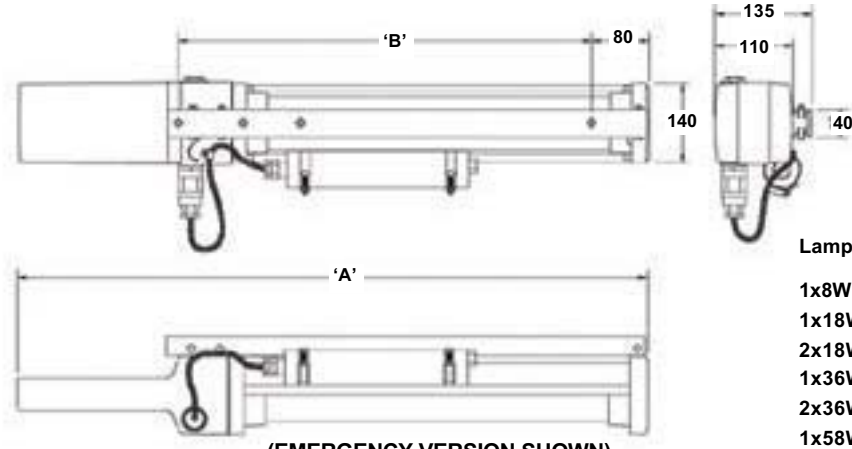
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **QUAD/108/BI** | 1x8W | T5 | G5 | | | 7.5kg |
| **QUAD/118/BI** | 1x18W | T8 | G13 | T6 | 40 | 10.0kg |
| **QUAD/218/BI** | 2x18W | T8 | G13 | T5 | 55 | 10.5kg |
| **QUAD/136/BI** | 1x36W | T8 | G13 | T4 | 70 | 15.7kg |
| **QUAD/236/BI** | 2x36W | T8 | G13 | | | 16.3kg |
| **QUAD/158/BI** | 1x58W | T8 | G13 | | | 18.0kg |
| **QUAD/258/BI** | 2x58W | T8 | G13 | | | 18.5kg |
| **QUAD/108/BI/EM** | 1x8W | T5 | G5 | | | 10.5kg |
| **QUAD/118/BI/EM** | 1x18W | T8 | G13 | | | 13.0kg |
| **QUAD/218/BI/EM** | 2x18W | T8 | G13 | T5 | 50 | 13.5kg |
| **QUAD/136/BI/EM** | 1x36W | T8 | G13 | T6 | 40 | 20.5kg |
| **QUAD/236/BI/EM** | 2x36W | T8 | G13 | | | 20.0kg |
| **QUAD/158/BI/EM** | 1x58W | T8 | G13 | | | 21.8kg |
| **QUAD/258/BI/EM** | 2x58W | T8 | G13 | | | 22.3kg |




(EMERGENCY VERSION SHOWN)

| Lamp | Dimension 'A' | Dimension 'B' |
|---|---|---|
| 1x8W | 645mm | 391mm |
| 1x18W | 918mm | 661mm |
| 2x18W | 918mm | 661mm |
| 1x36W | 1522mm | 1266mm |
| 2x36W | 1522mm | 1266mm |
| 1x58W | 1823mm | 1566mm |
| 2x58W | 1823mm | 1566mm |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/M25** | M25 Entries |
| **/SR** | Stainless steel support rail |

| **Accessories** (Should be ordered separately) | Catalogue Order Code |
|---|---|
| Wire guard for 8W | **SQUAD-0005** |
| Wire guard for 18W | **SQUAD-0006** |
| Wire guard for 36W | **SQUAD-0007** |
| Wire guard for 58W | **SQUAD-0008** |
| 8W Emergency exit kit assembly (c/w right angle wall brackets, pictogram panel and exit labels) | **SQUAD-0014** |
| 8W Emergency plastic pictogram panel | **SQUAD-0015** |
| 8W Emergency exit labels | **SQUAD-0016** |
| Right angle wall mounting brackets | **SQUAD-0017** |
| Pole mounting bracket assembly | **SPRO4-0003** |
| Flush mounting wall bracket assembly | **SQUAD-0019** |
| 8W Emergency exit kit assembly (c/w flush mounting wall brackets, pictogram panel and exit labels) | **SQUAD-0020** |

# EVOLUTION

## Ex d FLOODLIGHT

## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The revolutionary Evolution concept is now highly valued for many applications where its use achieves optimum lighting levels with minimum maintenance costs. There are no exposed flameproof paths. The only essential flameproof path at the lampholder spigot is contained within the increased safety control gear and terminal chamber located at the end of the main flameproof lamp enclosure. This is accessed by a single captive screw in the hinged cover.**

**The protection is Ex de for ignitable gas applications and is dust excluding IP6X for use in ignitable dust applications. The ATEX Categories are 2 G and 2 D. Lamps up to 400W can be used and extended up to 600W with a separate Ex e control gear box.**

**Explosion protection for gas group IIC (Hydrogen) is standard and a low temperature version for gas group IIB at -50ºC is available.**

## Ex d Pendant High Bay

**The Pendant version has simple mounting points and is designed for use in high bay applications.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased Safety) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2 Gas Groups IIA, IIB and IIC** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019 EN 50281-1-1** |
| Certificate: | **EC Type Examination Certificate BAS98ATEX2373** |
| Coding: | **II 2 G D EEx de IIC (refer to table for T rating and Ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490 All fastenings stainless steel. Toughened glass window** |
| Reflector: | **Wide beam, high purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Stirrup mounting bracket with aiming quadrant** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor and timed ignitor** |
| Relamping: | **Access via hinged end cover on release of single screw** |
| Lampholder: | **E40 (R7s for linear Tungsten-Halogen)** |
| Lamp Type: | **HPS, Metal Halide or Tungsten-Halogen** |
| Burning Position: | **Universal for HID, +/-45º on horizontal plain for Tungsten-Halogen lamps** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **110, 120, 220, 230, 240, 254V 50Hz HPS & Metal Halide 24V - 254V ac/dc linear Tungsten-Halogen (500W) 110V - 254V single ended Tungsten-Halogen** |

## Features

**Installation in gas groups IIA, IIB and IIC**

**Easy and quick access for maintenance**

**Simple, rapid lamp replacement and flamepath inspection**

**Reduced maintenance due to no exposed flamepath**

**Exceptional photometric efficiency**

**Effective light distribution for many applications**

**Gost Approved**

**Cepel Approved**

**IEC Ex Approved**

**CSA Approved**

| Std. Cat No. | Wattage | Lamp | Lampholder | T Class (Gas) | T ºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|---|---|
| **EVOD/150/MS** | 150W | HPS and Metal Halide | E40 | T4<br>T3 | 130<br>175 | 40<br>55 | 28kg |
| **EVOD/250/MS** | 250W | HPS and Metal Halide | E40 | T4<br>T3 | 130<br>175 | 40<br>55 | 28.5kg |
| **EVOD/400/MS** | 400W | HPS and Metal Halide | E40 | T3 | 175 | 55 | 28.5kg |
| **EVOD/600/HS*** | 600W | HPS | E40 | T3 | 195 | 35 | 25kg |
| **EVOD/500/TH** | 500W | Single Ended T/Halogen | E40 | T3 | 195 | 40 | 25kg |
| **EVOD/500/TL** | 500W | Linear T/Halogen | R7s | T3 | 195 | 55 | 25kg |

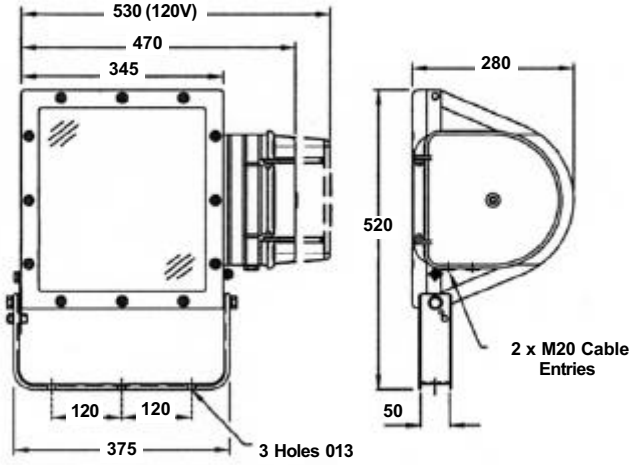
**For Pendant substitute EVPD for EVOD**

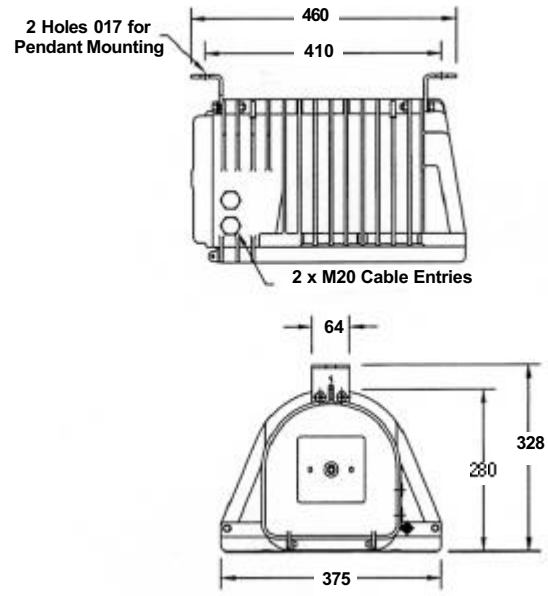
*Ignitor only fitted.

Remote Universal gear box required - see page 58 for details

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/120** | 120V (Weight increase of +12kg) (Extended end cover) |
| **/60** | 60Hz |
| **/M25** | M25 Entries |
| **/N** | Narrow beam reflector |
| **/M** | Medium beam reflector |
| **/P** | PTFE coating |
| **/LT** | Low temperature version -50ºC (Gas groups IIA and IIB only) |
| **/D** | Dust protected (Only marked for dust when this option is added) |




NOTE: 120V version utilises deeper end cover (as shown above)

## Accessories (Should be ordered separately)

| | Catalogue Order Code |
|---|---|
| 284 retrofit bracket (allows Evolution to pick-up 284 fixings) | **SEV01-0001** |
| Pole mounting brackets | **SEV04-0001** |
| Anti-glare shield | **SEV04-0002** |
| Wire guard | **SEV04-0003** |
| Swing jib damper assembly | **SEV01-0015** |
| Swinging jib bracket assembly | **SEV04-0009** |
| 120V Swinging jib bracket assembly | **SEV04-0012** |

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# EVOLUTION II

## ATEX CATEGORY 2

## Ex d ASYMMETRIC FLOODLIGHT ZONE 1 and 21 APPLICATIONS

**The Evolution II takes the unique Evolution features to a new level with greatly improved photometric performance by means of an asymmetric reflector system which gives increased light distribution, coupled with the low glare attributes associated with this type of reflector. As with the original Evolution there are no exposed flameproof paths. The only essential flameproof path at the lampholder spigot is contained within the increased safety control gear and terminal chamber located at the end of the main flameproof lamp enclosure. This is accessed by a single captive screw in the hinged cover.**

**The protection is Ex de for ignitable gas applications and is dust excluding IP6X for use in ignitable dust applications. The ATEX Categories are 2 G and 2 D. Lamps up to 400W can be used and extended up to 600W with a separate Ex e control gear box.**

**Explosion protection for gas group IIB is standard and is suitable for ambient temperatures up to 55ºC.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof, Increased Safety) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2 Gas Groups IIA and IIB** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019 EN 50281-1-1** |
| Certificate: | **EC Type Examination Certificate Baseefa04ATEX0155** |
| Coding: | **II 2 G D EEx de IIB (refer to table for T rating and Ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490 All fastenings stainless steel. Toughened glass window** |
| Reflector: | **Asymmetric beam, high purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Stirrup mounting bracket with aiming quadrant** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor and timed ignitor** |
| Relamping: | **Access via hinged end cover on release of single screw** |
| Lampholder: | **E40 (R7s for linear Tungsten-Halogen)** |
| Lamp Type: | **HPS, Metal Halide or Tungsten-Halogen** |
| Burning Position: | **Universal for HID, +/-45º on horizontal plain for Tungsten-Halogen lamps** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **110, 120, 220, 230, 240, 254V 50Hz HPS & Metal Halide 12V - 250V linear Tungsten-Halogen, 110V - 250V single ended Tungsten-Halogen** |

## Features

**Installation in gas groups IIA and IIB**

**Easy and quick access for maintenance**

**Simple, rapid lamp replacement and flamepath inspection**

**Reduced maintenance due to no exposed flamepath**

**Exceptional photometric efficiency with reduced glare**

**Effective light distribution for many applications**

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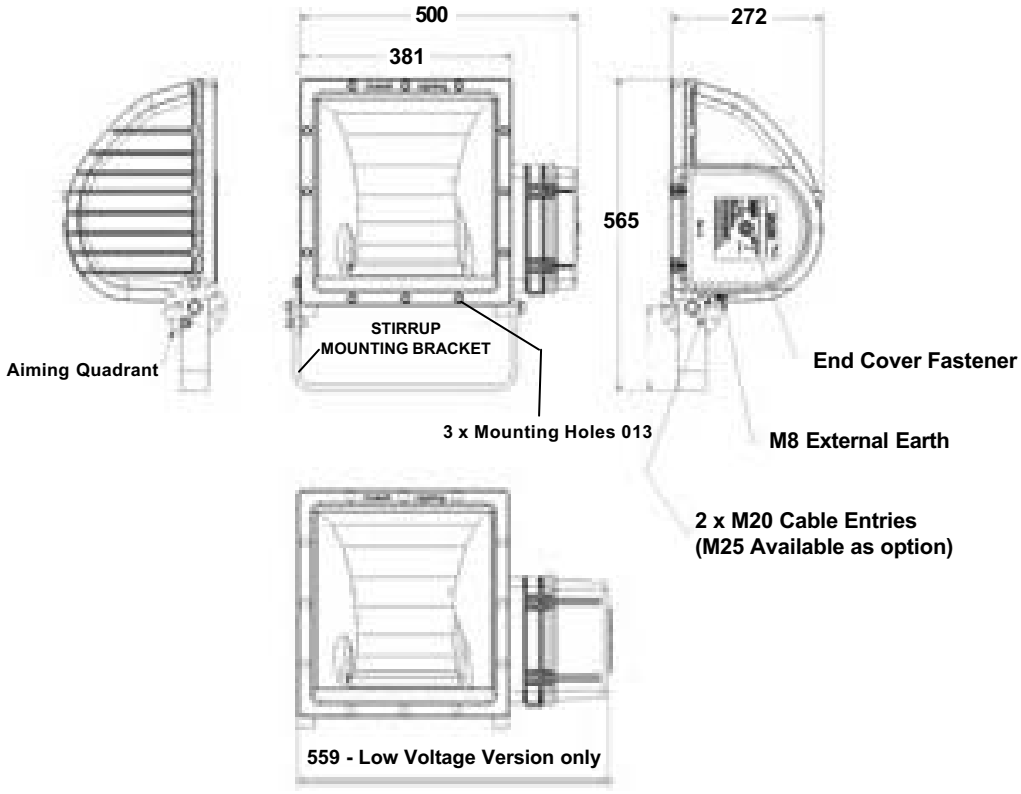
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class (Gas) | T ºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|---|---|
| **EV2D/150/MS** | 150W | HPS and Metal Halide | E40 | T4<br>T3 | 130<br>175 | 40<br>55 | 28kg |
| **EV2D/250/MS** | 250W | HPS and Metal Halide | E40 | T4<br>T3 | 130<br>175 | 40<br>55 | 28.5kg |
| **EV2D/400/MS** | 400W | HPS and Metal Halide | E40 | T3 | 175 | 55 | 28.5kg |
| **EV2D/600/HS*** | 600W | HPS | E40 | T3 | 195 | 35 | 25kg |
| **EV2D/500/TH** | 500W | Single Ended T/Halogen | E40 | T3 | 195 | 40 | 25kg |
| **EV2D/500/TL** | 500W | Linear T/Halogen | R7s | T3 | 195 | 55 | 25kg |

*Ignitor only fitted.
Remote Universal gear box required, see page 58 for details

| Options - | Suffix to Catalogue No. |
|---|---|
| **/120** | 120V (Weight increase of +12kg) |
| **/60** | 60Hz |
| **/M25** | M25 Entries |
| **/P** | PTFE coating |
| **/PE** | Pendant mounted |
| **/N** | Narrow Beam |




NOTE: 120V version utilises deeper end cover (as shown above)

| **Accessories** Should be ordered separately) | Catalogue Order Code |
|---|---|
| 284 retrofit bracket (allows Evolution to pick-up 284 fixings) | **SEV01-0001** |
| Pole mounting brackets | **SEV04-0001** |
| Anti-glare shield | **SEV04-0019** |
| Wire guard | **SEV04-0020** |


| | | | |
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# EVOLUTION JUNIOR

## Ex d FLOODLIGHT

## ATEX CATEGORY 2 ZONE 1 APPLICATIONS

**The Evolution Junior is a lightweight high performance floodlight especially suitable for temporary and transportable lighting.**

**The design features a revolutionary concept where the essential flame-proof path needed for access to the lamp is inside the increased safety terminal chamber and is entered by a hinged cover with a single captive screw. This feature is very useful in temporary and transportable applications where lamps may need to be replaced frequently. Lamps up to 300W tungsten-halogen can be used. The fixed floodlight version uses tubular HPS and metal halide lamps up to 70W. Explosion protection for gas group IIC (Hydrogen) is standard and a low temperature version for gas group IIB at -50ºC is available.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased Safety)** |
| ATEX Classification: | **Group II Category 2 G** |
| Area Classification: | **Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14. Gas Groups IIA, IIB and IIC** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019** |
| Certificate: | **EC Type Examination Certificate BAS99ATEX2228** |
| Coding: | **Ex II 2 G EEx de IIC (refer to table for T rating and Ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490. All fastenings stainless steel. Toughened glass window** |
| Reflector: | **Wide beam, high purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Stirrup mounting bracket** |
| Lamp Type: | **HPS, Metal Halide or Double Ended Linear Tungsten-Halogen** |
| Lampholder: | **R7s or E27** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor** |
| Relamping: | **Access via hinged end cover on release of single screw** |
| Burning Position: | **Universal for HID, +/-45º on horizontal axis for Tungsten-Halogen Lamps** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz (HID)** |

## Features

**Installation in gas groups IIA, IIB and IIC**

**Easy and quick access for maintenance**

**Simple, rapid lamp replacement and flamepath inspection**

**Exceptional photometric efficiency**

**Gost Approved**

**Cepel Approved**


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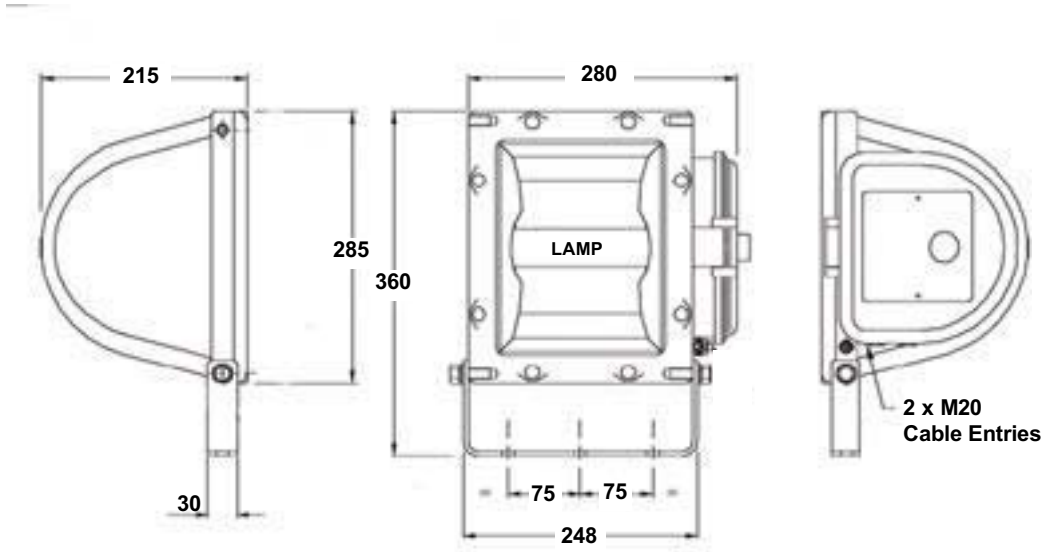
| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **EVJD/070/MS** | 70W | HPS and Metal Halide | E27 | T4 | 40 | 12kg |
| **EVJD/070/MS** | 70W | HPS and Metal Halide | E27 | T3 | 55 | 12kg |
| **EVJD/300/TL** | 150W | Tungsten-Halogen | R7s | T3 | 55 | 10kg |
| **EVJD/300/TL** | 200W | Tungsten-Halogen | R7s | T3 | 40 | 10kg |
| **EVJD/300/TL** | 250W | Tungsten-Halogen | R7s | T3 | 20 | 10kg |
| **EVJD/300/TL** | 250W | Tungsten-Halogen | R7s | T2 | 50 | 10kg |
| **EVJD/300/TL** | 300W | Tungsten-Halogen | R7s | T2 | 40 | 10kg |
| **EVJD/150/TL/24** | 150W 24V | Tungsten-Halogen | R7s | T3 | 55 | 10kg |
| **Secondary Glass Shield Cat Nos.** | | | | | | |
| **EVJD/300/TL/GS** | 150W | Tungsten-Halogen | R7s | T3 | 55 | 10kg |
| **EVJD/300/TL/GS** | 200W | Tungsten-Halogen | R7s | T3 | 25 | 10kg |
| **EVJD/300/TL/GS** | 200W | Tungsten-Halogen | R7s | T2 | 50 | 10kg |
| **EVJD/300/TL/GS** | 250W | Tungsten-Halogen | R7s | T2 | 40 | 10kg |
| **EVJD/150/TL/24/GS** | 150W 24V | Tungsten-Halogen | R7s | T3 | 55 | 10kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/60** | 60Hz |
| **/M25** | M25 Entries |
| **/P** | PTFE coating |
| **/Y** | Yellow painted version |
| **/LT** | Low temperature version -50ºC (IIA & IIB only) |
| **/FS** | Suitable for use with floor stand (floor stand should be ordered separately) |
| **/CGP** | 3 core 1.5mm cable c/w Ex gland, Industrial 110V plug<br>(only when luminaire is supplied with cable fitted - cable should be ordered seperately |
| **/CG** | Cable and Ex gland fitted (order cable separately) |

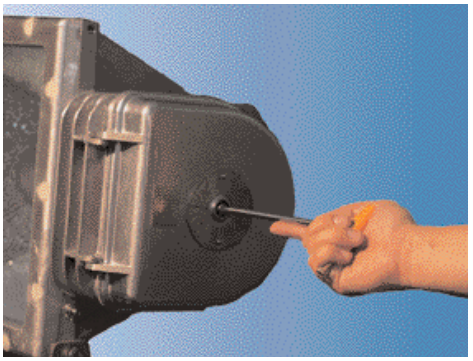



| Accessories (Should be ordered separately) | Catalogue Order Code |
|---|---|
| Pole mounting brackets | **SEVJ4-0003** |
| Anti-glare shield | **SEVJ4-0001** |
| Wire guard | **SEVJ4-0002** |
| Floor stand assembly (to be ordered with floor stand version of floodlight) | **SEVJR-0001** |
| Tripod stand assembly | **SEVJR-0002** |
| Cable (ordered per metre) | **E0414-0009** |
| Ratchet handles (2 off) for adjustable aiming | **SEVJR-0005** |
| M20 brass, zinc plated Ex e gland | **E0420-2020** |

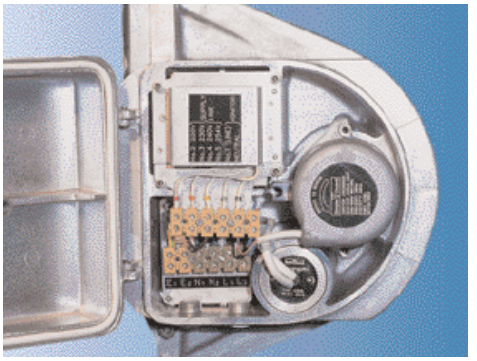
# EVOLUTION

# SERVICING FEATURES

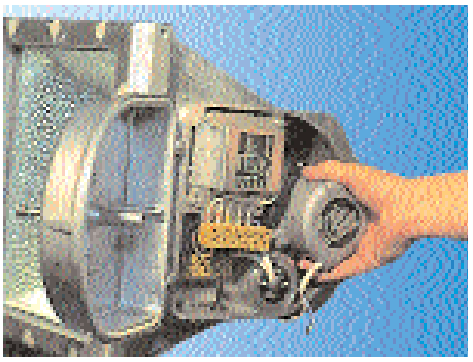
## FLOODLIGHT



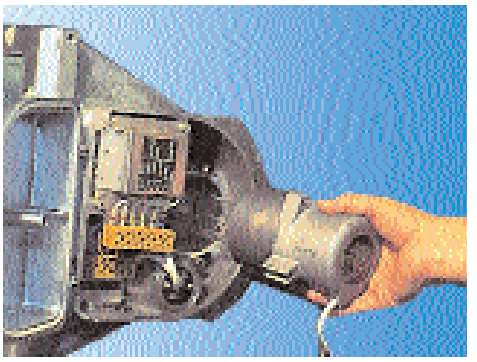
Access to control gear and relamping effected by use of single retained socket head cap screw



View shows the complete access afforded by opening the gear cover.
The mains terminal block and voltage tappings can be clearly seen and are readily accessible



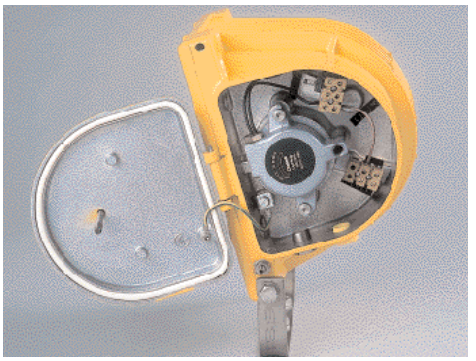
The lamp enclosure is easily removed by disconnecting the lamp supply cables and rotating the housing to disengage from the locating spigots



The lamp housing can then be withdrawn to allow replacement of the lamp and/or inspection of the flamepath. With this done the lamp housing can be inserted back into the enclosure and located on the spigots and the cables connected. The whole operation from start to finish takes less than 3 minutes

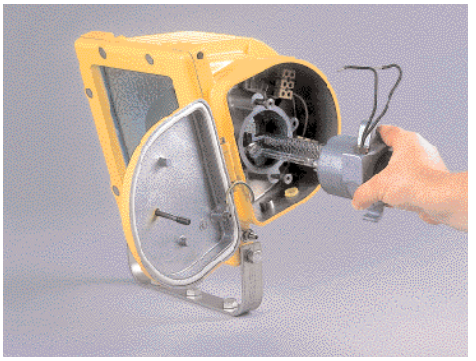
## JUNIOR

Access to control gear and relamping effected by use of single retained socket head cap screw



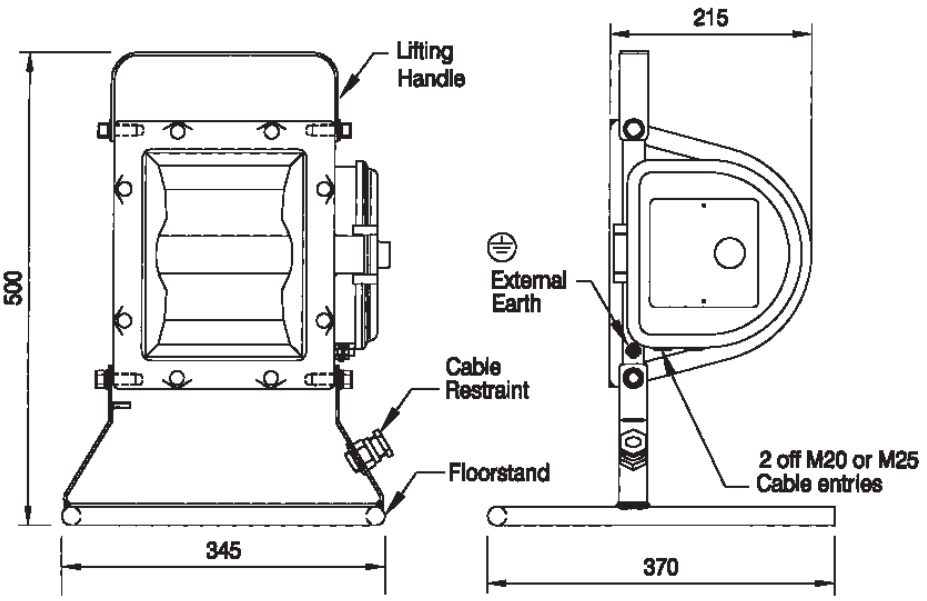
View shows the complete access afforded by opening the gear cover.
The mains terminal block can be clearly seen and is readily accessible

