

# CHALMIT LIGHTING

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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.

As part of the Hubbell Electrical Products division, Chalmit can offer a global range of IEC & NEC products suitable for hazardous area lighting and apparatus installations on any continent and complying with all international codes and standards.

In addition to hazardous area luminaires, Chalmit Lighting has in-house facilities for the design and manufacture of fluorescent and HID control gear. This capability provides Chalmit with the ability to create ballasts tailored to meet the specific requirements of individual luminaires. These bespoke design services are also available to our customers upon request.



# A LEADING LIGHT FOR TODAY'S INTERNATIONAL LOW VOLTAGE REQUIREMENTS



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# 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 Lighting products and can also be used as 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. Chalmit hazardous area products are designed and manufactured in accordance with the best engineering practices and to well established construction standards for explosion protected equipment.

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 equipment 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 equipment 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.

## International, Regional and National Standards - Ongoing Changes

This revised technical introduction was prepared in 2006 during a period of transition in the history of Ex standardisation. As such this section aims to highlight some of the current initiatives underway to simplify and rationalise product standards on a global scale.

The process of developing product standards which initially began with the invention of equipment for the safe operation of "gassy mines", led to the standardisation of the "flameproof" and "intrinsic safety" concepts for product design. The standardisation of equipment on a national basis is now in its final stage of transition with the final move towards global standardisation under the IEC Ex scheme. This may cause some confusion in the short term but leads to international uniformity.

### IEC Standards & ATEX

The early IEC standards were largely based on the national standards of European countries.

The first EU Directive [1976] for product standardisation prompted the rapid development of Euro-normes [EN] which were numbered in the EN 50014 etc. series. Gradually the IEC 79 series, later re-numbered 60079- series were updated using the EN's as a basis but with growing international input. These were mostly the gas hazard standards. In the late 1990's it was agreed in CENELEC that all work that could be carried out at IEC level, would be, and the standards voted in parallel as IEC standards and EN's. These standards carry the EN 60079- numbering.

The second ATEX directive [1994], see later section, introduced further factors. The directive covers gas and dust hazards and both electrical and mechanical equipment. It introduced basic requirements for safety, the "Essential Health and Safety Requirements [ESHR's]". Three levels of safety Categories 1, 2 and 3 were defined effectively as:

Category 1 - "very safe and considering two possible equipment faults"

Category 2 - "safe with one fault"

Category 3 - "safe in normal operation"

Although the performance criteria of the Categories aligned with the expected area of application, the Zones, the designation of equipment protection by zone was removed. The selection of a particular type of explosion protection for a particular zone was by risk assessment.

### Rationalisation

In order to eliminate this potentially long term anomaly at international level and to introduce the concept of a declared level of safety, IEC agreed to introduce "Equipment Protection Levels" [EPL's]. These EPL's are Ga, Gb and Gc for gas and Da, Db and Dc for dust. Ma and Mb also exist for mining. These are an alternative and additional specification for equipment made in accordance with the standards.

The key point is that the definitions of product performance are in effect identical to the ATEX Category definitions. In future, rationalisation may see the EPL's incorporated into ATEX.

The basic technical requirements for ATEX and IEC via the IEC Ex scheme (see the section on the IEX Ex scheme) will therefore be identical as EPL's are introduced right across the standards series. The ATEX marking is different from IEC and must be shown in addition to the IEC marking.

## Sub-Division

A further effect of the introduction of EPL's is to give a definition to the emergence of sub-divisions in some of the protection concepts. The sub-division of 'intrinsic safety' into ia and ib has existed for many years. Now ma, mb also exist, further sub-divisions mc and ic will be introduced as well.

Ex p is currently sub-divided into px, py and pz but will be rationalised. Sub-divisions of other concepts may be developed in due course and some existing requirements in the Ex n standard may be re-located.

## Standards for Combustible Dusts

A further imminent change is the addition to the General Requirements IEC 60079-0 of general requirements common to protection against the ignition of combustible dusts. This will enable the dust protection concept standards to be incorporated in the 60079 series.

As many equipment enclosures have certification for both gas and dust, this will be of benefit to both manufacturers and users. The current IEC dust standards are the IEC 61241 series. These cover test methods, construction and use. There are also various equipment standard concepts:

- tD, protection by enclosure
- pD pressurisation
- mD encapsulation.

As stated, where possible these IEC 61241 standards are being incorporated into the IEC 60079 series. In Europe these standards are becoming Euro Norms (EN's) and supersede the EN 50281 series. These new editions of the IEC standards for gas and dust have been prepared with the full participation of the USA. Products currently being produced may have marking and catalogue information in the EN 50000 series or EN 50281 series.

## Euro Norms

Because of the movement towards IEC, references to EN's are not used in this introduction except where there is no current Euro-norme in the IEC series, in which case the EN numbering in the EN 50014 etc. series will be given in brackets.

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## 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.

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. Other possible sources of ignition are electrostatic discharges and frictional sparking.

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 equipment 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 Ex nA Non Sparking tD (for dust hazards)
Designed to limit the ignition energy of the circuit	Ex i intrinsic Safety Ex op Optical Radiation Ex nL Energy Limitation
Designed to prevent the explosive mixture reaching a means of ignition	Ex m Encapsulation Ex p Pressurisation Ex o Oil immersion Ex nR Restricted Breathing
Designed to prevent any ignition from spreading outside of the apparatus	Ex d Flameproof Enclosure Ex q Powder Filling Ex nC Non Incendive

Table 1 Methods of Explosion Protection

## General Requirements IEC 60079-0

This standard contains general requirements common to the series of standards for the protection sub-groups. Equipment will comply with the general requirements except where they are excluded or varied by the individual protection standard detailed below.

### Ex d "Flameproof Enclosure" Protection - 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 p "Pressurised Equipment" Protection - IEC 60079-2

One type of pressurisation maintains a positive static pressure inside the equipment 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. In the case of Ex p, the source of release can be internal.

Essential to these methods are continuous monitoring systems to ensure their reliability and purging schedules on installation and following opening for maintenance.

### Ex q "Powder Filling" Protection - IEC 60079-5

This technique involves the mounting of potentially incendive components in an enclosure filled with quartz or solid glass particles. The powder filling prevents explosive ignition. It was originally developed to protect heavy duty traction batteries. The method is now primarily of use where the incendive action is related to the abnormal release of electrical energy by the rupture of fuses or failure of components used in electronic equipment.

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 equipment.

### Ex o “Oil immersion” Protection - IEC 60079-6

This is a technique primarily used for oil filled equipment. The oil acts as an insulating medium.

### Ex e “Increased Safety” Protection - IEC 60079-7

Normally sparking components are excluded from this method of protection. 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 - IEC 60079-11

The circuit parameters are reliably controlled to reduce potential spark energy to 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 n “Non Sparking” Protection - IEC 60079-15

For this method, 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.

The 'Non Sparking' concept also requires that high ingress protection ratings of IP65 and above are built into the design. 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 equipment 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 incandive, which refer to simplified forms of other protection methods listed above. The codes are used individually.

The Ex n methods have been developed specifically for the design of equipment used in the remotely hazardous area, Zone 2. Ex n meets the basic requirements for ATEX category 3.

### Ex m “Encapsulation” Protection - IEC 60079-18

Potentially incandive 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 op “Optical radiation” - IEC 60079-28 (Draft standard)

This is primarily concerned with the control of pulsed and continuous wave optical radiation through fibre optic cable with restrictions on the ratio of emitted optical power to the irradiated area.

The protection concepts include Inherently Safe which is analogous to Ex i and provides over-power/energy fault protection. Other methods include mechanical protection of the fibre and optical interlocks.

### 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 equipment having Ex s protection was designed with encapsulation and this has now been incorporated into IEC 60079-18 [Ex m]. Ex s is a coding referenced in IEC 60079-0. The use of EPL and ATEX Category directly is an alternative for “s” marking.

## Protection against the Ignition of Atmospheres containing Dusts

Most of the gas protection techniques will in practice protect against dust ignition. 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”. This is now standardised as tD with sub-division into Practice A and Practice B. The Ex prefix symbol is not used for dust. Sub divisions of Ex m; maD and mbD, Ex i; iaD and ibD also Ex p; pD have been introduced for dusts.

## Classification of Hazardous Areas and the use of Protected Equipment

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, if used individually or in combination, may be employed to achieve an acceptable margin of safety.

The hazardous areas are classified in Table 2 according to IEC 60079-10 and IEC 61241-10.

Zone	Description
Zone 0 and Zone 20	An area in which an explosive atmosphere is continuously present or for long periods or frequently
Zone 1 and Zone 21	An area in which an explosive atmosphere is likely to occur occasionally in normal operation
Zone 2 and Zone 22	An area in which an explosive atmosphere is not likely to occur in normal operation but, if it does occur, will persist for a short period only

**Table 2 Hazardous Areas Classification**

**Note:** the definitions are for areas containing gas mist or vapour mixtures with air. The dust Zones have been added for ease of understanding and the definitions are effectively the same.

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 Equipment
Zone 0	Ex ia Ex ma and types of protection suitable for Zone 0 as constructed to IEC 60079-26
Zone 1	Any type of protection suitable for Zone 0 and Ex d, Ex ib, Ex py, Ex e, Ex q and Ex mb (Also see notes on Ex s protection)
Zone 2	Any type of protection suitable for Zone 0 or 1 and Ex n, Ex mc, Ex pz and Ex o (Also see notes on Ex s protection)
Zone 20	tD A20, tD B20, iaD and maD
Zone 21	Any type of protection suitable for Zone 20 and tD A21, tD B21, ibD, mbD and pD
Zone 22	Any type of protection suitable for Zone 20 or 21 and tD A22 IP 6X

**Table 3 Selection of Protected Equipment in Hazardous Areas Generally According to IEC 60079-14 and IEC 61241-14**

The suffix A and B for the dust protection methods refer to the two practices A and B for the assessment of temperature with and without dust layers.

## The EU ATEX Directives

The relevant directives of the EU are:

- 94/9/EC Equipment and protective systems intended for use in potentially explosive
- 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 explosive atmospheres. The ATEX equipment directive and the accompanying health and safety directive, specifying the protection of workers, apply to the European Union. 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 EU ATEX Directives (continued)

The individual governments of the member states appoint "notified bodies" to carry out testing and certification. Equipment is divided into Equipment Groups (Group I for mining and Group 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, Ex i, etc) no numerical basis has yet been devised for the expected safety level of categories or of equipment. Alternatively, the existing techniques can be replaced or supplemented by new concepts and engineering judgements made by the manufacturer in the design and construction of the equipment. 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 equipment specified by the user for a Zone will depend on the overall risk assessment. Zoning considers only the probability of the occurrence of an explosive atmosphere, its extent and duration. It does not consider possible consequential effects of an ignition having taken place, or of the environmental conditions at a particular site. Equipment will be marked with the Grouping and Category in addition to the marking required by the individual protection standards.

## Protection Codes for Chalmit Products

The range of Chalmit Lighting products fall within Group II for industrial and hazardous area applications and cover 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 area classification (IEC 60079-10) and selection (IEC 60079-14 etc). Currently IEC 60079-14 does not refer to categories (or EPL's) so the protection code of the equipment used is 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 equipment needed to obtain the degree of safety that is required for the particular hazardous area application.

The ATEX directive lists "The Essential Health and Safety Requirements" (EHSR's) required to comply with the directive, in addition the product must be "safe". The term "safe" covers any property which is not covered by the directive, but is known to or could have been reasonably foreseen by the manufacturer. Compliance with the Euro-norme gives a presumption of compliance with those aspects of the directive covered by the standard. Lists of these standards are published in the official journal (OJ) of the EU.

The European Commission web site ([www.europa.eu](http://www.europa.eu)) contains a large quantity of material concerning the directives along with the actual directive itself and the guidelines for its application

## Examination Certificates

An EC type examination by a notified body is mandatory for Category 1 and 2 electrical equipment but not for Category 3.

Chalmit Lighting have chosen to obtain a certificate of compliance from a third party for Category 3 equipment in order to ensure customer confidence and continue the long standing practice that Chalmit has used for Ex n equipment.

The designation EC can not be used for certification of Category 3 equipment. In the data the term "type examination" rather than "EC type examination" is used for Category 3 equipment.



## IEC & ATEX

The relationship between IEC Equipment Protection Levels, ATEX Categories and applications is shown below in table 4.

IEC EPL	ATEX Category	Degree of Safety	Design Requirement (condensed)	Expected Zone of use
Ga	Category 1	Very high level of protection	Two independent means of protection or safe with two independent faults	Zone 0
Da	Category 1			Zone 20
Gb	Category 2	High level of protection	Safe with frequently occurring disturbances or with a normal operating fault	Zone 1
Db	Category 2			Zone 21
Gc	Category 3	Enhanced level of protection	Safe in normal operation	Zone 2
Dc	Category 3			Zone 22

Table 4 EPL, Atex Category, Design Requirements and Expected Application

## Marking of an ATEX Product and the CE Mark

A product that carries the ATEX marking will include the CE mark,  $\text{CE Ex}$ , 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 ( $T_{amb}$ ) ratings. The Group also forms part of the marking in the product standards and pre-dates ATEX.

The Category is additional to the the marking in accordance with the standard. 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 may be 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, 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 equipment 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 Equipment IEC 60079-0**

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

## Gas Grouping

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 equipment sub-groupings, A, B and C are only applicable to the design and marking of flameproof, intrinsically safe, energy limited and non incensive equipment.

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

Table 6 Gas Grouping for Electrical Equipment IEC 60079-0

## Protection against the Ignition of Explosive Atmospheres formed from Combustible 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.

The 5th edition of IEC 60079-0 Equipment - General requirements - introduces Group III for explosive dust atmospheres and this group is sub-divided into, IIIA Combustible flyings, IIIB Non-conductive dust, IIIC Conductive dust. The detail requirements for the sub-groups differ.

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 equipment 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 cannot settle. Ignitable atmospheres caused by dust may also be prevented from arising by ventilation, containment and by good housekeeping.

### Area Classification

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 (refer to table 2). 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 equipment carries marking for both dust and gas this does not mean both at the same time.

Where an explosive gas atmosphere and a combustible dust atmosphere are or may be present at the same time, the simultaneous presence of both shall be considered and may require additional protective measures. The potential for ignition must be investigated by a qualified person.



## Protection Methods

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". This is now standardised as tD with sub-division into Practice A and Practice B.

The Ex prefix symbol is not used for dust. The products in this catalogue using the dust protected enclosure are currently to EN 50281-1-1. The tD standard is incorporated into IEC 61421-1 and will be applied to all newly certified products.

Sub divisions of Ex m; maD and mbD, Ex i; iaD and ibD also Ex p; pD have been introduced.

The dust ignition protection method for products in this catalogue is by surface temperature limitation and enclosure to IP6X or IP5X as appropriate. IP6X is required for ATEX Category 1 and 2 and for conducting dusts in any Category. Ingress of a conducting dust can cause incandive insulation failure. IP5X is a minimum for Category 3. The surface temperature is limited to a given value in °C.

The table below outlines the difference between practices A and B

Practice A	Practice B
Performance based	Performance based and prescriptive
Maximum surface temperature is determined with 5 mm layer of dust and installation rules require 75K margin between the surface temperature and ignition temperature of a particular dust.	Maximum surface temperature is determined with 12.5 mm layer of dust and installation rules require 25K margin between the surface temperature and ignition temperature of a particular dust.
A method of achieving the required dust ingress protection by the use of resilient seals on joints and rubbing seals on rotating or moving shafts or spindles and determining dust ingress according to IEC 60529 - IP code.	A method of achieving the required dust ingress protection by specified widths and clearances between joint faces and, in the case of shafts and spindles, specified lengths and diametrical clearances and determining dust ingress by a heat cycling test.

Table 7 Comparison of Practice A and B for Dust Protected Enclosures

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 IEC Ex Scheme

The IEC Ex scheme is an international certification scheme based on the use of IEC standards.

This is now well established and has a large group of participants including all the major manufacturing countries. In each member country, test laboratories and certification bodies have been vetted and joined the scheme. These organisations now accept each other's test reports prepared under the scheme and 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 equipment is safe for use. A fundamental requirement of the scheme is that participating countries align their national standards with IEC.

## International Standards

Two distinct groups of equipment standards used world-wide are the IEC/EN (Euronorme) series of standards and those used in the USA and areas influenced by US practice. A large proportion of work on hazardous area and equipment standards is now being carried out at IEC level and almost all EN's are identical with IEC.

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 has developed differently. 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 equipment 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 equipment and the practical need for a greater number of temperature sub-divisions. Another factor is that the ANSI 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 but differ in detail. The classification and protection cannot be mixed and must be used as complementary pairs.

A general comparison between IEC and NEC practice for gas hazard protection is shown in Tables 8 and 9. 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.

### NEC - Zone Classification

The NEC has now introduced the Zone classification concept for gas hazards as an alternative to the Division method. 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 from IEC although great effort is being made to ensure that differences do not occur except where there are major difficulties such as the continuation of the long standing US practice of using ordinary motors in Class 1 division 2.

Certification to IEC based US standards can not be considered as being identical to IEC. The wiring methods currently remain unchanged from those traditional in the USA.

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.

### Canadian Approvals

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 Lighting is part of the Hubbell Electrical Products division of Hubbell Inc, as such Chamlit can supply the products of sister company Killark providing a complete product portfolio to meet US and Canadian standards and codes. The combined range is comprehensive encompassing 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	280°C (T2)	T2A
260	260°C (T2)	T2B
230	230°C (T2)	T2C
210	215°C (T2)	T2D
200	T3	T3
180	180°C (T3)	T3A
160	165°C (T3)	T3B
160	160°C (T3)	T3C
135	T4	T4
120	120°C (T4)	T4A
100	T5	T5
85	T6	T6

Table 8 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 9 Comparison of Representative Gases in IEC and NEC Gas Groups

### 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 equipment is used in dirty or wet conditions, high resistance to ingress contributes to the reliability of explosion protection in that electrical faults within the equipment are often the result of water ingress.

For Chalmit products, the appropriate standard is 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 10 Definition of Ingress Protection

### Resistance to Mechanical Damage

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 equipment is only suitable for low impact the certificate is suffixed X or the information is included in the installation information.

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.

Part of apparatus tested	Impact energy in Joules IEC 60079-0	
	High risk of mechanical danger	Low risk of mechanical danger
Enclosures and Guards	7	4
Light transmitting parts without guard	4	2
Light transmitting parts with guard when tested without guard	2	1

Table 11 Impact Energy Requirements for IEC 60079-0 Group II Equipment

### IK Code

In addition to the index of protection against the ingress of foreign bodies and liquids, a third figure is sometimes quoted. This relates to the minimum levels of resistance to mechanical damage as measured by test methods producing an impact energy measured in Joules or Newton metres.

It is often referred to as the IK code, the levels of protection for this index are detailed in Table 12 below.

The test method is not the same as in the IEC standards.

IK Code	IK00	IK01	IK02	IK03	IK04	IK05	IK06	IK07	IK08	IK09	IK10
Impact energy (Joule)	a	0.14	0.2	0.35	0.5	0.7	1	2	5	10	20
a Not protected to this standard											

**Table 12 Impact Energy Requirements IK Code**

### Compliance with General Product Standards

Luminaires are designed to comply with normal product construction standards, such as IEC 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.

Equipment complying with the individual product standard will have its internal components operating within their own rated parameters when operated at the maximum rated ambient temperature of the finished product. 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 - Tamb

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 40°C 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 -20°C unless otherwise noted on the certificate or data. 40°C to -20°C is the standard level given in IEC 60079-0 and if these are the limits, the product does not need to be marked with the Tamb.

Where the range is other than 40°C to -20°C 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 a temperature 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 -40°C for HPS, -30°C for Metal halide, -25°C for Mercury vapour, as low as -30°C for fluorescent depending on the control gear used and -10°C 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 equipment. 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 equipment.

For Category 3 equipment, 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 IEC 60079-14.

Where glands are fitted as part of the equipment, the diameter of the supply cables used must be suitable for accommodation within the cable glands supplied. If not correct the glands 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. Equipment 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 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 70°C (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 70°C 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, the cable glands which may be used are listed in the certificate pertaining to that piece of equipment. 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.



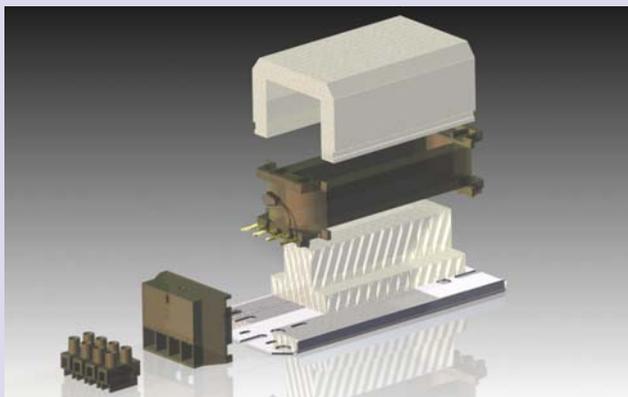
## Lamps and Control Gear

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 combination of rare earth metals which vaporise at high temperature.

The high pressure lamp 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 generated to strike the lamp 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. Ex e fluorescent lamps use cold start technology to initiate the electrical 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 also providing extended, maintenance free installation.

## Lamps and Control Gear (continued)

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 13 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.

Details of the specific lamp types required for individual Chalmers luminaires can be found in ordering information section at the end of this catalogue.

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 general rule, 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 2000W
Output range Lumens	up to 6000	up to 4800	6000/13000**	5000/20000	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 ***	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 (hrs)	40000*	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 13 Summary of Lamp Characteristics and their Application

\* 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.

\*\* Equal to or less than 36000 hours when "twin arc" lamps are used. (See note below)

\*\*\* 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. In addition, 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 this 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 please contact your local Chalmit representative.

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 or your local representative if there are any uncertainties concerning lamps.

## 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 above on lamps for possible mismatch. 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 however 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  $T_{amb}$ . The product standards are currently based on having a normal maximum variation of  $\pm 6\%$  and an extreme variation of  $\pm 10\%$  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. Many 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 available to download from the website ([www.chalmit.com](http://www.chalmit.com)). 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 III, Acclaim, Curie Elite and Stirling II with 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 III, Acclaim, Curie Elite and Stirling II 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.

To assist you in developing a lighting design that will provide the optimum performance from Chalmit products for your specific applications, Chalmit have developed a user friendly lighting design package called CHALMLITE™. This software programme is available free of charge and includes unique internal & external quantity estimators to provide a quick indication of the luminaire quantities required.

Chalmit also offer a lighting design service to assist in the development of complex lighting designs tailored to meet exact project requirements.



