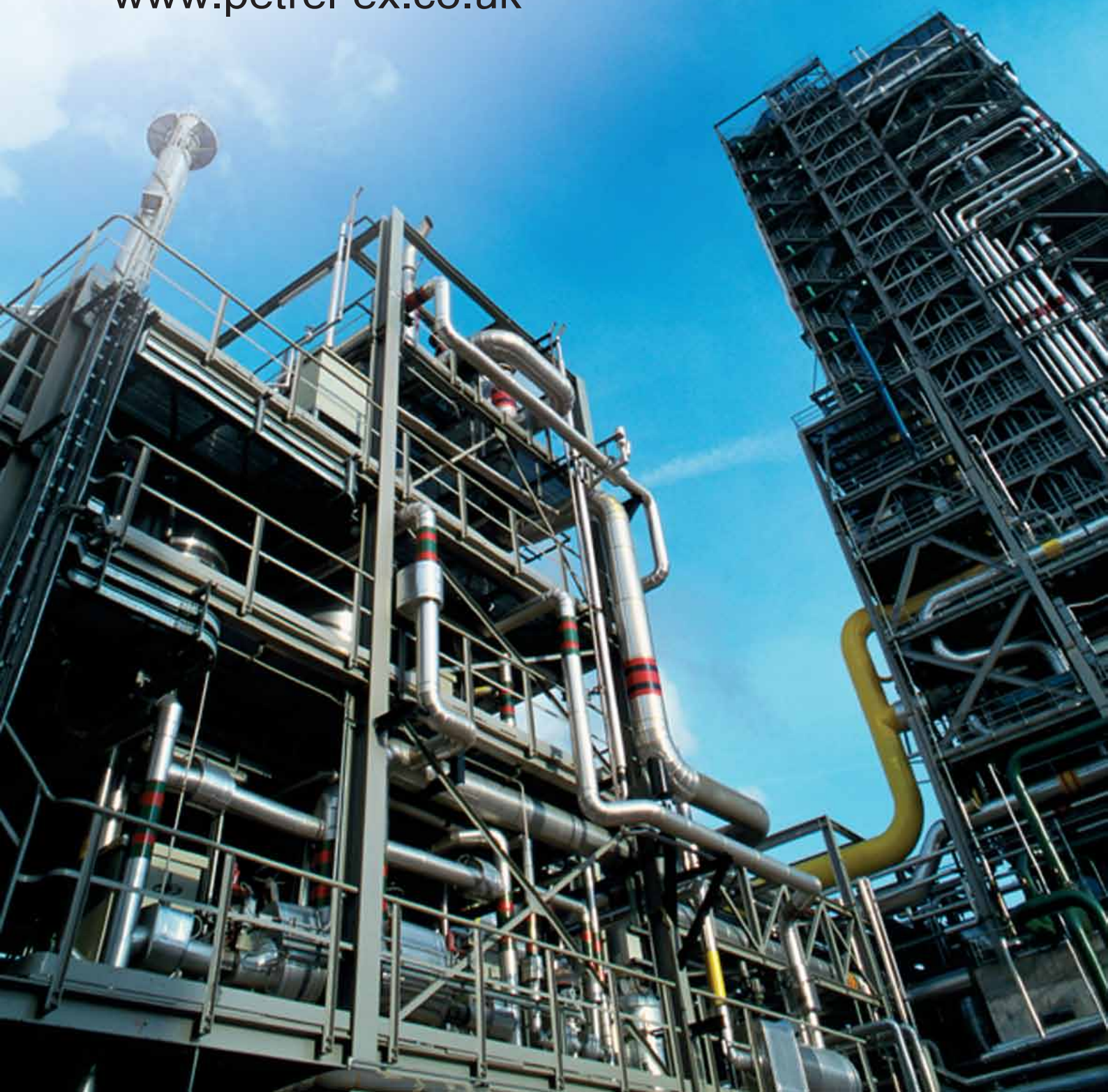


# Petrel

**Hazardous Area Equipment**

Hazardous area lighting  
and control equipment

[www.petrel-ex.co.uk](http://www.petrel-ex.co.uk)





## Hazardous Area Equipment

### *About us....*

Petrel Limited, a division of Chamberlin plc., manufacturers of lighting and control equipment for potentially explosive atmospheres.

Headquartered at our manufacturing operation in Birmingham UK, Petrel Limited continues to maintain a long tradition of high quality product design, development and production under a strict quality management regime to improve the overall sales and service package.

Capitalising on decades of design, technical and manufacturing expertise Petrel continues to produce innovative Ex products for lighting and control applications around the world. Continual investment in product development and manufacturing techniques ensures state of the art Ex products of consistent high quality, are produced in an ISO 9000-2000 quality assured environment. Accredited third party bodies ensure our ATEX certified products give the performance you need in those difficult hazardous areas.






By supporting our major clients in the UK and through our network of international partners we maintain significant global reach and presence. Looking after our customers first means we also look after ourselves and the proof of our success is in our continuing double digit growth.



**Peter Maclean**  
**Managing Director**



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### Atex directive

In 2003 the Atex Directive becomes a mandatory requirement for all hazardous area equipment sold in the European Union and equipment must have applicable Atex certificates.