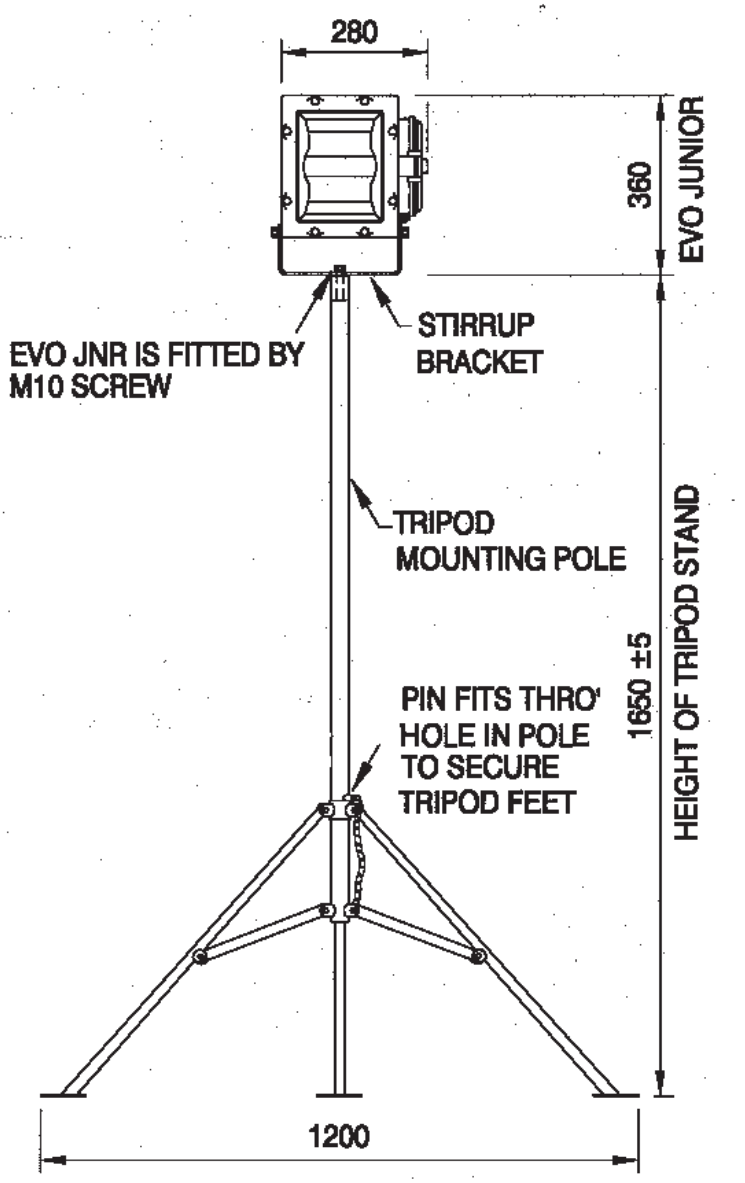
The lamp enclosure is easily removed by disconnecting the lamp supply cables and rotating the housing to disengage from the locating spigots



The lamp housing can now be withdrawn to allow replacement of the lamp and/or inspection of the flamepath. With this done the lamp housing can be inserted back into the enclosure and located on the spigots and the cables connected. The whole operation from start to finish takes less than 3 minutes

# EVOLUTION JUNIOR MOUNTING ACCESSORIES



# NEVIS

## Ex d Bulkhead

## ATEX CATEGORY 2

## ZONE 1 and 21 APPLICATIONS

**The Nevis bulkhead is designed for applications where a low profile robust luminaire is required. It is suitable for mounting on handrails and walls as well as ceilings and in restricted dirty places.**

**The luminaire is made from corrosion resistant aluminium alloy and toughened boro-silicate glass using stainless steel fastenings. It has an IP66/67 rating.**

**The luminaire is suitable for high pressure discharge lamps up to 70W HPS and 125W mercury vapour and also compact fluorescent lamps up to 26W, 200W GLS and 55W QL induction lamps. These give an efficient all around light distribution.**

**The large side mounted increased safety terminal chamber eliminates the need for flameproof glands and allows for flush mounting with easy cable access.**


## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased Safety)** |
| ATEX Classification: | **Group II Category 2 G** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2 Gas Groups IIA and IIB** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019** |
| Certificate: | **EC Type Examination Certificate Baseefa02ATEX0168** |
| Coding: | **II 2 G D EEx de IIB (refer to table for T rating and ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490. All fastenings stainless steel. Toughened glass bowl.** |
| Internal Reflector: | **High purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Flush mounting bracket** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor** |
| Relamping: | **Access via hinged front glass cover assembly** |
| Lampholder: | **E27 for GLS and HID lamps. G24q for compact fluorescent** |
| Lamp Type: | **HPS, Metal Halide, Mercury Vapour, GLS, Compact Fluorescent, MBTF or QL Induction lamp** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz - 70 HPS/Metal Halide<br>220, 230, 240V 50Hz - 80 and 125W MBF/U<br>250V Max GLS/MBTF, 240V - CF, 220-240V QL** |

## Features

**Ex e cable entries and looping as standard**

**Hinged front cover**

**Captive cover screws**

**High ingress protection**

**Internal reflector options**

**Low temperature applications to -55ºC**

**Compact construction**

**GOST Approved**


| | | | |
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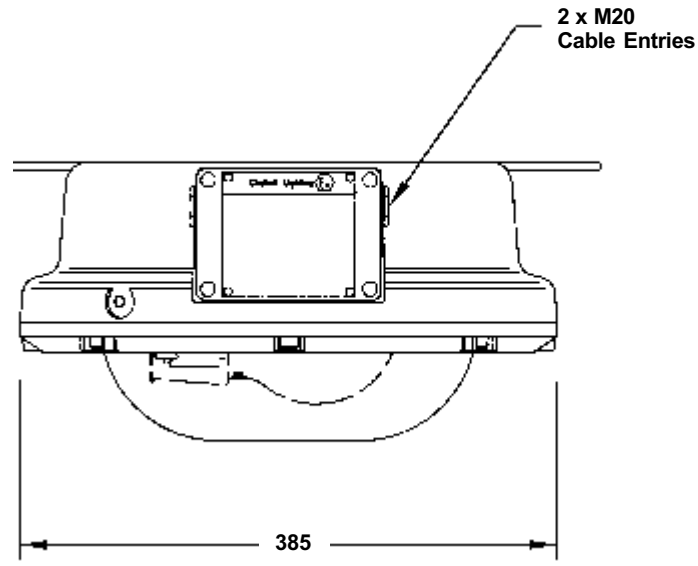
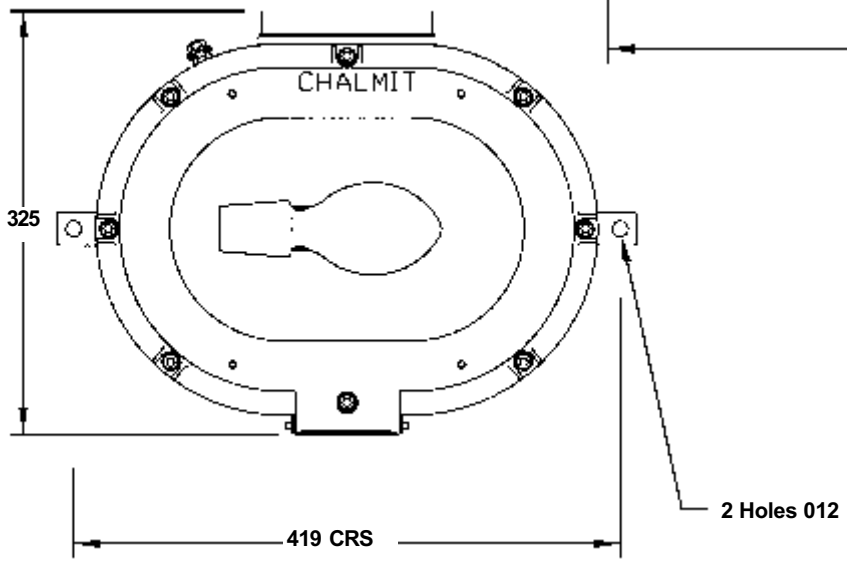
| Dubai | Tel: +971 4334 2823 | Fax: +971 4334 7974 | Email: albertmf@emirates.net.ae |
| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

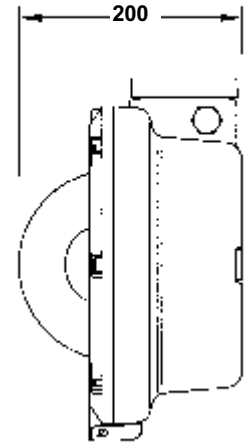
| Std. Cat No. | Wattage | Lamp | T Class | Ambient °C | Weight |
|---|---|---|---|---|---|
| **NEVD/050/MS** | 50W | HPS and Metal Halide | T4 | 55 | 12.5kg |
| **NEVD/070/MS** | 70W | HPS and Metal Halide | T4 | 55 | 12.5kg |
| **NEVD/080/MV** | 80W | Mercury Vapour | T4 | 55 | 12kg |
| **NEVD/125/MV** | 125W | Mercury Vapour | T3 | 40 | 12kg |
| **NEVD/200/GL** | 200W | GLS | T3 | 55 | 11.5kg |
| **NEVD/118/CF** | 18W | Compact Fluorescent | T5 | 55 | 11.9kg |
| **NEVD/126/CF** | 26W | Compact Fluorescent | T5 | 55 | 11.9kg |
| **NEVD/160/MB** | 160W | MBTF | T3 | 40 | 11.5kg |
| **NEVD/055/QL** | 55W | QL | T5 | 55 | 13.5kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (12, 24, 120 - CF, 120 - QL) |
| **/60** | 60Hz |
| **/M25** | M25 entries |
| **/P** | PTFE coating |
| **/TI** | Timed ignitor |
| **/NC** | No power factor correction capacitors fitted |




## Accessories (Should be ordered separately)

| | Catalogue Order Code |
|---|---|
| Pole mounting brackets | **SNEV1-0001** |
| Wire guard | **SNEV1-0002** |


| | | | |
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# 261

# Ex d WELL-GLASS

## ATEX CATEGORY 2 ZONE 1 APPLICATIONS

**The 261 well-glass is a high light output luminaire ideally suitable for demanding environments. It accommodates high pressure discharge lamps up to 400W and also incandescent lamps up to 500W. External reflectors are available making the 261 suitable for medium and high bay applications.**

**The luminaire is made from corrosion resistant aluminium alloy and toughened boro-silicate glass using stainless steel fastenings and has an IP66/67 rating. It features a large side mounted increased safety terminal chamber eliminating the need for flameproof cable glands and allowing for flush mounting.**

**The 261 is suitable for operation at temperatures down to -40ºC on certain lamp ranges**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased Safety)** |
| ATEX Classification: | **Group II Category 2 G** |
| Area Classification: | **Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14 Gas Groups IIA and IIB** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019** |
| Certificate: | **EC Type Examination Certificate BAS01ATEX2309** |
| Coding: | **II 2 G EEx de IIB (refer to table for T rating and Ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490. All fastenings stainless steel. Toughened glass bowl** |
| Reflector: | **High purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Stirrup mounting bracket** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor** |
| Relamping: | **Access via front glass cover assembly** |
| Lampholder: | **E40** |
| Lamp Type: | **HPS, Metal Halide, Mercury Vapour and GLS** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz (HID)<br>110V - 240V ac/dc (GLS)** |

## Features

**Ex e terminal chamber**

**Stainless steel fasteners**

**Anchor chain on glass cover assembly**

**Low temperature applications to -40ÞC**


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| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

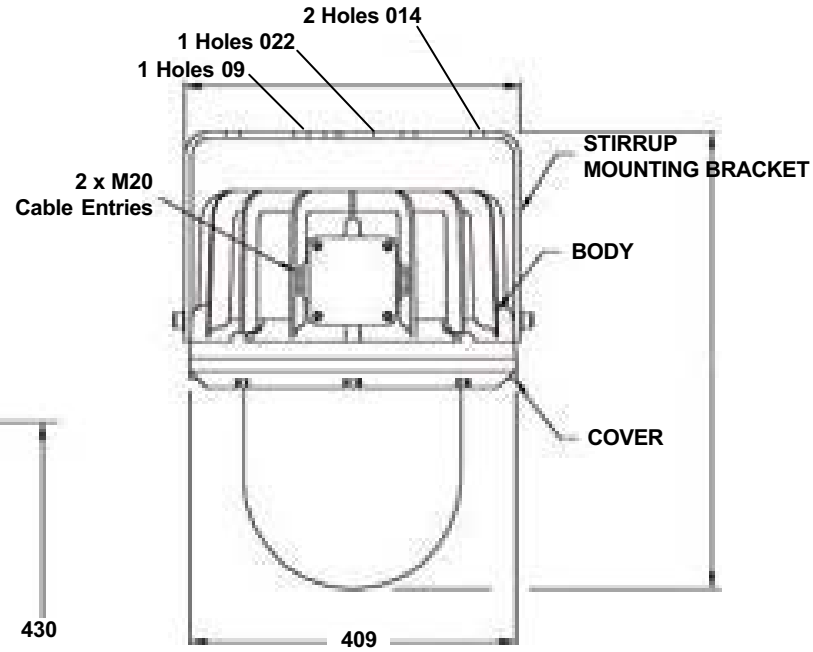
| Std. Cat No. | Wattage | Lamp | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|
| **261D/150/HS** | 150W | HPS | T4 | 40 | 31kg |
| **261D/250/HS** | 250W | HPS | T4 | 40 | 32kg |
| **261D/400/HS** | 400W | HPS | T3 | 50 | 33kg |
| **261D/125/MV** | 125W | Mercury Vapour | T4 | 40 | 31kg |
| **261D/250/MV** | 250W | Mercury Vapour | T4 | 40 | 32kg |
| **261D/400/MV** | 400W | Mercury Vapour | T4 | 40 | 33kg |
| **261D/250/MH** | 250W | Metal Halide | T4 | 40 | 32kg |
| **261D/400/MH** | 400W | Metal Halide | T4 | 40 | 33kg |
| **261D/500/GL** | Up to 500W | GLS | T4 | 40 | 29kg |
| **261D/150/HS/F*** | 150W | HPS | T4 | 50 | 31kg |
| **261D/250/HS/F*** | 250W | HPS | T4 | 50 | 32kg |
| **261D/125/MV/F*** | 125W | Mercury Vapour | T4 | 70 | 31kg |

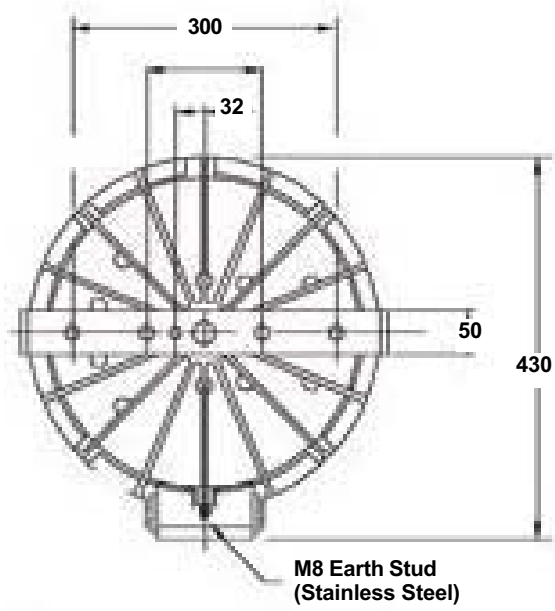
***F - Flush / Pendant Mounted Version**

Note: When the external reflector is fitted with the flush/pendant version, the 'T' class and ambients stated above apply.
When fitted to the stirrup mounted version the 'T' class changes to T3 with the ambient remaining the same.

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/P** | PTFE coating |
| **/M25** | M25 Entries |
| **/60** | 60 Hz |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket | **S2610-0001** |
| Wire guard | **S2610-0003** |
| External reflector | **S2610-0007** |

# 238

# Ex d WELL-GLASS

## ATEX CATEGORY 2 ZONE 1 APPLICATIONS

**The 238 well-glass luminaire is ideal for use where a compact and powerful source of area lighting is needed.**

**The range accommodates high pressure discharge lamps up to 250W and also incandescent GLS lamps up to 300W. External reflectors are available to provide light control for efficient low and medium height operation.**

**The luminaire is made from corrosion resistant aluminium alloy and toughened boro-silicate glass using stainless steel fastenings. It has an IP66/67 rating.**

**The luminaire features a large side mounted increased safety terminal chamber eliminating the need for flame-proof cable glands and allowing flush mounting. The 238 is suitable for a wide range of high and low temperature applications.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased Safety)** |
| ATEX Classification: | **Group II Category 2 G** |
| Area Classification: | **Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14 Gas Groups IIA and IIB** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019** |
| Certificate: | **EC Type Examination Certificate BAS01ATEX2308** |
| Coding: | **II 2 G EEx de IIB (refer to table for T rating and ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490. All fastenings stainless steel. Toughened glass bowl.** |
| Internal Reflector: | **High purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Flush mounting bracket** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor** |
| Relamping: | **Access via front glass cover assembly** |
| Lampholder: | **E27 or E40** |
| Lamp Type: | **HPS, Metal Halide, Mercury Vapour, GLS, QL or MBTF** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz - 70, 150 & 250W HPS/Metal Halide<br>220, 230, 240V 50Hz - 80, 125, 250W MBF/U & 100W HPS<br>250V Max GLS/MBTF** |

## Features

**Ex e cable entries and looping as standard**

**Anchor chain on glass cover assembly**

**High ingress protection**

**External reflector (option)**

**Low teperature applications to -50ºC**

**Compact construction**

**Gost Approved**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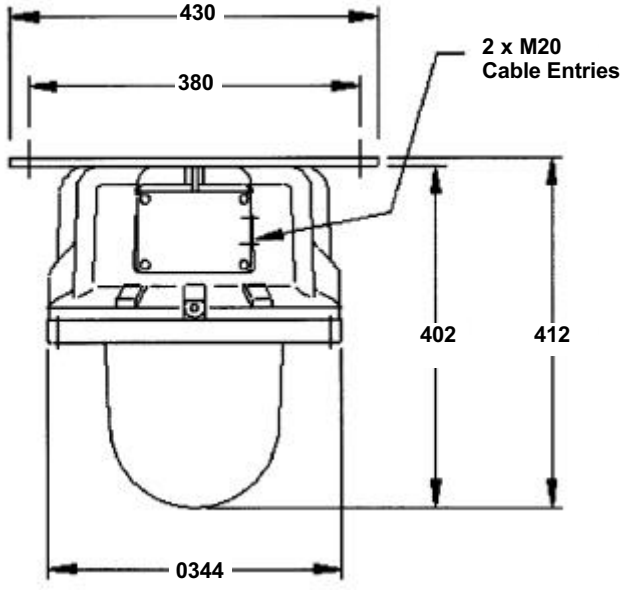
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **238D/070/HS** | 70W | HPS | E27 | T4 | 70* | 17kg |
| **238D/100/HS** | 100W | HPS | E40 | T4 | 60* | 17kg |
| **238D/150/MS** | 150W | HPS and Metal Halide | E40 | T4 | 40 | 18kg |
| **238D/250/MS** | 250W | HPS and Metal Halide | E40 | T3 | 40* | 20kg |
| **238D/080/MV** | 80W | Mercury Vapour | E27 | T4 | 60* | 17kg |
| **238D/125/MV** | 125W | Mercury Vapour | E27 | T4 | 40 | 17kg |
| **238D/250/MV** | 250W | Mercury Vapour | E40 | T3 | 40* | 19.5kg |
| **238D/150/GL** | 150W | GLS | E27 | T4 | 70* | 15.5kg |
| **238D/200/GL** | 200W | GLS | E27 | T4 | 50 | 15.5kg |
| **238D/300/GL** | 300W | GLS | E27 | T4 | 40 | 15.5kg |
| **238D/160/MB** | 160W | MBTF | E27 | T3 | 50* | 15.5kg |
| **238D/085/QL** | 85W | QL | QL | T5 | 55 | 16.0kg |
| **238D/070/HS/T5** | 70W | HPS | E27 | T5 | 40 | 17kg |
| **238D/150/MS/T3** | 150W | HPS and Metal Halide | E40 | T3 | 55* | 18kg |
| **238D/125/MV/T3** | 125W | Mercury Vapour | E27 | T3 | 50* | 17kg |

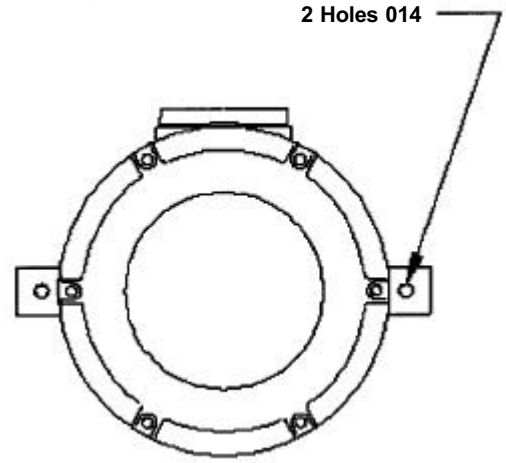
**Note: Refer to installation leaflet for cable rating on models marked ***

**The 250W luminaires have a 70ºC cable rating at ambients of 30ºC**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/120** | 120V QL only |
| **/60** | 60Hz |
| **/M25** | M25 entries |
| **/P** | PTFE coating |
| **/S** | Stirrup mounting bracket |
| **/NC** | No power factor correction capacitors fitted |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket (stirrup mounting version only) | **S2610-0001** |
| Wire guard | **S2381-0002** |
| External reflector | **S2380-0001** |

# 216

# Ex d WELL-GLASS

## ATEX CATEGORY 2 ZONE 1 APPLICATIONS

**The 216 well-glass luminaire is ideal for use where a compact, robust and efficient source of localised lighting is needed.**

**The range accommodates high pressure discharge lamps up to 80W Mercury Vapour and 70W HPS also incandescent up to 200W and compact fluorescent lamps up to 26W.**

**The 216 is made from corrosion resistant aluminium alloy and toughened boro-silicate glass using stainless steel fastenings and has an IP66/67 rating.**

**The luminaire features a large side mounted increased safety terminal chamber eliminating the need for flame-proof cable glands and allowing flush mounting.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased safety)** |
| ATEX Classification: | **Group II Category 2 G** |
| Area Classification: | **Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14 Gas Groups IIA and IIB** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019** |
| Certificate: | **EC Type Examination Certificate BAS01ATEX2307** |
| Coding: | **II 2 G EEx de IIB (refer to table for T rating and ambient)** |
| Enclosure: | **Aluminium alloy LM6 to BS 1490. All fastenings stainless steel. Toughened glass bowl** |
| Reflector: | **High purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Flush mounting bracket** |
| Control Gear: | **Internal copper/iron with PFC correction capacitor** |
| Relamping: | **Access via front glass cover assembly** |
| Lampholder: | **E27 for GLS and HID lamps. G24q for compact fluorescent** |
| Lamp Type: | **High Pressure Sodium, Mercury Vapour, GLS and Compact Fluorescent** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220,230,240,254V 50Hz (H.I.D)<br>250V max (GLS)<br>240V (CF)** |

## Features

**Highly resistant to mechanical damage and corrosion**

**Stainless steel fasteners**

**Compact and efficient**

**Ex e terminal chamber**

**Compact fluorescents have 6 times the life of tungsten lamps and consume 80% less power. They can be easily controlled by ac/dc supplies using high efficiency electronic control gear**

**Anchor chain on glass cover assembly**

**Suitable for use down to -50ºC ambient**

**Gost Approved**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| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

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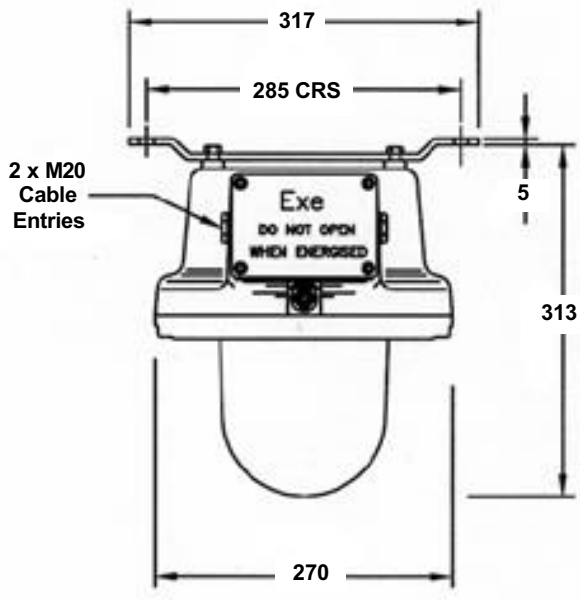
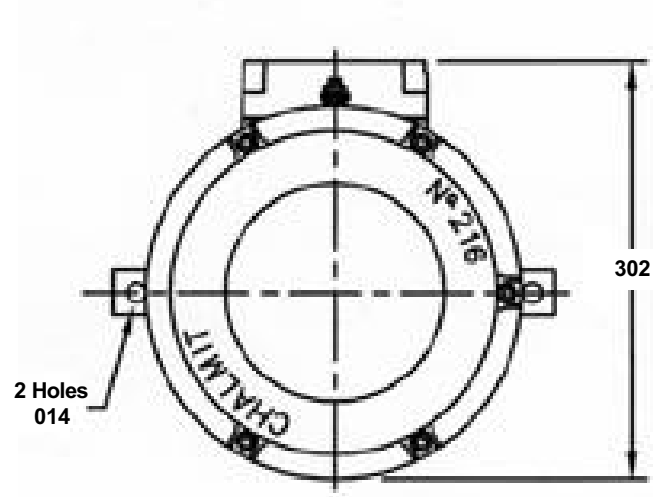
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient°C | Weight |
|---|---|---|---|---|---|---|
| **216D/050/HS** | 50W | HPS | E27 | T4 | 50 | 9.5kg |
| **216D/070/HS** | 70W | HPS | E27 | T4 | 40* | 10kg |
| **216D/080/MV** | 80W | Mercury Vapour | E27 | T4 | 40 | 10kg |
| **216D/100/GL** | 100W | GLS | E27 | T4 | 55 | 9.5kg |
| **216D/200/GL** | 200W | GLS | E27 | T3 | 55 | 9.5kg |
| **216D/113/CF** | 1x10/13W | 4-pin Compact Fluor | G24q | T6 | 55 | 9.5kg |
| **216D/118/CF** | 1x18W | 4-pin Compact Fluor | G24q | T5 | 55 | 9.5kg |
| **216D/126/CF** | 1x26W | 4-pin Compact Fluor | G24q | T5 | 55 | 9.5kg |
| **216D/213/CF** | 2x10/13W | 4-pin Compact Fluor | G24q | T5 | 40 | 10kg |
| **216D/218/CF** | 2x18W | 4-pin Compact Fluor | G24q | T5 | 40 | 10kg |

* 45°C ambient version available as option

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (12,24,50,110,120, 130 compact flourescent |
| **/60** | 60Hz |
| **/M25** | M25 Entries |
| **/P** | PTFE coating |
| **/2P** | 2 Pin compact fluorescent version c/w switch start control gear (single lamp version only) |
| **/S** | Stirrup mounting bracket |
| **/BC** | BC lampholder for GLS versions |
| **/45** | +45 °C Ambient for 70W HPS version only |