## Glossary

<b>ANSI</b>	American National Standards Institute	<b>ISA</b>	Instrument Society of America
<b>ATEX</b>	Abr. Directive 94/9/EC Equipment and protective systems intended for use in potentially explosive atmospheres	<b>ITS</b>	Intertek Testing Services (formerly part of ERA)
<b>BASEEFA</b>	British Approvals Service for Electrical Equipment in Explosive Atmospheres. This was a government organisation that is now closed	<b>KEMA</b>	Netherlands Testing Laboratory
<b>BASEEFA 2001</b>	A private organisation which has taken on much of the work of BASEEFA	<b>NEMA</b>	National Electrical Manufacturers Association (US)
<b>BSI</b>	British Standards Institution	<b>NRTL</b>	Nationally Recognised Testing Laboratories (US)
<b>CAA</b>	Civil Aviation Authority (UK)	<b>SCS</b>	SIRA Certification Service (UK)
<b>CEN</b>	Committee European de Normalisation	<b>SOLAS</b>	Safety of Life at Sea (convention)
<b>CENELEC</b>	Committee European de Normalisation Electrique	<b>T</b>	Surface Temperature (Max)
<b>CIE</b>	Commision Internationale de Leclairage	<b>Ta/Tamb</b>	Ambient Temperature
<b>CSA</b>	Canadian Standards Association	<b>UL</b>	Underwriters Laboratory Inc.
<b>EC</b>	European Communities	<b>LAMP TYPES</b>	
<b>EECS</b>	Electrical Equipment Certification Service (UK). Parent organisation of BASEEFA, now closed	<b>HID</b>	High intensity discharge
<b>ERA</b>	The Electrical Research Association (hazardous area testing section became part of ITS)	<b>CFL</b>	Compact fluorescent
<b>EU</b>	The European Union	<b>MBFU</b>	Mercury vapour
<b>FM</b>	Factory Mutual (US)	<b>MBI/HQI</b>	Metal Halide
<b>IEC</b>	International Electro-technical Commission	<b>MBTF</b>	Blended mercury vapour
<b>IP</b>	Ingress Protection	<b>SON/HPS</b>	High pressure sodium
		<b>TH</b>	Tungsten-halogen
		<b>QL</b>	Induction Lamp
		<b>LED</b>	Light Emmiting Diode

# PROTECTA III

20



Bolted through suspension points & fully compressed gasket

## Construction

- Tough glass reinforced polyester body
- Polycarbonate diffuser with high resistance to UV and stress cracking
- Robust hinges and multipoint compressive clamping of diffuser closure
  - EPDM gasket with sealing lip
- Bolted through suspension points for great strength
- IP66/IP67 and deluge tested to DTS-01



Easy access to lamps & control gear



Screwless connections to ballast & battery for ease of maintenance

Protecta with diffuser removed



Reverse side of gear tray

## Reliability

- Robust electronics with End of Life (EOL) protection to Annex H of the draft standard IEC 60079-7 edition 4 with EOL I and EOL II functionality
- Outstanding electrical immunity to mains disturbances including over-voltage, harmonics and spikes
  - Vibration tested to DNV/Lloyds requirements
- Functional 9 minute self test every 13 days with full discharge and recharge self test every 3 months
  - Comprehensive charge and discharge control management for maximum battery life
  - Continuous monitoring of charge and function with fault indication and diagnosis
  - Best quality high temperature Ni-Cd batteries available

## Performance

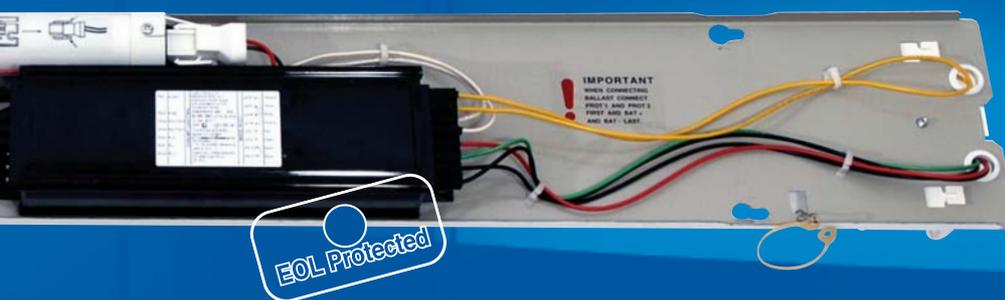
- Automatic commissioning of emergency versions
- Regulated output, light is constant over full supply voltage range
  - Very high electrical efficiency > 92%
- Substantially increased emergency light output and duration (high emergency output option available giving 50% on emergency)
  - 1200mm lamp 25% of normal single lamp output
  - 600mm lamp 30% of normal single lamp output
- Optional 3 hour emergency duration to EN 60598-2-22
  - Rapid recharge to 80% capacity
  - Universal Remote Emergency Inhibition (can be used with other pre-existing systems)



Bi-colour LED indication



Patented automatic lamp de-energisation on opening



Screwless mains terminals

## Installation and Maintenance

- Standard fixing centres
- All parts mounted on gear tray, can be quickly removed leaving an Ex safe configuration
  - Screwless mains terminals for rapid connection, no need for periodic checks
    - Can be voltage tested with suitable current limited instruments
  - Emergency lamp fault detection before the lamp becomes un-serviceable
    - Self testing of battery capacity with low capacity LED indication
- Plug and socket battery connection for quick connection guaranteeing correct polarity
  - Patented automatic lamp de-energisation on opening
- Common spare parts across Ex e fluorescent range (Protecta, Acclaim, Curie Elite)

The Protecta III luminaire for tubular fluorescent lamps is both 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 with 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

### Features

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 EN 50281-1-1
Certificate	EC Type Examination Certificate Baseefa04ATEX0220
Coding	⊕ II 2 G D EEx eqm II T4 Tamb 55°C
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 6mm <sup>2</sup> 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	Fa6 Cap (Mono-pin), 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

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, CSA and CEPAL Approved
IEC Ex Compliant
End of life (EOL) protection to IEC 60079-7 (with EOL I and EOL II functionality)

Std. Cat No.	Part No.	Wattage	Weight
<b>PRGE/218/BI</b>	500231	2x18W	4.2kg
<b>PRGE/136/BI</b>	500331	1x36W	9.6kg
<b>PRGE/236/BI</b>	500431	2x36W	9.8kg
<b>PRGE/218/MO</b>	500239	2x18W	4.2kg
<b>PRGE/136/MO</b>	500339	1x36W	9.6kg
<b>PRGE/236/MO</b>	500439	2x36W	9.8kg

**Options - Suffix to Catalogue No.**

<b>/120</b>	Specific voltage (110/130)
<b>/M25</b>	M25 entries
<b>/SB</b>	Stainless steel mounting bush
<b>/3P</b>	3 phase termination facility (Not available if looping required)
<b>/LBE</b>	Looping both sides
<b>/EL</b>	Extra live termination facility (to match emergency circuit)
<b>/SE</b>	Spigot entry

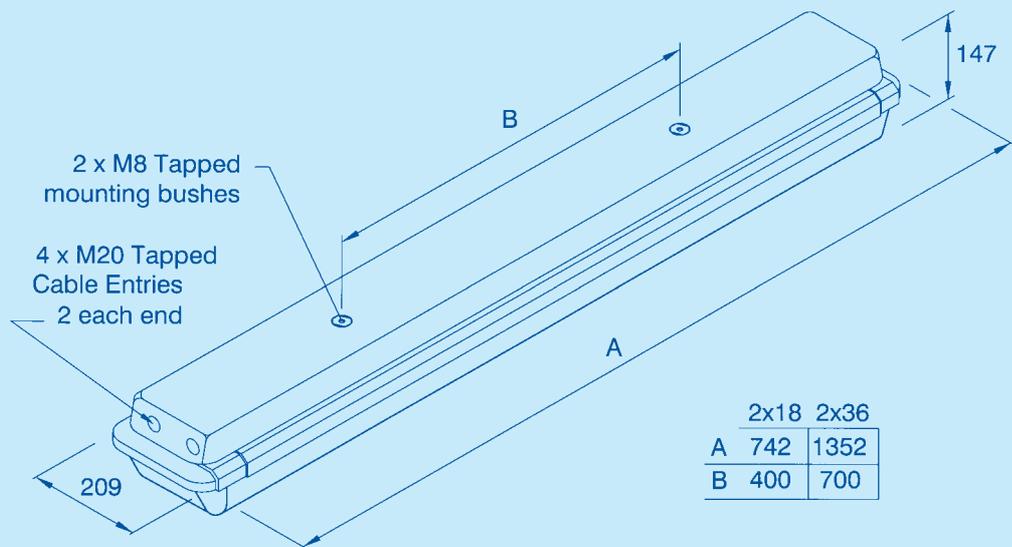
### MO - Mono-pin Lamps

Mono-pin Coding: EEx eqd IIC

Dust only version (PRGU/\_\_\_) available.

### Applications

Zone 1 and 2 hazardous areas • Offshore oil and gas platforms  
 Chemical industry • Pharmaceutical industry • Sewage treatment plants  
 Process areas • Walkways • FPSO's and FSO's vessels • M.O.D. installations  
 Distilleries • Gas pumping stations



### Accessories (Should be ordered separately)

### Catalogue Order Code

Ceiling mounting bracket	<b>SPRO4-0002</b>
Pole mounting bracket assembly (38/50 diameter poles)	<b>SPRO4-0003</b>
C' form hook type ceiling bracket assembly	<b>SPRO4-0005</b>
Flush mounted wall bracket assembly	<b>SPRO4-0006</b>
Wall mounting outreach bracket (18W/36W versions)	<b>NPRO4-0007</b>
18W wall mounting outreach bracket (use with SPRO4-0003)	<b>NPRO4-0008</b>
36W wall mounting outreach bracket (use with SPRO4-0003)	<b>NPRO4-0012</b>
Eyebolt kit	<b>SPRO5-0005</b>
Looping Kit (Allows looping from both ends of luminaire)	<b>SPROT-0021</b>

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

The Protecta III E emergency luminaire for tubular fluorescent lamps is rugged, technically advanced and high quality. It incorporates self commissioning, comprehensive self testing and an internal battery with the control gear mounted on a gear tray. The emergency light output and duration is outstanding with high output emergency option available (HEO). 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 with 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	Features
Type of Protection	Ex eqm (Increased safety Powder filling Encapsulation)	Battery management, monitoring and automatic self test
ATEX Classification	Group II Category 2 G D	Simple rugged construction
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	Full length easy access diffuser clamp
Apparatus Standard	EN 50014 EN 50017 EN 50019 EN 50028 EN 50281-1-1	Standard fixing centres
Certificate	EC Type Examination Certificate Baseefa04ATEX0220	High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output
Coding	⊕ II 2 G D EEx eqm II T4 Tamb 55°C	dc operation
Enclosure	GRP body with polycarbonate cover and brass suspension points	Automatic lamp de-energisation on opening
Reflector/Geartray	White polyester painted zinc coated steel	Screwless mains terminals
Entry	4 x M20 cable entries, 2 at each end	DTS-01 deluge tested
Termination	4 core 6mm <sup>2</sup> max. conductor with looping and 16A rating through wiring	Vibration tested to comply with Lloyds/DNV
Installation	Two M8 tapped brass inserts located on rear of body	Resistant to voltage fluctuations
Control Gear	High Frequency	Emergency inhibition and mains power off re-start
Relamping	Quick release diffuser clamp and hinged cover	Ability to detect and indicate impending end of emergency lamp life before actual failure
Lampholder	Fa6 Cap (Mono-pin), G13 (Bi-pin)	GOST, CSA and CEPEL Approved
Lamp Type	T8 tubular fluorescent	IEC Ex Compliant
Burning Position	Universal	End of life (EOL) protection to IEC 60079-7 (with EOL I and EOL II functionality)
Ingress Protection	IP66/67 to EN 60529	
Electrical Supply	220V - 254V 50/60Hz	
Battery	Internal Ni-Cd battery (6V 4 Ah)	
Duration	90 minutes to EN 60598-2-22 (3H option)	
Emergency Output	30% of one lamp (18W), 50% - HEO option 25% of one lamp (36W), 45% - HEO option	

Std. Cat No.	Part No.	Wattage	Weight	Options - Suffix to Catalogue No.
PRGE/218/BI/EM	502231	2x18W	8.3kg	/120 Specific voltage (110/130) /M25 M25 Entries
PRGE/236/BI/EM	502431	2x36W	12.4kg	/SB Stainless steel mounting bush /3P 3 phase termination facility (Not available if looping required)
PRGE/218/MO/EM	502239	2x18W	8.3kg	/LBE Looping both sides
PRGE/236/MO/EM	502439	2x36W	12.4kg	/RI Remote emergency inhibition facility (External switch ordered separately)  /3H 3 hour battery duration /HEO High emergency output /SE Spigot entry

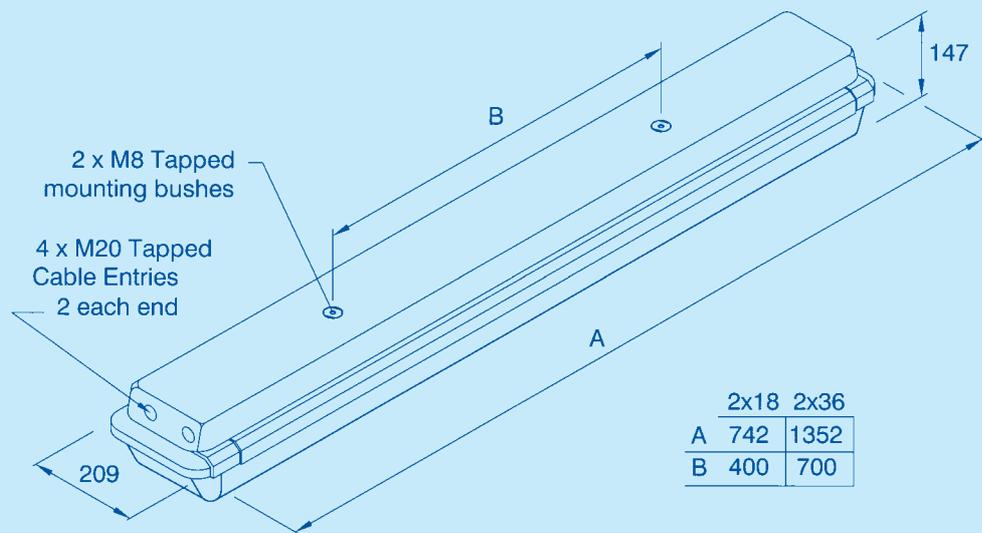
### MO - Mono-pin Lamps

Mono-pin Coding: EEx eqd IIC

Dust only version (PRGU/\_\_\_) available.

### Applications

Zone 1 and 2 hazardous areas • Offshore oil and gas platforms  
Chemical industry • Pharmaceutical industry • Sewage treatment plants  
Process areas • Walkways • FPSO's and FSO's vessels • M.O.D. installations  
Distilleries • Gas pumping stations



### Accessories (Should be ordered separately)

### Catalogue Order Code

Ceiling mounting bracket	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
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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

The Protecta III is also available with a stainless steel body version, this is intended for applications where a risk of mechanical damage or exposure to chemical agents exists.

The Protecta stainless steel version shares the technical features of the GRP bodied range being rugged and technically advanced. The emergency version has comprehensive self testing and an internal battery with all the control gear mounted together on a gear tray.

The product has excellent durability as it is constructed using stainless steel with 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	Features
Type of Protection	Ex eqm (Increased safety Powder filling Encapsulation)	Simple rugged construction
ATEX Classification	Group II Category 2 G D	Hinged cover with easily removeable cover clamps
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	Standard fixing centres
Apparatus Standard	EN 50014 EN 50017 EN 50019 EN 50028 EN 50281-1-1	High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output
Certificate	EC Type Examination Certificate Baseefa04ATEX0220	Automatic lamp de-energisation on opening
Coding	Ⓔ II 2 G D EEx eqm II T4 Tamb 55°C (45°C for emergency version)	Screwless mains terminals
Enclosure	Stainless steel body with polycarbonate cover	Resistance to voltage fluctuations
Reflector/Geartray	White polyester painted zinc coated steel	Battery management, monitoring and automatic self test
Entry	4 x M20 cable entries, 2 at each end	dc operation (non-emergency only)
Termination	3 core 6mm <sup>2</sup> max. conductor with looping and 16A rating through wiring (4 core for emergency)	Ability to detect and indicate impending end of emergency lamp life before actual failure
Installation	Two M8 tapped stainless steel inserts located on rear of body	GOST and CSA Approved
Lampholder:	Fa6 Cap (Mono-pin), G13 (Bi-pin)	IEC Ex Compliant
Lamp Type	T8 tubular fluorescent	End of life (EOL) protection to IEC 60079-7 (with EOL I and EOL II functionality)
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 220V - 300V dc (non-emergency only)	
Battery	Internal Ni-Cd Battery (6V 4 Ah)	
Duration	90 minutes to EN60598-2-22 (3H option)	
Emergency Output	30% of one lamp (18W), 50% - HEO option 25% of one lamp (36W), 45% - HEO option	

Std. Cat No.	Part No.	Wattage	Weight	Options - Suffix to Catalogue No.	
PRSE/218/BI	510231	2x18W	6.0kg	/120	110/130V
PRSE/136/BI	510331	1x36W	8.2kg	/M25	M25 Entries
PRSE/236/BI	510431	2x36W	9.6kg	/3P	3 phase termination facility (Not available if looping required)
PRSE/218/BI/EM	512231	2x18W	9.1kg	/LBE	Looping both sides
PRSE/236/BI/EM	512431	2x36W	12.5kg	/EL	Extra live termination facility (compatible with 4 core switched emergency circuits)
PRSE/218/MO	510239	2x18W	6.0kg	/3H	3 hour battery duration
PRSE/136/MO	510339	1x36W	8.2kg	/HEO	High emergency output
PRSE/236/MO	510439	2x36W	9.6kg		
PRSE/218/MO/EM	512239	2x18W	9.1kg		
PRSE/236/MO/EM	512439	2x36W	12.5kg		

### MO - Mono-pin lamps

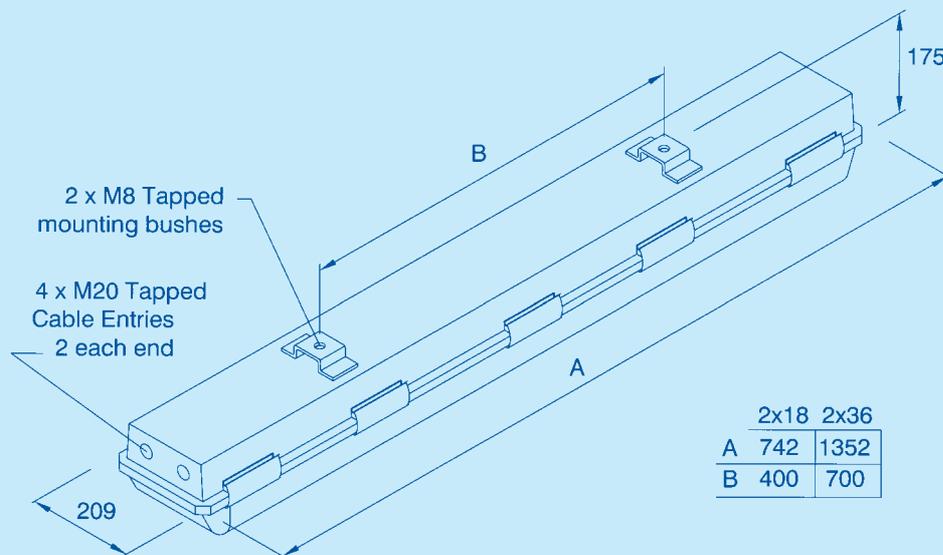
Mono-pin coding: EEx eqd IIC

Mono-pin emergency coding: EEx eqdm IIC

Dust only version (PRSU/\_\_\_) available.

### Applications

Zone 1 and 2 hazardous areas • Ideal for harsh and corrosive environments  
Offshore oil and gas platforms • Petrochemical industry  
Sewage treatment plants • Walkways and access areas  
FPSO's and FSO's vessels • Chemical industries • Distilleries



Accessories (Should be ordered separately)	Catalogue Order Code
Ceiling mounting bracket	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
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

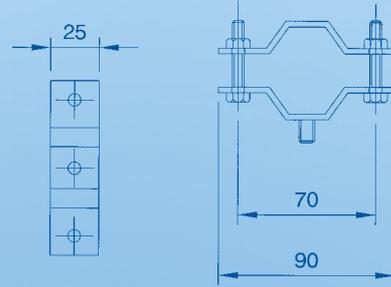
Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

## Pole Mounting Bracket

Cat No. SPRO4-0003

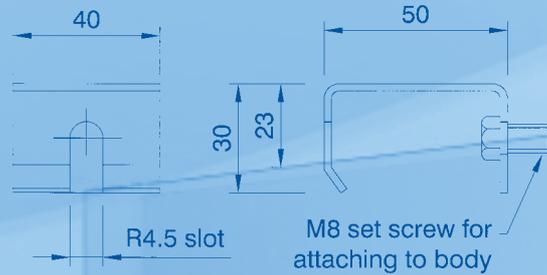


Pole mounting bracket to suit pole diameter 38mm - 50mm  
Cat No. SPRO4-0003  
Other sizes available on request.



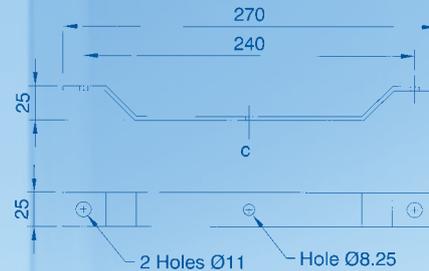
## Hook Type Ceiling Bracket

Cat No. SPRO4-0005



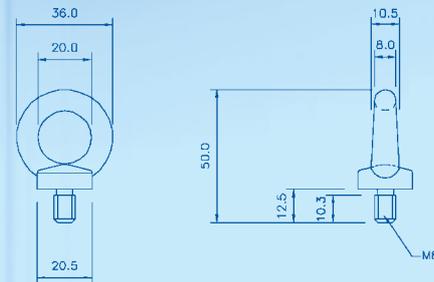
## Ceiling Mounting Bracket

Cat No. SPRO4-0002



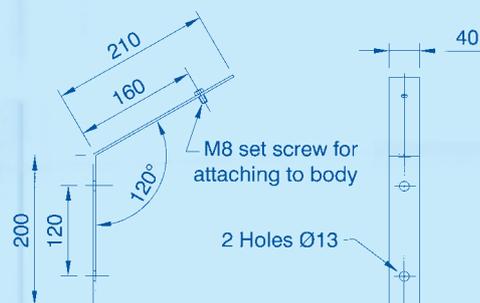
## Eyelet Mounting Bracket

Cat No. SPRO5-0005



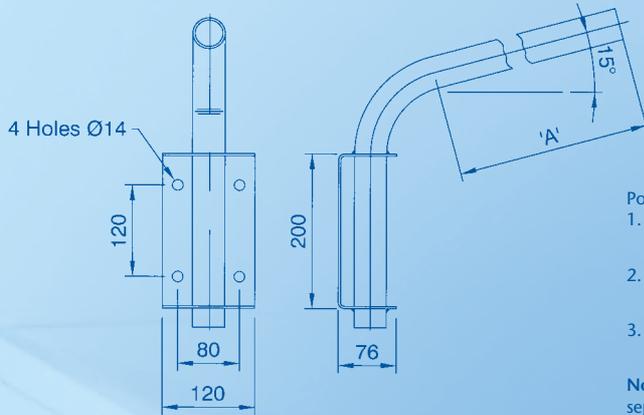
## Flush Mounting Wall Bracket

Cat No. SPRO4-0006



Note: All brackets are made from 316 Stainless Steel

## Wall Mounting Outreach Bracket Cat No. NPRO4-0007/0008/0012



- Pole length 'A' for use with the following:
1. 18W and 36W spigot entry body, size 'A' = 250mm  
Cat No. NPRO4-0007
  2. 18W body c/w pole clamps, size 'A' = 650mm  
Cat No. NPRO4-0008
  3. 36W body c/w pole clamps, size 'A' = 1100mm  
Cat No. NPRO4-0012

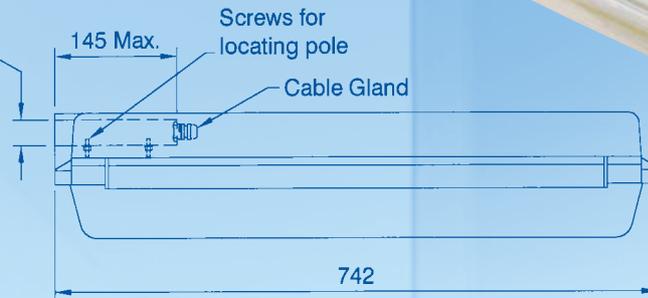
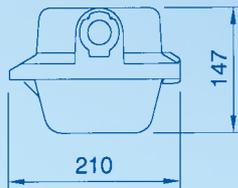
**Note:** Pole clamps for items 2 & 3 must be ordered separately, see product accessory SPR04-0003.



## 18W Spigot Entry

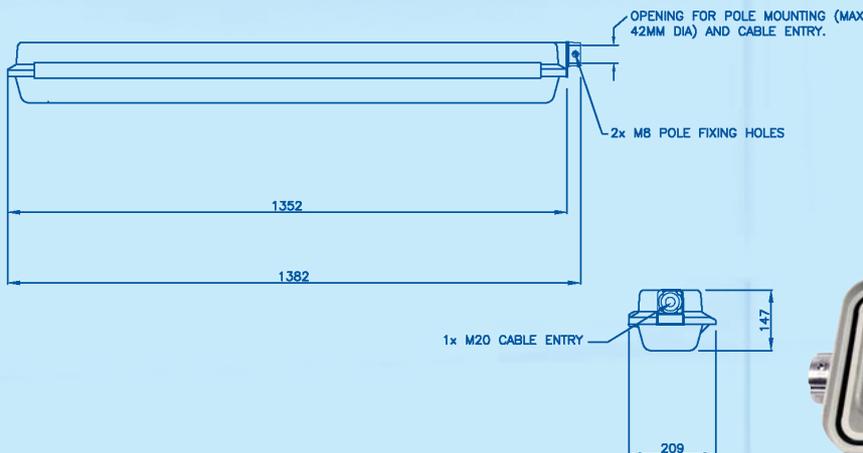
## Cat No. PRGE/218/BI/SE

Opening for pole mounting and for cable entry - 36-44mm



## 36W Spigot Entry

## Cat No. PRGE/236/BI/SE



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.

The Chalmit Ex e range of fluorescents utilise common spare parts, thus reducing the number of spares required.