In addition to the technical requirements demanded by the appropriate standards for each type of protection concept, the Atex Directive imposes additional requirements on the certificate holder in terms of quality system, product documentation, installation information, possible limitations of use in the relation to its intended environment, labelling information etc.

The technical details of gas Grouping and Temperature Classification are unaltered but zoning references are amended and gas, vapour, mist and dust categories are combined under a single classification as shown opposite.

| Zones       | Equipment  |
|-------------|------------|
| Zone 0 & 20 | Category 1 |
| Zone 1 & 21 | Category 2 |
| Zone 2 & 22 | Category 3 |

The marking of the equipment shall include the following typical data:

#### Ex II 2 G

Where II is the gas group;

2 is the category for use (prev. zone)

G (or D) is the type of explosive atmosphere - G = gas, vapour or mist; and D = Dust

**IIC T4 Ta = -20°C to + 55°C**

Where the T class will vary against ambient

**IIC T5 Ta = -20°C to + 25°C**

The T class marking for dust may also be shown if different to gas

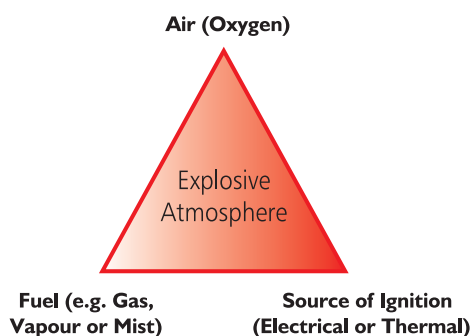


### Gas Groups

GROUP I - Electrical equipment for use underground in mines susceptible to the hazard of firedamp (methane)

GROUP II - Electrical equipment for use in all other hazardous areas. This group is then subdivided into the following 3 further groups according to the maximum experimental safety gap for non-transmission of an internal ignition plus the minimum ignition current of the mixture

### The Combustion or Ignition Triagle



#### DEFINITION

A explosive atmosphere if ignited could give rise to damage of property or injury to persons. Hazardous areas can be found in almost every industry and even in daily life, the best example being a petrol station or a gas station.

#### EXPLOSION PRINCIPLES

Combustion is a chemical reaction that entails oxidation of a fuel by oxidising agent (which is in general the oxygen in the air). The combustion or ignition triangle consist of the three elements that are necessary for the combustion reaction to take place.

## Types of Protection

There are established engineering concepts recognised by the IEC for the design of electrical equipment for hazardous area applications. These engineering concepts are the basis of protection against the risk of fire or explosion.

Each concept is identified by a protection symbol. The prefix 'Ex' in the symbol denotes a national standard whilst 'EEx' denotes a harmonised European standard. This European standard has a 'EN' prefix.

If a design relies on more than one concept all symbols are normally shown.

| Symbol & EN ref        | Concept          | Summary   | Zone use | Atex Category |
|------------------------|------------------|---|----------|---------------|
| EEx ia EN/IEC 60079-11 | Intrinsic safety | Limits energy of sparks & surface temperatures (using electronics c/w 2 failure protection devices) | 0        | 2 & 3         |
| EExib EN/IEC 60079-11  | Intrinsic safety | Limits energy of sparks & surface temperatures (using electronics c/w 1 failure protection devices) | 1 & 2    | 2 & 3         |
| EEx d EN/IEC 60079-1   | Flameproof       | Contains explosion quenches flame   | 1 & 2    | 2 & 3         |
| EEx e EN/IEC 60079-7   | Increased safety | No arcs, sparks or hot surfaces   | 1 & 2    | 2 & 3         |
| EEx p EN/IEC 60079-2   | Pressurised      | Keeps flammable gas out   | 1 & 2    | 2 & 3         |
| EEx m EN/IEC 60079-18  | Encapsulated     | Keeps flammable gas out   | 1 & 2    | 2 & 3         |
| EEx q EN/IEC 60079-5   | Powder filled    | Keeps flammable gas out   | 1 & 2    | 2 & 3         |
| EEx o EN/IEC 60079-6   | Oil filled       | Keeps hazard away from ignition source using inert oil  | 1 & 2    | 2 & 3         |
| EEx N EN/IEC 60079-15  | Non-sparking     | No arcs, sparks or hot surfaces   | 2        | 3             |
|                        |                  |   |          |               |

## CLASSIFICATION OF HAZARDOUS AREAS

| GAS                     | ZONE 0   | ZONE 1   | ZONE 2   |
|-------------------------|--|--|--|
| Europe<br>International | Where a explosive atmosphere is continuously present for long period or frequently   | Where a explosive atmosphere is likely present during normal operation   | Where a explosive atmosphere is not likely present during normal operation   |
| NEC                     | Class I, Division 1  |  | Class I, Division 2  |
| DUST                    | ZONE 20  | ZONE 21  | ZONE 22  |
| Europe<br>International | Where a explosive atmosphere in the form of cloud of combustible dust in air is continuously present for long period or frequently | Where a explosive atmosphere in the form of cloud of combustible dust in air is likely present during normal operation | Where a explosive atmosphere in the form of cloud of combustible dust in air is not likely present during normal operation |
| NEC                     | Class II, Division 1   |  | Class II, Division 2   |
|                         | > 1,000 hours per year   | 10 - 1,000 hours per year  | <10 hours per year   |

## Petrel Guide to Hazardous Areas

### Temperature classification

The temperature classification of a given gas is the temperature above which an appropriate mixture of that gas with air will ignite. It is critical that the maximum surface temperature of any part of the equipment which may come into contact with the gas/air mixture, does not exceed the ignition temperature of the mixture.