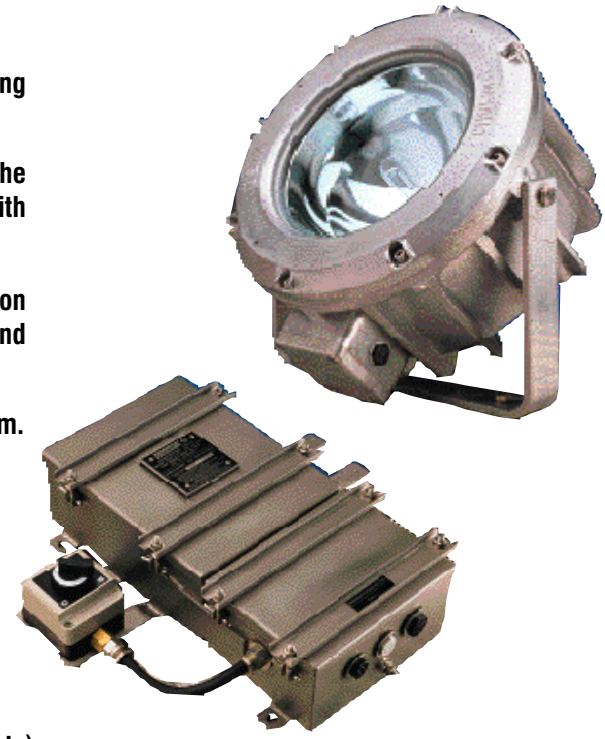



| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket (stirrup mounting version only) | **S2160-0002** |
| Pole mounting bracket c/w stirrup (retro fit for flush mounting bracket) | **S2160-0004** |
| Wire guard | **S2160-0007** |
| External reflector | **S2160-0010** |

# 261E and 723
## EMERGENCY PROJECTOR

## Ex d and Ex e PROTECTION
## ZONE 1 APPLICATIONS



**The 261 projector with 723 battery box is a system for use during emergency escape conditions.**

**The electronic lamp and battery controls are contained in the 261 and the Ni-Cd batteries are contained in the 723 stainless steel enclosure with terminal chamber. They are connected by a multi-core cable.**

**The 70W SON/T lamp allows the power available in emergency operation to be directed to where it is needed rather than providing all around illumination. An application is life-boat launching areas.**

**The unit is supplied from the mains and uses an internal 24v dc system. A manual Ex d switch is provided as standard to initiate operation. Remote or automatic control is an option.**

**Illumination is only provided in emergency operation.**

**The nominal duration is 90 mins. Recharge time is 24 Hours.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Luminaire: Ex de (Flameproof Increased Safety)**<br>**Battery Box: Ex em (Increased Safety Encapsulation)** |
| Area Classification: | **Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019 and EN 50028** |
| Certificate: | **EC Type Examination Certificate BAS01ATEX2310**<br>**Battery Box: Baseefa03ATEX0003** |
| Coding: | **261E: EEx de IIB T4 Tamb 40**<br>**723: EEx em II T4 Tamb 40** |
| Enclosure: | **Luminaire: Aluminium alloy LM6 to BS 1490.**<br>**All fastenings stainless steel. Toughened glass window**<br>**Battery Box: Stainless steel 316S31 with silicone rubber gasket** |
| Reflector: | **Narrow beam high purity anodised aluminium** |
| Entry: | **2 x M20 cable entries for mains supply and**<br>**1 x M25 cable entry for interconnection** |
| Termination: | **3 core 6mm² max. conductor with looping for mains supply and 12 core 1.5mm² luminaire to battery box** |
| Installation: | **Luminaire: Stirrup mounting bracket**<br>**Battery Box: Flat straps** |
| Control Gear: | **Electronic** |
| Relamping: | **Access via front glass cover assembly** |
| Lampholder: | **E27 or Rx7s** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 250V 50Hz and 60Hz** |
| Emergency Light Duration: | **90 minutes** |

## Features

**Ex e terminal chamber**

**Stainless steel fasteners, marine grade**

**Anchor chain on glass cover assembly**

**Increased safety battery**

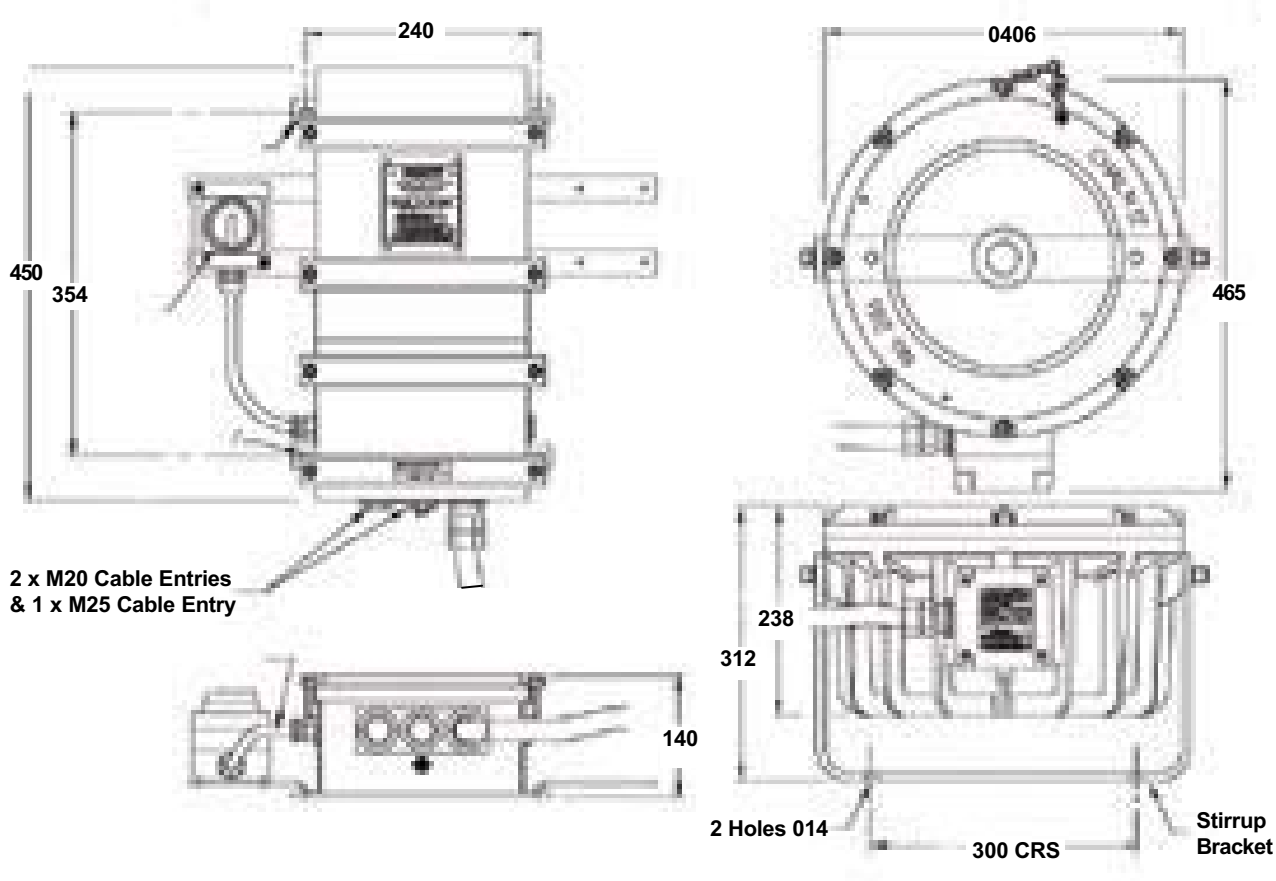
Chalmit lighting

| Std. Cat No. | Wattage | Lamp | Lampholder | Weight | |
|---|---|---|---|---|---|
| | | | | Flood | Battery Box |
| **261E/070/HS/EM** | 70W | HPS | E27 | 28.0kg | 22.0kg |
| **261E/070/MS/EM** | 70W | HPS or Metal Halide Double Ended | Rx7s | 28.0kg | 22.0kg |

Standard catalogue number incorporates both floodlight and box.

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/M25** | M25 Entries (on 723 box) |
| **/P** | PTFE coating |
| **/NS** | Battery box without manual switching arrangement (automatic operation) |
| **/W** | Wide beam |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket | **S2610-0001** |
| Wire guard | **S2610-0005** |
| Slave unit for operation on UPS 24dc 110/254ac | **Details on request** |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# HANDILITE

## Ex m FLUORESCENT

## ATEX CATEGORY 2 ZONE 1 APPLICATIONS

**For applications where a handheld light source is required to be used in a Zone 1 or 2 hazardous area, the Handilite is the ideal luminaire for the occasion. Weighing less than 1kg and being fully insulated to class II & III it can be used in confined working spaces with complete confidence.**

**The 8W fluorescent lamp is operated by use of high frequency electronic control gear, meaning no flickering or stroboscopic effect.**

**The lamp tube is manufactured from impact resistant polycarbonate with rubber end caps and is fitted with a hanging hook. The Handilite is fully submersible to a depth of 50 metres. (IP68).**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex me (Encapsulated Increased safety)** |
| ATEX Classification: | **Group II Category 2 G** |
| Area Classification: | **Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50014 EN 50019 EN 50028** |
| Certificate: | **EC Type Examination Certificate ISSeP03ATEX032X** |
| Coding: | **II 2 G EEx em IIC T5** |
| Enclosure: | **High impact polycarbonate lamp tube** |
| Control Gear: | **High Frequency** |
| Lamp Type: | **T5 Tubular Fluorescent** |
| Lumen Output: | **8W : 500** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 & 68 to EN 60529** |

## Features

**Low weight**

**Robust construction**

**Hanging hook**

**Wide voltage range**

**High IP rating**


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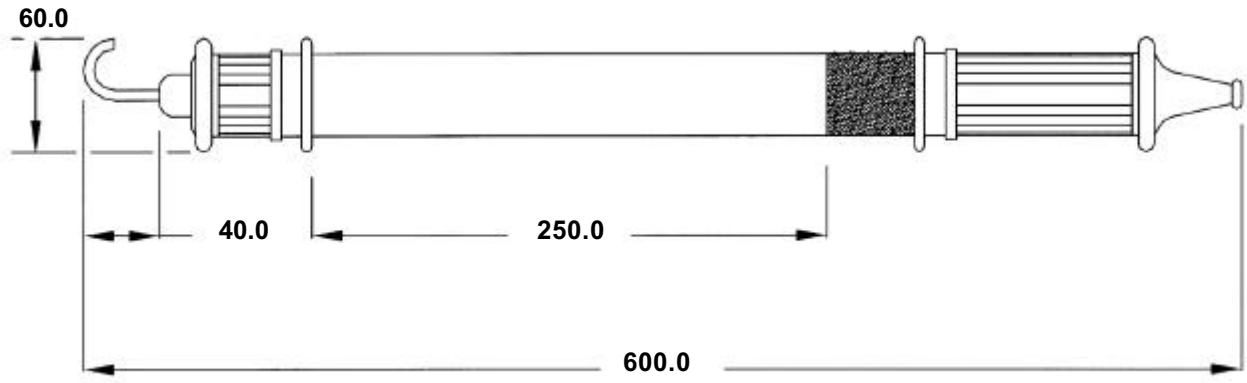
| Std. Cat No. | Wattage | Lumen | Voltage | Current | Weight |
|---|---|---|---|---|---|
| **HANE/108/BI/230** | 8W | 500 | 230 | 0.05 | 0.74kg |
| **HANE/108/BI/110** | 8W | 500 | 110 | 0.08 | 0.74kg |
| **HANE/108/BI/42** | 8W | 500 | 42 | 0.18 | 0.74kg |
| **HANE/108/BI/24** | 8W | 500 | 24 | 0.35 | 0.74kg |
| **HANE/108/BI/12** | 8W | 500 | 12 | 0.70 | 0.74kg |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Cable (ordered per metre) | **E0414-0001** |


| | | | |
|---|---|---|---|
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# TEMPLITE

## ATEX CATEGORY 2

## Ex de FLUORESCENT ZONE 1 AND ZONE 21 APPLICATIONS

**The Templite is an extremely robust yet versitile and lightweight luminaire which can be used for a variety of applications where portable or temporary lighting is required. Giving a high level of illumination, this product is ideal for use in areas where a hazard from flammable gases or dusts exist as it is fully ATEX certified to Category 2 for gas and dust hazards. (Zone 1, 2, 21 & 22).**

**The lamp is operated by use of high frequency electronic control gear, meaning no flickering or stroboscopic effect. The lamp used (36W or 55W), unlike other similar products on the market, is a standard fluorescent lamp and available from a variety of sources. The Templite is also fully submersible to a depth of over 90 metres. (IP68).**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Increased safety Flameproof)** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019** |
| Certificate: | **EC Type Examination Certificate KEMA03ATEX2014X** |
| Coding: | **II 2 GD EEx de IIC T6** |
| Enclosure: | **High impact polycarbonate lamp tube** |
| Control Gear: | **High Frequency** |
| Relamping: | **Through threaded end cap** |
| Lampholder: | **2G11 (4 pin)** |
| Lamp Type: | **Compact Fluorescent** |
| Lumen Output: | **36W : 2900, 55W : 4800** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 & 68 to EN 60529** |

## Features

**Robust construction**

**Standard PL lamp**

**Wide voltage range**

**High IP rating**


| | | | |
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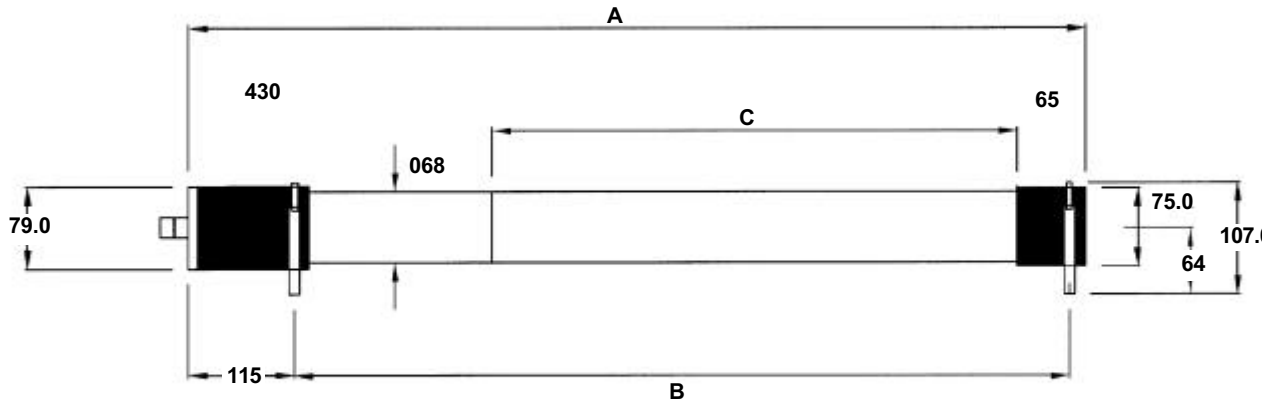
| Std. Cat No. | Wattage | Lumen | Voltage | Current | Weight |
|---|---|---|---|---|---|
| TEME/136/CF/230 | 36 | 2900 | 230 | 0.17 | 3.3kg |
| TEME/136/CF/110 | 36 | 2900 | 110 | 0.35 | 3.3kg |
| TEME/136/CF/42 | 36 | 2900 | 42 | 0.8 | 3.3kg |
| TEME/136/CF/24 | 36 | 2900 | 24 | 1.7 | 3.3kg |
| TEME/136/CF/12 | 36 | 2900 | 12 | 2.7 | 3.3kg |
| TEME/155/CF/230 | 55 | 4800 | 230 | 0.28 | 3.6kg |
| TEME/155/CF/110 | 55 | 4800 | 110 | 0.45 | 3.6kg |
| TEME/155/CF/42 | 55 | 4800 | 42 | 1.2 | 3.6kg |
| TEME/155/CF/24 | 55 | 4800 | 24 | 2.2 | 3.6kg |




| | A | B | C |
|---|---|---|---|
| 55 WATT | 980 | 840 | 500 |
| 36 WATT | 855 | 715 | 375 |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Cable (ordered per metre) | **E0414-0001** |
| Wall mounting bracket assembly | **STEMP-0001** |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# NEXLED

## ATEX CATEGORY 2

## Ex de LED BULKHEAD LUMINAIRE

## ZONE 1 AND ZONE 21 APPLICATIONS

**The NexLED bulkhead luminaire utilises high output 1 Watt light emitting diodes (LED's) that provide a white, instant light that is highly visible.**

**Suitable for Zone 1, the protection being flameproof increased safety. Bulkheads offer a compact and versatile solution in many applications especially those where conditions are exposed and have high levels of dust and moisture. The enclosure is corrosion resistant marine grade aluminium with a toughened glass cover, silicone rubber sealing gasket and stainless steel fixings.**

**The product can be fitted with either 2 or 8 lamps and offers a very low power consumption product well suited to UPS systems. The bulkhead is simple to install, easy to maintain and durable.**

**The LED's are more efficient than incandescent and most tungsten halogen lights and operate for over 50000 hours eliminating relamping in many applications. This new lamp technology emits no heat or ultra violet light and is mercury free.**

**Suitable for a wide range of ambient temperatures from -45°C to +55°C with light output not affected by low temperatures.**

**Available painted white for interior applications.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex de (Flameproof Increased Safety)** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 area to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 60079-0, EN 60079-1, EN 60079-7 and EN 50281-1-1** |
| Certificate: | **EC Type Examination Certificate Baseefa04ATEX0245** |
| Coding: | **II 2 G D Ex de IIC (refer to table for T rating and Ambient)** |
| Enclosure: | **Cast aluminium with toughened glass and silicone gasket** |
| Reflector: | **White painted zinc coated steel** |
| Entry: | **3 x M20 cable entries** |
| Termination: | **3 core 6mm max conductor with looping** |
| Installation: | **Surface mounted, 4 mounting holes located outside of seal** |
| Lamp Type: | **2 x 1W light emitting diodes. Colour: white**<br>**8 x 1W light emitting diodes. Colour: white** |
| Relamping: | **N/A** |
| Control Gear: | **Electronic** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **120-254V AC 50-60Hz** |

Chalmit lighting

| Std. Cat No. | Wattage | Lamp | TClass | TºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| NELE/201/LE | 2W | Light Emitting Diode | T4 | 100 | -45ºC to 55ºC | 4.0kg |
| NELE/801/LE | 8W | Light Emitting Diode | T4 | 100 | -45ºC to 55ºC | 4.1kg |

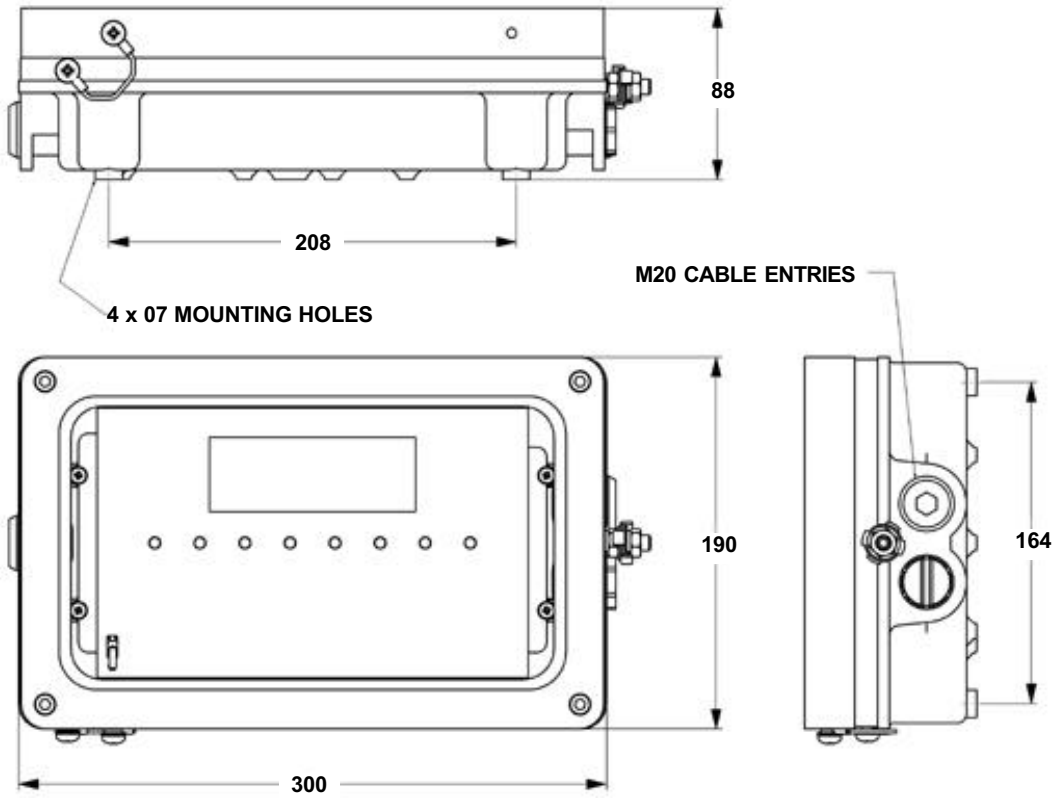
Nexled 2 x 1 Watt with Legend Kit
Side Emitter LED's provide diffuse light for signs

**Cat No: NELE/201/LE/LEG**

(European Signs Directive Format, as shown)

For use with self adhesive legend kit assembly

**ZONE 2 version (NELN/_____) available.**
**Contact sales for information.**




## Accessories (Should be ordered separately)

| | Catalogue Order Code |
|---|---|
| Green exit sign kit (4 labels - up,down,left and right | SNEL1-0001 |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# UNIVERSAL BOX

## ATEX CATEGORY 2

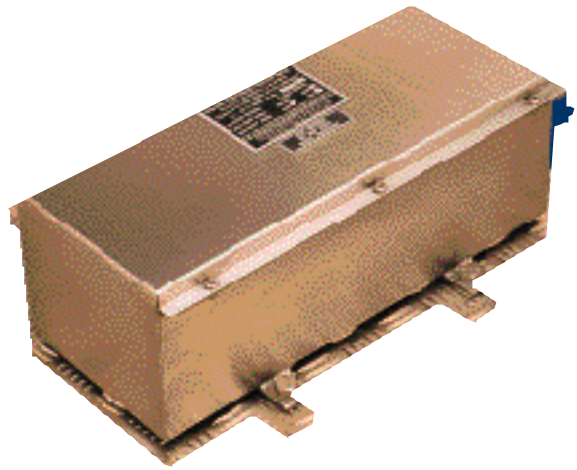
## Ex e CONTROL BOXES ZONE 1 and 21 APPLICATIONS

### A range of lamp control and transformer boxes for Zone 1 and Zone 2 Applications.

**This range of control boxes replaces a number of long established products for use in both Zone 1 and Zone 2 areas. The universal gearbox replaces the 720 Ex e remote gearbox series used to supply floodlights without integral control gear. Where an ignitor is required it must be with the luminaire. The correction capacitors are in the control box.**

**The range also replaces the 700/702 Ex d control box but does not replace the 700/702 box with ignitor. The main range is for 150W to 600W HPS lamps. These models also replace the 500/501 series Ex N gearbox but do not replace those gear boxes with internal ignitors.**

**The transformer box also replaces the 700 Ex d series transformer box the usual application of which is supplying 230V range control gear from 120V supplies. The transformer is designed for voltage transformation and is not suitable for use as an isolated transformer. The rating is 500 and 1000VA. Both the control gear and transformers have a built-in thermal cut-out which resets after the mains supply is switched off for a short period. This protection is needed for lighting control gear operating during possible lamp faults. This range will often be used as replacements for obsolete items using a variety of lamps. The IOM sent with each product and available on request contains essential information for correct application.**



## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex dem (Increased Safety Flameproof Encapsulated)<br>Dust protected enclosure** |
| ATEX Classification: | **Group II Category 2 G D** |
| Area Classification: | **Zone 1 and Zone 21 areas to EN 60079-10 and EN 50281-3<br>with installation to EN 60079-14 and EN 50281-2<br>Gas Groups IIA, IIB and IIC to EN 60079-14** |
| Apparatus Standard: | **EN 50014 EN 50018 EN 50019 EN 50028 EN 50281-1-1** |
| Certificate: | **EC Type Examination Certificate BAS01ATEX2270** |
| Coding: | **II 2 G D EEx dem IIC (refer to table for T rating and ambient)** |
| Enclosure: | **316S31 Marine grade stainless steel with silicone rubber gasket** |
| Entry: | **3 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Base mounting straps** |
| Control Gear: | **Internal copper/iron and PFC correction capacitor as required** |
| Operating Position: | **Cable entries on lower end, if mounted vertically** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220-254V 50Hz - Control box version,<br>120V 50-60Hz 500VA - Transformer box version.** |

## Features

**316S31 grade stainless steel construction**

**Easy to install and maintain**

**Hinged lid with three captive fixing screws**

**Lightweight**

**Control gear easily accessed and can be replaced**

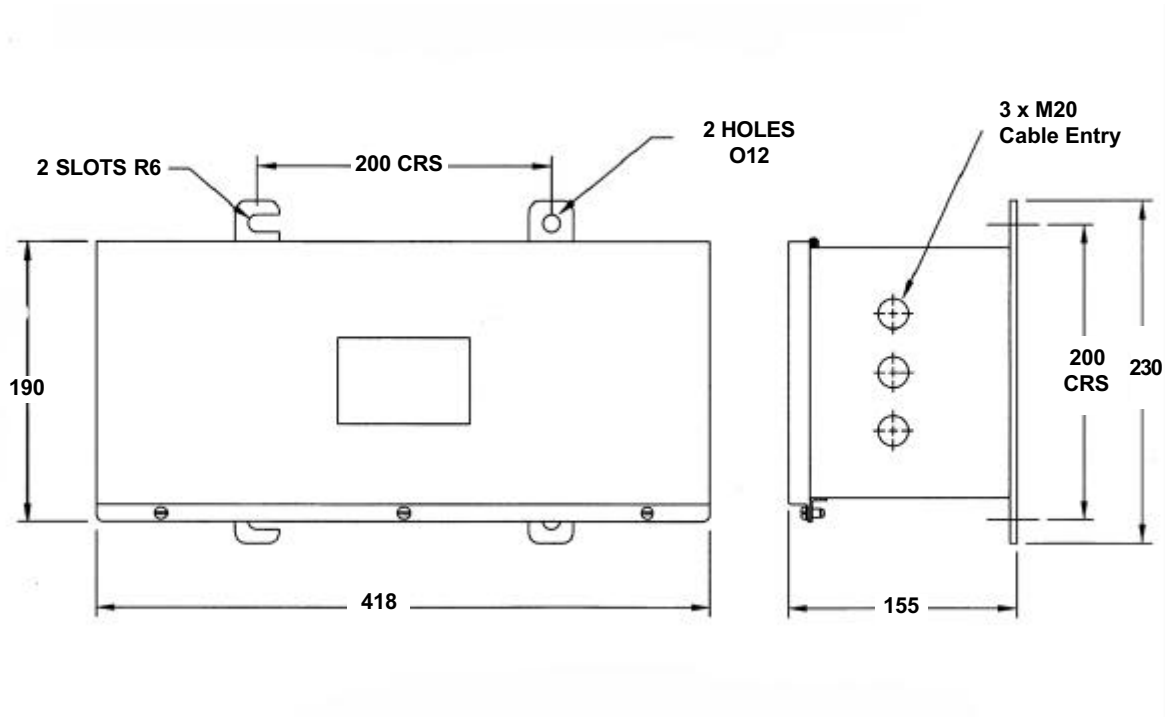
**Thermal cut-outs fitted on ballast and transformer**

Chalmit lighting

| Std. Cat No. | Wattage | Lamp | T Class (Gas) | T°C (Dust) | Ambient°C | Weight |
|---|---|---|---|---|---|---|
| **UNIE/150/HS** | 150W | HPS/Metal Halide | T4 | 110 | 45 | 10.5kg |
| | | | T3 | 120 | 55 | 10.5kg |
| **UNIE/250/MS** | 250W | HPS/Metal Halide | T4 | 110 | 45 | 11.5kg |
| | | | T3 | 120 | 55 | 10.5kg |
| **UNIE/400/MS** | 400W | HPS/Metal Halide | T4 | 120 | 55 | 12.0kg |
| **UNIE/600/HS** | 600W | HPS | T4 | 115 | 45 | 14.0kg |
| | | | T3 | 125 | 55 | 10.5kg |
| **UNIE/500/TF** | 500VA | Transformer | T4 | 105 | 35 | 11.0kg |
| | | | T3 | 115 | 55 | 10.5kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (254) |
| **/60** | 60Hz |
| **/M25** | M25 Entries |
| **/MF** | Mains Fuse |
| **/1000** | 1000VA Transformer (replace 500 with 1000) |
| **/3P** | 3 Phase termination |





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# STERLING

## Ex n FLUORESCENT

## ATEX CATEGORY 3

## ZONE 2 and 22 APPLICATIONS

**The Sterling is a quality and cost effective luminaire designed to provide instant glare free white light at low mounting heights.**