### Standard Specification

### Features

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 EN 50281-1-1
Certificate Coding	EC Type Examination Certificate Baseefa04ATEX0286
Enclosure	White polyester painted zinc coated steel body and frame. Silicone rubber gasket. Clear polycarbonate diffuser
Reflector/Geartray Entry	White polyester painted zinc coated steel 3 x 20mm holes, two at one end and one at the other end
Termination	3 core 6mm <sup>2</sup> 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 220V - 300V dc (non-emergency only)
Battery	Internal Ni-Cd Battery (6V 4 Ah)
Duration	90 minutes to EN60598-2-22 (3H option)
Emergency Output	30% of one lamp (18W), 50% - HEO option 25% of one lamp (36W), 45% - HEO option

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
CSA Approved
IEC Ex Compliant
End of life (EOL) protection to IEC 60079-7 (with EOL I and EOL II functionality)

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
ACLE/418/BI	4x18W	31kg
ACLE/436/BI	4x36W	44kg
ACLE/418/BI/EM	4x18W	37kg
ACLE/436/BI/EM	4x36W	50kg

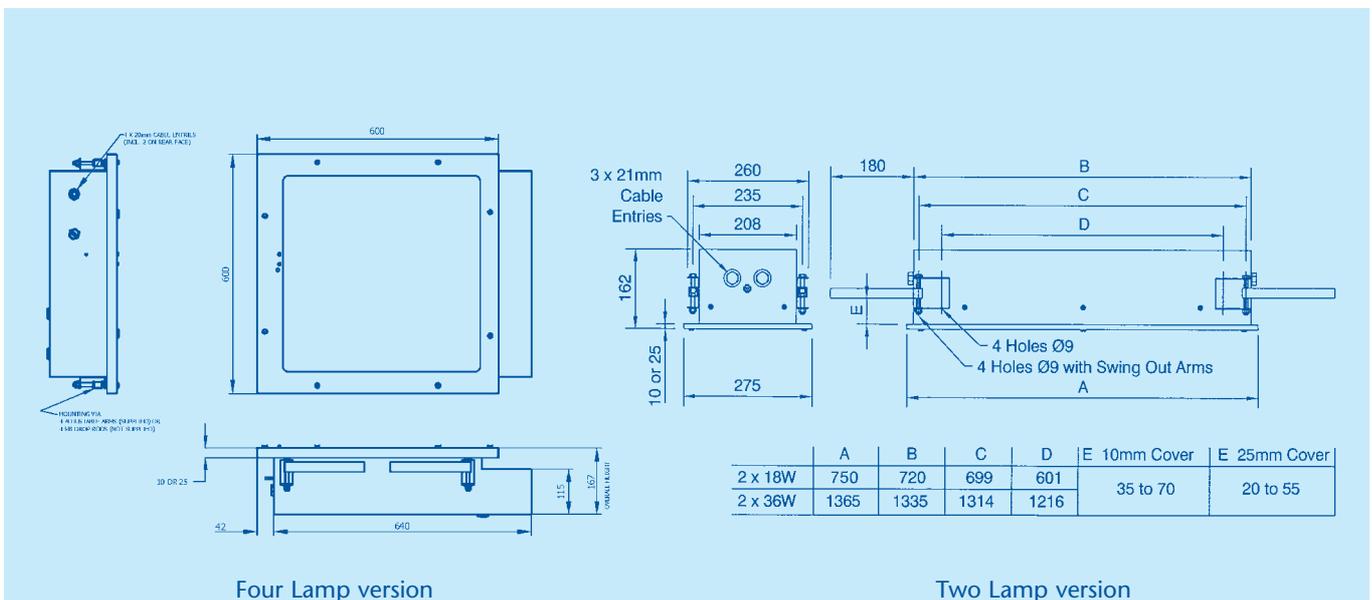
**Applications**

- Zone 1 and 2 hazardous areas
- Offshore accomodation
- Offshore washrooms
- Pharmaceutical dryer rooms
- Process areas
- Control rooms

**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
- /2L 2 lamp emergency mode (only available in 4 lamp versions)
- /MET Modular - Exposed 'T' ceiling
- /MST Modular - Spring 'T' ceiling
- /HEO High emergency output
- /NST High frequency non-self testing ballast (for sleeping accomodation areas)

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



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.

The Chalmit Ex e range of fluorescents utilise common spare parts, thus reducing the number of spares required.



Curie Elite with low glare louvre



	Standard Specification	Features
Type of Protection	Ex eqm (Increased safety Powder filling Encapsulation) Dust protected enclosure	Front cover to body seal to IP65
ATEX Classification	Group II Category 2 G D	Gasket fitted to body at ceiling aperture for sealing to IP65
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	Battery management monitoring & automatic self test
Apparatus Standard	EN 50014 EN 50017 EN 50019 EN 50028 EN 50281-1-1	Screwless mains terminals
Certificate	EC Type Examination Certificate Baseefa02ATEX0117X	Simple and easy access via front cover for lamp replacement and maintenance
Coding	⊕ II 2 G D EEx eqm II T4 Tamb 50°C	Suspended gear tray for ease of maintenance
Enclosure	White polyester painted zinc coated steel body and aluminium frame. EPDM rubber gasket. Prismatic polycarbonate diffuser.	Automatic lamp de-energisation on opening
Reflector/Geartray Entry	White polyester painted zinc coated steel 3 x 20mm diameter holes for cable entries, 2 at one end and 1 at the other end	Electronic control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output
Termination	3 core 6mm <sup>2</sup> max. conductor with looping and through wiring 16A rating. Emergency version 4 core 6mm <sup>2</sup> max. conductor with looping and 16A rating through wiring	dc operation (non emergency)
Installation	Fixed side brackets with swing out arms, with provision for drop rod mounting	Local switching arrangement as standard
Lamp Type	T8 tubular fluorescent	CSA Approved
Lampholder	G13 (Bi-pin)	End of life (EOL) protection to IEC 60079-7 (with EOL I and EOL II functionality)
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)	
Battery Duration	90 minutes to EN60598-2-22 (3H option)	
Emergency Output	30% of one lamp (18W), 50% - HEO option 25% of one lamp (36W), 45% - HEO option	

Std. Cat No.	Wattage	Weight
CUEE/218/BI*	2x18W	12.5
CUEE/418/BI	4x18W	16.0
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

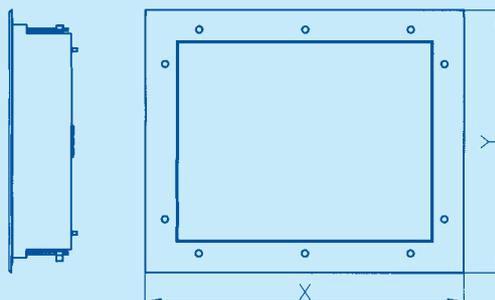
\*Only available as modular version for /MET or /MST styles

**Applications**

- Zone 1 and 2 hazardous areas
- Pharmaceutical process areas
- Tablet production facilities
- Powder mixing areas
- Laboratories
- Laboratory access corridors
- Food process areas
- Clean rooms

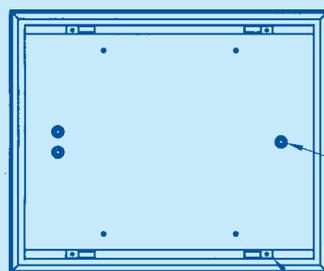
**Options - Suffix to Catalogue No.**

- |             |  |             |  |
|-------------|--|-------------|--|
| <b>/120</b> | Specific voltage (110/120)   | <b>/MST</b> | Modular – Spring ‘T’ ceiling                               |
| <b>/25</b>  | 25mm Entries   | <b>/2L</b>  | 2 lamp emergency mode<br>(only available in 4 lamp models) |
| <b>/EL</b>  | Extra live termination facility<br>(to match emergency circuit)              | <b>/3H</b>  | 3 hour battery duration                                    |
| <b>/LG</b>  | Low glare louvre   | <b>/3M</b>  | 300mm wide version (36W only)                              |
| <b>/MET</b> | Modular – Exposed ‘T’ ceiling  | <b>/HEO</b> | High emergency output                                      |
| <b>/NST</b> | High frequency non-self testing ballast<br>(for sleeping accomodation areas) |             |  |



	2/4x18W	2x36W
DIM X	774	1383
DIM Y	644	402
APERTURE	580x710	338x1319

NOTE: APERTURE TOLERANCE +5 -0.



**NOTE: Contact Sales for dimensional details of modular versions**

3 Holes  $\phi 20.5$  for Cable Entries

4 Swing Out Mounting Clamps

The Lomond Ex d fluorescent 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

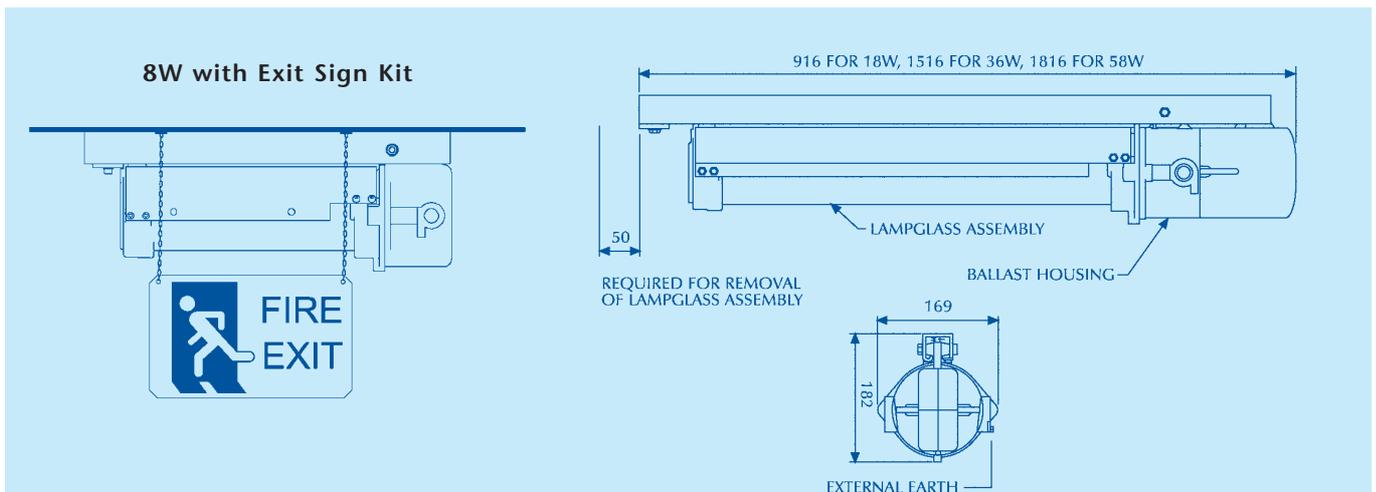


	Standard Specification	Features
Type of Protection	Ex d (flameproof), Ex dm (flameproof encapsulation) emergency version	ATEX Approved
ATEX Classification	Group II Category 2 G D	Quick lamp start, flicker free
Area Classification	Zone 1 and 21 areas to EN 60079-10 with installation to EN 60079-14	High frequency electronic control gear reduces running costs by up to 30%
Apparatus Standard	EN 60079-0, EN 60079-1, EN 60079-7, EN 50281-1-1	Cool running improves T-rating
Certificate	EC Type Examination Certificate SIRA05ATEX1299X	Standard support channel allows for multiple fixing centres and options
Coding	⊕ II 2 G D EEx d IIC (for 8W & 18W versions) ⊕ II 2 G D EEx d IIB (for 36W & 58W versions)	Suitable for high ambient areas
Enclosure	LM6 aluminium die cast alloy	Lightweight and low profile construction
Reflector/Geartray	Borosilicate glass overtube, painted steel reflector	<b>Optional Exit Sign Kit for Emergency Escape Route Lighting</b>
Entry	2 x M20 cable entries	<b>Applications</b>
Termination	3 core 6mm <sup>2</sup> max. conductor with looping 4 core on emergency version (no looping on emergency)	Zone 1 and 2 hazardous areas
Installation	Via steel support rail	Overdoor emergency lighting
Control Gear	High Frequency	Paint spraying
Relamping	Two socket head screws and tapered spigotted flamepath	Chemical industry
Lampholder	G13 (Bi-pin)	Munitions storage
Lamp Type	T 8 Bi-pin fluorescents	Sewage treatment plants
Burning Position	Universal	Engine rooms
Ingress Protection	Ingress protection to IP66, IP67 and IP68	Walkways
Electrical Supply	220V - 254V, 47/63Hz AC/DC 100V - 130V, 47/63Hz AC/DC	M.O.D. installations
		Distilleries
		Gas pumping stations

Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	Weight
LOMD/108/BI	1x8W	T5	G5	T6	55	5.0kg
LOMD/208/BI	2x8W	T5	G5	T6	55	5.5kg
LOMD/118/BI	1x18W	T8	G13	T6	55	9.0kg
LOMD/218/BI	2x18W	T8	G13	T6	55	9.0kg
LOMD/136/BI	1x36W	T8	G13	T5	55 (T6 @ 53)	13.0kg
LOMD/236/BI	2x36W	T8	G13	T5	55 (T6 @ 53)	13.0kg
LOMD/158/BI	1x58W	T8	G13	T5	55 (T6 @ 49)	15.0kg
LOMD/258/BI	2x58W	T8	G13	T5	55 (T6 @ 49)	15.0kg
LOMD/108/BI/EM	1x18W	T5	G5	T6	55	10.5kg
LOMD/218/BI/EM	2x18W	T8	G13	T6	55	13.5kg
LOMD/236/BI/EM	2x36W	T8	G13	T5	55 (T6 @ 52)	20.0kg
LOMD/258/BI/EM	2x58W	T8	G13	T5	55 (T6 @ 48)	22.3kg

### Options - Suffix to Catalogue No.

/M25 M25 Entries /SR Stainless steel support rail



### Accessories (Should be ordered separately)

Accessories (Should be ordered separately)	Catalogue Order Code
Ceiling bracket	SLOMD-000001
Right angle wall mounting brackets (S/S)	SLOMD-000002
Wall mounting bracket (S/S)	SLOMD-000003
Pole clamp (S/S) - (35/40mm diameter)	SLOMD-000004
Pole clamp (S/S) - (40/50mm diameter)	SLOMD-000005
Pole clamp (S/S) - (50/60mm diameter)	SLOMD-000006
Pole clamp (S/S) - (60/70mm diameter)	SLOMD-000007
Wire guard for 18W	SLOMD-000008
Wire guard for 36W	SLOMD-000009
Wire guard for 58W	SLOMD-000010
Exit Sign (no direction)	SPATE-00005
Exit Sign (up arrow)	SPATE-00006
Exit Sign (down arrow)	SPATE-00007
Exit Sign (right arrow)	SPATE-00008
Exit Sign (left arrow)	SPATE-00009

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

# EVOLUTION II

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The Evolution II utilises the unique design features of the Evolution and enhances them with the use of an asymmetric enclosure design. This provides the added advantages of:

- Higher utilisation of light
- Reduced light pollution
- Low glare
- Excellent uniformity of light

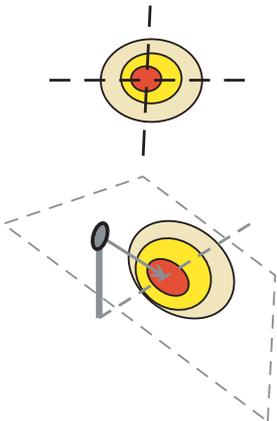
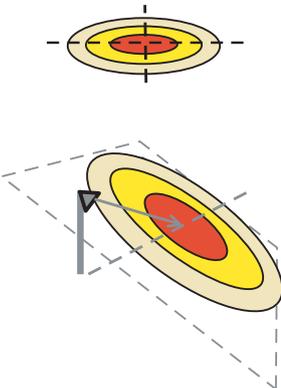
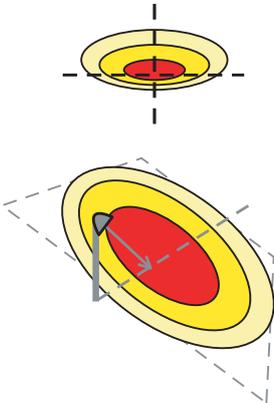
In line with the Evolution, the Evolution II also features:

- IP66/67
- Light weight
- Quick & Easy access for maintenance
- No exposed flame path thus reducing maintenance requirements



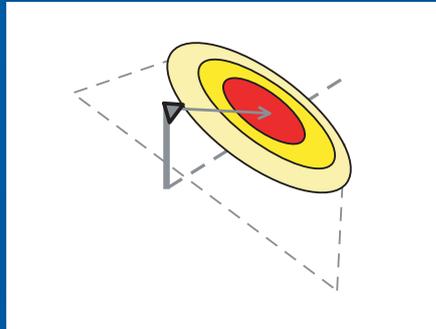
The Evolution II is also available with an optional PTFE coating for increased protection in harsh and corrosive environments.

## Understanding Asymmetrical and Symmetrical Light Distribution

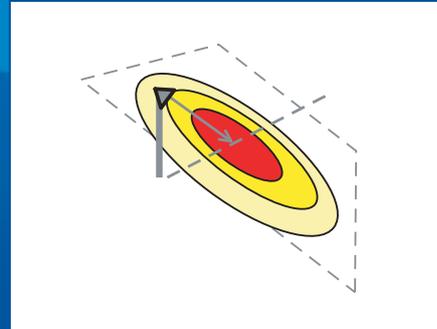
Circular (Projectors)	Rectangular	Rectangular Asymmetric
		
Typical Floodlight Distribution Patterns		
		
<p>Light distribution is "focused" but lighting level is intense</p>	<p>Light distribution is "broad or spread-out" but lighting level is less intense</p>	<p>Light distribution is much more spread-out                      - More Light below the pole                      - Uniformity of the light is excellent</p>

## Asymmetric design

### Limitations of Symmetrical rectangular Floodlights



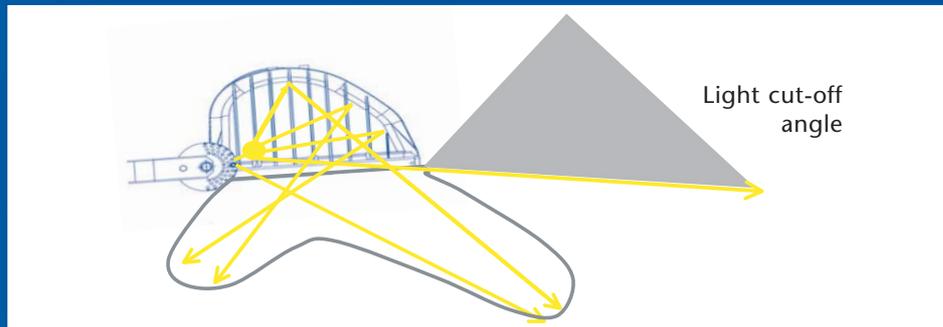
If floodlight aimed far - light distribution below the pole suffers and uniformity is lower



If floodlight aimed near - light distribution at a distance suffers and light is more intense

Symmetrical floodlights also have a high cut off angle, this creates undesired light pollution, glare and reduces the light utilisation factor.

### Benefits of Asymmetric design



The asymmetric reflector design enables the light beam to be thrown forward for long distance lighting and concurrently assuring that the lighting below the pole or mounting location is also effectively lit without having to tilt the floodlight at high aiming angles.

The typical tilting angle of the floodlight can therefore be kept at 0° or to a maximum tilt angle of 20°. This allows a higher Utilization Factor for the floodlighting scheme to be achieved with reduced glare and light pollution, when compared to a conventional symmetrical floodlight.

As less of the light output is being lost, photometric efficiency or the amount of light emitted is greater.

This efficient and effective light distribution makes the Evolution II ideally suited to a range of applications including:



- Tank Farms
- Aircraft Hangers
- Offshore Oil & Gas Platforms
- Security and Perimeter Lighting
- Sewage Treatment Plants
- Drum Storage Areas
- Gas Pumping Stations
- Distilleries

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 ATEX category 2 G D luminaire utilises Ex de protection and IP66/67 sealing making it suitable for use for ignitable gas and dust applications. The Evolution can be used as standard with up to 400W HID lamps or increased to 600W with a separate Ex e control gear box.

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 55°C.



PTFE Coating mounted at 90°

### Standard Specification

### Features

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 6mm <sup>2</sup> 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, +/-45° 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

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

IEC Ex Compliant

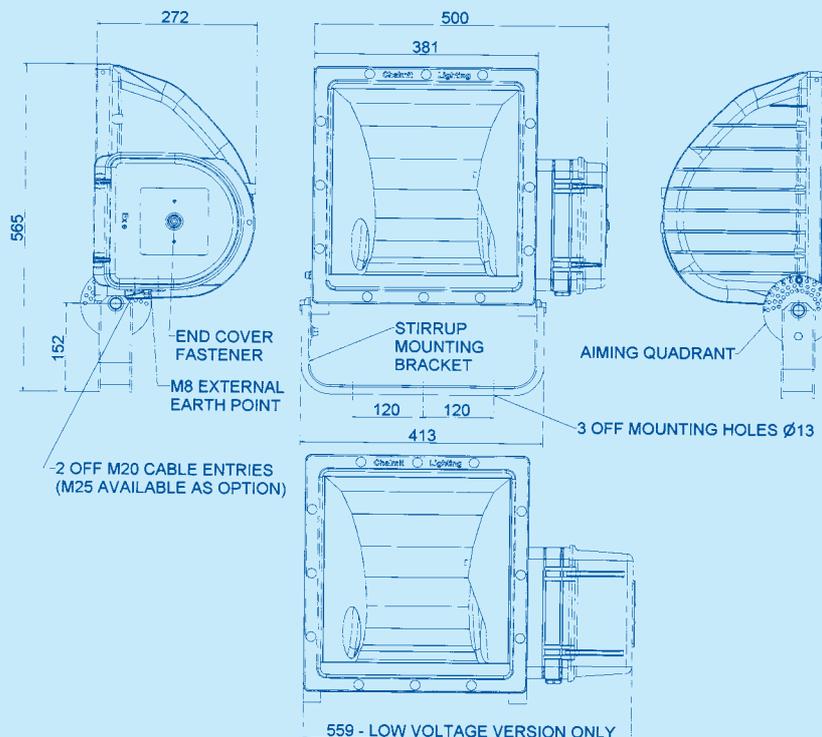
**Optional PTFE coating available**

Std. Cat No.	Wattage	Lamp	Lampholder	T Class (Gas)	T °C (Dust)	Ambient °C	Weight
EV2D/150/MS	150W	HPS and Metal Halide	E40	T4	130	40	28kg
				T3	175	55	
EV2D/250/MS	250W	HPS and Metal Halide	E40	T4	130	40	28.5kg
				T3	175	55	
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 gear box required.

### Options - Suffix to Catalogue No.

/120	120V (Weight increase of +10kg)	/P	PTFE coating
/60	60Hz	/PE	Pendant mounted
/M25	M25 Entries	/N	Narrow beam option



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

Accessories (Should be ordered separately)	Catalogue Order Code
284 retrofit bracket (allows Evolution II to pick-up 284 fixings)	SEVO1-0001
Pole mounting bracket	SEVO4-0001
Anti-glare shield	SEVO4-0019
Wire guard	SEVO4-0020
Combined glare shield and wire guard	SEV24-0001

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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 ATEX category 2 G D luminaire utilises Ex de protection and IP66/67 sealing making it suitable for use for ignitable gas and dust applications. The Evolution can be used as standard with up to 400W HID lamps or increased 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 -50°C is available.

### Ex de PENDANT HIGH BAY

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



#### Standard Specification

#### Features

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 Coding	EC Type Examination Certificate BAS98ATEX2373 ⊕ 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 6mm <sup>2</sup> 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, +/-45° 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

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

CSA Approved

IEC Ex Compliant

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

**For Pendant substitute EVPD for EVOD**

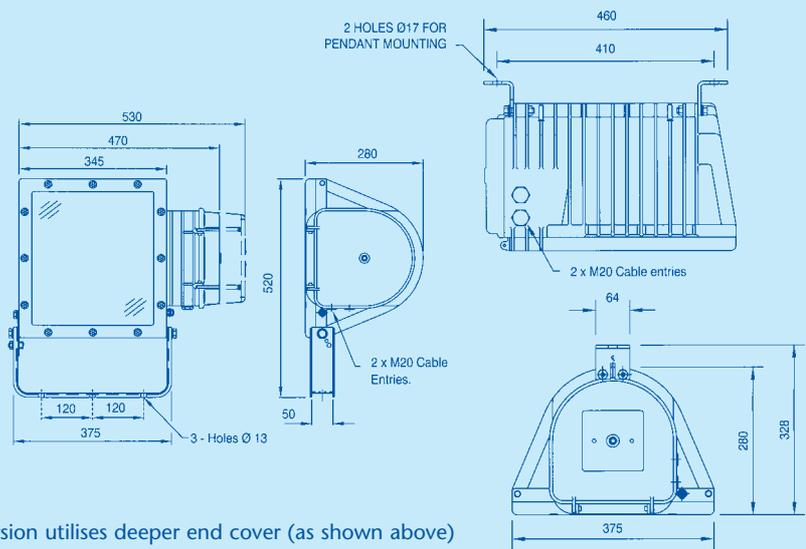
\*Ignitor only fitted. Remote gear box required.

**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 -50°C (Gas groups IIA and IIB only)
- /D** Dust protected (Only marked for dust when this option is added)

**Applications**

- Zone 1 and 2 hazardous areas
- Aircraft hangers
- Tank farms
- Offshore oil and gas platforms
- Chemical industry
- Distilleries
- Security and perimeter lighting
- Sewage treatment plants
- Drum storage areas
- General area floodlighting
- Gas pumping stations
- Pharmaceutical industry



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)	SEVO1-0001
Pole mounting brackets	SEVO4-0001
Anti-glare shield	SEVO4-0002
Wire guard	SEVO4-0003
Swing jib damper assembly	SEVO1-0015
Swinging jib bracket assembly	SEVO4-0009
120V Swinging jib bracket assembly	SEVO4-0012

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

The Evolution Junior is a lightweight high performance floodlight especially suited for temporary and portable 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 -50°C is available.



## Standard Specification

## Features

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	⊕ 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 6mm <sup>2</sup> 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, +/-45° on horizontal axis for Tungsten-Halogen Lamps
Ingress Protection	IP66/67 to EN 60529
Electrical Supply	220, 230, 240, 254V 50Hz (HID) 24V(ac/dc)-250V (dependant on voltage)

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

### Applications

- Zone 1 and 2 hazardous areas
- Temporary and transportable lighting
- Offshore oil and gas platforms
- Chemical industry
- Distilleries
- Aircraft hangers
- Tank farms
- Sewage treatment plants
- Security and perimeter lighting
- General area floodlighting
- Gas pumping stations
- Pharmaceutical industry
- Drum storage areas
- Gas line repairs

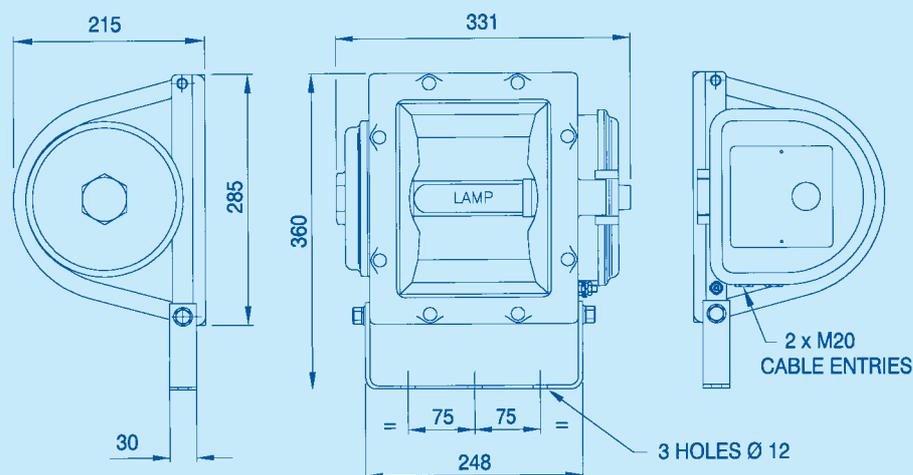
Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	Weight
<a href="#">EVJD/070/MS</a>	70W	HPS and Metal Halide	E27	T4	40	12kg
<a href="#">EVJD/070/MS</a>	70W	HPS and Metal Halide	E27	T3	55	12kg
<a href="#">EVJD/300/TL</a>	150W	Tungsten-Halogen	R7s	T3	55	10kg
<a href="#">EVJD/300/TL</a>	200W	Tungsten-Halogen	R7s	T3	40	10kg
<a href="#">EVJD/300/TL</a>	250W	Tungsten-Halogen	R7s	T3	20	10kg
<a href="#">EVJD/300/TL</a>	250W	Tungsten-Halogen	R7s	T2	50	10kg
<a href="#">EVJD/300/TL</a>	300W	Tungsten-Halogen	R7s	T2	40	10kg
<a href="#">EVJD/150/TL/24</a>	150W 24V	Tungsten-Halogen	R7s	T3	55	10kg

#### Secondary Glass Shield Cat Nos.

<a href="#">EVJD/300/TL/GS</a>	150W	Tungsten-Halogen	R7s	T3	55	10kg
<a href="#">EVJD/300/TL/GS</a>	200W	Tungsten-Halogen	R7s	T3	25	10kg
<a href="#">EVJD/300/TL/GS</a>	200W	Tungsten-Halogen	R7s	T2	50	10kg
<a href="#">EVJD/300/TL/GS</a>	250W	Tungsten-Halogen	R7s	T2	40	10kg
<a href="#">EVJD/150/TL/24/GS</a>	150W 24V	Tungsten-Halogen	R7s	T3	55	10kg

#### Options - Suffix to Catalogue No.

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



#### Accessories (Should be ordered separately)

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

Product design and specifications are subject to change without notice, please check the Chalmite website for latest specifications.

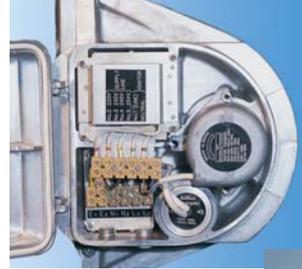
# EVOLUTION RANGE

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## FLOODLIGHT



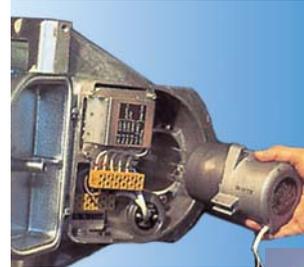
Access to control gear and relamping effected by use of single retained socket head cap screw



View shows the complete access afforded by opening the gear cover. The mains terminal block and voltage tapping 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



## EVOLUTION JUNIOR MOUNTING ACCESSORIES



Accessories (Should be ordered separately)

Floor stand assembly (to be ordered with floor stand version of floodlight)

Tripod stand assembly

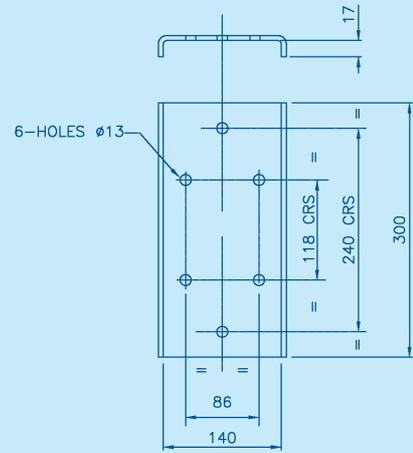
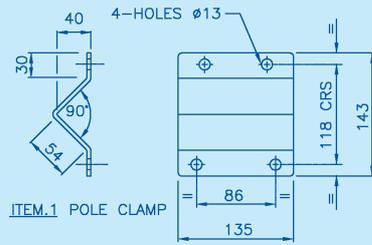
Catalogue Order Code

SEVJR-0001

SEVJR-0002

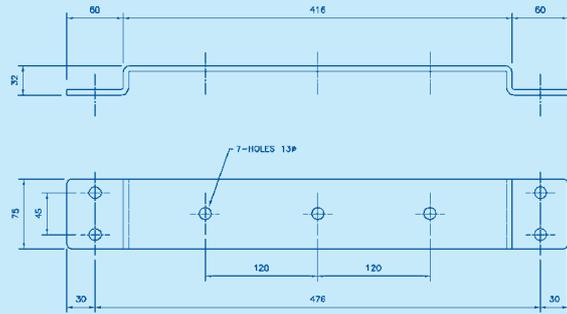
## POLE MOUNTING BRACKET

Cat No. SEV04-0001



## 284 RETROFIT BRACKET

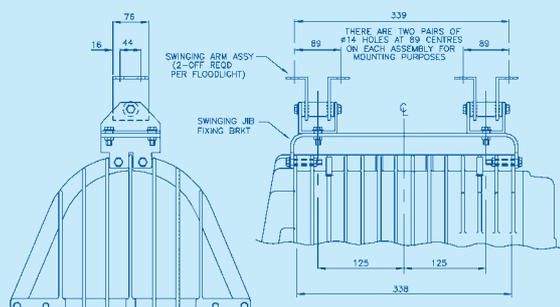
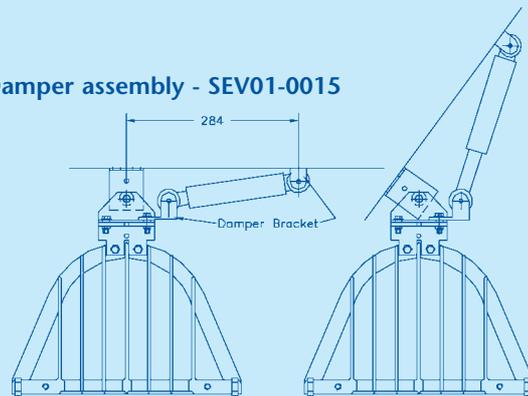
Cat No. SEV01-0001



## SWING JIB DAMPER & BRACKET ASSEMBLY



Damper assembly - SEV01-0015



Bracket assembly - SEV04-0009

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.

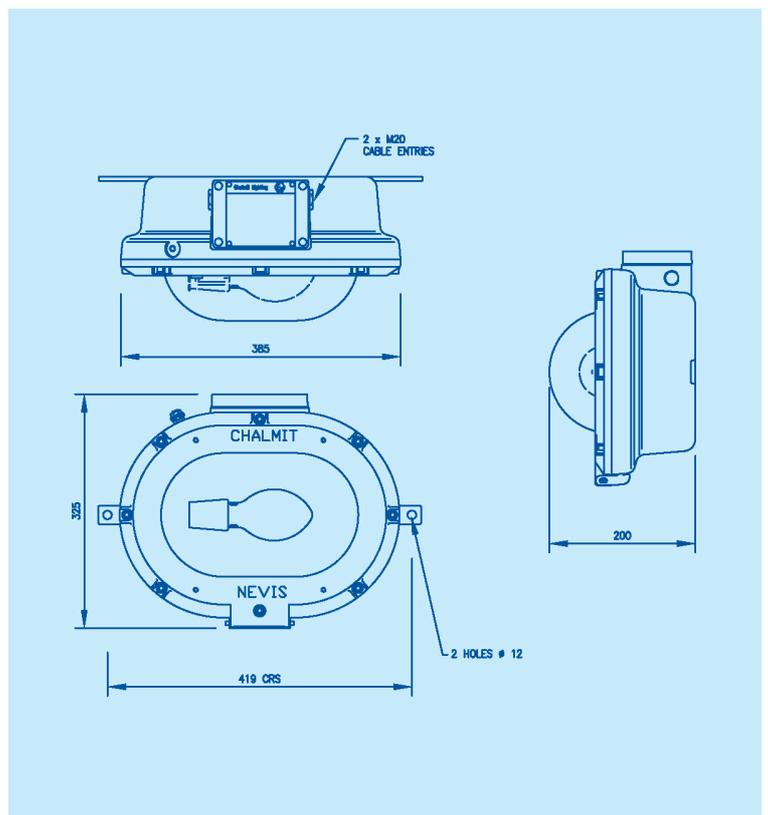


	Standard Specification	Features
Type of Protection ATEX Classification Area Classification	<b>Ex de (Flameproof, Increased Safety) Group II Category 2 G D Zone 1 and Zone 21 areas to EN 60079-10 and EN 50281-3 with installation to EN 60079-14 and EN 50281-1-2 Gas Groups IIA and IIB</b>	Ex e cable entries and looping as standard
Apparatus Standard Certificate	EN 50014 EN 50018 EN 50019 EN 50281-1-1 EC Type Examination Certificate Baseefa02ATEX0168	Hinged front cover
Coding	⊕ II 2 G D EEx de IIB (refer to table for T rating and ambient)	Captive cover screws
Enclosure	Aluminium alloy LM6. All fastenings stainless steel. Toughened glass bowl.	High ingress protection
Internal Reflector Entry	High purity anodised aluminium 2 x M20 cable entries	Internal reflector options
Termination Installation	3 core 6mm <sup>2</sup> max. conductor with looping Flush mounting bracket	Low temperature applications to -55°C
Control Gear	Internal copper/iron with PFC correction capacitor	Compact construction
Relamping Lampholder	Access via hinged front glass cover assembly E27 for GLS and HID lamps. G24q for compact fluorescent	GOST Approved
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 220, 230, 240V 50Hz - 80 and 125W MBF/U 250V Max GLS/MBTF, 240V - CF, 220-240V QL	

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



### Applications

Zone 1 and 2 hazardous areas • Harsh and low temperature environments • Offshore oil and gas platforms  
 Handrails, walkways and low ceilings • Petrochemical industry • Pharmaceutical industry  
 Road tanker loading facilities • Stairwells • Oil jetties • Distilleries

### Accessories (Should be ordered separately)

### Catalogue Order Code

Pole mounting brackets	SNEV1-0001
Wire guard	SNEV1-0002
Hand rail bracket	SNEV4-0002

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

## Features

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

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 -50°C ambient

GOST Approved

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

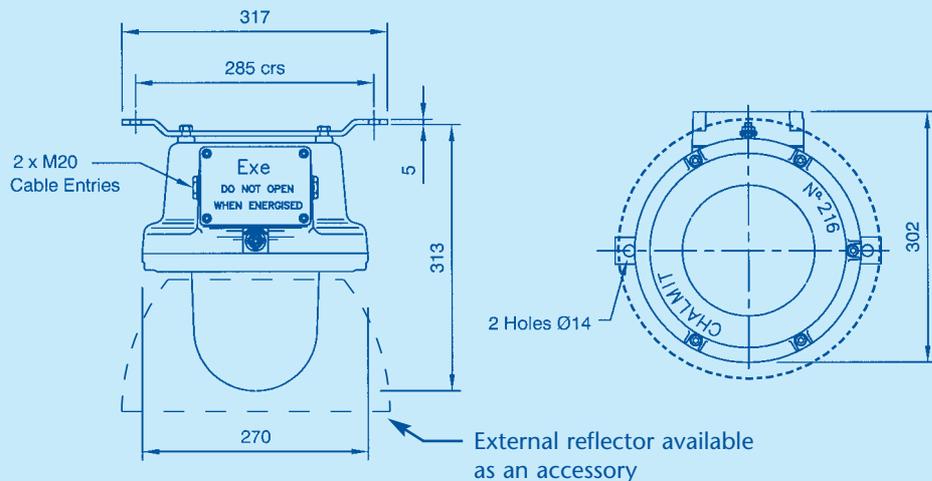
\* 45°C ambient version available as option

### 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 flourescent 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

### Applications

- Zone 1 and 2 hazardous areas
- Offshore oil and gas platforms
- Harsh and low temperature environments
- Low bay lighting
- Gantry and walkway lighting
- Stairwells • Process skid manufacturing
- Sewage treatment plants
- Road tanker loading facilities
- Oil jetties



External reflector available as an accessory

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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

## Features

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

Ex e cable entries and looping as standard
Anchor chain on glass cover assembly
High ingress protection
External reflector (option)
Low temperature applications to -50°C
Compact construction
GOST Approved
CSA Approved
IEC Ex Compliant

Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	Weight
<a href="#">238D/070/HS</a>	70W	HPS	E27	T4	70*	17kg
<a href="#">238D/100/HS</a>	100W	HPS	E40	T4	60*	17kg
<a href="#">238D/150/MS</a>	150W	HPS and Metal Halide	E40	T4	40	18kg
<a href="#">238D/250/MS</a>	250W	HPS and Metal Halide	E40	T3	45*	20kg
<a href="#">238D/080/MV</a>	80W	Mercury Vapour	E27	T4	60*	17kg
<a href="#">238D/125/MV</a>	125W	Mercury Vapour	E27	T4	40	17kg
<a href="#">238D/250/MV</a>	250W	Mercury Vapour	E40	T3	45*	19.5kg
<a href="#">238D/150/GL</a>	150W	GLS	E27	T4	70*	15.5kg
<a href="#">238D/200/GL</a>	200W	GLS	E27	T4	50	15.5kg
<a href="#">238D/300/GL</a>	300W	GLS	E27	T4	40	15.5kg
<a href="#">238D/160/MB</a>	160W	MBTF	E27	T3	50*	15.5kg
<a href="#">238D/085/QL</a>	85W	QL	QL	T5	55	16.0kg
<a href="#">238D/070/HS/T5</a>	70W	HPS	E27	T5	40	17kg
<a href="#">238D/150/MS/T3</a>	150W	HPS and Metal Halide	E40	T3	55*	18kg
<a href="#">238D/125/MV/T3</a>	125W	Mercury Vapour	E27	T3	50*	17kg

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

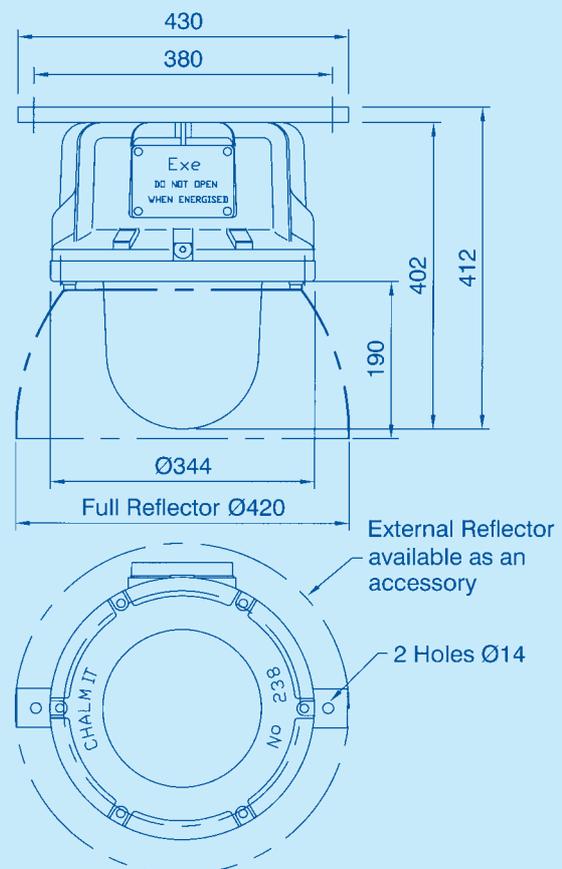
The 250W luminaires have a 70°C cable rating at ambients of 30°C

#### 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

#### Applications

Zone 1 and 2 hazardous areas  
 Harsh and low temperature environments  
 Offshore oil and gas platforms  
 Medium and low bay lighting  
 Petrochemical industry  
 Pharmaceutical industry  
 Road tanker loading facilities  
 Stairwells • Oil jetties • Distilleries



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

Product design and specifications are subject to change without notice, please check the Chalmitt website for latest specifications.

The 261 well-glass is a high light output luminaire ideally suited 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 with 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 -40°C on certain lamp ranges



	Standard Specification	Features
Type of Protection	Ex de (Flameproof, Increased Safety)	Ex e terminal chamber
ATEX Classification	Group II Category 2 G	Stainless steel fasteners
Area Classification	Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14 Gas Groups IIA and IIB	Anchor chain on glass cover assembly
Apparatus Standard	EN 50014 EN 50018 EN 50019	Low temperature applications to -40°C
Certificate	EC Type Examination Certificate BAS01ATEX2309	IEC Ex Compliant
Coding	Ⓔ II 2 G EEx de IIB (refer to table for T rating and Ambient)	
Enclosure	Aluminium alloy LM6. All fastenings stainless steel. Toughened glass bowl	
Reflector	High purity anodised aluminium	
Entry	2 x M20 cable entries	
Termination	3 core 6mm <sup>2</sup> 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) 110V - 240V ac/dc (GLS)	

Std. Cat No.	Wattage	Lamp	T Class	Ambient °C	Weight
261D/150/HS	150W	HPS	T4	50	31kg
261D/250/HS	250W	HPS	T4	50	32kg
261D/400/HS	400W	HPS	T4	50	33kg
261D/125/MV	125W	Mercury Vapour	T4	50	31kg
261D/250/MV	250W	Mercury Vapour	T4	50	32kg
261D/400/MV	400W	Mercury Vapour	T4	50	33kg
261D/250/MH	250W	Metal Halide	T4	50	32kg
261D/400/MH	400W	Metal Halide	T4	50	33kg
261D/500/GL	Up to 500W	GLS	T4	45	29kg
			T3	50	29kg
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.

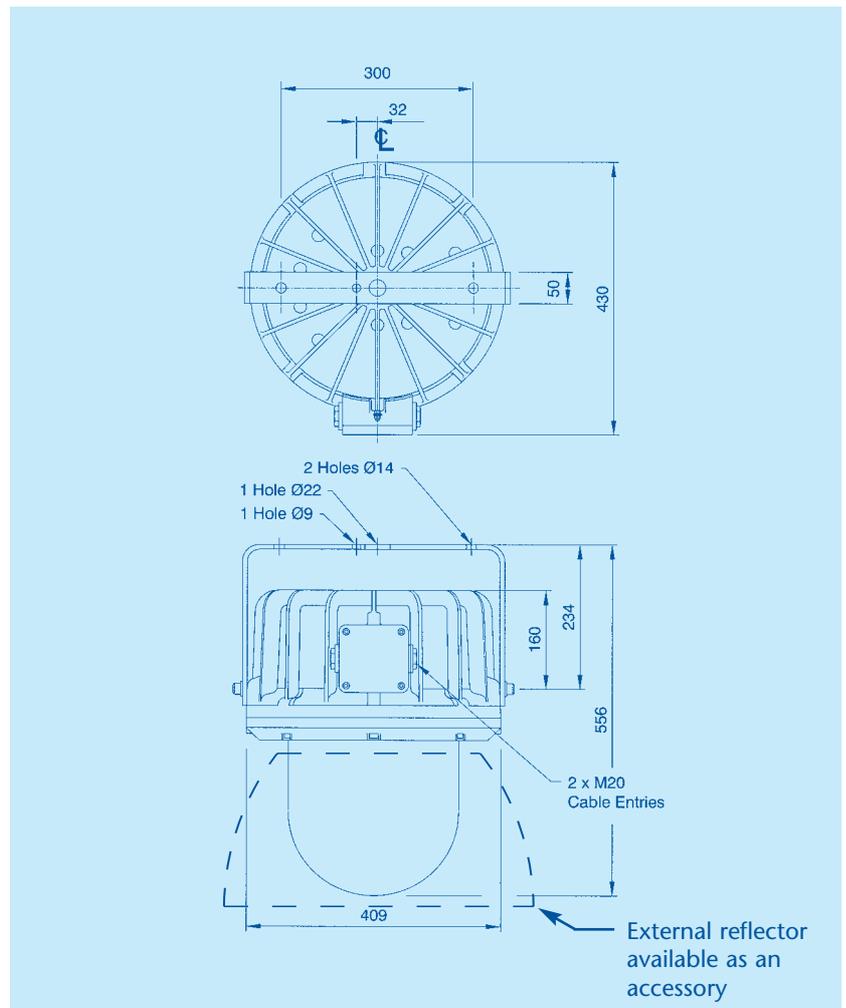
When fitted to the stirrup mounted version the 'T' class changes to T3 with the ambient remaining the same.