**The GRP body and polycarbonate diffuser secured with multiple stainless steel clips ensure good corrosion resistance and rapid access for installation and maintenance. The protection is Ex n for ignitable gas applications and dust excluding, IP6X, for use in ignitable dust applications.**

**The ATEX Categories are 3 G and 3 D.**
**The range is suitable for T8 tubular fluorescent lamps in the nominal 18/36/58W sizes. The standard range has electronic control gear. Conventional low loss control gear with electronic start is available as an option.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA (Non-sparking) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 3 G D** |
| Area Classification: | **Zone 2 and Zone 22 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50021 EN 50281-1-1** |
| Certificate: | **Type Examination Certificate BAS01ATEX3052X** |
| Coding: | **II 3 G D EEx nA II (refer to table for T rating and Ambient)** |
| Enclosure: | **GRP with polycarbonate diffuser and stainless steel retaining clips** |
| Reflector: | **White polyester painted zinc coated steel** |
| Entry: | **2 x 20mm diameter holes, 1 at each end** |
| Termination: | **3 core 4mm² max. conductor with through wiring 16A rating** |
| Installation: | **Two clearance holes for M8 fasteners located on rear of body, sealing washers provided** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency ballast housed within sealed enclosure** |
| Relamping: | **Access via diffuser secured by quick release stainless steel clips** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP65 to EN60529** |
| Electrical Supply: | **220-240V 50/60Hz** |

## Features

**Polycarbonate diffuser**

**Stainless steel diffuser clips 3 per side on 18W, 4 on 36W & 5 on 58W**

**Through wiring as standard**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output.**


Chalmit lighting

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| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

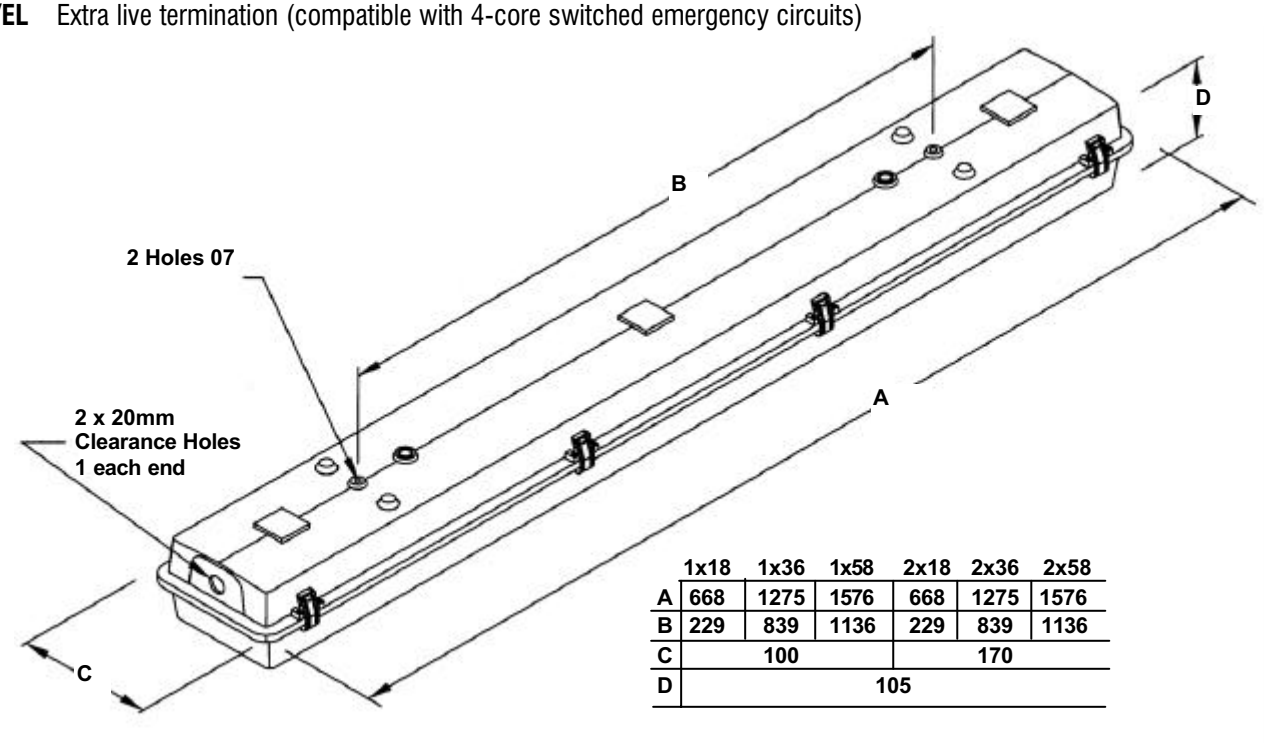
| Std. Cat No. | Previously | Wattage | T Class(Gas) | TºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **STGN/118/BI*** | 321NA | 1x18W | T4 | 95 | 45 | 2.2kg |
| **STGN/218/BI** | 322NA | 2x18W | T4 | 95 | 45 | 3.3kg |
| **STGN/136/BI** | 341NA | 1x36W | T4 | 95 | 50 | 3.0kg |
| **STGN/236/BI** | 342NA | 2x36W | T4 | 95 | 50 | 4.5kg |
| **STGN/158/BI** | 351NA | 1x58W | T4 | 95 | 40 | 4.0kg |
| **STGN/258/BI** | 352NA | 2x58W | T4 | 95 | 35 | 6.5kg |

*Single lamp in twin body

**Dust only version (STGU/___) available. Contact sales for information.**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (120, 220 or 254 copper and iron versions only) |
| **/ES** | Copper and iron control gear |
| **/60** | 60Hz (copper and iron versions only) |
| **/MF** | Mains fuse |
| **/TB** | Single lamp in twin body - Tamb 45ºC for 18W, Tamb 50ºC for 36 and 58W (copper and iron versions) |
| **/EL** | Extra live termination (compatible with 4-core switched emergency circuits) |




| | 1x18 | 1x36 | 1x58 | 2x18 | 2x36 | 2x58 |
|---|---|---|---|---|---|---|
| A | 668 | 1275 | 1576 | 668 | 1275 | 1576 |
| B | 229 | 839 | 1136 | 229 | 839 | 1136 |
| C | 100 | | | 170 | | |
| D | 105 | | | | | |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Offset ceiling bracket assembly | **SSTGN-1006** |
| Pole mounting bracket assembly (38/50 diameter poles) | **SSTGN-1008** |
| C' form hook type ceiling bracket assembly | **SSTGN-0007** |
| Flush mounted wall bracket assembly | **SSTGN-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |

# STERLING E

## Ex n FLUORESCENT
### EMERGENCY LIGHTING

## ATEX CATEGORY 3
## ZONE 2 and 22 APPLICATIONS

**The Sterling emergency is a quality luminaire designed to provide instant glare free white light at low mounting heights and have a 3 hour emergency duration. The GRP body and polycarbonate diffuser secured with multiple stainless steel clips ensure good corrosion resistance and rapid access for installation and maintenance. The protection is Ex n for ignitable gas applications and dust excluding, IP6X, for use in ignitable dust applications.**

**The ATEX Categories are 3 G and 3 D. The range is suitable for T8 tubular fluorescent lamps in the nominal 36/58W sizes. The emergency electronics provide for battery charging, indication and protection. The standard range has electronic control gear. Conventional low loss control gear with electronic start is available as an option.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA (Non-sparking) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 3 G D** |
| Area Classification: | **Zone 2 and Zone 22 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50021 EN 50281-1-1** |
| Certificate: | **Type Examination Certificate BAS01ATEX3052X** |
| Coding: | **II 3 G D EEx nA II (refer to table for T rating and Ambient)** |
| Enclosure: | **GRP with polycarbonate diffuser and stainless steel retaining clips** |
| Reflector: | **White polyester painted zinc coated steel** |
| Entry: | **2 x 20mm diameter holes, 1 at each end** |
| Termination: | **4 core 4mm² max. conductor with through wiring 16A rating** |
| Installation: | **Two clearance holes for M8 fasteners located on rear of body, sealing washers provided** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency ballast housed within sealed enclosure, electronic charger/inverter housed in sealed enclosure, Ni-cd batteries** |
| Relamping: | **Access via front diffuser secured by quick release stainless steel clips** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP65 to EN 60529** |
| Electrical Supply: | **220-240V 50/60Hz** |
| Battery: | **Ni-Cd battery 6V 4Ah 5 cell** |
| Duration | **3 hours** |
| Emergency Output: | **36W 10% of one lamp 58W 8% of one lamp** |

## Features

**Polycarbonate diffuser**

**Stainless steel diffuser clips 4 per side on 36W, 5 on 58W**

**Through wiring as standard**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output.**

**Long life nickel cadmium batteries**

**Switchable mains supply for local operation**

**LED charge indicator**

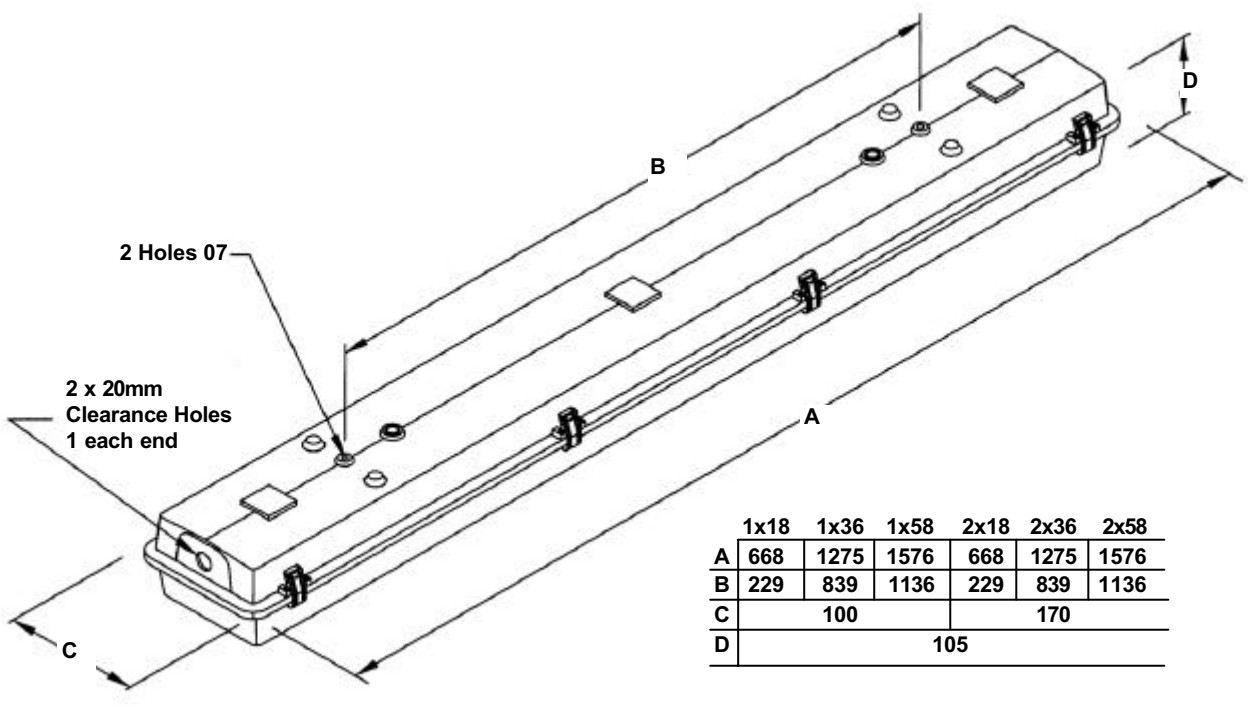
Chalmit lighting

| Std. Cat No. | Previously | Wattage | T Class (Gas) | TºC (Dust) | Ambient ÞC | Weight |
|---|---|---|---|---|---|---|
| **STGN/136/BI/EM** | 341NA-EM | 1x36W | T4 | 95 | 45* | 4.8kg |
| **STGN/236/BI/EM** | 342NA-EM | 2x36W | T4 | 95 | 45 | 7.1kg |
| **STGN/158/BI/EM** | 351NA-EM | 1x58W | T4 | 95 | 35* | 6.1kg |
| **STGN/258/BI/EM** | 352NA-EM | 2x58W | 150ºC T3 | 95 | 35 | 8.1kg |

Note: Single lamp versions are in twin bodies.
*Available as non maintained. T5 at 45ÞC ambient. (See options below)
**Dust only version (STGU/___) available. Contact sales for information.**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/MF** | Mains Fuse |
| **/NM** | Non Maintained<br>(Single lamp version only) |




| | 1x18 | 1x36 | 1x58 | 2x18 | 2x36 | 2x58 |
|---|---|---|---|---|---|---|
| A | 668 | 1275 | 1576 | 668 | 1275 | 1576 |
| B | 229 | 839 | 1136 | 229 | 839 | 1136 |
| C | | 100 | | | 170 | |
| D | | | 105 | | | |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Offset ceiling bracket assembly | **SSTGN-1006** |
| Pole mounting bracket assembly (38/50 diameter poles) | **SSTGN-1008** |
| C' form hook type ceiling bracket assembly | **SSTGN-0007** |
| Flush mounted wall bracket assembly | **SSTGN-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |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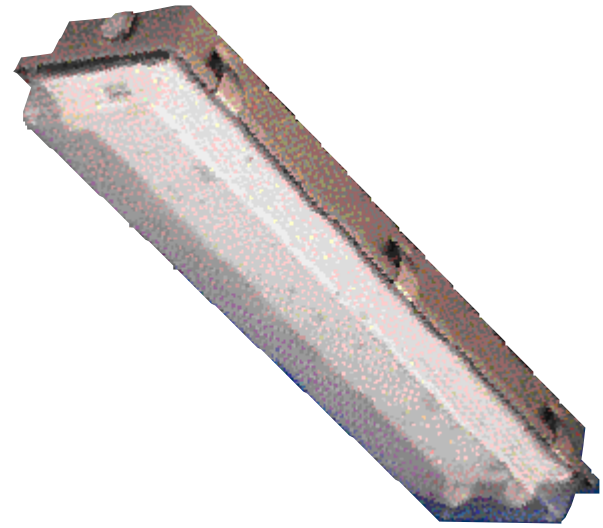
# STERLING STAINLESS ATEX CATEGORY 3

## Ex n FLUORESCENT ZONE 2 and 22 APPLICATIONS

**The Sterling stainless is a robust quality luminaire designed to provide instant glare free white light at low mounting heights.**

**The stainless steel 316S31 body and polycarbonate diffuser secured with multiple stainless steel clips ensure excellent corrosion resistance and rapid access for installation and maintenance. The stainless steel body is designed to provide high impact strength and resistance to those chemicals which might damage GRP. The protection is Ex n for ignitable gas applications and dust excluding, IP6X, for use in ignitable dust applications. The ATEX Categories are 3 G and 3 D.**

**The range is suitable for T8 tubular fluorescent lamps in the nominal 18/36/58W sizes. The standard range has electronic control gear. Conventional low loss control gear with electronic start is available as an option.**



## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA (Non-sparking) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 3 G D** |
| Area Classification: | **Zone 2 and Zone 22 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50021 EN 50281-1-1** |
| Certificate: | **Type Examination Certificate BAS01ATEX3052X** |
| Coding: | **II 3 G D EEx nA II (refer to table for T rating and Ambient)** |
| Enclosure: | **Marine grade 316S31 stainless steel body with polycarbonate diffuser and stainless steel retaining clips** |
| Reflector: | **White polyester painted zinc coated steel** |
| Entry: | **3 x 20mm diameter holes, 2 at one end and 1 at the other end** |
| Termination: | **3 core 4mm² max. conductor with looping and through wiring 16A rating** |
| Installation: | **Two clearance holes for M8 fasteners located on rear of body, sealing washers provided** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency ballast housed within sealed enclosure** |
| Relamping: | **Access via front diffuser secured by quick release stainless steel clips** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP65 to EN 60529** |
| Electrical Supply: | **220-240V 50/60Hz** |

## Features

**Marine grade 316S31 stainless steel body and polycarbonate diffuser**

**3 clips per side on 18W, 4 on 36W and 5 on 58W**

**Mains connection terminals fixed to body**

**Gear tray suspended and fitted with control gear for ease of maintenance**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output.**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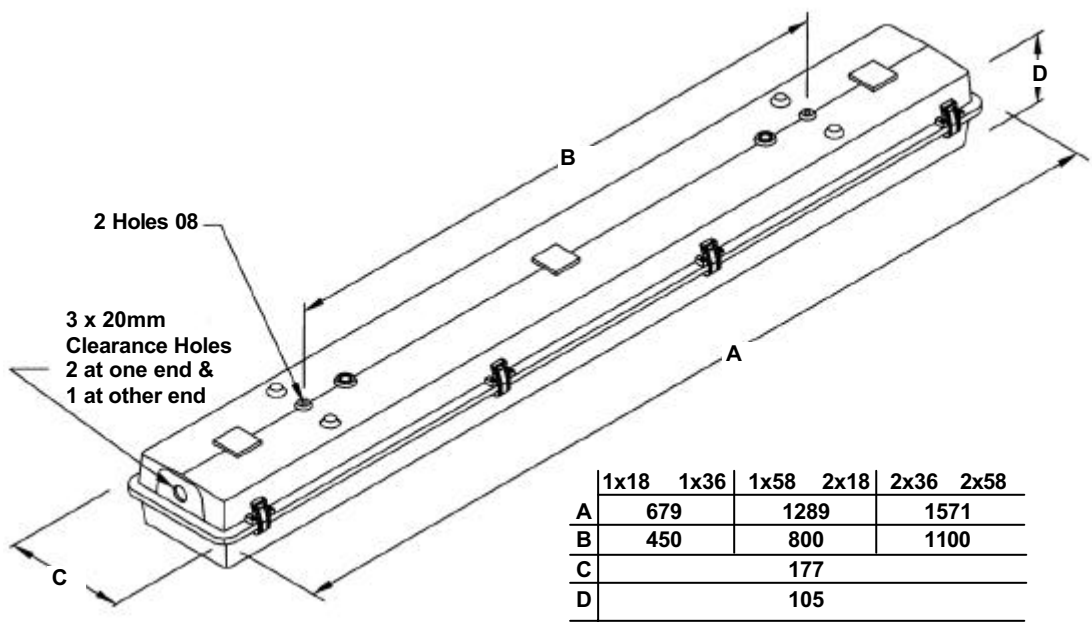
| Std. Cat No. | Previously | Wattage | T Class (Gas) | TºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **STSN/118/BI** | 323NC | 1x18W | T4 | 95 | 45 | 4.2kg |
| **STSN/218/BI** | 322NC | 2x18W | T4 | 95 | 45 | 3.6kg |
| **STSN/136/BI** | 343NC | 1x36W | T4 | 95 | 50 | 4.2kg |
| **STSN/236/BI** | 342NC | 2x36W | T4 | 95 | 50 | 4.8kg |
| **STSN/158/BI** | 353NC | 1x58W | T4 | 95 | 40 | 6.1kg |
| **STSN/258/BI** | 352NC | 2x58W | T4 | 95 | 35 | 6.5kg |

Note: Single lamp versions are in twin bodies.
**Dust only version (STSU/___) available. Contact sales for information.**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (120, 220 or 254 copper & iron versions only) |
| **/ES** | Copper and iron control gear |
| **/60** | 60Hz (copper and iron versions only) |
| **/MF** | Mains fuse |
| **/25** | 3 x 25mm cable entries attached |
| **/CM** | c/w offset ceiling mounting brackets |
| **/TE** | Threaded entry pads |
| **/EB** | End mounting brackets attached |
| **/EL** | Extra live termination (compatible with 4-core switched emergency circuits) |




| | 1x18 1x36 | 1x58 2x18 | 2x36 2x58 |
|---|---|---|---|
| A | 679 | 1289 | 1571 |
| B | 450 | 800 | 1100 |
| C | 177 | | |
| D | 105 | | |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket assembly (38/50 diameter poles) | **SSTGN-1008** |
| C' form hook type ceiling bracket assembly | **SSTGN-0007** |
| Flush mounted wall bracket assembly | **SSTGN-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |

Chalmit lighting

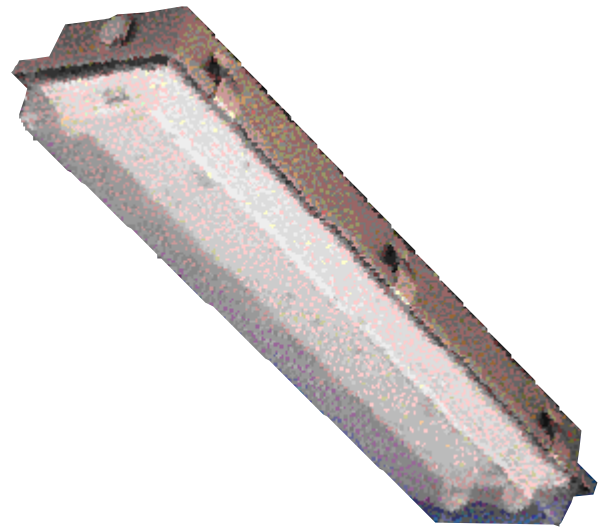
# STERLING E STAINLESS

## Ex n FLUORESCENT

### EMERGENCY LIGHTING

## ATEX CATEGORY 3

## ZONE 2 and 22 APPLICATIONS



**The Sterling stainless emergency is a robust quality luminaire designed to provide instant glare free white light at low mounting heights. The stainless steel 316S31 body and polycarbonate diffuser secured with multiple stainless steel clips ensure excellent corrosion resistance and rapid access for installation and maintenance. The stainless steel body is designed to provide high impact strength and resistance to those chemicals which might damage GRP. The protection is Ex n for ignitable gas applications and dust excluding, IP6X, for use in ignitable dust applications.**

**The ATEX Categories are 3 G and 3D.**
**The range is suitable for T8 tubular fluorescent lamps in the nominal 36/58W sizes.**

**The standard range has electronic control gear. Conventional low loss control gear with electronic start is available as an option.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA (Non-sparking) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 3 G D** |
| Area Classification: | **Zone 2 and Zone 22 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50021 EN 50281-1-1** |
| Certificate: | **Type Examination Certificate BAS01ATEX3052X** |
| Coding: | **II 3 G D EEx nA II (refer to table for T rating and Ambient)** |
| Enclosure: | **Marine grade 316S31 stainless steel body with polycarbonate diffuser and stainless steel retaining clips** |
| Reflector: | **White polyester painted zinc coated steel** |
| Entry: | **3 x 20mm diameter holes, 2 at one end and 1 at the other end** |
| Termination: | **4 core 4mm² max. conductor with looping and through wiring 16A rating** |
| Installation: | **Two clearance holes for M8 fasteners located on rear of body, sealing washers provided** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency ballast housed within sealed enclosure, electronic charger/inverter housed in sealed enclosure, Ni-Cd batteries** |
| Relamping: | **Access via front diffuser secured by quick release stainless steel clips** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP65 to EN 60529** |
| Electrical Supply: | **220-240V 50-60Hz** |
| Battery: | **Ni-Cd battery 6V 4Ah 5 cell** |
| Duration | **3 hours** |
| Emergency Output: | **36W 10% of one lamp, 58W 8% of one lamp** |

## Features

**Marine grade 316S31 stainless steel body and polycarbonate diffuser**

**3 clips per side on 18W, 4 on 36W and 5 on 58W**

**Mains connection terminals fixed to body**

**Gear tray suspended and fitted with control gear for ease of maintenance**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output.**

**Long life nickel cadmium batteries**

**Switchable mains supply for local operation**

**LED charge indicator**

Chalmit lighting

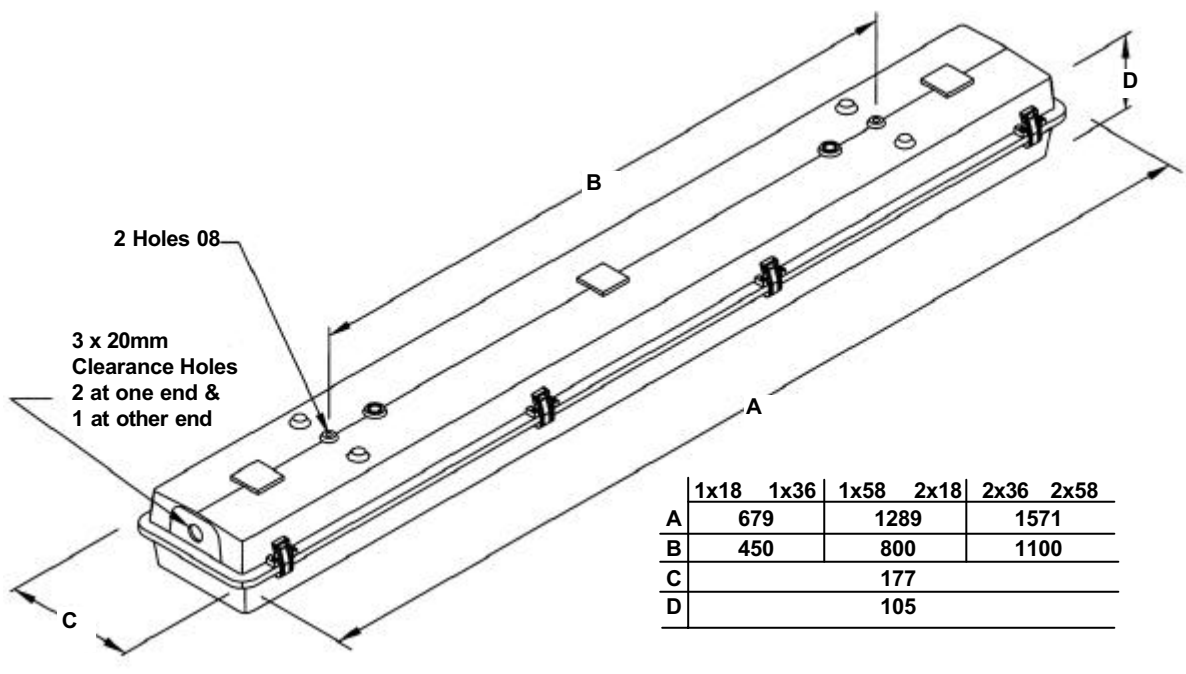
| Std. Cat No. | Previously | Wattage | T Class (Gas) | TºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **STSN/136/BI/EM** | 341NC-EM | 1x36W | T4 | 95 | 45 | 6.6kg |
| **STSN/236/BI/EM** | 342NC-EM | 2x36W | T4 | 95 | 45 | 8.2kg |
| **STSN/158/BI/EM** | 351NC-EM | 1x58W | T4 | 95 | 35 | 7.2kg |
| **STSN/258/BI/EM** | 352NC-EM | 2x58W | 150ºC T3 | 95 | 35 | 9.1kg |

Note: Single lamp versions are in twin bodies.