#### Options - Suffix to Catalogue No.

/P	PTFE coating
/M25	M25 Entries
/60	60 Hz

#### Applications

Zone 1 and 2 hazardous areas  
 Harsh and low temperature environments  
 Offshore oil and gas platforms  
 Petrochemical process areas  
 Paint and solvent storage  
 Sewage treatment plants  
 Process areas  
 Highbay lighting  
 Oil jetties



#### Accessories (Should be ordered separately)

#### Catalogue Order Code

Pole mounting bracket	S2610-0001
Wire guard	S2610-0003
External reflector	S2610-0007

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

The electronic lamp and battery controls are contained in the 261E 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 261E uses a 70W SON/T lamp to provide focused lighting for safety critical areas during an emergency, for example the illumination of 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

## Features

Type of Protection	Luminaire: Ex de (Flameproof Increased Safety) Battery Box: Ex em (Increased Safety Encapsulation)
ATEX Classification Area Classification	Group II Category 2 G Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14
Apparatus Standard Certificate	EN 50014 EN 50018 EN 50019 and EN 50028 EC Type Examination Certificate BAS01ATEX2310 Battery Box: Baseefa03ATEX0003
Coding	261E: EEx de IIB T4 Tamb 40 723: EEx em II T4 Tamb 40
Enclosure	Luminaire: Aluminium alloy LM6. All fastenings stainless steel. Toughened glass window Battery Box: Stainless steel 316S31 with silicone rubber gasket
Reflector Entry	Narrow beam high purity anodised aluminium 2 x M20 cable entries for mains supply and 1 x M25 cable entry for interconnection
Termination	3 core 6mm <sup>2</sup> max. conductor with looping for mains supply and 12 core 1.5mm <sup>2</sup> luminaire to battery box
Installation	Luminaire: Stirrup mounting bracket Battery Box: Flat straps
Control Gear Relamping Lampholder	Electronic Access via front glass cover assembly 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

Ex e terminal chamber

Stainless steel fasteners,  
marine grade

Anchor chain on glass cover assembly

Increased safety battery

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

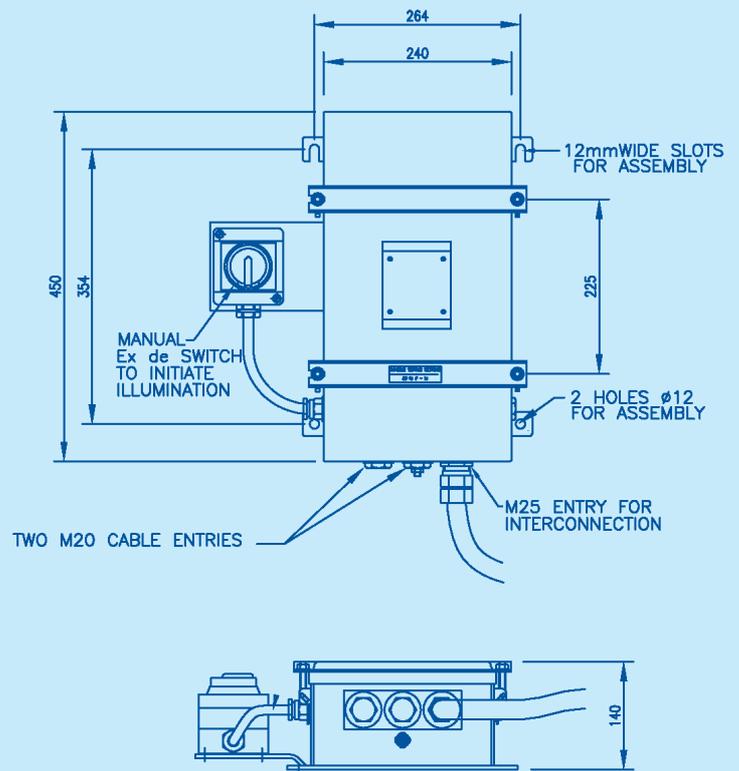
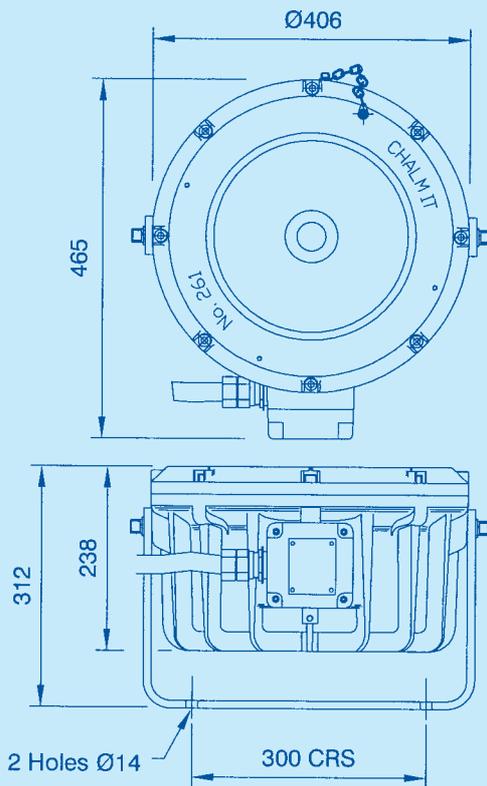
Standard catalogue number incorporates both floodlight and box.

### 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

### Applications

- Muster stations • Boat landing areas
- Lifeboat stations • Overside lighting



### 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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

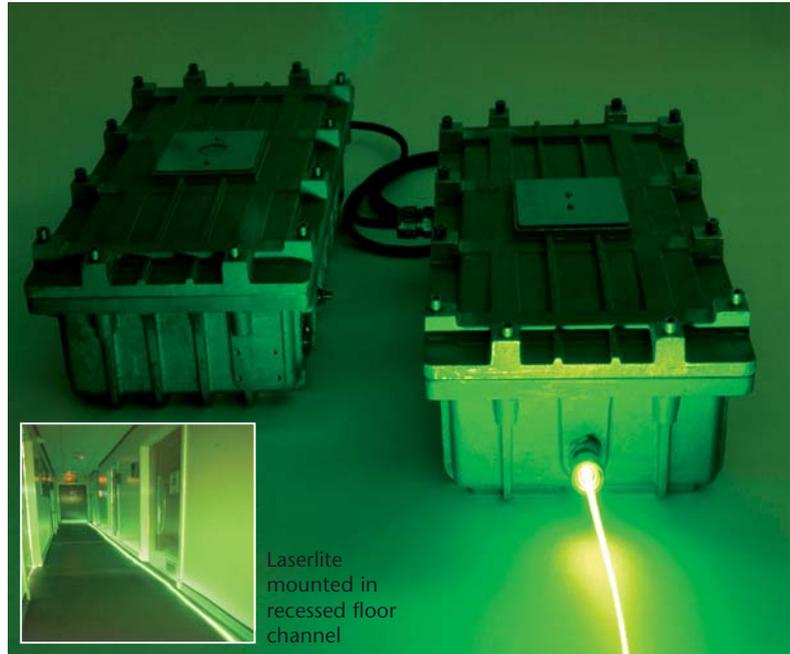
Laserlite utilises the latest side emitting fibre technology with light from a patented Diode pumped solid state laser to provide low level illumination.

Powered by a single, fully enclosed laser (Ex op), Laserlite provides a bright green light that is in the peak range for human eye response, thus it is visible even in the most adverse conditions including smoke filled locations. The design utilises side emitting fibre optics give a large continuous light source, allowing for a distance of over 200m to be illuminated.

This optical cabling system carries no electrical power only low levels of optical radiation, making it safe for use in a number of areas including Zone 0, Zone 1 and Zone 2 even corrosive environments or under water. This flexibility means that applications could be almost limitless.

The laser driver unit can be located in a Zone 1, Zone 2 or safe areas with a variety of enclosures available.

The driver is provided with an internal back up battery for use as an emergency system in the event of a power failure. As power consumption is low (less than 80W) large areas can be covered efficiently without the need for a UPS system or large battery packs.



Laserlite mounted in recessed floor channel

	Standard Specification	Features
Type of Protection	Ex d op is (Flameproof Inherently Safe optical radiation)	Emits green light at peak response frequency of human eye providing guidance along escape route
ATEX Classification	Group II Category 2 G	Over 200 metres of illumination from a single source
Area Classification	Zone 0 (fibre optic cable), Zone 1 and Zone 2 areas to EN 60079-10 with installation to EN 60079-14	Fibre rope suitable for use in Zone 0 applications
Apparatus Standard	EN 60079-0 EN 60079-1 EN 60079-28	Control housing suitable for Zone 1
Certificate	Pending	Environmentally friendly Nickel Metal Hydride batteries, charging and discharging is digitally monitored and controlled to provide long battery life and the maximum duration possible
Coding	Ex d op is IIB T4 Tamb 35°C	Fully complies with IEC & CENELEC standard 60079-28: Protection of Equipment and Transmission Systems using Optical Radiation
Enclosure	Aluminium alloy LM6 to BS 1490. All fastenings stainless steel.	
Entry	2 x M20 cable entries for mains supply 1 x M20 for interconnection	
Termination	3 core 6mm <sup>2</sup> max conductor with looping for mains supply	
Installation	Flat straps or via M8 bosses on rear (Enclosure) Fibre Optic - accessories	
Control Gear	Electronic	
Ingress Protection	IP66/67	
Electrical Supply	110-254V 50/60Hz	
Battery	NiMH	
Emergency Duration	90 minutes	

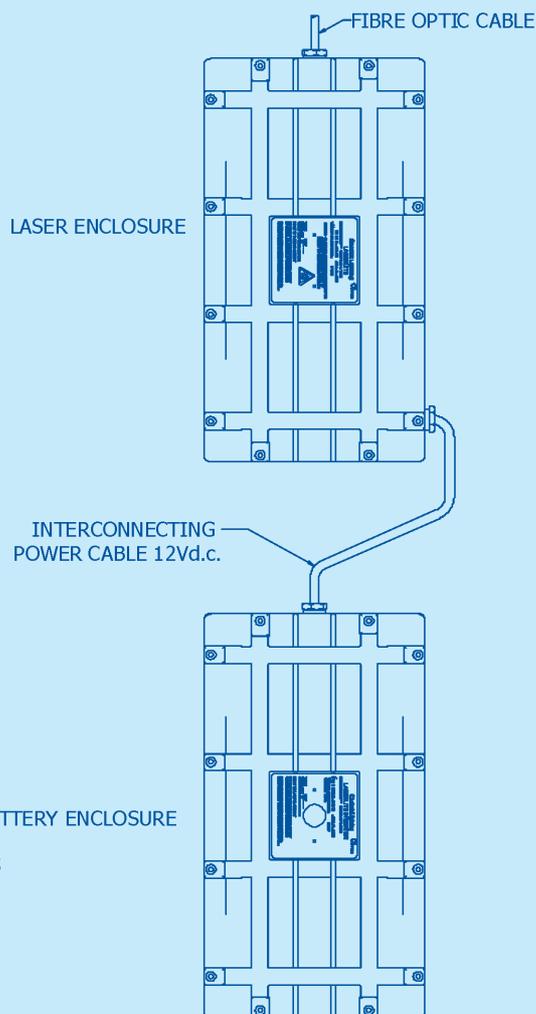
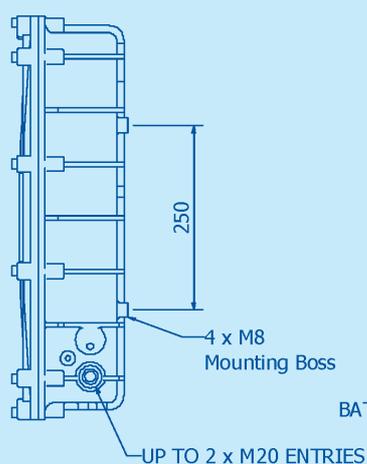
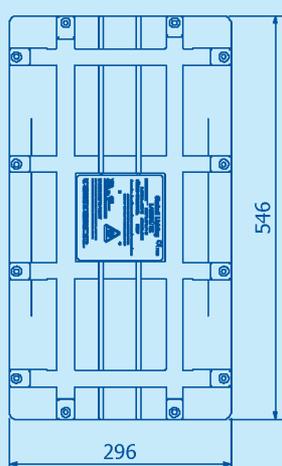
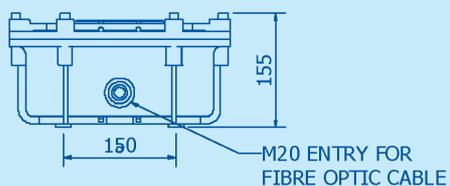
Std. Cat No.	Wattage	Weight
LASD/532/LA	60W	21Kg
LASD/532/LA/EM	100W	42Kg

**Accessories** (Should be ordered separately)

Contact Sales for information

### Applications

- Emergency escape route lighting
- Walkway & Spider Deck lighting
- Obstruction lighting
- Sub-sea riser and underwater illumination
- Perimeter and structural lighting
- Suitable for handrail, stair tread or floor installation



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

The flameproof, increased safety design provides hazardous area protection suitable for use in Zone 1 areas. Available as a standard bulkhead or recessible option, the NexLED offers a compact and versatile solution for many applications. The enclosure is manufactured from corrosion resistant marine grade aluminium with a toughened glass cover, as such it is ideally suited for use in environments where the luminaire is exposed to high levels of dust and moisture. Stainless steel fixings and a silicon rubber gasket further ensure the NexLED's rugged design.

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 luminaire is simple to install, easy to maintain and very 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

### Features

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 <sup>2</sup> max conductor with looping
Installation	Surface mounted, 4 mounting holes located outside of seal
Lamp Type	2 x 1W light emitting diodes. Colour: white 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	110-130V AC 220-240V AC

Highly visible, instant light

Zone 1 & Zone 2 versions available

Easy to install and maintain

Ultra long life,  
no relamping required

Very low power consumption

GOST Approval (pending)

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

ZONE 2 version (NELN/\_\_\_\_\_) available.

Contact sales for information.

### Options - Suffix to Catalogue No.

/R Recessed version



(European Signs Directive Format, as shown)

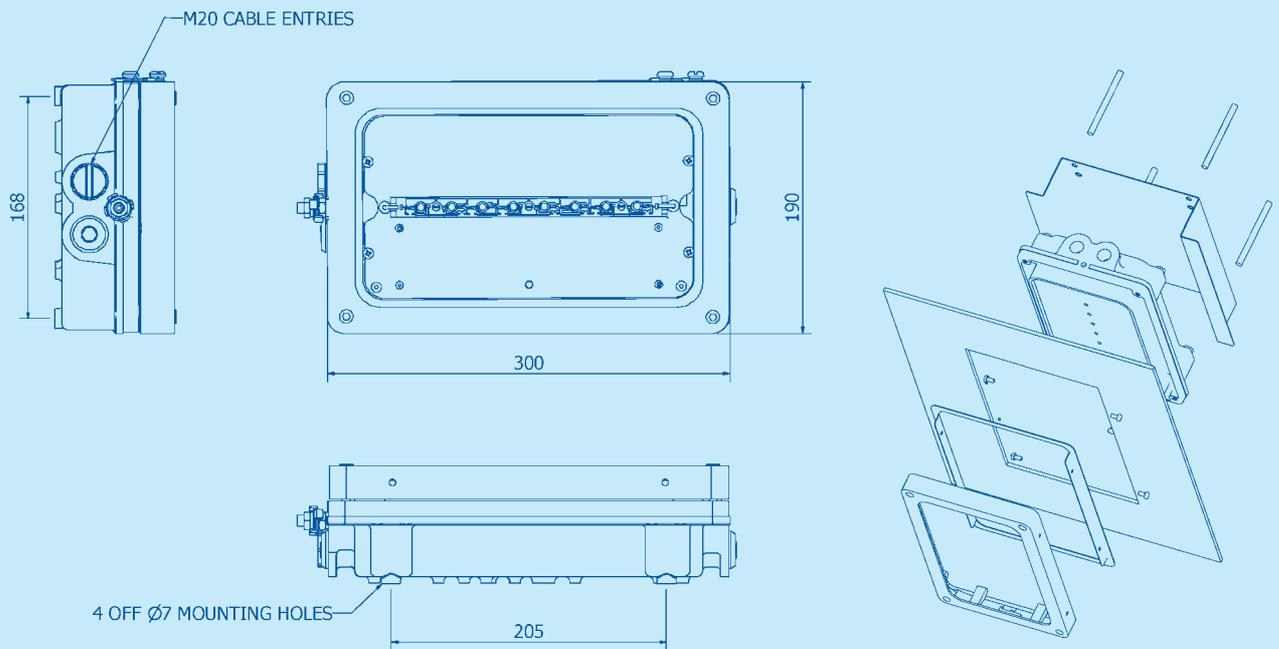
NexLED 2 x 1 Watt with Legend Kit  
Side Emitter LED's provide diffuse light for signs

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

For use with self adhesive legend kit assembly

### Applications

Harsh and low temperature environments • Localised lighting, low level lighting  
Stairwells, gantry and walkways • Process skids, cable tray areas • Marine void spaces with low overheads  
Paint and solvent storage rooms • Gas Pumping stations



Recessed version

**Accessories** (Should be ordered separately)

**Catalogue Order Code**

Green exit sign kit (4 labels - up,down,left and right)

**SNEL1-0001**

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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 is increased safety, encapsulated.

Bulkheads offer a compact and versatile solution for many applications, especially in exposed conditions with 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 two or eight low power LED's making the NexLED an efficient luminaire for both mains and emergency mode operation from the backup battery. The use of LED technology means that light output in emergency mode is identical to mains operation, lamps switch off for one second when the mains fail then restart to indicate battery operation.

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 up to 50000 hours eliminating relamping in many applications. This new lamp technology emits no heat forward, no ultra violet light, is mercury free and is not susceptible to vibration. Suitable for a wide range of ambient temperatures from -45°C to +55°C with light output unaffected by low temperatures. Where emergency lighting is required in ambient temperatures below -5°C the NexLED is available with a heated battery compartment which maintains the batteries at the required temperature to sustain emergency duration.



### Standard Specification

### Features

Type of Protection	Ex e ib mb (Increased Safety, Intrinsically Safe Encapsulated) 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 Group II to EN 60079-14
Apparatus Standard	EN 60079-0, EN 60079-7, EN 60079-11, EN60079-18 and EN 50281-1-1
Certificate	EC Type Examination Certificate Baseefa04ATEX0245
Coding	Ⓔ II 2G Ex e ib mb IIC T4 (Tamb = -20°C to +55°C Ⓔ II 2G T100°C)
Enclosure	Cast aluminium with toughened glass and silicone gasket
Reflector	Brushed aluminium
Entry	2 x M20 cable entries
Termination	4 core 6mm max conductor with looping
Installation	Surface mounted, 4 mounting holes located outside of seal
Lamp Type	2 x 1W light emitting diodes or 8 x 1W light emitting diodes. Colour: white
Control Gear	Electronic
Burning Position	Universal
Ingress Protection	IP66/67 to EN 60529
Emergency Duration	8W version - 90 minutes 2W version - 3 hours
Electrical Supply	110-254V AC/DC

Highly visible, instant light

Zone 1 & Zone 2 versions available

Easy to install and maintain

Ultra long life, no relamping required

Very low power consumption

100% output in emergency mode (Up to 3 hours)

Rechargeable Ni-Cd batteries with charging indication

Compatible with UPS systems

GOST Approval (pending)

Std. Cat No.	Wattage	Lamp	TClass	T°C (Dust)	Ambient °C	Weight
NELE/201/LE/EM	2W	Light Emitting Diode	T4	100	-20 to 55	4.0kg
NELE/801/LE/EM	8W	Light Emitting Diode	T4	100	-20 to 55	4.1kg

**Options - Suffix to Catalogue No.**

- /R Recessed version
- /LT Low temperature -45 to 55°C



(European Signs Directive Format, as shown)

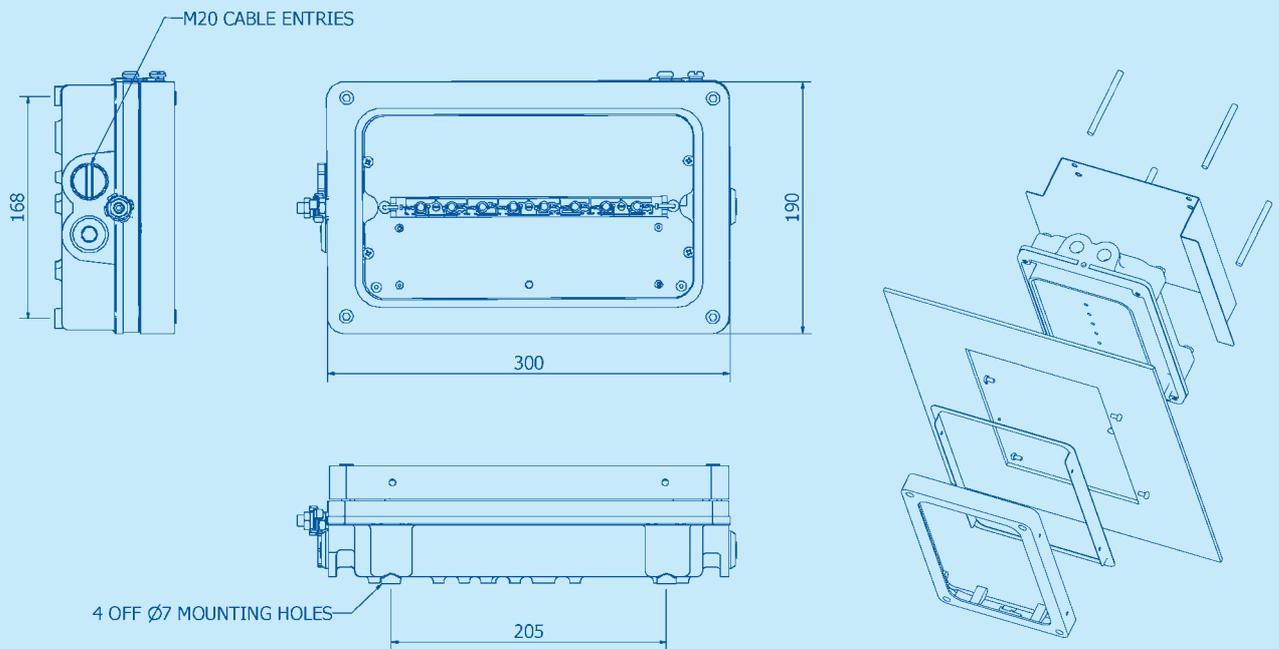
NexLED 2 x 1 Watt with Legend Kit  
Side Emitter LED's provide diffuse light for signs

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

For use with self adhesive legend kit assembly

**Applications**

Harsh and low temperature environments • Localised lighting, low level lighting  
Stairwells, gantry and walkways • Process skids, cable tray areas • Marine void spaces with low overheads  
Paint and solvent storage rooms • Gas Pumping stations



Recessed version

**Accessories** (Should be ordered separately)

**Catalogue Order Code**

Exit legend kit assembly (4 labels - up, down, left and right)

**SNEL1-0001**

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

## 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

### Features

Type of Protection	Ex dem (Increased Safety, Flameproof, Encapsulated) 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 50281-2 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	Marine grade stainless steel with silicone rubber gasket
Entry	3 x M20 cable entries
Termination	3 core 6mm <sup>2</sup> 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, 120V 50-60Hz 500VA - Transformer box version

Marine 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

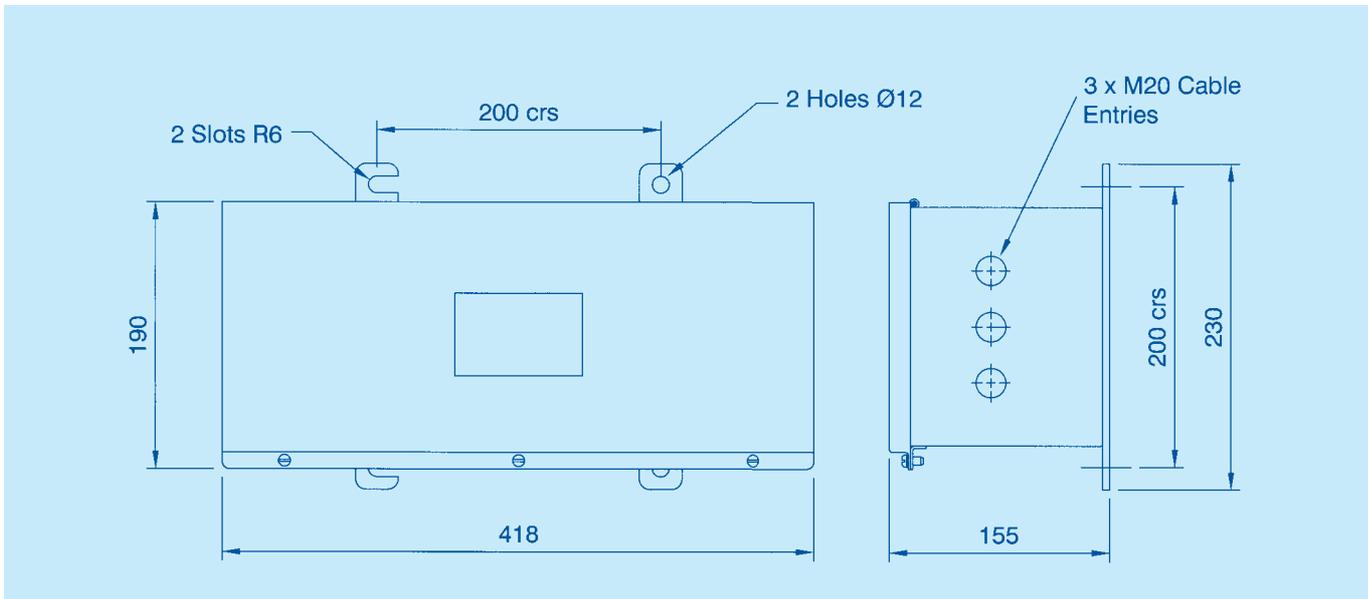
Std. Cat No.	Wattage	Lamp	T Class (Gas)	T°C (Dust)	Ambient°C	Weight
UNIE/150/HS	150W	HPS/Metal Halide	T4	110	45	10.5kg
			T3	120	55	10.5kg
UNIE/250/MS	250W	HPS/Metal Halide	T4	110	45	11.5kg
			T3	120	55	10.5kg
UNIE/400/MS	400W	HPS/Metal Halide	T4	120	55	12.0kg
UNIE/600/HS	600W	HPS	T4	115	45	14.0kg
			T3	125	55	10.5kg
UNIE/500/TF	500VA	Transformer	T4	105	35	11.0kg
			T3	115	55	10.5kg
UNIE/1000/TF	1000VA	Transformer	T4	105	35	11.5kg
			T3	115	55	11.0kg

### Options - Suffix to Catalogue No.

- /\_\_\_ Specific voltage (254)
- /60 60Hz
- /M25 M25 Entries
- /MF Mains Fuse
- /3P 3 Phase termination

**Applications**

Zone 1 and 2 hazardous areas  
Areas of both high and low ambient  
For use where control gear has to be remote from luminaire



Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

The Sterling II 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 with IP65 sealing for ignitable gas and dust applications. A dust only version is also available.