**Dust only version (STSU/___) available. Contact sales for information.**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/NM** | Non-maintained (single lamp version only) |
| **/MF** | Mains fuse |
| **/25** | 3 x 25mm cable entries |
| **/CM** | c/w offset ceiling mounting brackets attached |
| **/TE** | Threaded entry pads |
| **/EB** | End mounting brackets attached |




| | 1x18 1x36 | 1x58 2x18 | 2x36 2x58 |
|---|---|---|---|
| A | 679 | 1289 | 1571 |
| B | 450 | 800 | 1100 |
| C | 177 | | |
| D | 105 | | |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket assembly (38/50 diameter poles) | **SSTGN-1008** |
| C' form hook type ceiling bracket assembly | **SSTGN-0007** |
| Flush mounted wall bracket assembly | **SSTGN-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| 58W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0022** |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# PROTECTA

## Ex n FLUORESCENT

### NORMAL and EMERGENCY LIGHTING

## ATEX CATEGORY 3

## ZONE 2 and 22 APPLICATIONS

**The Protecta Category 3 Ex n luminaire combines the strength and integrity of the Category 2 increased safety enclosure with the Category 3 lamp and control gear package used in the Sterling. The range is suitable for T8 tubular fluorescent lamps in the nominal 18W, 36W and 58W sizes.**

**Protecta has excellent maintenance features as it is constructed using glass reinforced polyester (GRP) and polycarbonate which resist saline and other corrosive environments. A major feature of the luminaire is the strength of the enclosure and mounting points together with the very high degree of ingress protection afforded by the simple reliable construction. The protection is Ex n for ignitable gas applications and dust excluding, to IP6X, for use in ignitable dust applications. The ATEX Categories are 3 G and 3 D. The ease of access to lamps and control gear means that installation and maintenance will be completed quickly and efficiently. The Protecta offers the facility of four cable entries. The standard range has electronic control gear. Conventional low loss control gear with electronic start is available as an option. An emergency version with 3 hour duration is available.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA (Non-sparking) Dust protected enclosure** |
| ATEX Classification: | **Group II Category 3 G D** |
| Area Classification: | **Zone 2 and Zone 22 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50021 EN 50281-1-1** |
| Certificate: | **Type Examination Certificate BAS01ATEX3276** |
| Coding: | **II 3 G D EEx nA (refer to table for T rating and Ambient)** |
| Enclosure: | **GRP body with polycarbonate cover and brass suspension points** |
| Reflector: | **White polyester painted zinc coated steel** |
| Entry: | **4 x M20 cable entries, 2 at each end** |
| Termination: | **3 core 6mm² max. conductor with looping and 16A rating through wiring (4 core on emergency)** |
| Installation: | **Two M8 tapped brass inserts located on rear of body. (thread depth 12mm)** |
| Lampholder: | **G13 (Bi-pin)** |
| Lamp Type: | **T8 tubular fluorescent** |
| Control Gear: | **High Frequency ballast housed within sealed enclosure, Emergency - electronic charger/inverter housed in sealed enclosure, Ni-Cd batteries** |
| Relamping: | **Quick release diffuser clamp and hinged cover** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220-240V 50/60Hz** |
| Battery: | **Ni-Cd battery 6V 4Ah 5 cell** |
| Duration: | **3 hours** |
| Emergency Output | **36W 10% of one lamp** |

## Features

**Full length easy access diffuser clamp**

**Simple rugged construction**

**Hinged cover**

**DTS-01 deluge tested**

**Standard fixing centres**

**High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output**

**Easy access to suspended control gear tray**

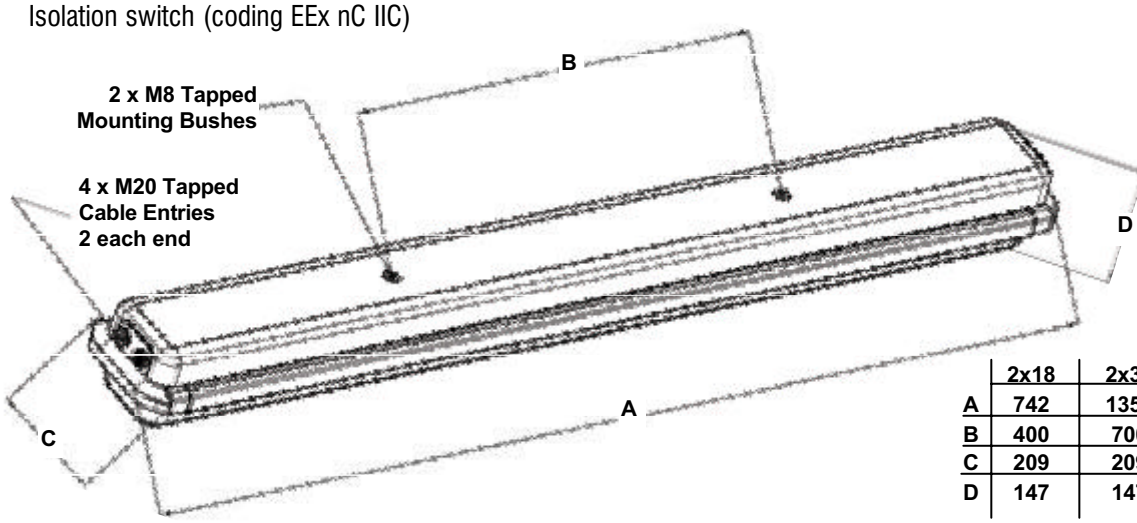
Chalmit lighting

| Std. Cat No. | Wattage | T Class (Gas) | TºC (Dust) | Ambient ºC | Weight |
|---|---|---|---|---|---|
| PRGN/118/BI | 1x18W | T4 | 95 | 50 | 5.9kg |
| PRGN/218/BI | 2x18W | T4 | 95 | 50 | 6.2kg |
| PRGN/136/BI | 1x36W | T4 | 95 | 50 | 9.6kg |
| PRGN/236/BI | 2x36W | T4 | 95 | 50 | 10.0kg |
| PRGN/158/BI | 1x58W | T4 | 95 | 50 | 12.0kg |
| PRGN/258/BI | 2x58W | T4 | 95 | 50 | 12.2kg |
| PRGN/136/BI/EM | 1x36W | T4 | 95 | 50 | 12.2kg |
| PRGN/236/BI/EM | 2x36W | T4 | 95 | 50 | 12.6kg |
| PRGN/158/BI/EM | 1x58W | T4 | 95 | 50 | 14.2kg |
| PRGN/258/BI/EM | 2x58W | T4 | 95 | 50 | 14.6kg |

*** T class and ambients vary for copper and iron control gear. Contact Chalmit sales for details.**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (220 or 254 only available with copper & iron gear) |
| **/ES** | Copper and iron control gear (Non-emergency only) |
| **/60** | 60Hz (copper and iron versions only) |
| **/M25** | M25 Entries |
| **/3P** | Three phase termination |
| **/MF** | Mains fuse |
| **/IS** | Isolation switch (coding EEx nC IIC) |




| | 2x18 | 2x36 | 2x58 |
|---|---|---|---|
| A | 742 | 1352 | 1650 |
| B | 400 | 700 | 700 |
| C | 209 | 209 | 209 |
| D | 147 | 147 | 147 |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Offset ceiling bracket assembly | **SPRO4-0002** |
| Pole mounting bracket assembly (38/50 diameter poles) | **SPRO4-0003** |
| C' form hook type ceiling bracket assembly | **SPRO4-0005** |
| Flush mounted wall bracket assembly | **SPRO4-0006** |
| 18W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0008** |
| 36W wall mounting outreach bracket (use with SPRO4-0003) | **NPRO4-0012** |
| Eyebolt brackets (set) | **SPRO5-0005** |
| Looping Kit (Allows looping from both ends of luminaire) | **SPROT-0021** |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# 800 SERIES

## Ex n FLOODLIGHTS

## ATEX CATEGORY 3 ZONE 2 APPLICATIONS

**The 800 series is a premium range of stainless steel bodied asymmetrical beam floodlights suitable for tubular HPS and metal halide lamps from 70W to 400W and also 500W tungsten-halogen.**

**The explosion protection is Ex nR utilising a restricted breathing enclosure. The three asymmetrical floodlights in the 800 series provides the best lighting solution where the objective is low weight and exposure to very hostile and corrosive environments. The compact construction offers low windage and the many mounting options enables most floodlighting applications to be accommodated. The asymmetrical beam distribution enables areas to be lit more efficiently with less glare or light pollution. This is because the beam is thrown a long distance whilst avoiding excess light levels under the mounting point.**

**The enclosure is made from 316S31 stainless steel with a toughened glass cover and silicone gasket the. The cover is secured by powerful quick release clamps making installation and maintenance quick and easy.**

**Suitable for a wide range of ambient temperatures, -40ºC to +55ºC, dependant on lamp type and wattage.**


## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nR (Restricted Breathing)** |
| ATEX Classification: | **Group II Category 3 G** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50021** |
| Certificate: | **Type Examination Certificate BAS98ATEX3378** |
| Coding: | **II 3 G EEx nR II (refer to table overleaf for T rating and Ambient)** |
| Enclosure: | **Marine grade 316S31 stainless steel body with toughened glass window, silicone rubber gasket** |
| Reflector: | **Wide beam High purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Stirrup mounting** |
| Lamp Type: | **High Pressure Sodium, Metal Halide or Single Ended Tungsten Halogen** |
| Lampholder: | **E40 or E27** |
| Control Gear: | **Internal copper and iron choke with ignitor and PFC correction capacitors** |
| Relamping: | **Access via front glass cover assembly secured by quick release stainless steel clips** |
| Burning Position: | **Control gear mounted below lamp** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz** |

## Features

**Lightweight**

**Marine grade 316S31 stainless steel body and toughened glass cover**

**Quick release fasteners for ease of relamping and maintenance**

**Suspended cover front**

**High efficiency asymmetric reflector**

**Suitable for low temperature applications**

**Cepel Approved**

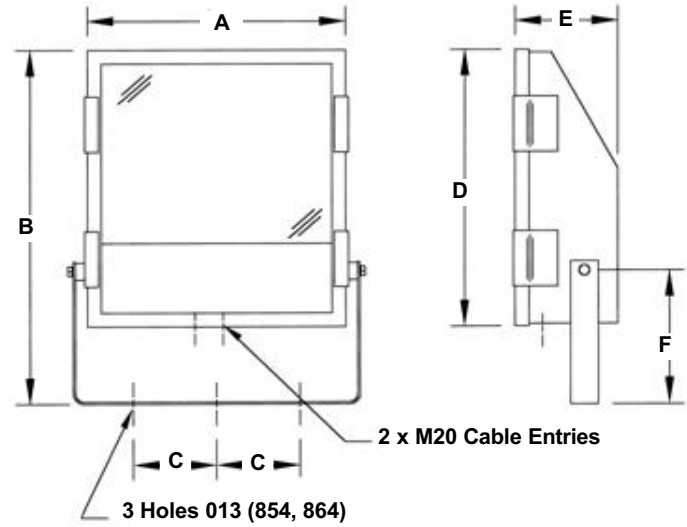
Chalmit lighting

| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **844N/070/HS** | 70W | HPS | E27 | 150ºC T3<br>T4 | 50<br>40 | 12.0kg |
| **854N/100/HS** | 100W | HPS | E40 | T4 | 55 | 18.0kg |
| **854N/150/HS** | 150W | HPS | E40 | T3<br>T4 | 55<br>50 | 18.0kg |
| **854N/250/MS** | 250W | HPS/Metal Halide | E40 | T4 | 40 | 19.0kg |
| **854N/400/MS*** | 400W | HPS/Metal Halide | E40 | T3 | 40 | 17.0kg |
| **854N/500/TH** | 500W | Single Ended T/Halogen | E40 | T3<br>T2 | 45<br>60 | 16.5kg |
| **864N/250/MS** | 250W | HPS/Metal Halide | E40 | T3 | 55 | 20.5kg |
| **864N/400/MS** | 400W | HPS/Metal Halide | E40 | T3 | 50 (HPS)<br>40 (MH) | 21kg |
| **110/120V Cat Nos.** | | | | | | |
| **864N/150/HS**** | 150W | HPS | E40 | T3 | 55 | 23.0kg |
| **864N/250/HS/120**** | 250W | HPS | E40 | T3 | 55 | 23.0kg |
| **864N/400/HS/120***** | 400W | HPS | E40 | T3 | 55 | 23.0kg |

*** Ignitor only fitted. Remote gear box required (see Universal Box)**
**** c/w IEC control gear 110/120V supply.**
***** Supplied c/w remote gear box for 110/120V supply. (IEC control gear fitted)**

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/60** | 60Hz |
| **/M25** | M25 Entries |
| **/N** | Narrow beam reflector |
| **/TI** | Timed cut out ignitor |
| **/WA** | Suitable for wire guard or anti-glare shield |




| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 844 | 308 | 443 | 75 | 348 | 150 | 175 |
| 854 | 415 | 630 | 150 | 490 | 185 | 260 |
| 864 | 456 | 640 | 150 | 490 | 219 | 260 |

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Wire guard - 844 (Luminaire requires “WA” suffix when ordering) | **S8444-0005** |
| Wire guard - 854 (Luminaire requires “WA” suffix when ordering) | **S8544-0004** |
| Wire guard - 864 (Luminaire requires “WA” suffix when ordering) | **S8644-0004** |
| Pole mounting bracket - 844 | **S8444-0002** |
| Pole mounting bracket - 854/864 | **S2400-0002** |
| Spigot mounting bracket - 854/864 | **S2400-0007** |
| Anti-glare shield - 844 (Luminaire requires “WA” suffix when ordering) | **S8444-0001** |
| Anti-glare shield - 854 (Luminaire requires “WA” suffix when ordering) | **S8544-0002** |
| Anti-glare shield - 864 (Luminaire requires “WA” suffix when ordering) | **S8644-0002** |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# MICRONEX and MAXINEX ATEX CATEGORY 3 Ex n FLOODLIGHTS ZONE 2 APPLICATIONS

**The Maxinex and Micronex form a range of floodlights providing excellent photometric performance.**

**The smaller Micronex is for 70W double ended high pressure sodium or metal halide lamps and the larger Maxinex is for 150W to 400W tubular high pressure sodium or metal halide lamps. The protection is Ex nR utilising a restricted breathing enclosure. The asymmetric distribution enables areas to be lit more efficiently with less glare or light pollution. This is because the beam is thrown a long distance whilst avoiding excess light levels under the mounting point and having a precise cut off. Available with a choice of either a narrow or wide beam reflector, the Micronex and Maxinex offer the opportunity for very effective and efficient lighting schemes to be designed. The enclosure is a robust high pressure die-cast aluminium body with a toughened glass cover in a hinged frame with stainless steel fasteners. The compact design ensures reduced weight and has low windage which helps lower installation costs as it allows more economical support structures.**

**Suitable for a wide range of ambient temperatures, -40ºC to +55ºC, dependant on lamp type and wattage.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nR (Restricted Breathing)** |
| ATEX Classification: | **Group II Category 3 G** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50021** |
| Certificate: | **Maxinex: Type Examination Certificate BAS97ATEX4368**<br>**Micronex: Type Examination Certificate BAS98ATEX3054** |
| Coding: | **II 3 G Ex nR II (refer to table for T rating and Ambient)** |
| Enclosure: | **Black epoxy painted aluminium body and frame with toughened glass window, silicone rubber gasket** |
| Reflector: | **Wide beam high purity anodised aluminium** |
| Entry: | **Maxinex: 2 x 20mm diameter holes**<br>**Micronex: 1 x 20mm diameter holes** |
| Termination: | **Maxinex: 3 core 6mm² max. conductor with looping**<br>**Micronex: 3 core 6mm² max. conductor** |
| Installation: | **Stirrup mounting** |
| Control Gear: | **Internal copper/iron ballast with ignitor and PFC correction capacitor** |
| Relamping: | **Access via front glass cover assembly secured by stainless steel screws** |
| Lamp Type: | **HPS or Metal Halide tubular** |
| Lampholder: | **Maxinex: E40, Micronex: Rx7s** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz** |

## Features

**Lightweight**

**High corrosion resistance**

**All stainless steel fasteners**

**Hinged front cover for easy access**

**High efficiency asymmetric reflector design**

**Low windage of 0.08m² (Micronex) and 0.25m² (Maxinex)**

**Choice of metal halide or high pressure sodium lamps**

**Suitable for low temperature applications**

**Gost Approved**

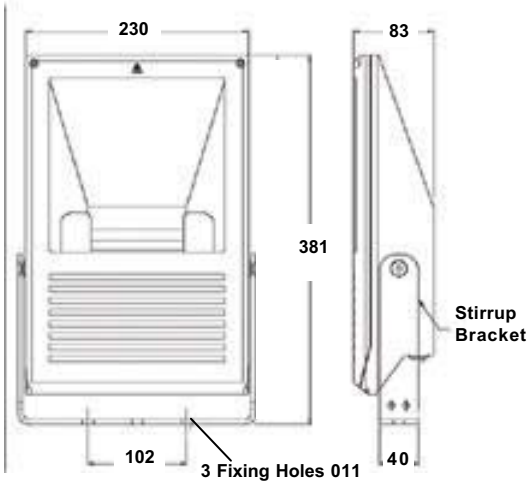
**Cepel Approved (Maxinex only)**

Chalmit lighting

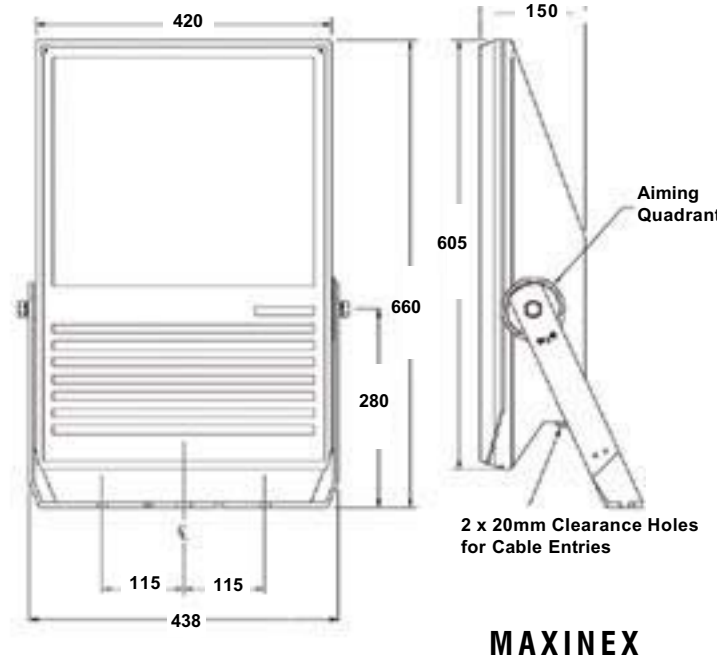
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **MICN/070/MS** | 70W | Double Ended HPS/Metal Halide | Rx7s | T3 | 40 | 5.0kg |
| **MAXN/150/MS** | 150W | HPS/Metal Halide | E40 | T4 | 55 | 16kg |
| **MAXN/250/MS** | 250W | HPS/Metal Halide | E40 | T3 | 55 | 17kg |
| **MAXN/400/MS** | 400W | HPS/Metal Halide | E40 | T3<br>T3 | 45 (HPS)<br>30 (MH) | 18.5kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/60** | 60Hz |
| **/D** | Zone 2 and 22 Dust applications (Maxinex only) |
| **/TI** | Timed ignitor (Maxinex only) |




**MICRONEX**




**MAXINEX**

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket - Micronex | **SMIC1-0001** |
| Pole mounting bracket - Maxinex | **SMAX1-0001** |


| | | | |
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# NEXXUS

## Ex n BULKHEAD

## ATEX CATEGORY 3 ZONE 2 APPLICATIONS

**The Nexxus bulkhead luminaire is suitable for a wide range of discharge lamps, incandescent lamps and also compact fluorescent lamps.**

**The explosion protection is Ex nR utilising a restricted breathing enclosure. Bulkheads offer a compact and versatile solution in many applications especially those where conditions are exposed and have high levels of dirt dust and moisture. The enclosure is corrosion resistant aluminium with a heat resistant glass cover, silicone rubber sealing gasket and stainless steel fixings.**

**The bulkhead is simple to install, easy to maintain and durable. The wide range of light sources and wiring options makes the Nexxus a very versatile luminaire.**

**Suitable for a wide range of ambient temperatures, -45ºC to +55ºC, dependant on lamp type and wattage.**

**New reflector system giving 20% increase in photometric performance.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nR (Restricted Breathing)** |
| ATEX Classification: | **Group II Category 3 G** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50021** |
| Certificate: | **Type Examination Certificate BAS99ATEX3012** |
| Coding: | **II 3 G EEx nR II (refer to table for T rating and Ambient)** |
| Enclosure: | **Painted LM6 aluminium alloy body with prismatic glass lens, silicone rubber gasket and stainless steel fasteners** |
| Reflector: | **High purity anodised aluminium** |
| Entry: | **3 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping or through wiring 16A max current rating** |
| Installation: | **4 x 7mm clearance holes in body fixing channel** |
| Lamp Type: | **HPS, Metal Halide, Mercury Vapour, Mercury Blended, Compact fluorescent and GLS** |
| Lampholder: | **E27 or G24q** |
| Control Gear: | **Internal copper/iron ballast with ignitor and PFC correction capacitors as specified** |
| Relamping: | **Access via front cover secured by four stainless steel screws** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz - 70 and 80W<br>220-240V 50Hz - 50W, 240V 50Hz - CF<br>250V max - 160 & 200W** |

## Features

**Easy control gear replacement**

**Fixing points outside restricted breathing enclosure**

**High corrosion resistance**

**Suitable for ceiling or wall mounting**

**Through wire or looping as standard**

**Prismatic lens**

**Suitable for low temperature applications**

**Gost Approved**

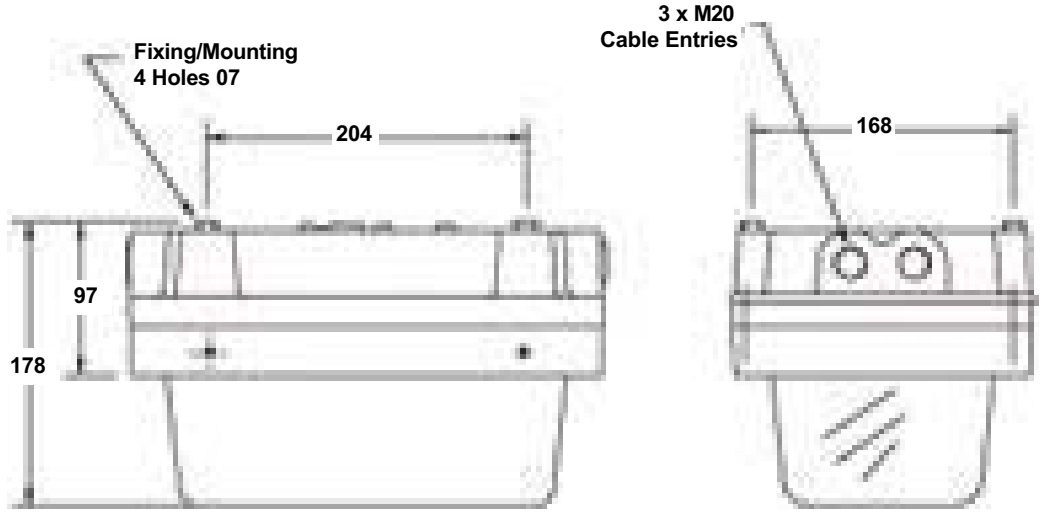
Chalmit lighting

| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **NEXN/050/HS** | 50W | HPS | E27 | T4 | 35 | 6.5kg |
| **NEXN/070/MS** | 70W | HPS/Metal Halide | E27 | T4 | 35 | 7.0kg |
| **NEXN/080/MV** | 80W | Mercury Vapour | E27 | 150ºC T3 | 25 | 6.5kg |
| **NEXN/160/MB** | 160W | MBTF | E27 | T3 | 30 | 5.0kg |
| **NEXN/113/CF** | 1x13W | CFL | G24 | T5 | 50 | 5.5kg |
| **NEXN/118/CF** | 1x18W | CFL | G24 | T5 | 50 | 5.5kg |
| **NEXN/126/CF** | 1x26W | CFL | G24 | T5 | 50 | 5.5kg |
| **NEXN/213/CF** | 2x13W | CFL | G24 | T5 | 30 | 6.0kg |
| **NEXN/218/CF** | 2x18W | CFL | G24 | T5 | 30 | 6.0kg |
| **NEXN/226/CF** | 2x26W | CFL | G24 | T5 | 30 | 6.0kg |
| **NEXN/200/GL** | 200W max | GLS | E27 | 150ºC T3 | 30** | 5.0kg |
| **NEXN/050/HS/NC*** | 50W | HPS | E27 | 150ºC T3 | 50 | 6.5kg |
| **NEXN/070/MS/NC*** | 70W | HPS/Metal Halide | E27 | 150ºC T3 | 50 | 7.0kg |
| **NEXN/080/MV/NC*** | 80W | Mercury Vapour | E27 | 150ºC T3 | 35 | 6.5kg |
| **NEXN/100/HS/NC*** | 100W | HPS | E27 | T3 | 40 | 7.5kg |

*No power factor correction capacitors fitted.
**Other 'T' ratings and ambients available for lower wattages. Contact sales for details.

## Options - Suffix to Catalogue No.

| | |
|---|---|
| /___ | Specific voltage (254) |
| **/60** | 60Hz |
| **/TI** | Timed cut out ignitor |
| **/MF** | Mains fuse |




**Accessories** (Should be ordered separately) **Catalogue Order Code**

Wire Guard **SNEX1-0001**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# ECLIPSE II

## Ex n WELL-GLASS

## ATEX CATEGORY 3
## ZONE 2 APPLICATIONS

**The Eclipse II is a well-glass luminaire suitable for high pressure discharge lamps of up to 400W.**

**It has a painted lightweight corrosion resistant cast aluminium body and heat resistant glass construction with stainless steel fasteners. It has been tested to IP65 and is suitable for use in harsh environments. The protection is Ex nA R, incorporating a restricted breathing lamp chamber and a non-sparking control gear and terminal housing. This design removes the need for special cable or cable glands. The lamp glass has a screwed thread for quick access. The control gear housing hinges on the mounting and termination cover and is held in position by a single screw barrel nut. The single screw barrel nut permits easy access and closure of the luminaire during installation and should maintenance be required. There is a range of wall, surface and stanchion mountings which may be integrated into the design. An enclosed reflector for Highbay applications is also available. A range of external reflectors is available to direct light efficiently to where it is required.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA nR(Non Sparking Restricted Breathing)** |
| ATEX Classification: | **Group II Category 3G** |
| Area Classification: | **Zone 2 areas to EN 60079-10with installation to EN 60079-14** |
| Apparatus Standard: | **EN 60079-15** |
| Certificate: | **Type Examination Certificate Baseefa04ATEX0393X** |
| Coding: | **II 3 G EEx nA R II (refer to table for T class and ambient)** |
| Enclosure: | **Painted aluminium body with glass lens. Silicone rubber gasket. Single stainless steel barrel nut fastener.** |
| Entry: | **Up to 4 x M20 cable entries** |
| Termination: | **3 core 6mm² max. With looping.** |
| Installation: | **Ceiling mounting** |
| Lampholder: | **E27 or E40** |
| Lamp Type: | **HPS, Metal halide, Mercury vapour or QL.** |
| Control Gear: | **Internal copper/iron ballast with ignitor and PFC correction capacitors. Electronic HF for QL.** |
| Relamping: | **Access via restricted breathing lamp chamber** |
| Burning Position: | **Up to 25º off vertical** |
| Ingress Protection: | **IP65 to EN 60529** |
| Electrical Supply: | **220, 230, 240V 50Hz (50, 80, 100 & 125W)**<br>**220, 230, 240, 254V 50Hz (70, 150, 250 & 400W)** |

## Features

**Easy access for wiring and control gear**

**Corrosion resistant**

**Unrestricted breathing gearenclosure removes the need for special glands or cable**

**Excellent light distribution**

**Suitable for a wide range of ambient temperatures from -45°C to +55°C, dependant on lamp type and wattage**

**Gost approved**


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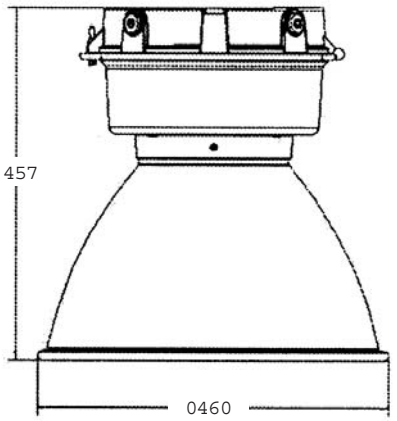
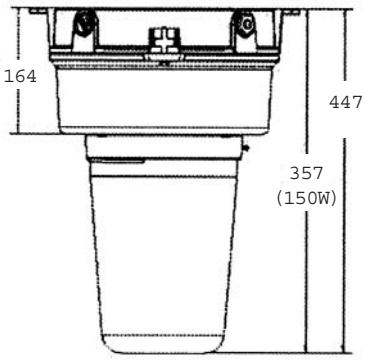
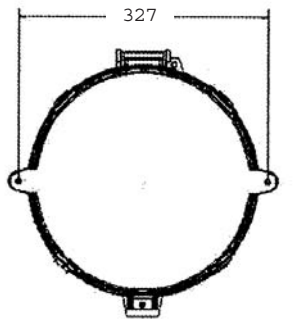
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **EC2N/050/HS** | 50W | HPS | E27 | T4 | 55 | 7.5kg |
| **EC2N/070/MS** | 70W | HPS/Metal Halide | E27 | T4 | 55 | 8.0kg |
| **EC2N/100/HS** | 100W | HPS | E40 | T4 | 55 | 9.0kg |
| **EC2N/150/MS** | 150W | HPS/Metal Halide | E40 | T4 | 55 | 11.0kg |
| **EC2N/250/MS** | 250W | HPS/Metal Halide | E40 | T4 | 50 | 15.0kg |
| **EC2N/400/MS** | 400W | HPS/Metal Halide | E40 | T3 | 45 | 15.5kg |
| **EC2N/080/MV** | 80W | Mercury Vapour | E27 | T3 | 45 | 7.5kg |
| **EC2N/125/MV** | 125W | Mercury Vapour | E27 | T3 | 45 | 8.0kg |
| **EC2N/250/MV** | 250W | Mercury Vapour | E40 | T3 | 40 | 15.0kg |
| **EC2N/400/MV** | 400W | Mercury Vapour | E40 | T3 | 35 | 15.5kg |
| **EC2N/085/QL** | 85W | QL | QL | T4 | 40 | 8.2kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/60** | 60Hz |
| **/WM** | Wall mounted version |
| **/ST** | Stanchion mounted version |
| **/PE** | Pendant mounted version |
| **/TI** | Timed cut out ignitor |
| **/D** | Zone 22 Dust applications |
| **/ER** | Exclosed spun reflector |
| **/R** | Prismatic Refractor |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Wire Guard for low wattage glass globe (Up to 150W) | E0850-0042 |
| Wire Guard for high wattage glass globe (250 & 400W) | E0850-0044 |
| Wire Guard for Enclosed Refractor | E0850-0043 |
| Dome Reflector | SEC20-0001 |
| 30º Angled Reflector | SEC20-0002 |