The Sterling II is certified under the ATEX 94-9-EC directive for Categories 3 G and 3 D. The range is suitable for T8 tubular fluorescent lamps in 18/38/58W sizes. Electronic high frequency control gear is fitted as standard, conventional low loss control gear with electronic start is also available as an option.



	Standard Specification	Features
Type of Protection	Ex nA (Non-sparking) Dust protected enclosure	Robust product using polycarbonate diffuser with stainless steel clips as standard
ATEX Classification	Group II Category 3 G D	Stainless steel diffuser clips 3 per side on 18W, 4 on 36W & 5 on 58W
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	Through wiring as standard
Certificate	EC Type Examination Certificate Sira 06ATEX4191	High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output.
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	Lamp options 18W, 36W and 58W single and twin
Reflector	White polyester painted zinc coated steel	H.F. electronic control gear
Entry	2 x 20mm diameter holes	
Termination	3 core 4mm <sup>2</sup> max. conductor with through wiring 16A rating	Simple to install and maintain
Installation	Two clearance holes for M8 fasteners located on rear of body, sealing washers provided	Lightweight and slim line construction
Lampholder	G13 (Bi-pin)	
Lamp Type	T8 tubular fluorescent	
Control Gear	High Frequency ballast	
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, 254V 50Hz (Other voltage and frequencies available)	

Std. Cat No.	Wattage	T Class(Gas)	T°C (Dust)	Ambient °C	Weight
STGN/118/BI*	1x18W	T4	95	45	2.2kg
STGN/218/BI	2x18W	T4	95	45	3.3kg
STGN/136/BI*	1x36W	T4	95	50	3.0kg
STGN/236/BI	2x36W	T4	95	50	4.5kg
STGN/158/BI*	1x58W	T4	95	40	4.0kg
STGN/258/BI	2x58W	T4	95	35	6.5kg

\*Single lamp in twin body

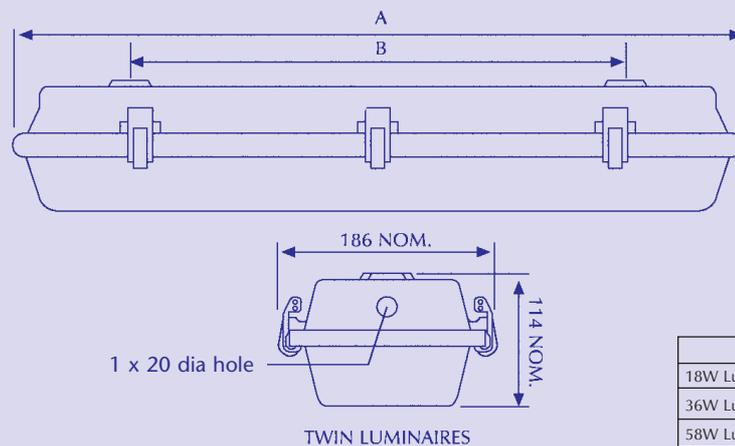
Dust only version (STGU/\_\_\_) available. Contact sales for information.

### 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 45°C for 18W, Tamb 50°C for 36 and 58W (copper and iron versions)
- /EL Extra live termination (compatible with 4-core switched emergency circuits)

### Applications

Zone 2 hazardous areas  
 Zone 22 hazardous dust environments  
 Oil, gas and petrochemical industries  
 Distilleries  
 Water pumping stations  
 Sewage treatment works  
 Agriculture  
 Food industries



	Dim.'A'	DIM.'B'
18W Luminaires	702	500
36W Luminaires	1312	800
58W Luminaires	1612	1100

### 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 SSTGN-1008)	NPRO4-0008
36W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0012
58W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0022

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

# STERLING II E EMERGENCY LIGHTING

## Ex n FLUORESCENT

66

The Sterling II 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 with IP65 sealing for ignitable gas and dust applications. A dust only version is also available.

The Sterling II is certified under the ATEX 94-9-EC directive for Categories 3 G and 3 D. The range is suitable for T8 tubular fluorescent lamps in 18/38/58W sizes. Electronic high frequency control gear is fitted as standard, conventional low loss control gear with electronic start is also available as an option.



### Standard Specification

### Features

Type of Protection  
ATEX Classification  
Area Classification

**Ex nA (Non-sparking) Dust protected enclosure  
Group II Category 3 G D  
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**

Polycarbonate diffuser

Apparatus Standard  
Certificate

**EN 50021 EN 50281-1-1  
EC Type Examination Certificate  
Sira 06ATEX4191**

Through wiring as standard

Coding

**⊕ II 3 G D EEx nA II (refer to table for T  
rating and Ambient)**

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

Enclosure

**GRP with polycarbonate diffuser and stainless  
steel retaining clips**

Long life nickel cadmium  
batteries

Reflector  
Entry  
Termination

**White polyester painted zinc coated steel  
2 x 20mm diameter holes, 1 at each end  
4 core 4mm<sup>2</sup> max. conductor with through  
wiring 16A rating**

Switchable mains supply for  
local operation

Installation

**Two clearance holes for M8 fasteners located  
on rear of body, sealing washers provided**

LED charge indicator

Lampholder  
Lamp Type  
Control Gear

**G13 (Bi-pin)  
T8 tubular fluorescent  
High Frequency ballast, electronic charger/  
inverter housed in sealed enclosure,  
Ni-cd batteries**

Relamping

**Access via front diffuser secured by quick  
release stainless steel clips**

Burning Position  
Ingress Protection  
Electrical Supply

**Universal  
IP65 to EN 60529  
220-240V 50/60Hz, 254V 50Hz  
(Other voltage and frequencies available)**

Battery Duration  
Emergency Output

**Ni-Cd battery 6V 4Ah 5 cell  
3 hours  
36W 10% of one lamp  
58W 8% of one lamp**

Std. Cat No.	Previously	Wattage	T Class (Gas)	T °C (Dust)	Ambient °C	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	150°C T3	95	35	8.1kg

Note: \*Single lamp in twin body.

\*\* Available as non maintained

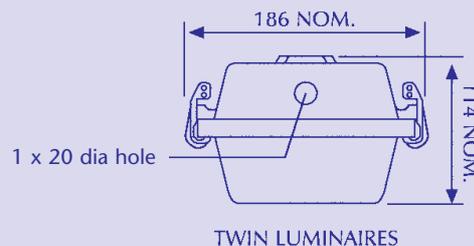
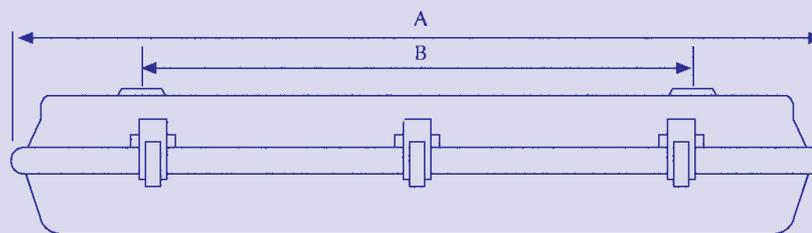
Dust only version (STGU/\_\_\_) available. Contact sales for information.

### Options - Suffix to Catalogue No.

- /MF Mains Fuse
- /NM Non Maintained  
(Single lamp version only)

### Applications

- Zone 2 hazardous areas • Petrochemical process areas
- Sewage treatment plants • Explosive storage buildings
- Pharmaceutical industry • Tunnel lighting
- Harsh industrial environments



TWIN LUMINAIRES

	Dim.'A'	DIM.'B'
18W Luminaires	702	500
36W Luminaires	1312	800
58W Luminaires	1612	1100

### Accessories (Should be ordered separately)

### Catalogue Order Code

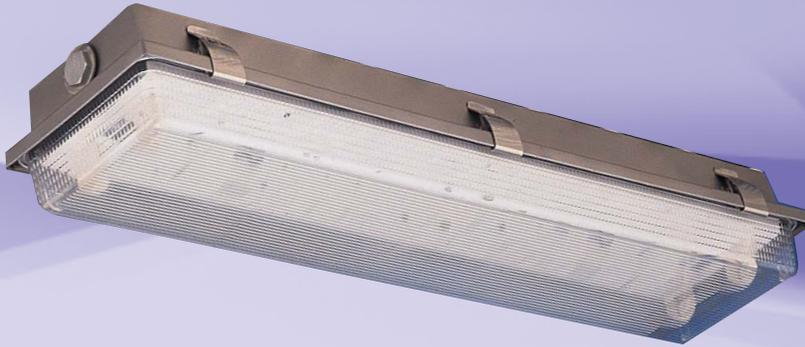
Offset ceiling bracket assembly	SSTGN-1006
Pole mounting bracket assembly (38/50 diameter poles)	SSTGN-1008
C' form hook type ceiling bracket assembly	SSTGN-0007
Flush mounted wall bracket assembly	SSTGN-0006
18W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0008
36W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0012
58W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0022

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

The stainless steel 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 Sterling is certified under the ATEX 94-9-EC directive for Categories 3 G and 3 D. The range is suitable for T8 tubular fluorescent lamps in 18/38/58W sizes. Electronic high frequency control gear is fitted as standard, conventional low loss control gear with electronic start is also available as an option.



	Standard Specification	Features
Type of Protection ATEX Classification Area Classification	<b>Ex nA (Non-sparking) Dust protected enclosure Group II Category 3 G D 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</b>	Marine grade stainless steel body and polycarbonate diffuser
Apparatus Standard Certificate	<b>EN 50021 EN 50281-1-1 EC Type Examination Certificate BAS01ATEX3052X</b>	3 clips per side on 18W, 4 on 36W and 5 on 58W
Coding	<b>⊕ II 3 G D EEx nA II (refer to table for T rating and Ambient)</b>	Mains connection terminals fixed to body
Enclosure	<b>Marine grade stainless steel body with polycarbonate diffuser and stainless steel retaining clips</b>	Gear tray suspended and fitted with control gear for ease of maintenance
Reflector Entry	<b>White polyester painted zinc coated steel 3 x 20mm diameter holes, 2 at one end and 1 at the other end</b>	High frequency control gear gives 50/60Hz operation, high power factor correction and regulation of lamp output.
Termination	<b>3 core 4mm<sup>2</sup> max. conductor with looping and through wiring 16A rating</b>	
Installation	<b>Two clearance holes for M8 fasteners located on rear of body, sealing washers provided</b>	
Lampholder Lamp Type	<b>G13 (Bi-pin) T8 tubular fluorescent</b>	
Control Gear	<b>High Frequency ballast housed within sealed enclosure</b>	
Relamping	<b>Access via front diffuser secured by quick release stainless steel clips</b>	
Burning Position	<b>Universal</b>	
Ingress Protection	<b>IP65 to EN 60529</b>	
Electrical Supply	<b>220-240V 50/60Hz, 254V 50Hz (Other voltage and frequencies available)</b>	

Std. Cat No.	Wattage	T Class (Gas)	T°C (Dust)	Ambient °C	Weight
STSN/118/BI*	1x18W	T4	95	45	4.2kg
STSN/218/BI	2x18W	T4	95	45	3.6kg
STSN/136/BI*	1x36W	T4	95	50	4.2kg
STSN/236/BI	2x36W	T4	95	50	4.8kg
STSN/158/BI*	1x58W	T4	95	40	6.1kg
STSN/258/BI	2x58W	T4	95	35	6.5kg

\* Single lamp versions are in twin bodies.

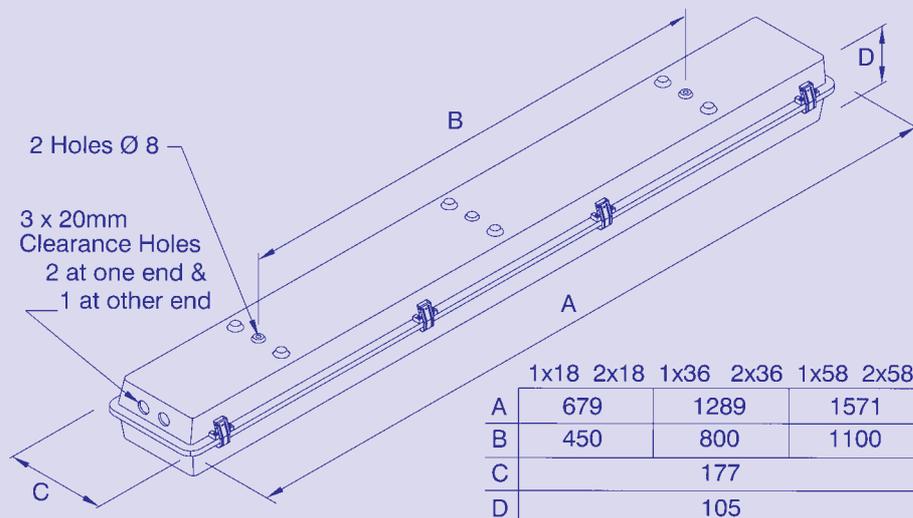
Dust only version (STSU/\_\_\_) available. Contact sales for information.

### 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)

### Applications

- Zone 2 hazardous areas
- Harsh and corrosive environments
- Petrochemical process areas
- Pharmaceutical industry
- Tunnel lighting
- Sewage treatment plants
- Distilleries
- Walkways



### 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 SSTGN-1008)	NPRO4-0008
36W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0012
58W wall mounting outreach bracket (use with SSTGN-1008)	NPRO4-0022

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

# STERLING E

## STAINLESS

# EMERGENCY LIGHTING

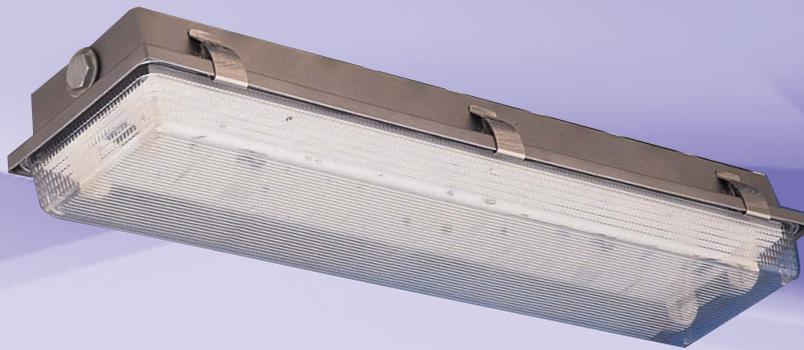
## Ex n FLUORESCENT

70

The Sterling stainless emergency is a robust quality luminaire designed to provide instant glare free white light at low mounting heights. The stainless steel 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 with IP65 sealing for ignitable gas and dust applications. A dust only version is also available.

The Sterling is certified under the ATEX 94-9-EC directive for Categories 3 G and 3 D. The range is suitable for T8 tubular fluorescent lamps in 18/38/58W sizes. Electronic high frequency control gear is fitted as standard, conventional low loss control gear with electronic start is also available as an option.



### Standard Specification

### Features

Type of Protection  
ATEX Classification  
Area Classification

**Ex nA (Non-sparking) Dust protected enclosure  
Group II Category 3 G D  
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**

Marine grade stainless steel body and  
polycarbonate diffuser

Apparatus Standard  
Certificate

**EN 50021 EN 50281-1-1  
EC Type Examination Certificate  
BAS01ATEX3052X**

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

Coding

**⊕ II 3 G D EEx nA II (refer to table for T  
rating and Ambient)**

Mains connection terminals  
fixed to body

Enclosure

**Marine grade stainless steel body with  
polycarbonate diffuser and stainless steel  
retaining clips**

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

Reflector  
Entry

**White polyester painted zinc coated steel  
3 x 20mm diameter holes, 2 at one end  
and 1 at the other end**

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

Termination

**4 core 4mm<sup>2</sup> max. conductor with looping and  
through wiring 16A rating**

Long life nickel cadmium  
batteries

Installation

**Two clearance holes for M8 fasteners located  
on rear of body, sealing washers provided**

Switchable mains supply for local operation

Lampholder  
Lamp Type  
Control Gear

**G13 (Bi-pin)  
T8 tubular fluorescent  
High Frequency ballast housed within sealed  
enclosure, electronic charger/inverter housed  
in sealed enclosure, Ni-Cd batteries**

LED charge indicator

Relamping

**Access via front diffuser secured by quick  
release stainless steel clips**

Burning Position  
Ingress Protection  
Electrical Supply  
Battery  
Duration  
Emergency Output

**Universal  
IP65 to EN 60529  
220-240V 50-60Hz, 254V 50Hz  
Ni-Cd battery 6V 4Ah 5 cell  
3 hours  
36W 10% of one lamp, 58W 8% of one lamp**

Std. Cat No.	Wattage	T Class (Gas)	T °C (Dust)	Ambient °C	Weight
STSN/136/BI/EM*	1x36W	T4	95	45	6.6kg
STSN/236/BI/EM	2x36W	T4	95	45	8.2kg
STSN/158/BI/EM*	1x58W	T4	95	35	7.2kg
STSN/258/BI/EM	2x58W	150°C T3	95	35	9.1kg

\* Single lamp versions are in twin bodies.

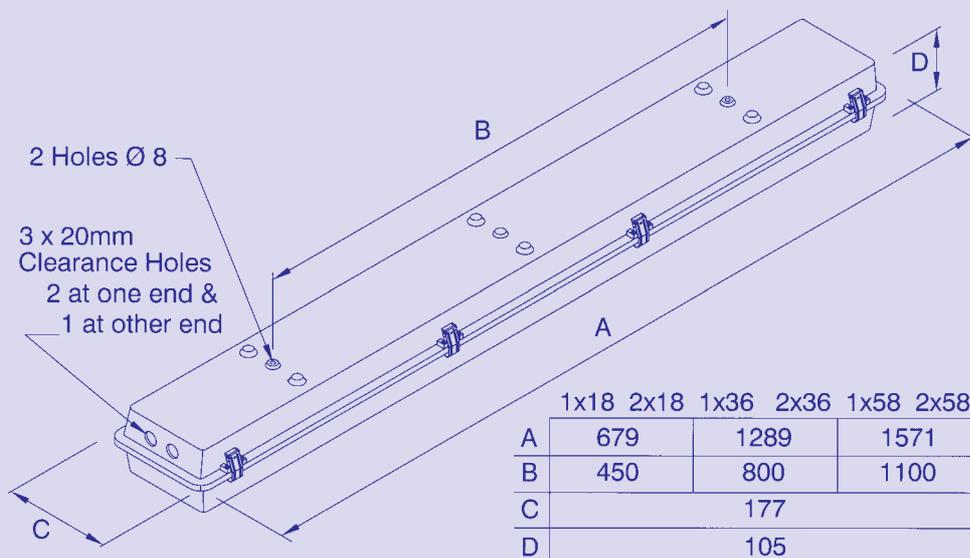
Dust only version (STSU/\_\_\_) available. Contact sales for information.

### 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

### Applications

- Zone 2 hazardous areas
- Harsh and corrosive environments
- Petrochemical process areas
- Pharmaceutical industry
- Tunnel lighting
- Sewage treatment plants
- Distilleries • Walkways



### 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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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 and 36W 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 with IP66/67 sealing for ignitable gas and dust applications. The Protecta is certified under the ATEX 94-9-EC directive for Categories 3 G and 3 D.

Easy 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

### Features

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 Coding	EC Type Examination Certificate BAS01ATEX3276 Ⓔ 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 Termination	4 x M20 cable entries, 2 at each end 3 core 6mm <sup>2</sup> 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
Duration	3 hours
Emergency Output	10% of one lamp

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

Std. Cat No.	Wattage	T Class (Gas)	T°C (Dust)	Ambient °C	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/136/BI/EM	1x36W	T4*	95	50	12.2kg
PRGN/236/BI/EM	2x36W	T4*	95	50	12.6kg

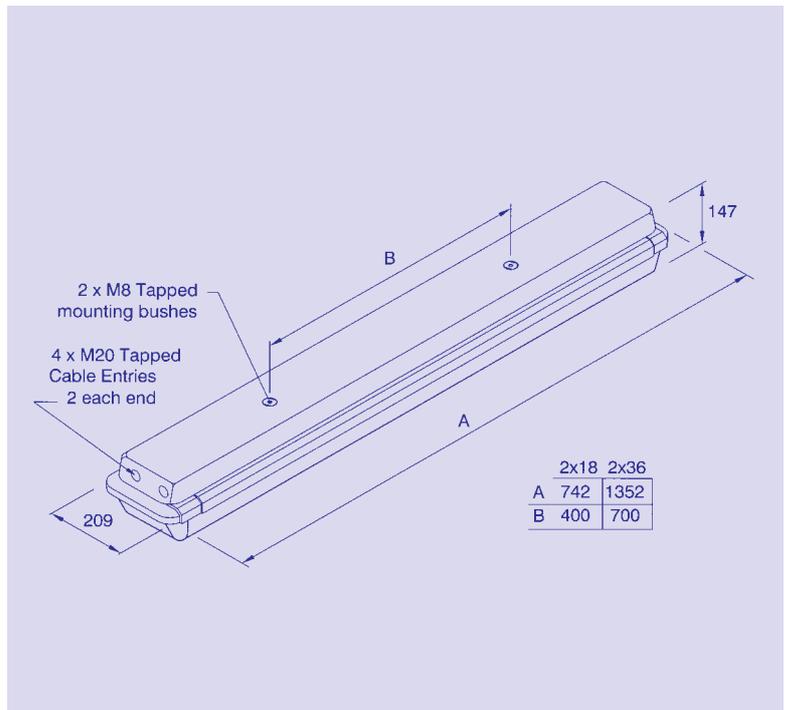
\* T class and ambients vary for copper and iron control gear. Contact Chalmit sales for details.

### 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)

### Applications

- Zone 2 hazardous areas
- Petrochemical process areas
- Sewage treatment plants
- Process skid manufacturing
- Distilleries
- Gantry and walkway lighting



### 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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

The three asymmetrical floodlights in the 800 series range provide the best lighting solution where the objective is to ensure the least number of floodlights, with a low profile and light weight. The range is designed to withstand exposure to very hostile and corrosive environments.

The compact construction offers low wind resistance which is advantageous for high mast design and the many mounting options enables most floodlighting applications to be accommodated.

The 800 series provides asymmetrical light beam distribution enabling areas to be lit more effectively and efficiently.

The asymmetric reflector design enables the light beam to be thrown forward for long distance lighting and concurrently assuring that the lighting below the pole or mounting location is also effectively lit without having to tilt the floodlight at high aiming angles.

The typical tilting angle of the floodlight can therefore be kept at 0° or to a maximum tilt angle of 20°. This allows a higher Utilization Factor for the floodlighting scheme to be achieved with reduced glare and light pollution, when compared to a conventional symmetrical floodlight.



### Standard Specification

### Features

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

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

### Applications

- Zone 2 hazardous areas
- Harsh and corrosive environments
- Offshore oil and gas platforms
- FPSO's and FSO's vessels
- Petrochemical industry • Tank farms
- Security and perimeter lighting
- Jetty lighting • Distilleries

Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	Weight
844N/070/HS	70W	HPS	E27	150°C T3 T4	50 40	12.0kg
854N/100/HS	100W	HPS	E40	T4	55	18.0kg
854N/150/HS	150W	HPS	E40	T3 T4	55 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 T2	45 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) 40 (MH)	21kg
<b>110/120V Cat Nos.</b>						
864N/150/HS**	150W	HPS	E40	E40	55	23.0kg
864N/250/HS/120**	250W	HPS	E40	E40	55	23.0kg
864N/400/HS/120***	400W	HPS	E40	E40	55	23.0kg
<b>Quad Tapped Ballast Nos.</b>						
864N/150/HS/TAP/CSA	150W	HPS	E40	E40	55	23.0kg
864N/250/HS/TAP/CSA	250W	HPS	E40	E40	55	23.0kg
864N/400/HS/TAP/CSA	400W	HPS	E40	E40	55	23.0kg

For Metal Halide replace /HS with /MH

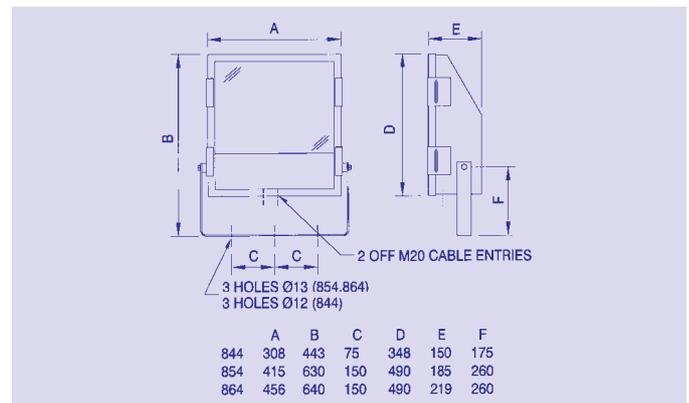
\* Ignitor only fitted. Remote gear box required (see Universal Box)

\*\* c/w IEC control gear 110/120V supply.

\*\*\* 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



**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

The Micronex and Maxinex range provide the best lighting solution where the objective is to ensure the minimum number of floodlights, combined with a low profile and light weight design.

Like the 800 series, the compact construction offers low wind resistance which is advantageous for high mast design and the many mounting options and high level of IP protection ensures most floodlighting applications can be accommodated.

The asymmetric reflector design enables the light beam to be thrown forward for long distance lighting and concurrently assuring that the lighting below the pole or mounting location is also effectively lit without having to tilt the floodlight at high aiming angles.

The typical tilting angle of the floodlight can therefore be kept at 0° or to a maximum tilt angle of 20°. This allows a higher Utilization Factor for the floodlighting scheme to be achieved with reduced glare and light pollution, when compared to a conventional symmetrical floodlight.



## Standard Specification

## Features

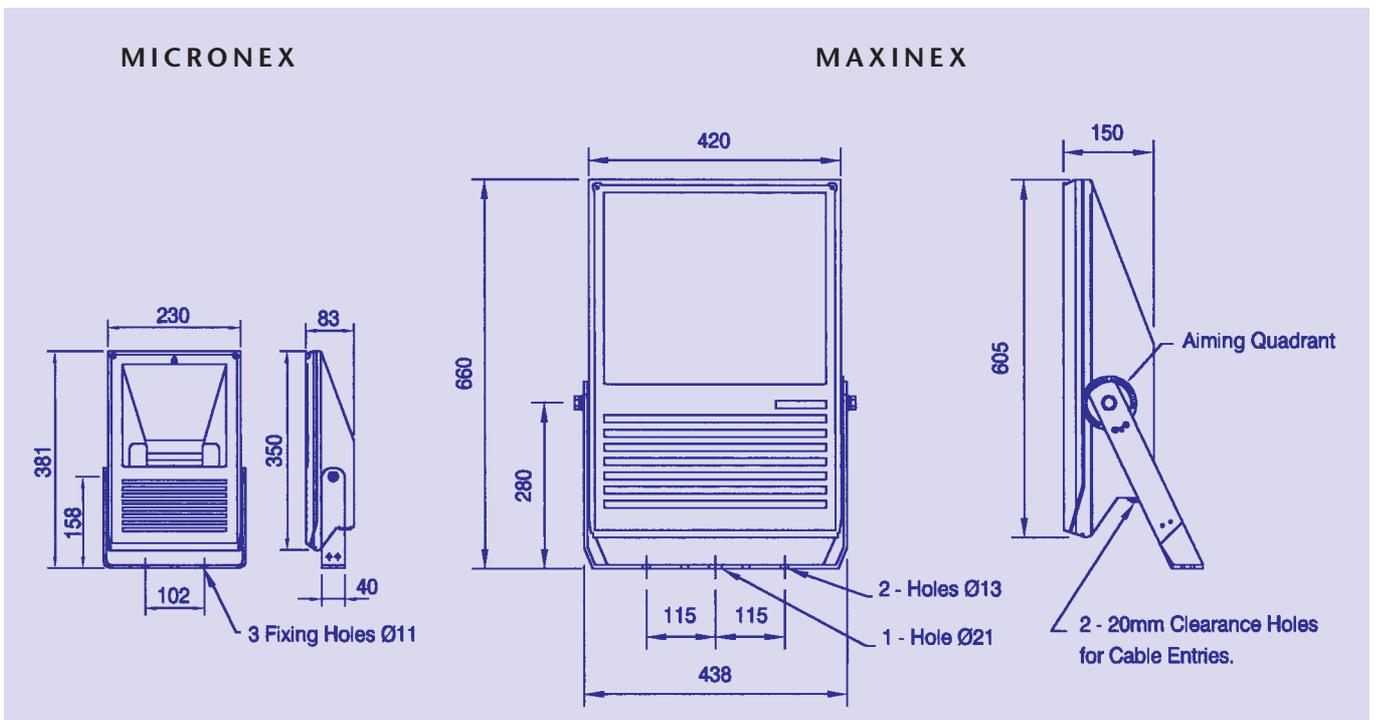
Type of Protection	<b>Ex nR (Restricted Breathing)</b>
ATEX Classification	<b>Group II Category 3 G</b>
Area Classification	<b>Zone 2 areas to EN 60079-10 with installation to EN 60079-14</b>
Apparatus Standard	<b>EN 50021</b>
Certificate	<b>Maxinex: EC Type Examination Certificate BAS97ATEX4368 Micronex: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

Lightweight
High corrosion resistance
All stainless steel fasteners
Hinged front cover for easy access
High efficiency asymmetric reflector design
Low windage of 0.08m <sup>2</sup> (Micronex) and 0.25m <sup>2</sup> (Maxinex)
Choice of metal halide or high pressure sodium lamps
Suitable for low temperature applications
GOST Approved
CEPEL Approved (Maxinex only)

Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	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	45 (HPS)	18.5kg
				T3	30 (MH)	

**Options - Suffix to Catalogue No.**

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



**Applications**

**Micronex**

- Zone 2 hazardous areas
- Directional control lighting at low mounting heights
- Perimeter lighting • Loading areas
- Sewage treatment plants • Security lighting
- Gas pumping stations • Distilleries

**Maxinex**

- Zone 2 hazardous areas
- Low temperature environments
- Petrochemical plants • Tank farms
- Drum storage areas • Gas pumping stations
- Perimeter lighting • Distilleries
- Security lighting

Accessories (Should be ordered separately)

Catalogue Order Code

Pole mounting bracket - Micronex

SMIC1-0001

Pole mounting bracket - Maxinex

SMAX1-0001

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

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

The Nexxus features improved light output with the use of a new reflector. This gives a 20% increase in photometric performance.



Nexxus with shroud kit

### Standard Specification

### Features

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

Improved light output
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

Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	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	150°C T3	25	6.5kg
NEXN/160/MB	160W	MBTF	E27	T3	30	5.0kg
NEXN/113/CF	1x13W	CFL	G24q	T5	50	5.5kg
NEXN/118/CF	1x18W	CFL	G24q	T5	50	5.5kg
NEXN/126/CF	1x26W	CFL	G24q	T5	50	5.5kg
NEXN/213/CF	2x13W	CFL	G24q	T5	30	6.0kg
NEXN/218/CF	2x18W	CFL	G24q	T5	30	6.0kg
NEXN/226/CF	2x26W	CFL	G24q	T5	30	6.0kg
NEXN/200/GL	200W max	GLS	E27	150°C T3	30**	5.0kg
NEXN/050/HS/NC*	50W	HPS	E27	150°C T3	50	6.5kg
NEXN/070/MS/NC*	70W	HPS/Metal Halide	E27	150°C T3	50	7.0kg
NEXN/080/MV/NC*	80W	Mercury Vapour	E27	150°C T3	35	6.5kg
NEXN/100/HS/NC*	100W	HPS	E27	T3	40	7.5kg

\*No power factor correction capacitors fitted.

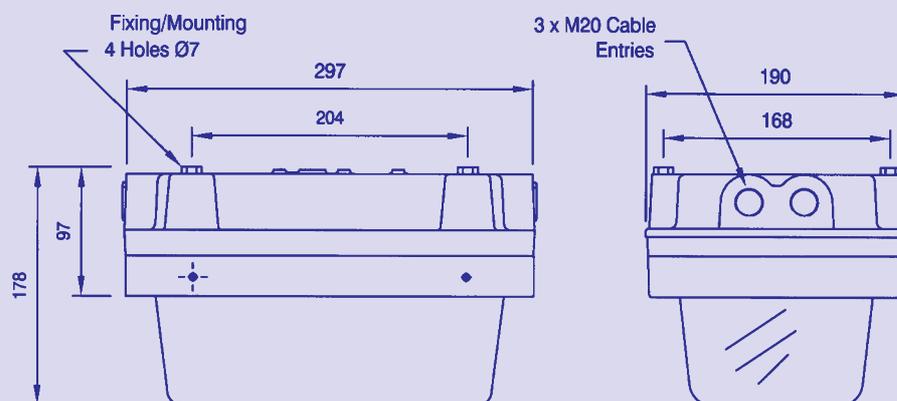
\*\*Other 'T' ratings and ambients available for lower wattages. Contact sales for details.

### Options - Suffix to Catalogue No.

- /\_\_\_ Specific voltage (254)
- /60 60Hz
- /TI Timed cut out ignitor
- /MF Mains fuse
- /S Shroud kit

### Applications

- Zone 2 hazardous areas
- Harsh and low temperature environments
- Localised lighting
- Stairwells • Gantry and walkway lighting
- Process skid manufacturing
- Tunnel lighting • Cable tray areas
- Gas pumping stations
- Paint and solvent storage rooms
- Distilleries



Accessories (Should be ordered separately)

Catalogue Order Code

Wire Guard

SNEX1-0001

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

### Features

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	EC 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 6mm <sup>2</sup> 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 25° off vertical
Ingress Protection	IP66 to EN 60529
Electrical Supply	220, 230, 240, 254V 50Hz - 70 & 80W (HID) 220, 230, 240V 50Hz - 50, 100 & 125W (HID) 240V 50Hz - CF, 250Vmax. 150W GLS

Compact size and low weight

Easy access for wiring and control gear

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

Corrosion resistant

Excellent light distribution

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

CEPEL Approved

GOST Approved

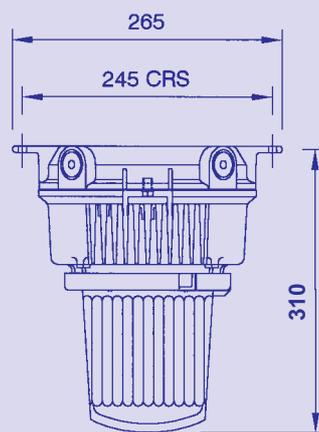
Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	Weight
ECJN/050/HS	50W	HPS	E27	T4	50	5.5kg
ECJN/070/MS	70W	HPS/Metal Halide	E27	T4	50	6.0kg
ECJN/080/MV	80W	MBFU	E27	T3	50	6.0kg
ECJN/125/MV	125W	MBFU	E27	T3	40	6.5kg
ECJN/113/CF	1x13W	CFL	G24q	T4	50	5.0kg
ECJN/118/CF	1x18W	CFL	G24q	T4	50	5.0kg
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.

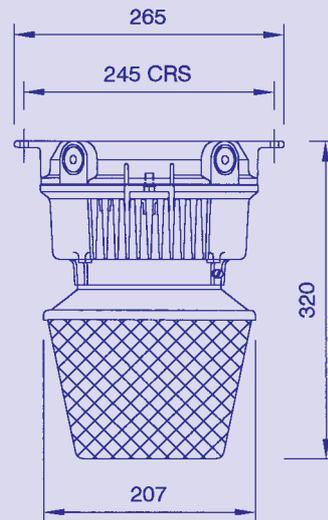
- /\_\_\_ Specific voltage (220,230,254)
- /60 60Hz
- /R Prismatic glass refractor
- /WM Wall mounted version
- /ST Stanchion mounted version
- /PE Pendant mounted version
- /NC No capacitors
- /D Zone 22 Dust applications

### Applications

- Zone 2 hazardous areas
- Low temperature environments
- Medium low bay lighting
- Gantry and walkway lighting
- Road tanker loading facilities
- Stairwells
- Meter reading areas
- Sewage treatment plants
- Distilleries



Glass Globe



Glass Refractor

### Accessories (Should be ordered separately)

### Catalogue Order Code

Cast Guard	CECJ7-0007
Dome Reflector	SECL0-0001
30° Angled Reflector	SECL0-0002
Guard for Glass Refractor	HECJ4-0001

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

### Features

Type of Protection	Ex nA nR(Non Sparking Restricted Breathing)
ATEX Classification	Group II Category 3G
Area Classification	Zone 2 areas to EN 60079-10 with installation to EN 60079-14
Apparatus Standard	EN 60079-15
Certificate	EC 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 6mm <sup>2</sup> 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 25° off vertical
Ingress Protection	IP66 to EN 60529
Electrical Supply	220, 230, 240V 50Hz (50, 80, 100 & 125W) 220, 230, 240, 254V 50Hz (70, 150, 250 & 400W) 220-240V 50Hz (QL 55 & 85W)

Easy access for wiring and control gear

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

Corrosion resistant

High, medium and low bay lighting

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

IEC Ex Compliant

### Applications

Harsh and low temperature environments

Gantry and walkway lighting

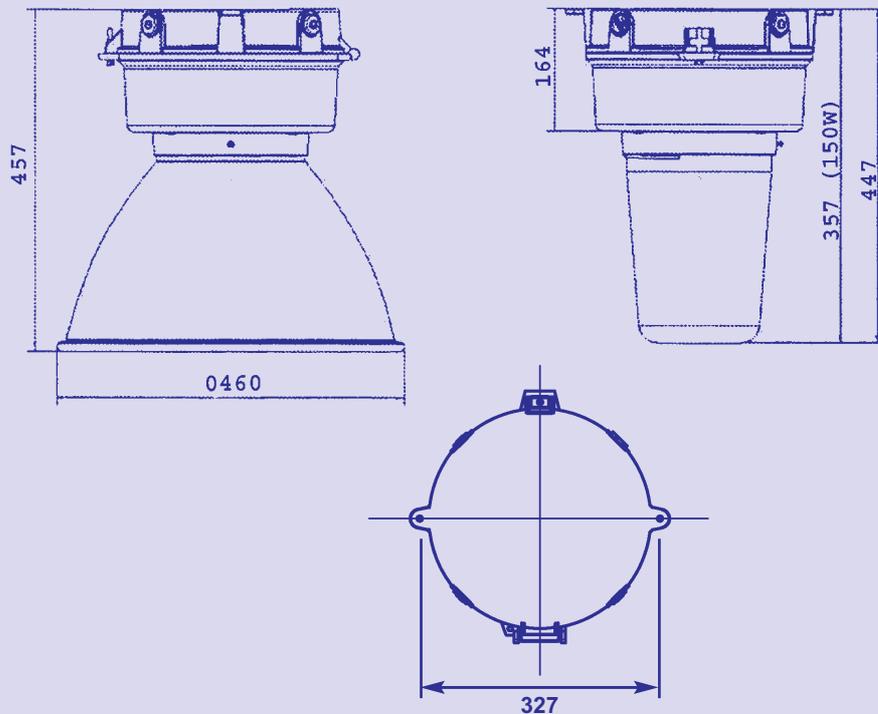
Petrochemical and Pharmaceutical installations

Stairwells

Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient °C	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	/TI	Timed cut out ignitor
/WM	Wall mounted version	/D	Zone 22 Dust applications
/ST	Stanchion mounted version	/ER	Sealed spun reflector
/PE	Pendant mounted version	/R	Prismatic Glass Refractor



### Accessories (Should be ordered separately)

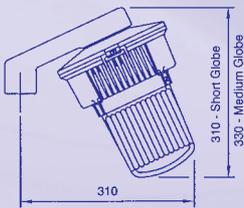
	Catalogue Order Code
Wire guard for low wattage glass globe (Up to 150W)	E0850-0042
Wire guard for high wattage glass globe (250W/400W)	E0850-0044
Wire guard for enclosed reflector	E0850-0043
Dome reflector	HEC20-0001
30 degree angled reflector	HEC20-0002

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

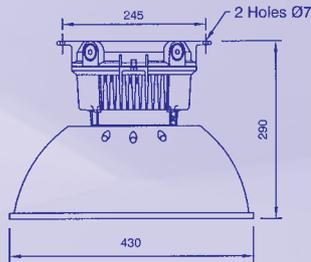
# ECLIPSE RANGE

84

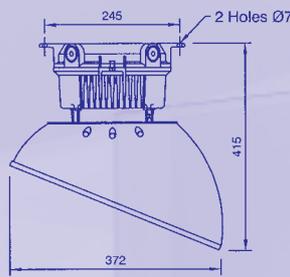
## JUNIOR



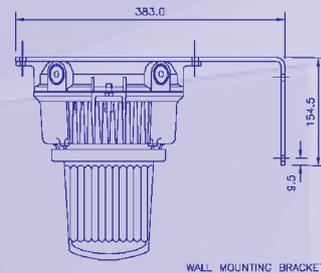
Stanchion mounting arrangement  
To suit pole threaded 1/4 NPT



Eclipse Junior c/w glass globe  
& full reflector

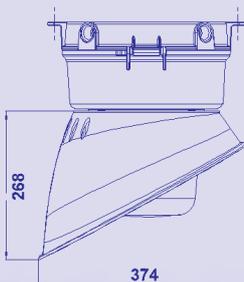


Eclipse Junior c/w glass globe  
& 30° angled reflector

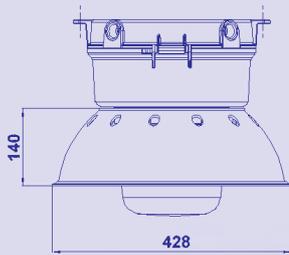


WALL MOUNTING BRACKET

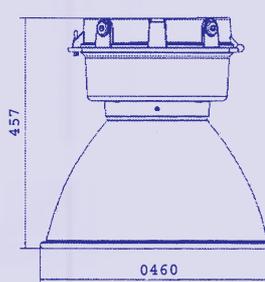
## ECLIPSE II



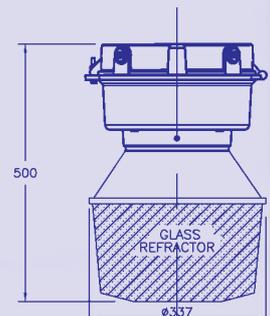
Angle reflector



Dome reflector



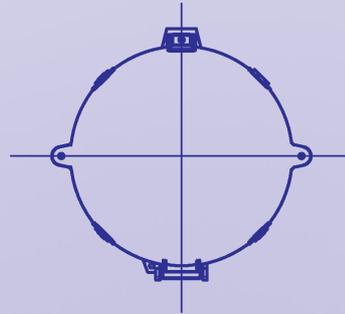
Sealed spun reflector



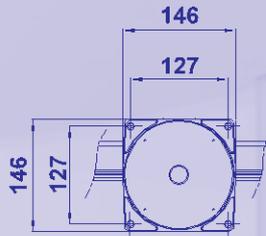
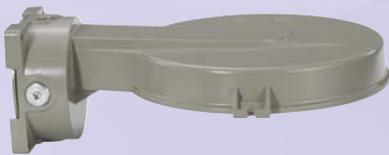
Prismatic Glass Refractor

## ECLIPSE II MOUNTING ACCESSORIES

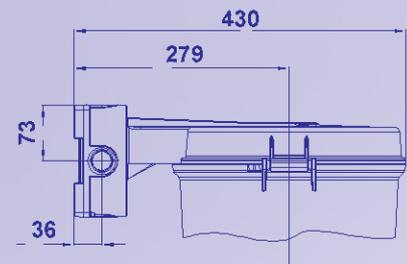
### CEILING AND FLUSH MOUNTING



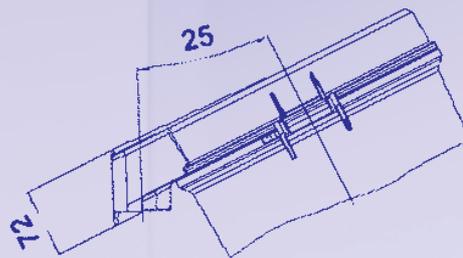
### WALL MOUNTING



4 x MOUNTING HOLES  
SUITABLE FOR M6 SCREWS

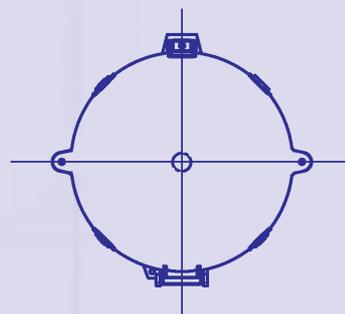


### STANCHION MOUNTING



TO SUIT POLE DIAMETER 70mm (1 1/2 THREADED)

### PENDANT MOUNTING



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 method is Ex nR, restricted breathing for use in ignitable gas and dusts applications. The Pyramid also has IP65 ingress protection.

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.

The Pyramid is also available with a dust cover configuration making it ideally suited for use in production areas where combustible dust (and gas) are present.



### Standard Specification

### Features

Type of Protection	<b>Ex nR (Restricted Breathing) Dust protected enclosure</b>
ATEX Classification	<b>Group II Category 3 G D</b>
Area Classification	<b>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</b>
Apparatus Standard	<b>EN 50021 EN 50281-1-1</b>
Certificate	<b>EC Type Examination certificate BAS01ATEX3239</b>
Coding	<b>Ⓔ II 3 G D EEx nR II (refer to table for T rating and ambient)</b>
Enclosure	<b>White polyester painted zinc coated steel body and front cover with silicone gasket and polycarbonate diffuser</b>
Reflector	<b>High purity anodised aluminium</b>
Entry	<b>2 x 20mm diameter holes</b>
Termination	<b>3 core 6mm<sup>2</sup> max. conductor with looping</b>
Installation	<b>4 x 10mm clearance holes</b>
Lampholder	<b>E40</b>
Lamp Type	<b>HPS or Metal Halide</b>
Control Gear	<b>Internal copper/iron ballast with ignitor and PFC correction capacitors</b>
Relamping	<b>Access via front cover secured by eight stainless steel screws</b>
Ingress Protection	<b>IP65 to EN 60529</b>
Electrical Supply	<b>220, 230, 240, 254V 50Hz</b>

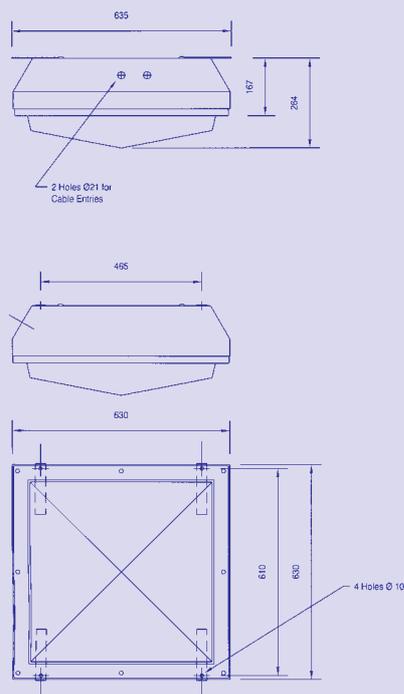
Zinc coated steel sheet, polyester painted for durability
Polycarbonate prismatic lens with excellent light distribution
Suspended gear tray for ease of maintenance
Simple and easy access via front cover for lamp replacement and maintenance
Excellent light distribution and uniformity up to 10 metre mounting heights
Low glare
<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>Zone 2 hazardous areas</li> <li>Petrochemical process areas</li> <li>Petrochemical clean rooms</li> <li>Warehouse lighting</li> <li>Low-bay lighting</li> <li>Production areas</li> <li>Food process areas</li> <li>Transit sheds</li> <li>Distilleries</li> <li>Granaries</li> </ul>

Std Cat No.	Wattage	Lamp	Ambient°C	T Class (Gas)	T °C (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

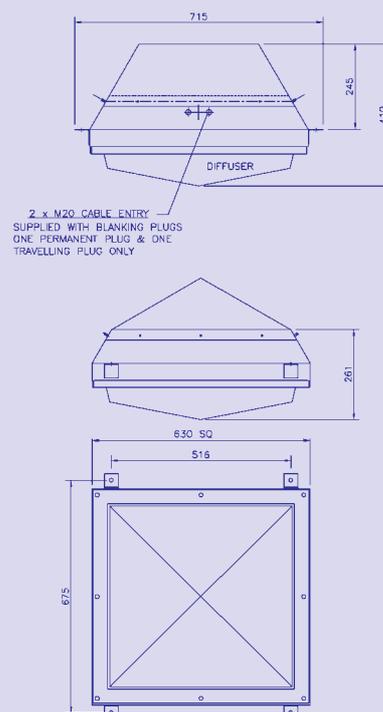
### Options - Suffix to Catalogue No.

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

### Standard Configuration



### Dust applications with rear dust shed



The 503 is a high power floodlight for high pressure sodium lamps of 600W or 1000W rating and tungsten-halogen lamps up to 2000W. A version utilising 2 x 400W lamps is available giving high light output for use in high ambient conditions.

The protection is Ex nR, restricted breathing.

The control gear is in a separate box for cool running which should be ordered separately.