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# ECLIPSE JUNIOR

## Ex n WELL-GLASS

## ATEX CATEGORY 3 ZONE 2 APPLICATIONS

**The Eclipse Junior is a well-glass luminaire suitable for high pressure discharge lamps up to 70W and GLS lamps up to 150W.**

**It has a lightweight corrosion resistant aluminium body and heat resistant glass cover with stainless steel fasteners. It is tested to IP66 and is suitable for use in harsh environments. The protection is Ex nAR incorporating a restricted breathing lamp chamber and an unrestricted control gear and terminal housing. This removes the need for special cable or glands. The lamp-glass has a screwed thread for quick access. The main enclosure containing the control gear hinges on the mounting part but is not fastened to it. This allows ready access to the terminals and the easy removal of the control gear and lamp enclosure if maintenance is needed.**

**There is a range of wall, surface and stanchion mountings integrated into the designs. This small well-glass offers a compact lighting solution for use where all round lighting is needed in positions having limited space and access.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nA nR (Non-sparking Restricted Breathing)** |
| ATEX Classification: | **Group II Category 3 G** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **EN 50021** |
| Certificate: | **Type Examination Certificate BAS98ATEX3197X** |
| Coding: | **II 3 G EEx nAR II (refer to table for T class and Ambient)** |
| Enclosure: | **Painted aluminium body with glass lens. Silicone rubber gasket. Stainless steel fasteners** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Ceiling mounting** |
| Control Gear: | **Internal copper/iron ballast with ignitor and PFC correction capacitor** |
| Relamping: | **Access via sealed lamp chamber** |
| Lampholder: | **E27 or G24q** |
| Lamp Type: | **HPS, Metal Halide, Mercury Vapour, CF or GLS** |
| Burning Position: | **Up to 25º off vertical** |
| Ingress Protection: | **IP66 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz - 70 & 80W (HID)**<br>**220, 230, 240V 50Hz - 50, 100 & 125W (HID)**<br>**240V 50Hz - CF, 250Vmax. 150W GLS** |

## Features

**Compact size and low weight**

**Easy access for wiring and control gear**

**Corrosion resistant**

**Unrestricted breathing gear enclosure removes the need for special glands or cable**

**Excellent light distribution**

**Suitable for a wide range of ambient temperatures from -45ÞC to +55ÞC, dependant on lamp type and wattage**

**Cepel Approved**

**Gost approved**


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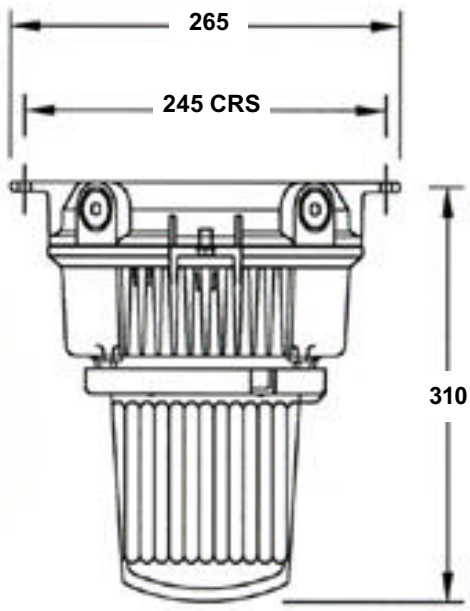
| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|---|
| **ECJN/050/HS** | 50W | HPS | E27 | T4 | 50 | 5.5kg |
| **ECJN/070/MS** | 70W | HPS/Metal Halide | E27 | T4 | 50 | 6.0kg |
| **ECJN/080/MV** | 80W | MBFU | E27 | T3 | 50 | 6.0kg |
| **ECJN/125/MV** | 125W | MBFU | E27 | T3 | 40 | 6.5kg |
| **ECJN/113/CF** | 1x13W | CFL | G24q | T4 | 50 | 5.0kg |
| **ECJN/118/CF** | 1x18W | CFL | G24q | T4 | 50 | 5.0kg |
| **ECJN/126/CF** | 1x26W | CFL | G24q | T4 | 50 | 5.0kg |
| **ECJN/150/GL** | 150W | GLS | E27 | T4 | 55 | 5.0kg |

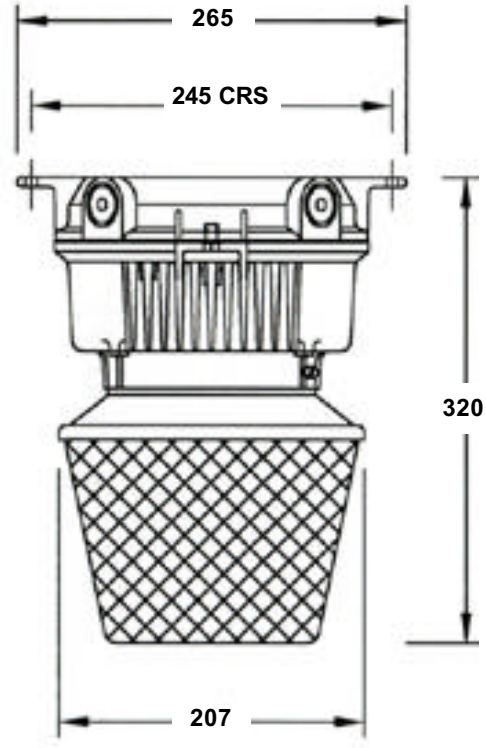
## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/___** | Specific voltage (220,230,254) |
| **/60** | 60Hz |
| **/R** | Prismatic glass refractor |
| **/WM** | Wall mounted version |
| **/ST** | Stanchion mounted version |
| **/PE** | Pendant mounted version |
| **/NC** | No capacitors |
| **/D** | Zone 22 Dust applications |

**Glass Refractor**




**Glass Globe**




**Standard ceiling mounting arrangement shown**

| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Cast Guard | **CECJ7-0007** |
| Dome Reflector | **SECL0-0001** |
| 30º Angled Reflector | **SECL0-0002** |
| Guard for Glass Refractor | **HECJ4-0001** |

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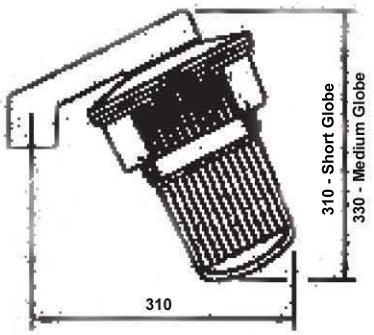
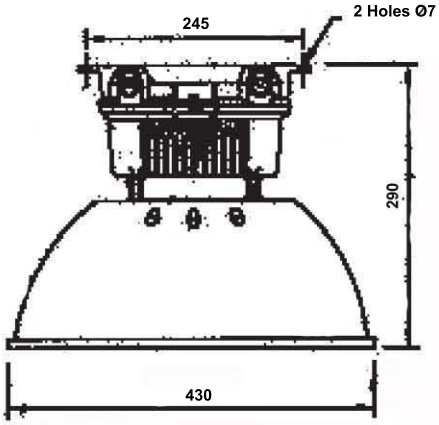
# ECLIPSE RANGE

## MOUNTING VARIATIONS and ACCESSORIES

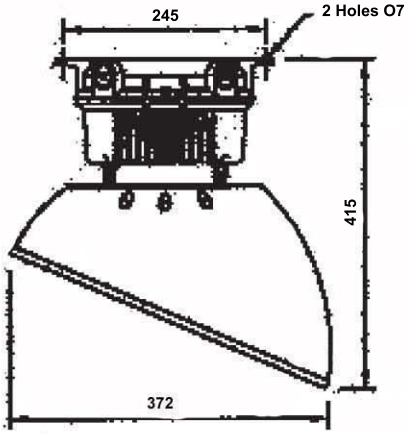
### JUNIOR




Stanchion mounting arrangement
To suit pole threaded 1 ¼ NPT

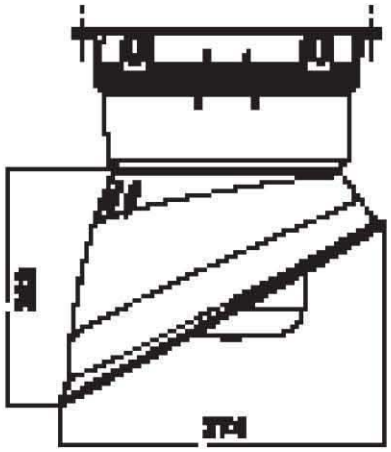



Eclipse Junior c/w glass globe &
full reflector

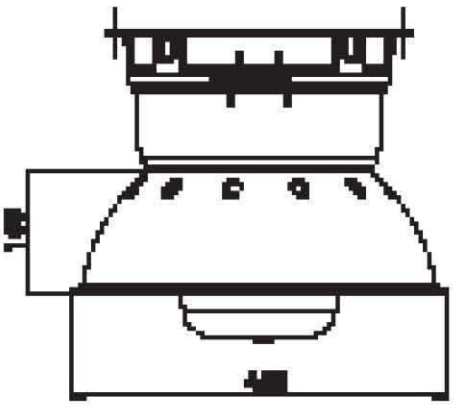



Eclipse Junior c/w glass globe
& 30° angled reflector

### ELIPSE II



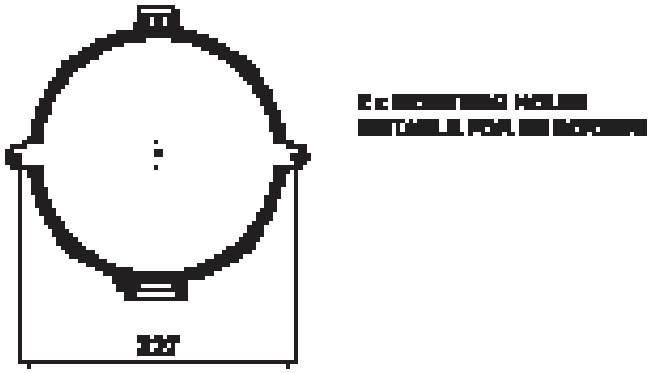
Angle reflector



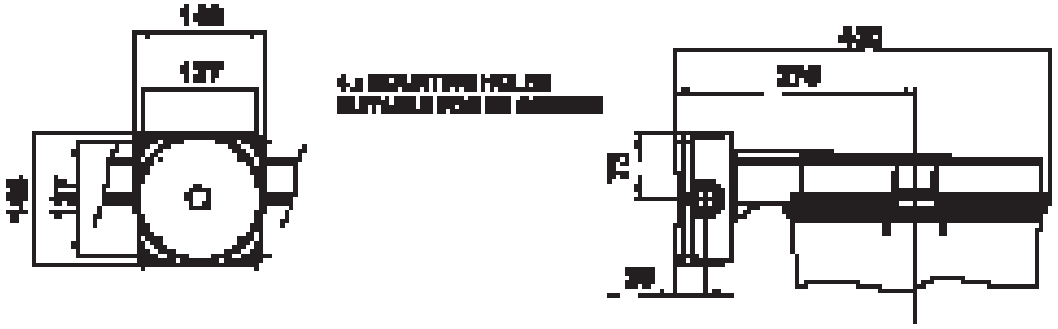
Dome reflector

# ECLIPSE II MOUNTING ACCESSORIES

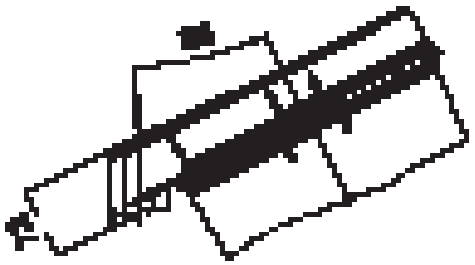
## CEILING AND FLUSH MOUNTING



## WALL MOUNTING

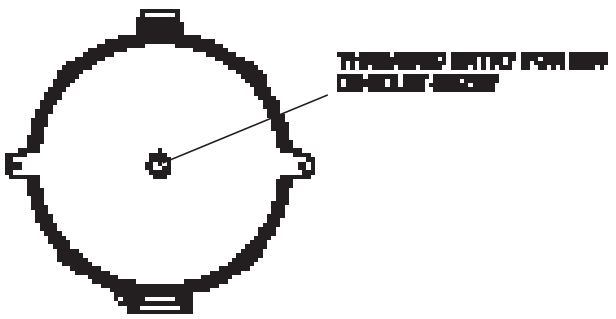


## STANCHION MOUNTING



**TO SUIT POLE DIAMETER 70mm ($1^1/_2$ THREADED)**

## PENDANT MOUNTING



# PYRAMID

## Ex n LOW-MEDIUM BAY

## ATEX CATEGORY 3

## ZONE 2 and 22 APPLICATIONS

**The Pyramid is designed for low and medium bay applications where a high level of illumination and low glare is required. The high technology refractor gives excellent light distribution.**

**The protection for ignitable gas applications is Ex nR and for use in ignitable dust applications is dust excluding, IP6X.**

**The zinc coated steel body with polyester painting and the polycarbonate refractor make the Pyramid suitable for moderately aggressive locations where it can be surface mounted suspended or recessed. It is particularly suitable for mounting under canopies, in warehouses and in factories.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex nR (Restricted Breathing) Dust protected enclosure** |
| ATEX Classification: | **Group II Catagory 3 G D** |
| Area Classification: | **Zone 2 and Zone 22 areas to EN 60079-10 and En 50281-3 with installation to EN 60079-14 and EN 50281-1-2** |
| Apparatus Standard: | **EN 50021 EN 50281-1-1** |
| Certificate: | **Type Examination certificate BASO1ATEX3239** |
| Coding: | **II 3 G D EEx nR II (refer to table for T rating and ambient)** |
| Enclosure: | **White polyester painted zinc coated steel body and front cover with silicone gasket and polycarbonate diffuser** |
| Reflector: | **High purity anodised aluminium** |
| Entry: | **2 x 20mm diameter holes** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **4 x 10mm clearance holes** |
| Lampholder: | **E40** |
| Lamp Type: | **HPS or Metal Halide** |
| Control Gear: | **Internal copper/iron ballast with ignitor and PFC correction capacitors** |
| Relamping: | **Access via front cover secured by eight stainless steel screws** |
| Ingress Protection: | **IP65 to EN 60529** |
| Electrical Supply: | **220, 230, 240, 254V 50Hz** |

## Features

**Zinc coated steel sheet, polyester painted for durability**

**Polycarbonate prismatic lens with excellent light distribution**

**Suspended gear tray for ease of maintenance**

**Simple and easy access via front cover for lamp replacement and maintenance**

**Excellent light distribution and uniformity up to 10 metre mounting heights**

**Low glare**

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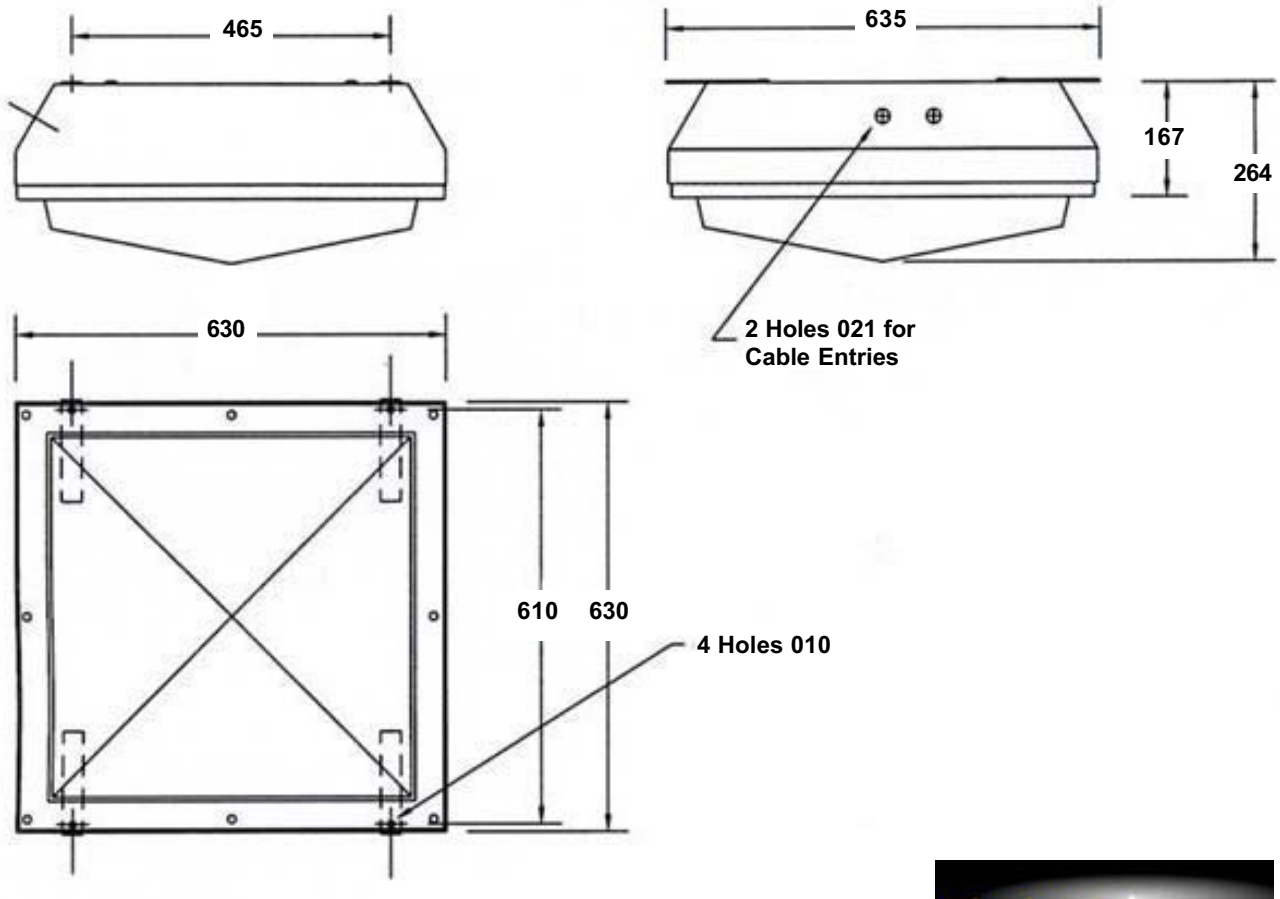
| Std Cat No. | Wattage | Lamp | Ambient ºC | T Class (Gas) | T ºC (Dust) | Weight |
|---|---|---|---|---|---|---|
| **PYMN/150/HS** | 150W | HPS | 50 | T4 | 130 | 18.5kg |
| **PYMN/150/HS/RE** | 150W | HPS | 45 | T4 | 130 | 18.5kg |
| **PYMN/250/MS** | 250W | HPS/Metal Halide | 45 | T4 | 110 | 19.5kg |
| **PYMN/250/MS/RE** | 250W | HPS/Metal Halide | 35 | T4 | 110 | 19.5kg |
| **PYMN/400/MS** | 400W | HPS/Metal Halide | 30 | T4 | 115 | 21.0kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/60** | 60Hz |
| **/25** | 25mm cable entries |
| **/SUS/G** | Suspension / pendant mounting version (Gas applications only) |
| **/RE** | Recessed (150 and 250W only) |
| **/SUS/D** | Dust (& Gas) applications with rear dust shed |
| **TI/** | Timed cutout ignitor |

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# 503

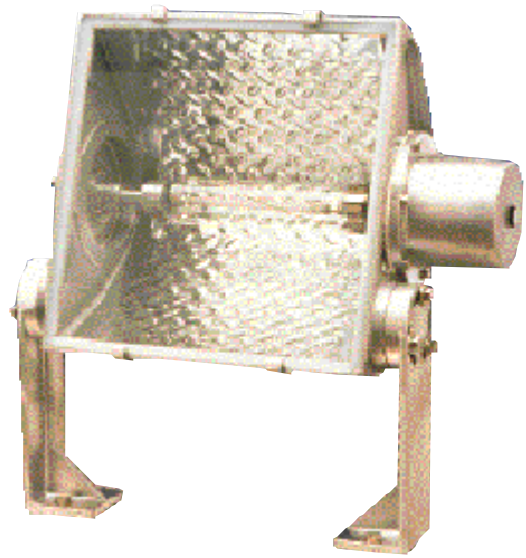
# Ex N FLOODLIGHT

## Ex N PROTECTION ZONE 2 APPLICATIONS

**The 503 is a high power floodlight for high pressure sodium lamps of 600W or 1000W rating and tungsten-halogen lamps up to 2000W.**

**The protection is Ex N, non-sparking, using a restricted breathing enclosure. The control gear is in a separate box for cool running which should be ordered seperately. When reguired an ignitor is mounted on the floodlight so there is no practical limit to the distance from the control gear box. This unique luminaire enables very high wattage lamps to be used for Zone 2 applications. The floodlight is fully weatherproof to IP66/IP67 and is made from corrosion resistant aluminium with a toughened glass and silicone gasket and sealing.**

**The floodlight combines solid construction with very high light output in a housing of minimum weight and attractive appearance. Through advanced design and construction techniques the surface temperature remains relatively low even at maximum lamp wattage.The use of the 503 will give extremely high levels of illumination from a small number of luminaires which greatly reduces installation and maintenance costs.**



## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex N (Non-sparking Restricted breathing)** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **BS 4533 Part 2 Section 2:1 1976** |
| Certificate: | **BASEEFA Ex 81267X** |
| Coding: | **Ex N II (refer to table for T class and ambient)** |
| Enclosure: | **Marine grade aluminium alloy LM6 body with toughened glass window, silicone rubber gasket** |
| Reflector: | **Wide beam high purity anodised aluminium** |
| Entry: | **1 x M20 cable entry** |
| Termination: | **3 core 4mm² max. conductor** |
| Installation: | **Foot mounted** |
| Lamp Type: | **HPS or Tungsten-Halogen** |
| Lampholder: | **E40** |
| Control Gear: | **Refer to Universal gear-box and 502 gear box** |
| Relamping: | **Access via end cover secured by stainless steel screws** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **Refer to Universal gear-box (600W) and 502 gear-box (1000W) for HPS lamps. 2000W max. for Tungsten-Halogen** |

## Features

**Robust construction**

**Highly resistant to corrosion and mechanical damage**

**All stainless steel fasteners**

**Extremely efficient reflector system**

**Lamp support mechanism**

**High ambient applications**

**ATEX version available**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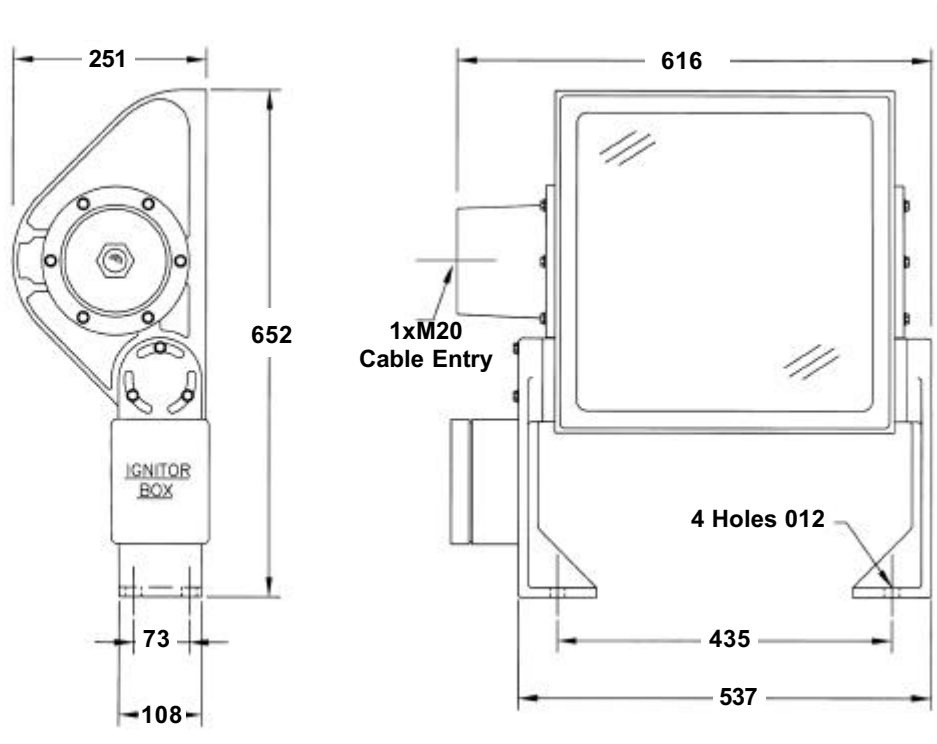
| Std. Cat No. | Wattage | Lamp | T Class | Ambient ºC | Weight |
|---|---|---|---|---|---|
| **503N/600/HS*** | 600W | HPS | T3 | 60 | 25.0kg |
| **503N/1000/HS*** | 1000W | HPS | T3 | 40 | 25.0kg |
| **503N/2000/TH** | 2000W | Single Ended T/Halogen | T2 | 40 | 25.0kg |

*Voltage should be matched to suitable external gear box. Chalmit Universal box or 502 box.
Gearbox suitable for high ambient applications available. Details on request.