When required 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

## Features

Type of Protection	Ex nR (Restricted breathing)
Area Classification	Zone 2 areas to EN 60079-10 with installation to EN 60079-14
Apparatus Standard	EN 60079-15-2005
Coding	Ex nR 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 4mm <sup>2</sup> max. conductor
Installation	Foot mounted
Lamp Type	HPS, MH 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

Robust construction

Highly resistant to corrosion and mechanical damage

All stainless steel fasteners

Extremely efficient reflector system

Lamp support mechanism

High ambient applications



Optional PTFE Coating available

Std. Cat No.	Wattage	Lamp	T Class	Ambient °C	Weight
503N/2400/MS*	2 x 400W	HPS/Metal Halide	T3	50	27.0kg
503N/600/HS*	600W	HPS	T3	60	25.0kg
503N/1000/HS*	1000W	HPS	T3	40**	25.0kg
503N/1000/MH*	1000W	Metal Halide	T3	40**	25.0kg
503N/2000/TH	2000W	Single Ended T/Halogen	T2	40	25.0kg

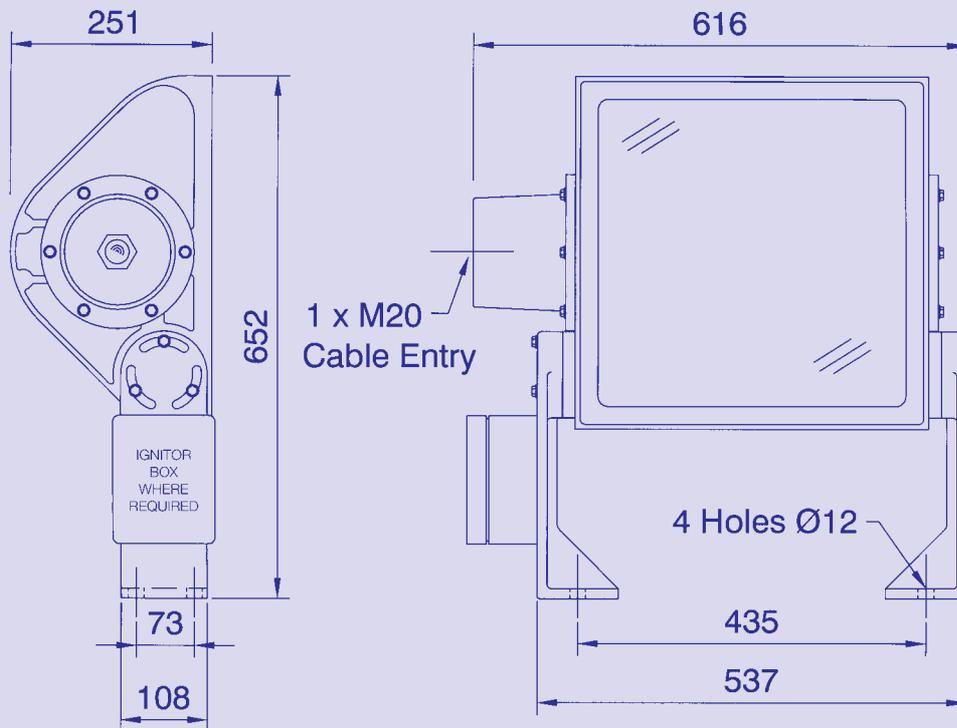
\*Voltage should be matched to suitable external gear box. Chalmit Universal box or 502 box. Gearbox suitable for high ambient applications available. Details on request.  
 \*\*Higher ambient versions available. Details on request.

### Options - Suffix to Catalogue No.

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

**Applications**

- Zone 2 hazardous areas
- Offshore oil and gas platforms
- Flare stacks
- High mast floodlighting
- Tank farms
- Perimeter and security floodlighting



**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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

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

### Features

Type of Protection	<b>Ex n (Non sparking)</b>
Area Classification	<b>Zone 2 areas to EN 60079-10 with installation to EN 60079-14</b>
Apparatus Standard	<b>EN 60079-15-2005</b>
Coding	<b>Ex n II T4 Tamb 50°C</b>
Enclosure	<b>316S31 Marine grade stainless steel</b>
Entry	<b>3 x 20mm cable entries</b>
Termination	<b>3 core 4mm<sup>2</sup> max c/w looping</b>
Installation	<b>Base mounting straps</b>
Control Gear	<b>Internal copper/iron ballast and PFC correction capacitors (Ignitor not fitted on standard model)</b>
Operating Position	<b>Universal</b>
Ingress Protection	<b>IP66/67 to EN 60529</b>
Electrical Supply	<b>200, 210, 220, 230, 240, 250V 50Hz, 220, 230, 240, 250, 260, 270V 60Hz</b>

316S31 grade stainless steel construction

Easy to install and maintain

Hinged lid with two fixing screws

Multi tapped ballast

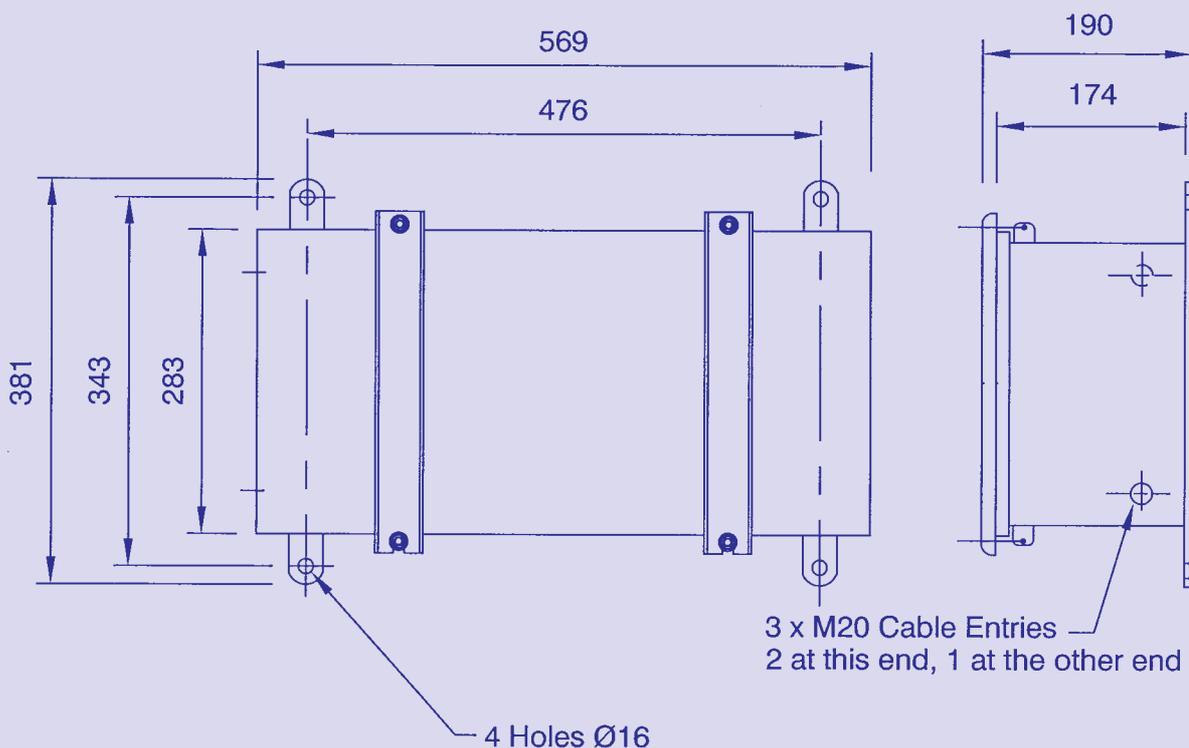
Control gear easily accessed and can be replaced

Std. Cat No.	Wattage	Lamp (Ref only)	Weight
502N/2400/MS	2 x 400W	HPS/Metal Halide	30kg
502N/1000/MS	1000W	HPS	32kg

**Options - Suffix to Catalogue No.**

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

**Applications**  
 Zone 2 hazardous areas  
 Areas of both high and low ambients  
 For use where control gear has to be remote from luminaire



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

## Features

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

Very robust

Highly resistant to corrosion and mechanical damage

All stainless steel fasteners

Suspended hinged front cover assembly

Compact design

Available as pole mounted version

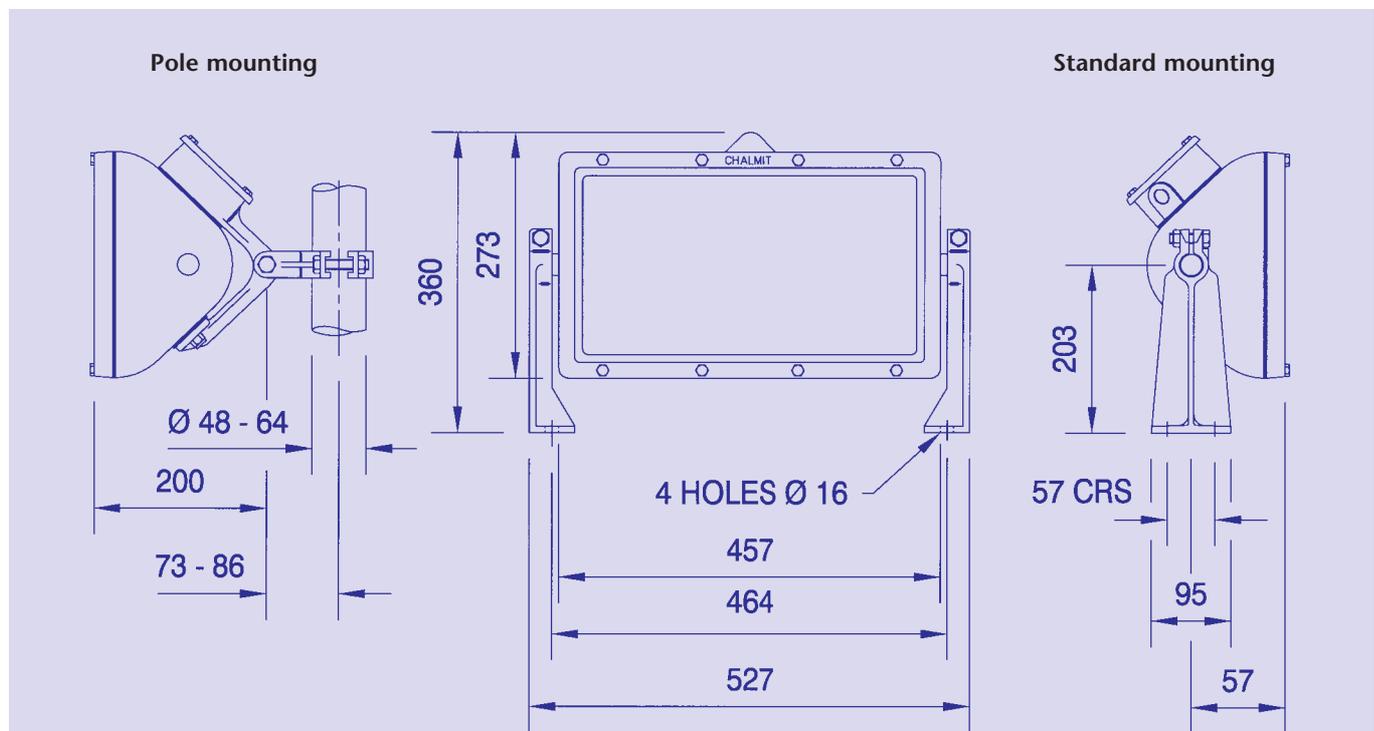
Std. Cat No.	Wattage	Lamp	Lampholder	T Class	Ambient°C	Weight
469N/300/TH	300W	Single Ended T/Halogen	E40	T3	50	10.0kg
469N/500/TH	500W	Single Ended T/Halogen	E40	T3	40	10.0kg
469N/1000/TH	1000W	Single Ended T/Halogen	E40	T2	40	10.0kg

### Options - Suffix to Catalogue No.

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

**Applications**

- Zone 2 hazardous areas
- Loading and access areas
- Security and perimeter lighting
- Area floodlighting
- Meter stations
- Temporary lighting



### Accessories (Should be ordered separately)

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

Product design and specifications are subject to change without notice, please check the Chalmit website for latest specifications.

# DUST PROTECTED VERSIONS

There are a number of Chalmit luminaires that are available as Dust versions. These are designed for use in environments where combustible dusts are or may be present.

This page is intended to be a summary of the range of Dust products that are available. Reference has also been made to these on the individual product pages throughout the catalogue.

The table below details the catalogue prefix for these versions. To order you must substitute the standard catalogue number prefix i.e. PRGE/\_ with the dust only prefix PRGU/\_.

For technical data and details of accessories you should refer to these pages.

Product	Prefix to Std. Cat No.	Catalogue Page
Protecta III - standard & emergency versions	PRGU/----	23, 25
Protecta III Stainless Steel - standard & emergency versions	PRSU/----	27
Evolution II & Evolution	/D (suffix to cat No.)	39, 41
Sterling II - standard & emergency versions	STGU/----	65, 67
Sterling Stainless Steel - standard & emergency versions	STSU/----	69, 71
Maxinex	/D (suffix to cat No.)	77
Eclipse Junior (Dust & Gas)	/D (suffix to cat No.)	81
Eclipse II (Dust & Gas)	/D (suffix to cat No.)	83
Pyramid (Dust & Gas) with rear dust shed	/SUS/D (suffix to cat No.)	87



## Catalogue Logic

All Chalmit luminaires are identified and ordered using a standard catalogue logic that combines the standard catalogue number (Std Cat No.) and the options which are added as a suffix to the standard number.

Detailed below is an example of the logic and how to use it:

Example one: A Protecta, 2 x 18W, bi-pin emergency with M25 entries would be ordered as follows -



Example two: An Evolution II, 400W, Metal Halide, PTFE coated and narrow beam



For CSA, CEPEL and IEC Ex versions add the following suffix: /CSA, /CEPEL, /IEC

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

Please note, Chalmit luminaires are not supplied with cable glands fitted. Chalmit luminaires are shipped as standard with a travel plug and Ex e blanking plugs if there are additional entries. If cable glands are required these should be ordered in addition to the luminaire, please contact sales for details.

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 and a copy of the Industrial Catalogue.

### Disclaimer

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

# LAMPS AVAILABLE FROM CHALMIT

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## 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
<b>Fluorescent</b>			
U4496-0018	Fluorescent T8 standard	18	G13 White
U4496-0036	Fluorescent T8 standard	36	G13 White
U4496-0058	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
<b>High Pressure Sodium</b>			
U6393-0070	SON/T standard	70	E27
U6394-0150	SON/T standard	150	E40
U6394-0250	SON/T standard	250	E40
U6394-0400	SON/T standard	400	E40
U6394-0601	SON/T standard	600	E40
U6993-0070	SON/T Twin arc	70	E27
U6994-0150	SON/T Twin arc	150	E40
U6994-0250	SON/T Twin arc	250	E40
U6994-0400	SON/T Twin arc	400	E40
U6193-0050	SON/E Standard	50	E27
U6193-0070	SON/E Standard	70	E27
U6194-0100	SON/E Standard	100	E40
U6194-0150	SON/E Standard	150	E40
U6194-0250	SON/E Standard	250	E40
U6194-0400	SON/E Standard	400	E40
<b>Metal Halide</b>			
U5494-0150	MBI/T	150	E40
U5494-0250	MBI/T	250	E40
U5494-0400	MBI/T	400	E40
<b>Tungsten-Halogen</b>			
U3025-0150	Double ended	150	R7s
U3095-0300	Double Ended	300	R7s
U3095-0500	Single Ended, Double Envelope	500	E40
U3095-1000	Single Ended, Double Envelope	1000	E40
<b>Mercury Vapour</b>			
U5183-0050	ES MBFU	50	E27
U5183-0080	ES MBFU	80	E27
U5183-0125	ES MBFU	125	E27
U5184-0125	GES MBFU	125	E40
U5184-0250	GES MBFU	250	E40
U5184-0400	GES MBFU	400	E40

The Metal Halide lamps are for use on HPS control 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 sales department.







# KILLARK®

INNOVATIVE THINKING HAS MADE KILLARK  
AN INDUSTRIAL 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.

As part of HEP the strengths of Killark and Chalmit are now combined. This partnership has created the largest, 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](http://www.chalmit.com) or communicate your requirement via any of the contact addresses contained within this brochure.



## 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.

## CHAMLITE™

Chalmit have developed a user friendly programme to allow our customers the freedom of producing their own lighting designs. This package, CHAMLITE™ is free of charge and allows users the ability to design lighting layouts that range from very simple to extremely complex.

CHAMLITE™ utilises a simple Windows-based user interface making it easy to use. The package now includes interior, exterior and isle lighting quantity estimators allowing luminaire quantities to be determined quickly for budgetary purposes prior to a detailed design being done at a later date.

Some key features of CHAMLITE™ include:

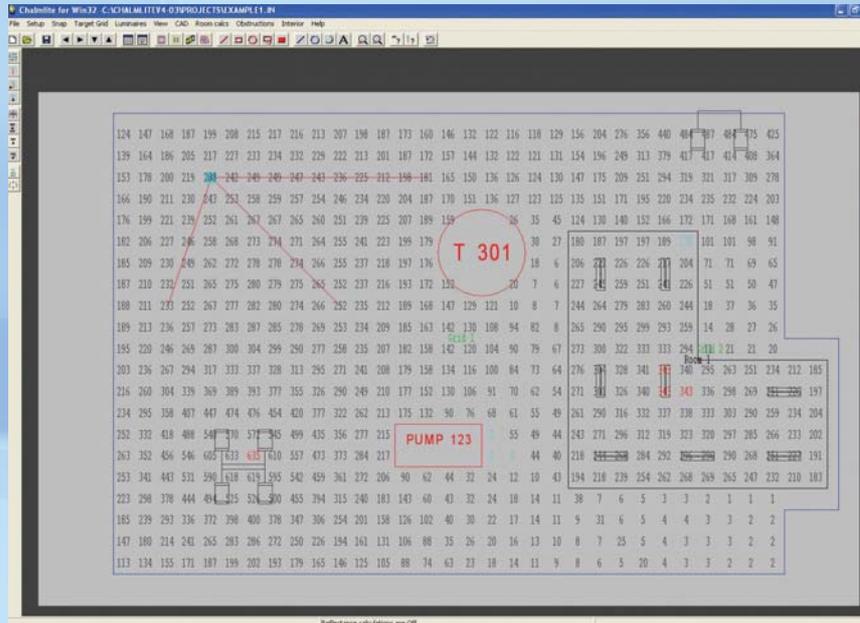
- The incorporation of interior and exterior components in a single scheme
- Ability to account for shadowing and effects of reflection
- Shortcut icons for:
  - Turning individual fittings on/off or assess in emergency mode
  - Move, change or delete luminaires easily
  - Identify individual fittings
  - Re-size icons to suite the scale of your project
- Use scrolling wheel mouse to zoom in/out
- Import and export to CAD packages (DXF format)
- Print to a pdf or hardcopy (A0 to A4 sizes)
- Ability to produce Isolux 'footprint'

## DESIGN

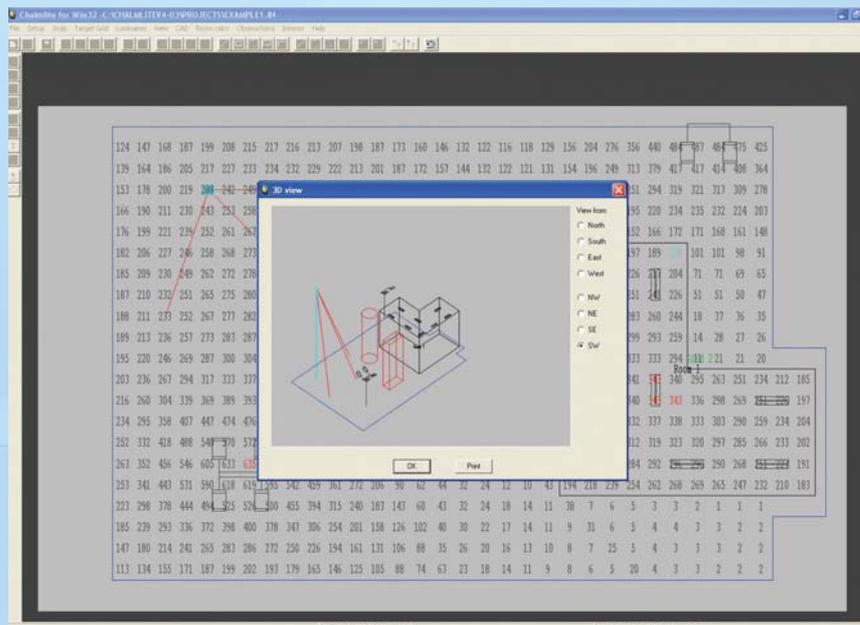
Chalmit also offers a free lighting design service. Designs created can be interfaced with actual installation AutoCAD drawings to build up sophisticated lighting presentations. Customers requiring further details of this service or of the Chalmlite Lighting design software should contact their nearest Chalmit Sales Engineer or Head office Lighting Applications.



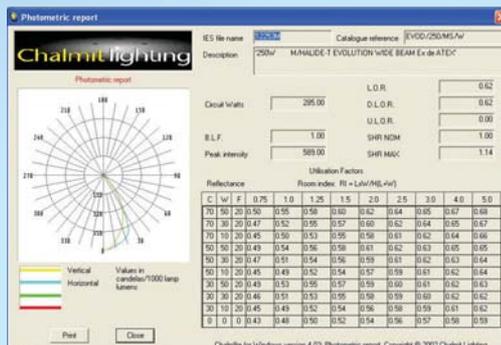
Chalmit Lighting is totally committed to the promotion of good and efficient lighting practices and is an active member of the Lighting Industry Federation who continuously strive to raise the standards of safety, performance and education in lighting.



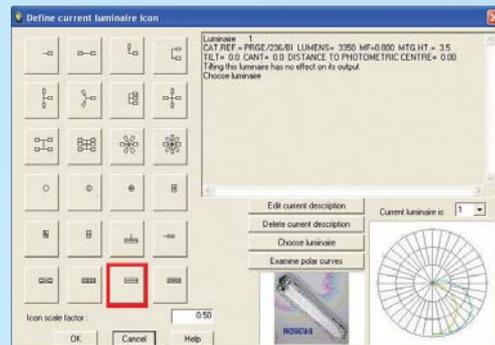
Sample lighting scheme



3D view of scheme



Photometric data



Icon method for selecting luminaires

## QUALITY AND APPROVALS



Chalmit Lighting offers both safety and security.

Chalmit luminaires can be specified with complete confidence. The company has been assessed by BSI for many years and is ISO 9001:2000 compliant. Chalmit has also been assessed in accordance with EN 13980 for products manufactured to ATEX.

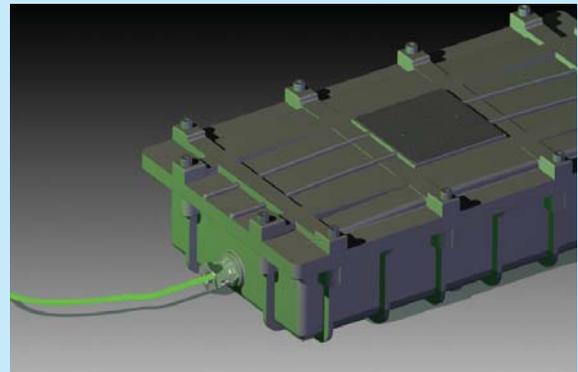
In addition to certification to British and CENELEC standards Chalmit also holds product approvals to Canadian (CSA), Russian (GOST R), Brazilian (CEPEL) and international (IECEX) standards .

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.

Also based in Glasgow is the Hubbell sister company Transtar. Transtar specialise in the design and manufacture of fluorescent and HID lighting control gear. The company is also BSI certified ISO 9001:2000 with many products carrying the Kitemark. This association gives Chalmit the unique ability to specify ballasts that are tailored to meet the different requirements of individual luminaires. Upon request, Transtar can also offer custom ballast design services.

As well as drawing from our own and other HEP 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



Electrical Products

The Chalmit Lighting Industrial luminaire range is designed and constructed to the same high quality standards as its hazardous area products. Performance and durability are paramount in the design process, this is evident in the final product.

Chalmit Industrial products meet and in most cases exceed the relevant international standards.

The industrial range is designed to complement the hazardous area product range and ensure the lowest 'whole life cost'. Many of the products share common components and enclosures with the hazardous area range. This ensures they are robust with high ingress protection IP66/67 making them suitable for use in harsh environments.



For further details on the Industrial range, please visit our website [www.chalmit.com](http://www.chalmit.com) and request a copy of the Industrial product catalogue.

In addition to Hazardous and Industrial luminaires, Chalmit Lighting has also been manufacturing Marine lighting products for over 90 year. This range of products includes EPDM rubber coated products, these offer excellent vibration resistance and are ideally suited for the most hostile marine environments.

The combination of Chalmit ranges allows the highly specialised requirements of seagoing vessels the need both marine and hazardous products such as Tankers and FPSO's to be fulfilled.