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/IG** | Integral ignitor |
| **/P** | PTFE coating |
| **/N** | Narrow beam reflector |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting bracket | **S2000-0007** |
| Swinging Jib bracket | **S2000-0019** |
| Anti-glare shield | **S5030-0007** |
| Wire guard | **S5030-0008** |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# 502

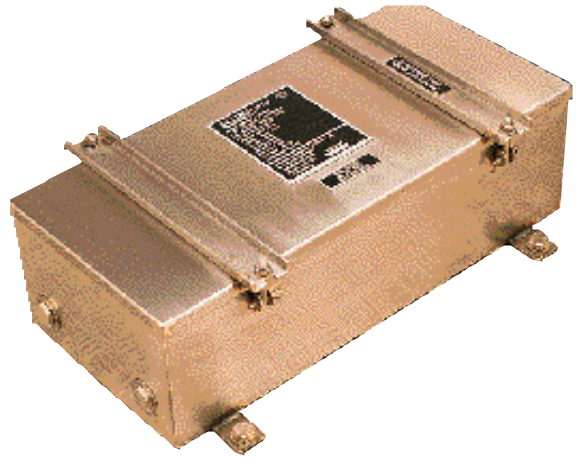
## Ex N CONTROL GEAR-BOX

## Ex N PROTECTION ZONE 2 APPLICATIONS

**The 502 gearbox is used with the 1000W 503 floodlight. It has Ex N protection to BS 4683 Pt 3 with an unrestricted breathing enclosure.**

**The box is generously proportioned to obtain low control gear temperatures. It is made from 316S31 stainless steel and has base fixing brackets and bolted hinged clamps.**

**The IP66/67 rating and stainless steel construction enable the box to be used with excellent reliability in corrosive applications.**



## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex N (Non sparking)** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **BS 4683 Part 3: 1972** |
| Certificate: | **BASEEFA Ex 81265X** |
| Coding: | **Ex N II T4 Tamb 40ºC** |
| Enclosure: | **316S31 Marine grade stainless steel** |
| Entry: | **3 x 20mm cable entries** |
| Termination: | **3 core 4mm² max c/w looping** |
| Installation: | **Base mounting straps** |
| Cable: | **For HID lamps the Chalmit cable type 4891 or equivalent must be used between floodlight and control gear box to comply with the certificate requirements. This does not apply if the floodlight itself has an internal ignitor.** |
| Control Gear: | **Internal copper/iron ballast and PFC correction capacitors (Ignitor not fitted on standard model)** |
| Operating Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **200, 210, 220, 230, 240, 250V 50Hz, 220, 230, 240, 250, 260, 270V 60Hz** |

## Features

**316S31 grade stainless steel construction**

**Easy to install and maintain**

**Hinged lid with two fixing screws**

**Multi tapped ballast**

**Control gear easily accessed and can be replaced**


| | | | |
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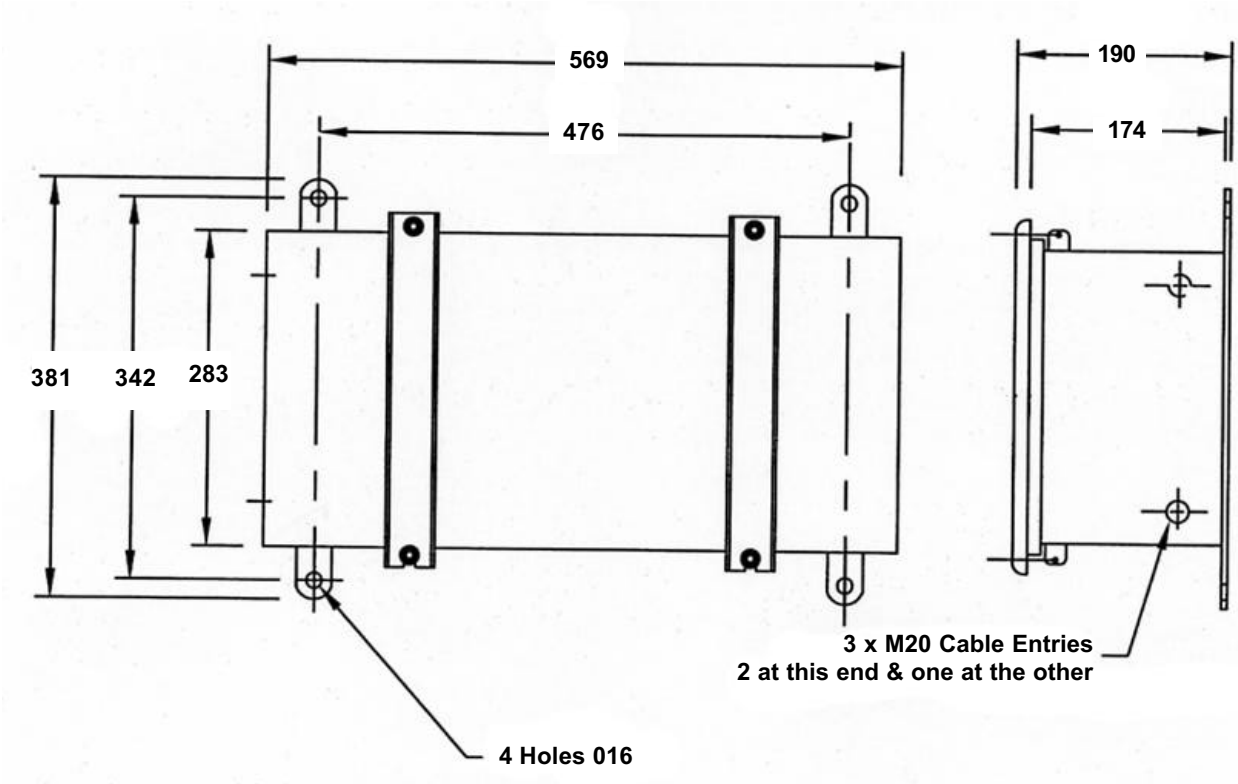
| Std. Cat No. | Wattage | Lamp (Ref only) | Weight |
|---|---|---|---|
| **502N/1000/HS** | 1000W | HPS | 32kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/25** | 25mm Entries |
| **/TE** | Threaded entry |
| **/IG** | Integral ignitor |
| **/NC** | No capacitors |





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# 2484 and 2486

## Ex N FLOODLIGHT

## Ex N PROTECTION ZONE 2 APPLICATIONS

**This range of floodlights is designed for use in harsh and corrosive environments. The quality of material and the ingress protection of IP66/IP67 means that the floodlight is highly resistant to saline corrosion. It is manufactured from marine grade 316S31 stainless steel and toughened glass with a silicone gasket. The range accommodates high pressure discharge lamps up to 600W rating.**

**The control gear is in a separate attached box for cool running which allows this luminaire to be used in ambient temperatures up to 55ÞC.**

**The cover is secured by four powerful instant release clamps making installation and maintenance quick and easy.**

**The 2486 is suitable for use with elliptical lamps therefore it can be used as an alternative to the 800 series which uses only tubular lamps.**

## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex N (Non-sparking Restricted Breathing)** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **BS 4533 Part 102.51:1986** |
| Certificate: | **BASEEFA Ex 88Y4074X** |
| Coding: | **Ex N II T3 (Refer to table for ambient temperatures)** |
| Enclosure: | **Marine grade 316S31 stainless steel body with toughened glass window, silicone rubber gasket** |
| Reflector: | **Wide beam high purity anodised aluminium** |
| Entry: | **2 x M20 cable entries** |
| Termination: | **3 core 6mm² max. conductor with looping** |
| Installation: | **Stirrup mounting** |
| Control Gear: | **Integral copper/iron choke with ignitor and PFC correction capacitors** |
| Relamping: | **Access via front glass cover assembly secured by four quick release stainless steel clamps** |
| Lampholder: | **E40** |
| Lamp Type: | **HPS Tubular and Eliptical, Mercury Vapour and Single Ended Tungsten-Halogen** |
| Burning Position: | **Universal, if lamp axis is not horizontal operate lamp cap down** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **200, 210, 220, 230, 240, 250V 50Hz**<br>**220, 230, 240, 250, 260, 270V 60Hz** |

## Features

**Excellent corrosion resistance properties**

**High ambient applications**

**Four quick release fasteners for ease of relamping and maintenance**

**Suspended cover front**

**Aiming quadrant**

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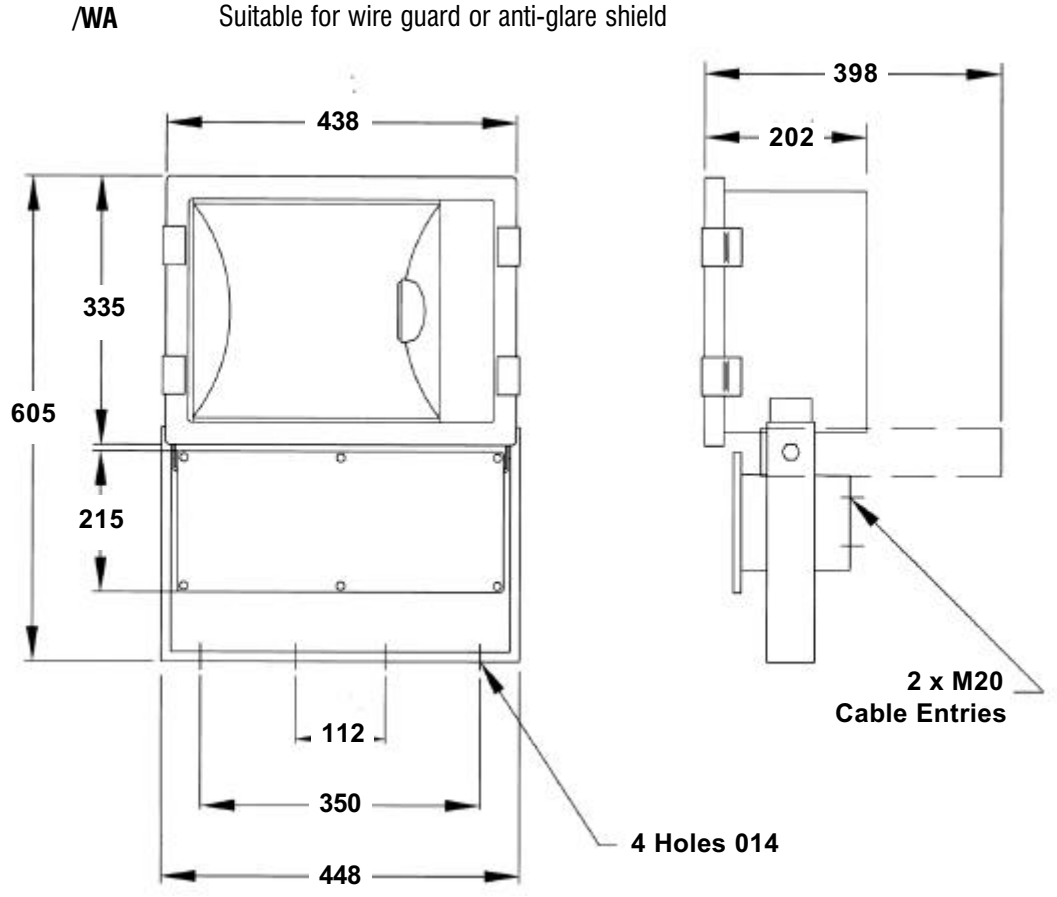
| Std. Cat No. | Wattage | Lamp | Tamb | Weight |
|---|---|---|---|---|
| **2484/150/HS** | 150W | HPS (SON/T) | 55 | 21.0kg |
| **2484/250/HS** | 250W | HPS (SON/T) | 55 | 22.0kg |
| **2484/400/HS** | 400W | HPS (SON/T) | 55 | 23.0kg |
| **2484/600/HS** | 600W | HPS (SON/T) | 40 | 24.0kg |
| **2486/150/HS** | 150W | HPS (SON/E) | 40 | 21.0kg |
| **2486/250/HS** | 250W | HPS (SON/E) | 40 | 22.0kg |
| **2486/400/HS** | 400W | HPS (SON/E) | 40 | 23.0kg |
| **2484/250/MH** | 250W | Metal Halide | 40 | 22.0kg |
| **2484/400/MH** | 400W | Metal Halide | 40 | 23.0kg |
| **2486/250/MV** | 250W | Mercury Vapour | 40 | 21.0kg |
| **2486/400/MV** | 400W | Mercury Vapour | 40 | 22.0kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/M25** | M25 Entries |
| **/N** | Narrow beam reflector |
| **/WA** | Suitable for wire guard or anti-glare shield |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Pole mounting brackets | **S2400-0003** |
| Spigot mounting bracket | **S2400-0007** |
| Wire guard assembly | **S2400-0009** |
| Anti-glare shield assembly | **S2400-0004** |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| Benelux | Tel: +31 (0)302 467 132 | Fax: +31 (0) 302 467 133 | Email: john.van.straalen@planet.nl |
| Abu Dhabi | Tel: +971 2621 3496 | Fax: +971 2631 2152 | Email: rwood@emirates.net.ae |
| Dubai | Tel: +971 4334 2823 | Fax: +971 4334 7974 | Email: albertmf@emirates.net.ae |
| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

For the latest product information - www.chalmit.com

# 469

# Ex N FLOODLIGHT

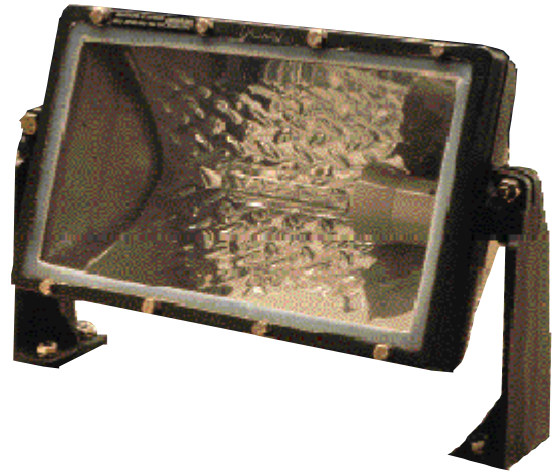
## Ex N PROTECTION
## ZONE 2 APPLICATIONS

**The 469 is a high power floodlight for use with 300 to 1000W Tungsten-Halogen lamps. The protection is Ex N, non-sparking, to BS 4533 Pt 2 Sec 2:1 1976 using a restricted breathing enclosure.**

**This unique luminaire enables very high wattage lamps to be used for Zone 2 applications. The floodlight is fully weatherproof to IP66/IP67 and is made from corrosion resistant aluminium and toughened glass with a silicone rubber gasket seal.**

**Through advanced design and construction techniques the surface temperature remains relatively low even at maximum lamp wattage.**

**The 469 is used where high instant illumination is needed and can be used with 120V or dc supplies.**



## Standard Specification

| | |
|---|---|
| Type of Protection: | **Ex N (Non-sparking Restricted Breathing)** |
| Area Classification: | **Zone 2 areas to EN 60079-10 with installation to EN 60079-14** |
| Apparatus Standard: | **BS 4533 Part 2 Section 2:1 1976** |
| Certificate: | **BASEEFA Ex 78099X** |
| Coding: | **Ex N II (refer to table for T class and ambient)** |
| Enclosure: | **Marine grade aluminium alloy LM6 body with toughened glass window, silicone rubber gasket** |
| Reflector: | **Wide beam high purity anodised aluminium** |
| Entry: | **M20 cable entry** |
| Termination: | **3 core 4mm² max. conductor** |
| Installation: | **Foot mounted** |
| Relamping: | **Access via front glass cover assembly secured by stainless steel screws** |
| Lampholder: | **E40** |
| Burning Position: | **Universal** |
| Ingress Protection: | **IP66/67 to EN 60529** |
| Electrical Supply: | **up to 250V ac/dc** |

## Features

**Very robust**

**Highly resistant to corrosion and mechanical damage**

**All stainless steel fasteners**

**Suspended hinged front cover assembly**

**Compact**

**ATEX version available**

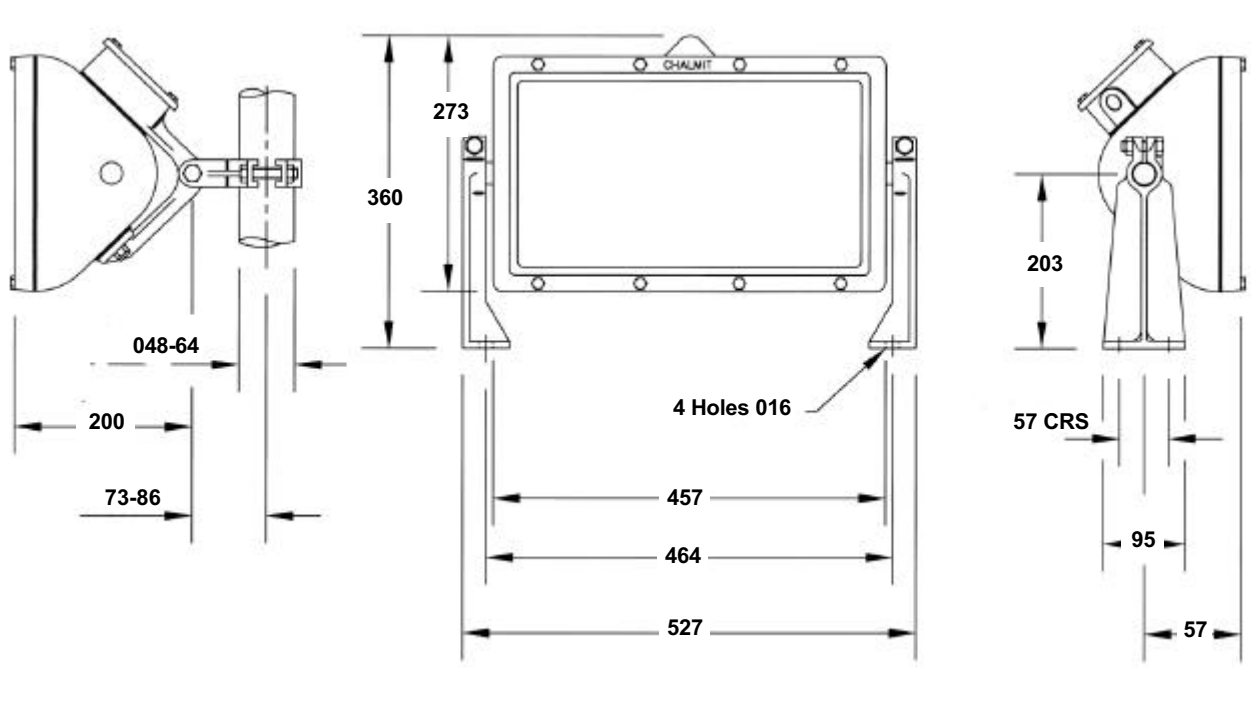

| | | | |
|---|---|---|---|
| United Kingdom | Tel: +44 (0) 141 882 5555 | Fax: +44 (0) 141 883 3704 | Email: info@chalmit.com |
| Benelux | Tel: +31 (0)302 467 132 | Fax: +31 (0) 302 467 133 | Email: john.van.straalen@planet.nl |
| Abu Dhabi | Tel: +971 2621 3496 | Fax: +971 2631 2152 | Email: rwood@emirates.net.ae |
| Dubai | Tel: +971 4334 2823 | Fax: +971 4334 7974 | Email: albertmf@emirates.net.ae |
| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

For the latest product information - www.chalmit.com

| Std. Cat No. | Wattage | Lamp | Lampholder | T Class | Ambient°C | Weight |
|---|---|---|---|---|---|---|
| **469N/300/TH** | 300W | Single Ended T/Halogen | E40 | T3 | 50 | 10.0kg |
| **469N/500/TH** | 500W | Single Ended T/Halogen | E40 | T3 | 40 | 10.0kg |
| **469N/1000/TH** | 1000W | Single Ended T/Halogen | E40 | T2 | 40 | 10.0kg |

## Options - Suffix to Catalogue No.

| | |
|---|---|
| **/PM** | Pole mounted version |
| **/P** | PTFE coating |
| **/N** | Narrow beam reflector |
| **/M25** | M25 Entry |




| **Accessories** (Should be ordered separately) | **Catalogue Order Code** |
|---|---|
| Anti-glare shield | **S4000-0002** |
| Wire guard | **E0850-0002** |
| Swinging Jib assembly | **S2000-0019** |


Chalmit lighting

| | | | |
|---|---|---|---|
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| Benelux | Tel: +31 (0)302 467 132 | Fax: +31 (0) 302 467 133 | Email: john.van.straalen@planet.nl |
| Abu Dhabi | Tel: +971 2621 3496 | Fax: +971 2631 2152 | Email: rwood@emirates.net.ae |
| Dubai | Tel: +971 4334 2823 | Fax: +971 4334 7974 | Email: albertmf@emirates.net.ae |
| Singapore | Tel: +65 6282 2242 | Fax: +65 6284 4244 | Email: chalmits@singnet.com.sg |

For the latest product information - www.chalmit.com

# LAMPS AVAILABLE FROM CHALMIT

## A SELECTED RANGE OF LAMPS SUITABLE FOR USE IN CHALMIT PRODUCTS

In addition to luminaires, Chalmit can supply all lamps as part of an order.
Listed below are details of a selection of quality lamps which are available from stock or on short delivery times from Chalmit in Glasgow.
The list contains some common lamps and others that are not so easily available from stockists.

| PART CODE | LAMP TYPE | WATTAGE | CAP/COLOUR |
|---|---|---|---|
| **Fluorescent** | | | |
| **FLBI/018/G13/T8** | Fluorescent T8 standard | 18 | G13 White |
| **FLBI/036/G13/T8** | Fluorescent T8 standard | 36 | G13 White |
| **FLBI/058/G13/T8** | Fluorescent T8 standard | 58 | G13 White |
| **FLBI/018/G13/T8/LL** | Fluorescent T8 long life (Aura) | 18 | G13 White |
| **FLBI/036/G13/T8/LL** | Fluorescent T8 long life (Aura) | 36 | G13 White |
| **FLBI/058/G13/T8/LL** | Fluorescent T8 long life (Aura) | 58 | G13 White |
| **High Pressure Sodium** | | | |
| **SONT/070/E27** | SON/T standard | 70 | E27 |
| **SONT/150/E40** | SON/T standard | 150 | E40 |
| **SONT/250/E40** | SON/T standard | 250 | E40 |
| **SONT/400/E40** | SON/T standard | 400 | E40 |
| **SONT/600/E40/PLUS** | SON/T plus | 600 | E40 |
| **SONT/070/E27/TWINARC** | SON/T Twin arc | 70 | E27 |
| **SONT/150/E40/TWINARC** | SON/T Twin arc | 150 | E40 |
| **SONT/250/E40/TWINARC** | SON/T Twin arc | 250 | E40 |
| **SONT/400/E40/TWINARC** | SON/T Twin arc | 400 | E40 |
| **Metal Halide** | | | |
| **MBIT/250/E40** | MBI/T | 250 | E40 |
| **MBIT/400/E40** | MBI/T | 400 | E40 |
| **Tungsten-Halogen** | | | |
| **THAL/150/R7S/24V** | Double ended | 150 | R7s |

The Metal Halide lamps are for use on HPS contol gear. For detailed information on the selection of Metal halide lamps refer to the lamp section of the technical introduction.

We are pleased to offer help with the selection of lamps for your Chalmit luminaires.
Please contact our customer services department.

# ORDERING INFORMATION

The Chalmit customer service team is trained to help you solve all your hazardous lighting requirements. In addition to progressing your order, Chalmit can assist you with any questions you may have regarding selection, installation and maintenance of Chalmit lighting products.

In order that we may provide you with the best possible service, it is important that the following information accompanies any enquiry or order.

1. **Catalogue number/description**
2. **Number of lamps, type and wattage**
3. **Supply voltage and frequency**
4. **Method of protection or ATEX Category**
5. **T rating and T ambient ºC**
6. **Material and any special finish if required**
7. **Mounting arrangement**
8. **Any special requirements i.e. options, packing or delivery details.**
9. **Delivery date required.**
10. **Project name if known.**

It should be noted that Chalmit Lighting will only proceed with orders once written confirmation has been received. Quotation numbers if applicable should be stated on all orders.

If at any time you wish to progress the status of an order, it is vital that the sales order number is quoted in all correspondence. This can be found on your order acknowledgement which will be despatched to you on acceptance of your order.

Chalmit Lighting Standard Conditions of Sale will always apply. These are available on request and are printed on the rear of the order acknowledgement.

All luminaires shown in this catalogue are available as safe area luminaires for use in non-hazardous areas. These versions are ideal for adverse conditions where luminaires from standard / industrial lighting suppliers will not suffice.

Please contact Chalmit for details.

Chalmit Lighting has also been known under the following brand names:

Chalmit — Andrew Chalmers & Mitchell

Chalmers & Mitchell — Chalmers & Mitchell

SIMPLEX LIGHTING — Simplex Lighting

Simplex Chalmit — Simplex Chalmit

INDUSTRIA — Industria

## Disclaimer

The technical and commercial information in this catalogue must be used as guidance only, Chalmit Lighting does not accept any liability arising from it's use.

# KILLARK RANGE

## NEC LIGHTING and ANCILLIARY PRODUCTS

**EXPLOSION PROOF and ENCLOSED and GASKETTED**
**CLASS I DIVISION 1 and 2**
**CLASS II DIVISION 1 and 2**
**CLASS III APPLICATIONS**

## The Chalmit Product Portfolio covers an exceptional range of IEC products and is now enhanced by the addition of NEC products.

Chalmit can now offer the Killark® range of NEC Electrical Construction Products for standard, harsh and hazardous installations in markets outwith the US, Canada and Mexico. This expanded Product Portfolio now makes Chalmit a leader in the NEC market reflecting its long established leading position in the IEC market.

Products carrying the well respected North American Killark brand name are now available throughout the Chalmit global sales network.

The Killark product range encompasses industrial and explosion proof fittings in both iron and aluminium, enclosures, control stations, the world famous VersaMate® line of plugs and sockets and an extensive range of luminaires serving the vast majority of hazardous area requirements incorporating North American practice.

Whether your needs are IEC or NEC, the integrated Chalmit and Killark product ranges offer you a professional solution from start to finish with a sound technical and competitive package. The Killark lighting design data is included in the "Chalmlite" design programme.

KILLARK®

Chalmit lighting

# INNOVATIVE THINKING HAS MADE KILLARK AN INDUSTRY LEADER.

Killark is totally committed to on time, error free delivery of products that meet the highest levels of customer expectation.

With over 85 years of experience, Killark is a leading manufacturer of weatherproof, harsh and hazardous location products suitable for standard, explosion proof and other hostile or adverse environmental applications and is a major participant in the OEM, commercial and industrial construction materials market.

Killark became a division of Hubbell in 1985 and since then, increased levels of capital investment have funded major new product initiatives enabling the group to compete worldwide with an extensive electrical construction product range covering, conduit raceway fittings, junction boxes, enclosures, standard and custom control assemblies, lighting fixtures as well as plugs and sockets.

The strengths of Killark and Chalmit are now combined.

Chalmit Lighting joined the Hubbell family in 1998 and provides over 30 years of experience as one of the worlds leading and most respected IEC manufacturers. The combination results in the formation of the largest and most comprehensive range of lighting products and associated apparatus for hazardous locations, available within the global market.

Hubbell and Killark are well represented on Codes and Standards committees in the US, Canada, Mexico and internationally. Combined with the similar Chalmit European and International representation, this enables Chalmit with Killark to be at the forefront of the growing trend in global harmonisation. This affords the most cost competitive solutions to be offered to user requirements on a world wide basis, regardless of locality or installation constraints.

Both companies have reputations for customer specific solutions to complex and challenging hazardous location requirements, utilising proven designs and value added engineering input, and these solutions are enhanced by access to comprehensive laboratory facilities. In house testing laboratories allow R and D efforts to continually support new product development and solutions to specific user defined requirements.

With a Total Quality Management programme and ISO 9001 accreditation, Killark and Chalmit are dedicated to meeting customer needs, with engineering solutions, new product development and on-time delivery in every phase of the project. This underlines an already proven ability to supply lower cost total system solutions and savings over the entire lifetime of a project.

For further information on this NEW expanded range of products or to obtain a dedicated Killark brochure, simply refer to your usual Chalmit personnel, access our Web-Site at www.chalmit.com or communicate your requirement via any of the contact addresses contained within this brochure.

BSI REGISTERED FIRM

Cert. no. FM 09410

HUBBELL®

A4802 UL REGISTERED FIRM ISO 9001

KILLARK

# LIGHTING DESIGN

## OVERVIEW

The core business of Chalmit centres on hazardous area lighting, both offshore and land based, as well as heavy industry and marine installations. The lighting design techniques for such wide and varied applications differ accordingly and are something which Chalmit has developed expertise in over the past 25 years.

## CALCULATIONS

Before the advent of computers the only method of calculating lighting values was by hand using the point to point inverse square law or the more broadly based Lumen Method. The former hand calculation was usually limited by time constraints and the latter by the problem of trying to accurately determine the installed utilisation factor for a given area.

Neither method took into account the effects of obstructions in terms of shadowing or inter-reflections. However, the following 3 pages include photometric data for some of our more popular products for customers wishing to use these methods.

Today's powerful computers and related software can deal with calculations speedily and accurately, reducing the need for manual methods.

## DESIGN

Chalmit have, over the years, developed a user friendly computer program to allow our customers the freedom of producing their own lighting designs. The latest, completely free, version of "CHALMLITE" gives the user the opportunity to design lighting layouts that can vary from the very basic to the extremely complex; taking into account shadowing and inter-reflection from buildings, platforms, tanks and other obstructions. The new Chalmlite interior component is built into the main program such that interior and exterior designs can be incorporated into the one lighting scheme.

There are times however when constraints demand a quick answer to a more basic lighting question and for this reason Chalmlite now includes estimators for exterior, interior and aisle lighting. These three calculating tools allow luminaire quantities to be determined very quickly for budgetary purposes prior to a detailed design being done at a later time. There is also a facility for producing an Isolux "Footprint".

Chalmit also offers a free lighting design service that uses the Autolux lighting program.
This interfaces with the latest Autocad drawing package and is ideal for sophisticated lighting presentations.
Customers requiring further details of this service or of the Chalmlite Lighting design software should contact their nearest Chalmit Sales Engineer or Head office Lighting Applications.

Chalmit Lighting is totally committed to the promotion of good and efficient lighting practices and is an active member of the Lighting Industry Federation who continuously strive to raise the standards of safety, performance and education in lighting.

# LIGHTING PHOTOMETRIC DATA

## ECLIPSE MIDI

ENCLOSED REFLECTOR

400W CLEAR H.P.S.

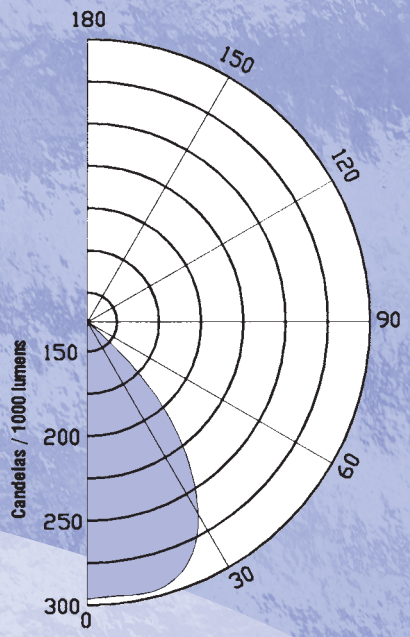
Light Output Up 0.0%

Light Output Down 75%

Space / Height Ratio 1.47

UTILISATION TABLE

| | | | ROOM INDEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.48 | 0.56 | 0.61 | 0.65 | 0.70 | 0.73 | 0.75 | 0.78 | 0.79 |
| 0.70 | 0.30 | 0.20 | 0.42 | 0.51 | 0.56 | 0.60 | 0.66 | 0.69 | 0.72 | 0.75 | 0.77 |
| 0.70 | 0.10 | 0.20 | 0.39 | 0.47 | 0.53 | 0.57 | 0.63 | 0.67 | 0.69 | 0.73 | 0.76 |
| 0.50 | 0.50 | 0.20 | 0.46 | 0.54 | 0.59 | 0.63 | 0.67 | 0.70 | 0.72 | 0.75 | 0.76 |
| 0.50 | 0.30 | 0.20 | 0.42 | 0.50 | 0.55 | 0.59 | 0.64 | 0.68 | 0.70 | 0.73 | 0.75 |
| 0.50 | 0.10 | 0.20 | 0.38 | 0.47 | 0.52 | 0.56 | 0.62 | 0.65 | 0.68 | 0.71 | 0.73 |
| 0.30 | 0.50 | 0.20 | 0.45 | 0.53 | 0.58 | 0.61 | 0.65 | 0.68 | 0.70 | 0.72 | 0.74 |
| 0.30 | 0.30 | 0.20 | 0.41 | 0.49 | 0.54 | 0.58 | 0.63 | 0.66 | 0.68 | 0.71 | 0.72 |
| 0.30 | 0.10 | 0.20 | 0.38 | 0.46 | 0.52 | 0.55 | 0.60 | 0.64 | 0.66 | 0.69 | 0.71 |
| 0.00 | 0.00 | 0.00 | 0.37 | 0.44 | 0.50 | 0.53 | 0.58 | 0.61 | 0.63 | 0.66 | 0.68 |




## ECLIPSE MIDI

GLASS REFRACTOR

400W CLEAR H.P.S.

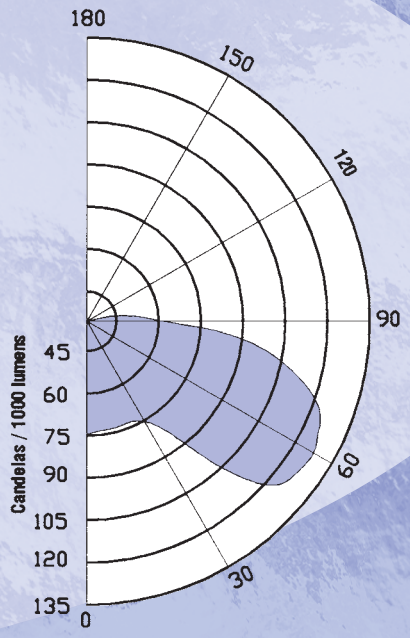
Light Output Up 14%

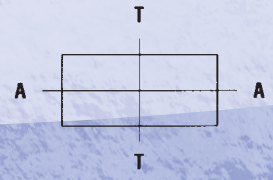
Light Output Down 68%

Space / Height Ratio 2.50

UTILISATION TABLE

| | | | ROOM INDEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.00 | 0.00 | 0.47 | 0.51 | 0.57 | 0.62 | 0.65 | 0.70 | 0.73 |
| 0.70 | 0.30 | 0.20 | 0.00 | 0.00 | 0.39 | 0.43 | 0.50 | 0.56 | 0.60 | 0.65 | 0.69 |
| 0.70 | 0.10 | 0.20 | 0.00 | 0.00 | 0.34 | 0.37 | 0.45 | 0.50 | 0.55 | 0.60 | 0.65 |
| 0.50 | 0.50 | 0.20 | 0.00 | 0.00 | 0.43 | 0.46 | 0.52 | 0.57 | 0.60 | 0.64 | 0.67 |
| 0.50 | 0.30 | 0.20 | 0.00 | 0.00 | 0.37 | 0.40 | 0.47 | 0.52 | 0.55 | 0.60 | 0.63 |
| 0.50 | 0.10 | 0.20 | 0.00 | 0.00 | 0.32 | 0.35 | 0.42 | 0.47 | 0.51 | 0.56 | 0.60 |
| 0.30 | 0.50 | 0.20 | 0.00 | 0.00 | 0.39 | 0.42 | 0.48 | 0.52 | 0.55 | 0.59 | 0.61 |
| 0.30 | 0.30 | 0.20 | 0.00 | 0.00 | 0.34 | 0.37 | 0.43 | 0.48 | 0.51 | 0.55 | 0.58 |
| 0.30 | 0.10 | 0.20 | 0.00 | 0.00 | 0.30 | 0.33 | 0.39 | 0.44 | 0.47 | 0.52 | 0.56 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.25 | 0.28 | 0.34 | 0.38 | 0.41 | 0.46 | 0.49 |




## ECLIPSE JUNIOR

FLUTED GLOBE

100W CLEAR H.P.S.

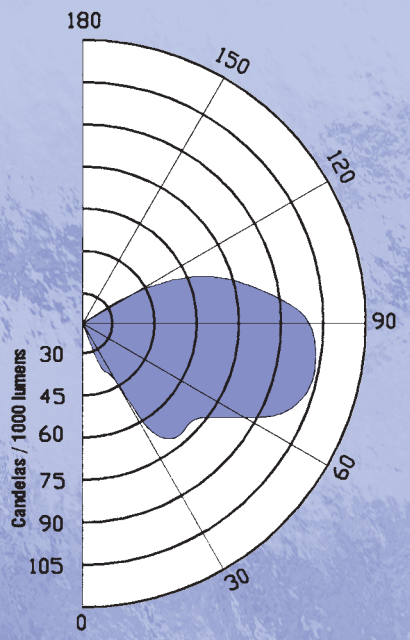
Light Output Up 34%

Light Output Down 49%

Space / Height Ratio 1.81

UTILISATION TABLE

| | | | ROOM INDEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.00 | 0.35 | 0.40 | 0.45 | 0.51 | 0.55 | 0.58 | 0.63 | 0.66 |
| 0.70 | 0.30 | 0.20 | 0.00 | 0.27 | 0.33 | 0.37 | 0.44 | 0.48 | 0.52 | 0.58 | 0.61 |
| 0.70 | 0.10 | 0.20 | 0.00 | 0.22 | 0.27 | 0.31 | 0.38 | 0.43 | 0.47 | 0.53 | 0.57 |
| 0.50 | 0.50 | 0.20 | 0.00 | 0.29 | 0.34 | 0.37 | 0.43 | 0.46 | 0.49 | 0.53 | 0.56 |
| 0.50 | 0.30 | 0.20 | 0.00 | 0.23 | 0.28 | 0.31 | 0.37 | 0.41 | 0.44 | 0.49 | 0.52 |
| 0.50 | 0.10 | 0.20 | 0.00 | 0.18 | 0.23 | 0.27 | 0.32 | 0.37 | 0.40 | 0.45 | 0.49 |
| 0.30 | 0.50 | 0.20 | 0.00 | 0.24 | 0.28 | 0.31 | 0.35 | 0.39 | 0.41 | 0.45 | 0.47 |
| 0.30 | 0.30 | 0.20 | 0.00 | 0.19 | 0.23 | 0.26 | 0.31 | 0.34 | 0.37 | 0.41 | 0.44 |
| 0.30 | 0.10 | 0.20 | 0.00 | 0.15 | 0.19 | 0.22 | 0.27 | 0.31 | 0.34 | 0.38 | 0.41 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.12 | 0.15 | 0.18 | 0.21 | 0.24 | 0.28 | 0.30 |



# LIGHTING PHOTOMETRIC DATA

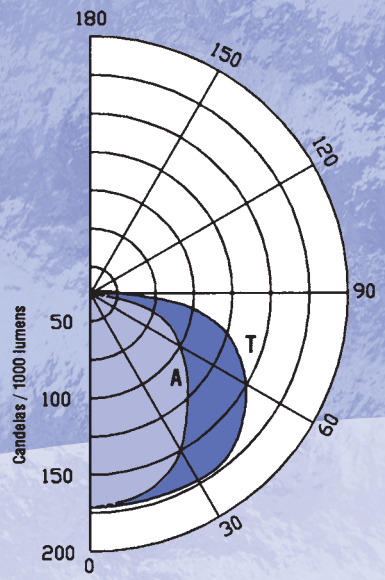
## PROTECTA III 2X36W

Light Output Up 0.05%
Light Output Down 70%
Space / Height Ratio 1.75

UTILISATION TABLE

| | | | ROOM INDEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.01 | 0.46 | 0.51 | 0.55 | 0.60 | 0.64 | 0.67 | 0.71 | 0.73 |
| 0.70 | 0.30 | 0.20 | 0.01 | 0.40 | 0.45 | 0.49 | 0.55 | 0.59 | 0.62 | 0.67 | 0.70 |
| 0.70 | 0.10 | 0.20 | 0.01 | 0.35 | 0.40 | 0.44 | 0.50 | 0.55 | 0.58 | 0.63 | 0.67 |
| 0.50 | 0.50 | 0.20 | 0.01 | 0.44 | 0.48 | 0.52 | 0.57 | 0.61 | 0.63 | 0.67 | 0.69 |
| 0.50 | 0.30 | 0.20 | 0.01 | 0.38 | 0.43 | 0.47 | 0.53 | 0.56 | 0.59 | 0.63 | 0.66 |
| 0.50 | 0.10 | 0.20 | 0.01 | 0.34 | 0.39 | 0.43 | 0.49 | 0.53 | 0.56 | 0.61 | 0.64 |
| 0.30 | 0.50 | 0.20 | 0.01 | 0.42 | 0.46 | 0.49 | 0.54 | 0.57 | 0.60 | 0.63 | 0.65 |
| 0.30 | 0.30 | 0.20 | 0.01 | 0.37 | 0.42 | 0.45 | 0.50 | 0.54 | 0.57 | 0.60 | 0.63 |
| 0.30 | 0.10 | 0.20 | 0.01 | 0.33 | 0.38 | 0.42 | 0.47 | 0.51 | 0.54 | 0.58 | 0.61 |
| 0.00 | 0.00 | 0.00 | 0.01 | 0.31 | 0.35 | 0.39 | 0.44 | 0.47 | 0.50 | 0.54 | 0.56 |

CORRECTION FACTORS
2X18W 1.05



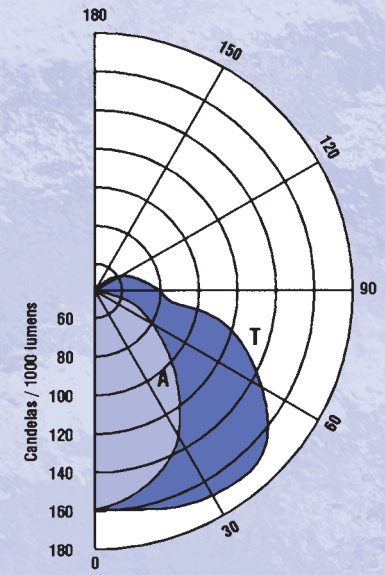

## STERLING 2X58W

Light Output Up 10%
Light Output Down 69%
Space / Height Ratio 1.98

UTILISATION TABLE

| | | | ROOM INDEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.20 | 0.46 | 0.51 | 0.56 | 0.62 | 0.65 | 0.69 | 0.73 | 0.75 |
| 0.70 | 0.30 | 0.20 | 0.11 | 0.40 | 0.45 | 0.50 | 0.56 | 0.60 | 0.64 | 0.69 | 0.71 |
| 0.70 | 0.10 | 0.20 | 0.05 | 0.35 | 0.40 | 0.45 | 0.51 | 0.56 | 0.60 | 0.65 | 0.68 |
| 0.50 | 0.50 | 0.20 | 0.18 | 0.44 | 0.48 | 0.52 | 0.58 | 0.61 | 0.64 | 0.68 | 0.70 |
| 0.50 | 0.30 | 0.20 | 0.10 | 0.38 | 0.43 | 0.47 | 0.53 | 0.57 | 0.60 | 0.64 | 0.67 |
| 0.50 | 0.10 | 0.20 | 0.04 | 0.34 | 0.38 | 0.43 | 0.49 | 0.53 | 0.56 | 0.61 | 0.64 |
| 0.30 | 0.50 | 0.20 | 0.15 | 0.41 | 0.45 | 0.49 | 0.54 | 0.57 | 0.59 | 0.63 | 0.69 |
| 0.30 | 0.30 | 0.20 | 0.08 | 0.36 | 0.40 | 0.45 | 0.50 | 0.53 | 0.56 | 0.60 | 0.62 |
| 0.30 | 0.10 | 0.20 | 0.03 | 0.32 | 0.37 | 0.41 | 0.47 | 0.50 | 0.53 | 0.58 | 0.60 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.33 | 0.37 | 0.42 | 0.45 | 0.48 | 0.52 | 0.54 |

CORRECTION FACTORS
2X36W 1.04
2X18W 1.07

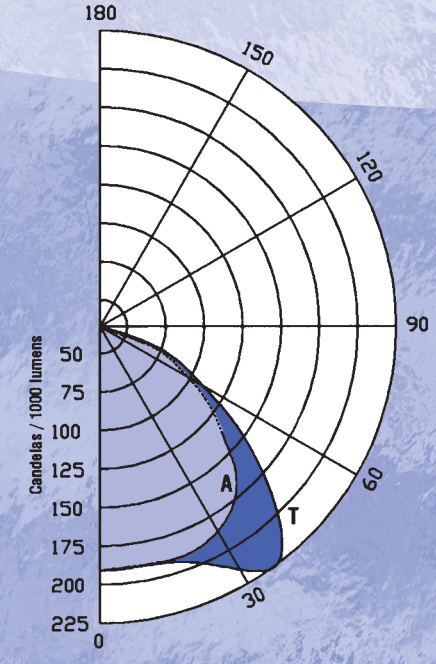



## PYRAMID 400W SON-E

Light Output Up 02%
Light Output Down 67%
Space / Height Ratio 1.98

UTILISATION TABLE

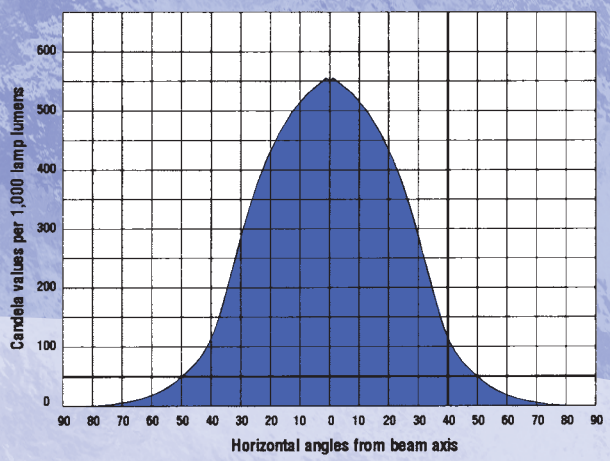
| | | | ROOM INDEX | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| C | W | F | 0.75 | 1.00 | 1.25 | 1.50 | 2.00 | 2.50 | 3.00 | 4.00 | 5.00 |
| 0.70 | 0.50 | 0.20 | 0.00 | 0.50 | 0.54 | 0.57 | 0.62 | 0.65 | 0.67 | 0.69 | 0.71 |
| 0.70 | 0.30 | 0.20 | 0.00 | 0.45 | 0.49 | 0.53 | 0.58 | 0.61 | 0.63 | 0.67 | 0.69 |
| 0.70 | 0.10 | 0.20 | 0.00 | 0.41 | 0.46 | 0.50 | 0.55 | 0.58 | 0.61 | 0.64 | 0.67 |
| 0.50 | 0.50 | 0.20 | 0.00 | 0.48 | 0.52 | 0.55 | 0.59 | 0.62 | 0.64 | 0.66 | 0.68 |
| 0.50 | 0.30 | 0.20 | 0.00 | 0.44 | 0.48 | 0.52 | 0.56 | 0.59 | 0.61 | 0.64 | 0.66 |
| 0.50 | 0.10 | 0.20 | 0.00 | 0.41 | 0.45 | 0.49 | 0.53 | 0.57 | 0.59 | 0.62 | 0.64 |
| 0.30 | 0.50 | 0.20 | 0.00 | 0.47 | 0.50 | 0.53 | 0.57 | 0.59 | 0.61 | 0.63 | 0.65 |
| 0.30 | 0.30 | 0.20 | 0.00 | 0.43 | 0.47 | 0.50 | 0.54 | 0.57 | 0.59 | 0.62 | 0.63 |
| 0.30 | 0.10 | 0.20 | 0.00 | 0.40 | 0.44 | 0.48 | 0.52 | 0.55 | 0.57 | 0.60 | 0.62 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.42 | 0.45 | 0.49 | 0.52 | 0.54 | 0.57 | 0.58 |



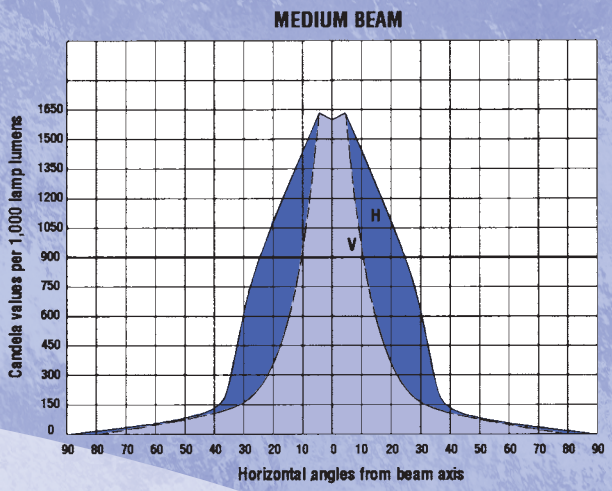
# LIGHTING PHOTOMETRIC DATA

## EVOLUTION 400W SON/T

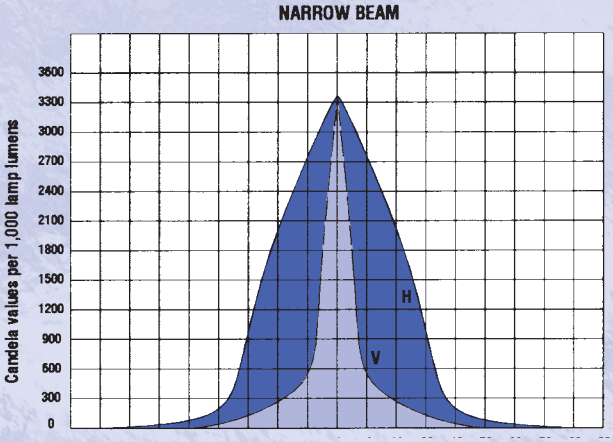
### WIDE BEAM




### MEDIUM BEAM



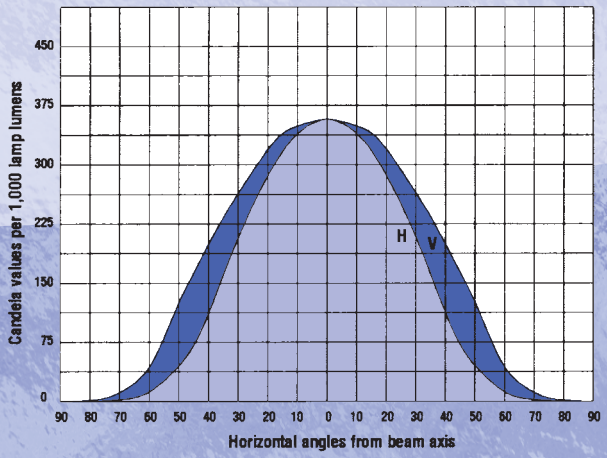

### NARROW BEAM



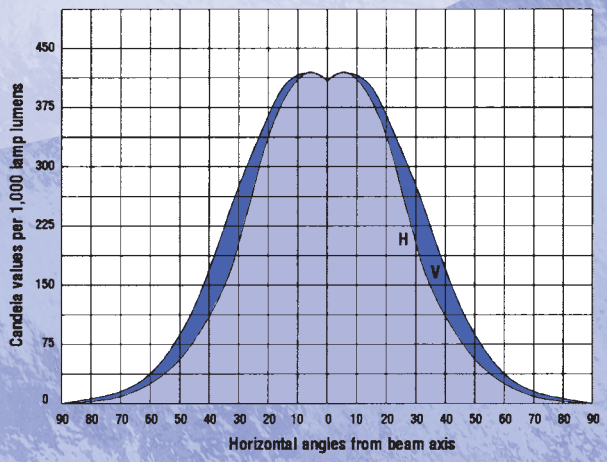

| | Wide | Medium | Narrow |
|---|---|---|---|
| Peak Intensity Cd | 559 | 1647 | 3348 |
| Beam factor | 0.55 | 0.50 | 0.38 |
| Beam angle vertical | 2x46 | 2x29 | 2x12 |
| Beam angle horizontal | 2x46 | 2x35 | 2x34 |

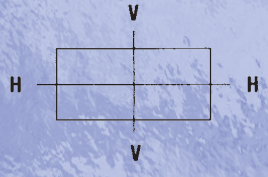
## EVOLUTION JUNIOR

### 70W SON/T
### WIDE BEAM




### 300W LINEAR T/HALOGEN
### WIDE BEAM




| | 70 Watt | 300 Watt |
|---|---|---|
| Peak Intensity Cd | 363 | 417 |
| Beam factor | 0.58 | 0.60 |
| Beam angle vertical | 2x60 | 2x62 |
| Beam angle horizontal | 2x56 | 2x59 |

# CHALMIT LIGHTING

## QUALITY TECHNOLOGY SERVICE

### QUALITY AND APPROVALS


Lighting offers both safety and security.
Chalmit luminaires can be specified with complete confidence. The company has been assessed by BSI for many years to BS 5750 then EN ISO 9001:1994 and is now moving on to EN ISO 9001: 2000 and also to EN 13980 for products manufactured to ATEX.
In addition to certification to British and CENELEC standards Chalmit also holds approvals to Canadian standards certified by CSA.
Chalmit uses third party assessment for the provision of lighting design and environmental test data.

### PRODUCT INNOVATION

Chalmit has attained a position of market pre-eminence through a rigorous programme of continuous product development. This has resulted in products being the first to use a concept which later became the accepted "state of the art". The employment of the the latest technology in conjunction with emerging light sources and controls, and using computer aided design allied to the latest in photometric and mechanical test techniques underpins Chalmit's ability to produce internationally accepted products. Utilising the latest in CNC and laser manufacturing technology ensures that the quality of Chalmit luminaires is assured every time.

### TECHNICAL SUPPORT

From the centre of excellence in Glasgow, Scotland, and our operations around the world, clients can be assured of our extensive technical and after sales support.
This service encompasses application advice, advanced windows based lighting design software and informed guidance on the selection, installation and maintenance of luminaires. Chalmit provides the full back up service expected from a major international supplier and the immediately available knowledge covers both hazardous and other applications. This results in a breadth of expertise that can solve both routine and complex problems arising in lighting applications.

### THE COMPLETE SOLUTION

Chalmit Lighting offers the complete solution to all your lighting needs. We can claim to be a truly international business and with a network of agents and distributors in over 40 countries world wide we have an enviable reputation for a world class service.
As well as drawing from our own and our group company resources we have well established links with other lighting and lamp manufacturers. This position within the lighting industry means that Chalmit can offer a complete package of lighting for end users, large and small projects, and for any application which calls for a diverse range of lighting products.

Chalmit lighting

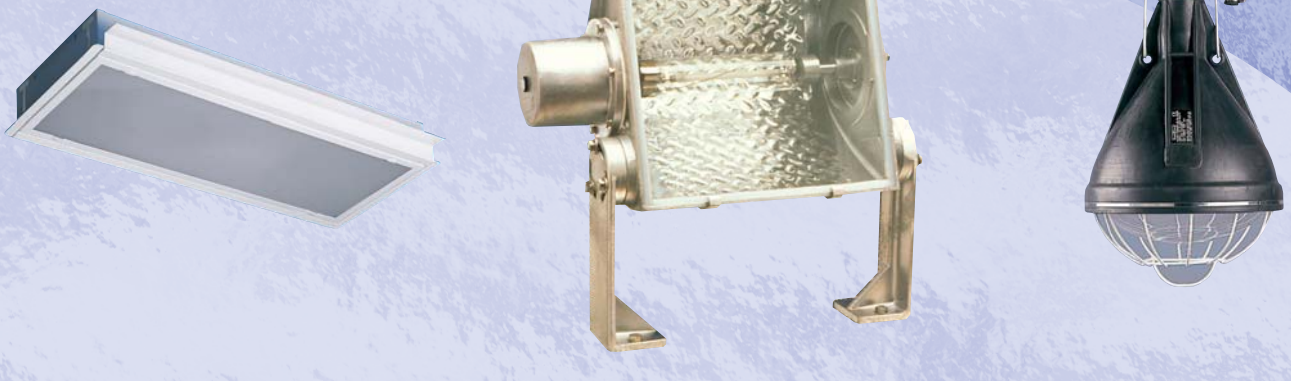
KILLARK®

# CHALMIT MARINE AND INDUSTRIAL

Chalmit has manufactured marine lighting products for over 90 years.
The business specialises in illuminating seagoing vessels where both marine and hazardous products are required and is able to offer a comprehensive product package for tankers and FPSO's.
The range is also specially designed for all types of freight carriers, heavy duty workboats, bulk carriers, military ships and port installations.

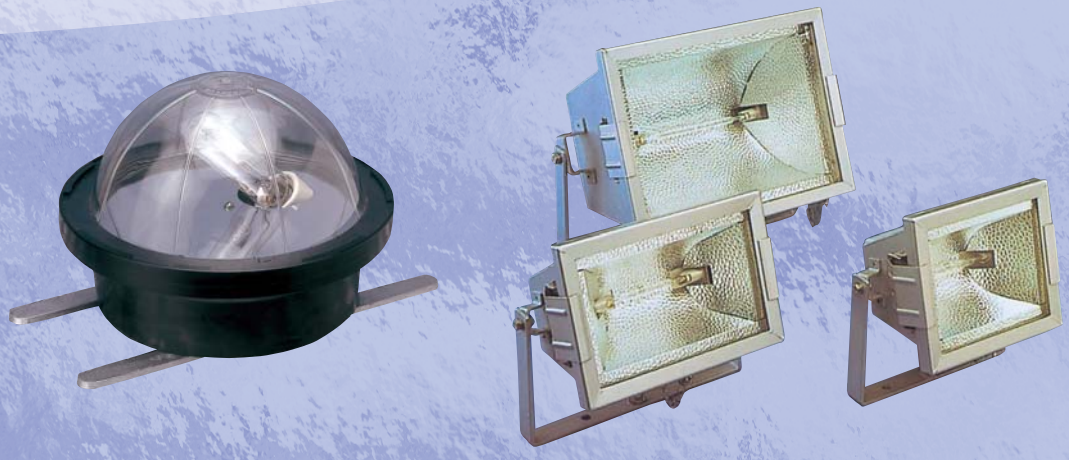
The Chalmit marine lighting range has been developed for weather decks, engine rooms, accommodation modules, machine spaces and interior areas.

The long experience of Chalmit in designing and manufacturing enclosures with high ingress protection ensures years of trouble free lighting.



The outstanding Chalmit range of hazardous area lighting products is complemented by a range of industrial products.
These products are intended for use in harsh environments and in specialist applications.
Many of the industrial products share components and enclosures from the hazardous area range which ensures they are robust and have high ingress protection.
The engineering expertise of Chalmit which is the foundation of the hazardous area range is also applied to the industrial range.
Chalmit products are designed to function in environments where standard industrial products fail.

For further information contact head office or one of our agents.




Chalmit lighting

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Chalmit Lighting A leading supplier of Hazardous Area, Industrial and Marine lighting products

Your Distributor is;



HUBBELL® Electrical Products