The temperature class or 'T rating' is normally based on an ambient temperature of -20°C to +40°C

| Class<br>T Rating | Surface Temperature °C<br>Max permitted | Ignition Temperature °C<br>Gas/air mixture |
|-------------------|---|--|
| T1                | 450                                     | >450                                       |
| T2                | 300                                     | >300                                       |
| T3                | 200                                     | >200                                       |
| T4                | 135                                     | >135                                       |
| T5                | 100                                     | >100                                       |
| T6                | 85                                      | >85  |



### Emergency products

EN-60 598 2.22

This harmonised European product standard sets out the requirements for materials, design, manufacture, testing and operation of emergency lighting luminaires and equipment.

All emergency luminaires comply with EN 60 598 2.22 when used in an ambient temperature range of between 0° and +25°C. For any deviations please contact your local Technical Department.

### Ingress protection

In addition to protection against the risk of explosion or ignition luminaires for use in hazardous areas will also need to provide adequate protection against the ingress of solids or liquids. The degree of classification is denoted by the IP classification system.

A two digit number is used to identify the degree of protection.

The first digit of the code denotes protection against dust and solid objects

The second digit denotes protection against moisture

#### INGRESS PROTECTION (IP) CODE BS EN 60529 (IEC 60529)

IP0X No special protection  
 IP1X Objects ≥ 50mm diameter (e.g part of a hand)  
 IP2X Objects ≥ 12.5mm diameter (e.g finger)  
 IP3X Objects ≥ 2.5mm diameter (e.g tool)  
 IP4X Objects ≥ 1.00mm diameter (e.g wire)  
 IP5X Dust protection  
 IP6X Dust tight

IPX0 No special protection  
 IPX1 Vertically dripping water  
 IPX2 Vertically dripping water when enclosure tilted by 15°  
 IPX3 Sprayed water up to 60° from vertical  
 IPX4 Sprayed water from all directions  
 IPX5 Water jets  
 IPX6 Powerful water jets in heavy seas  
 IPX7 Temporary submersion to a depth of 1m (for half an hour)  
 IPX8 Extended submersion to a depth ≥ 1m



Electrical equipment certified for use in Group II is also suitable for use in IIA, IIB and IIC. Equipment certified for Group IIC is suitable for IIB and IIA whilst equipment certified for IIB is suitable for IIA.

## Certification and Approval

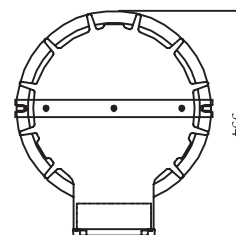
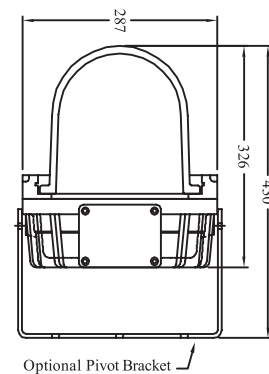
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| Certification Code      | Ex de II 2 GD IIC T5 |                     |
| Certification numbers   | SIRA 00 ATEX 1047    | IEC Ex SIR 09.0028  |
| Certification standards | EN 60079 EN 61241    | IEC 60079 IEC 61241 |
| Protection              | IP 66                |                     |

## Features

Up to 100,000 hours life expectancy  
Optional internal and/or external Reflector  
Immediate ignition and re-ignition  
Fixed or directional mounting options  
Integral EEx e Terminal chamber

## Options

Sealed and flying lead fitted  
Optional internal /external Reflector  
Coloured glass option  
Fixed or directional mounting options



Terminal Block Access



Swivel Stirrup mounting



Threaded flame path

## Technical Data

|                       |   |
|-----------------------|---|
| Supply Voltage        | 220-240v, 50/60Hz   |
| Operating Temperature | -20°C to +40 °C   |
| Control Gear          | High frequency generator driving induction lamp within the luminaire  |
| Lamp Options          | 55w or 85w induction lamp   |
| Cable Entries         | 2 x M20 – ISO (1 plugged) as Standard, other threads available.   |
| Terminals             | 4 (4mm) wire and earth with looping facility, cable crimping required at installation when looping  |
| Mounting Facility     | Back mounted fixing strap   |
| Access                | Terminals accessed via terminal cover retained by cap screws<br>Lamp and gear accessed via removable glass dome   |
| Material              | Corrosion resistant marine grade aluminium body and bezel. Toughened Borosilicate glass dome  |
| Finish                | 2 Pack epoxy paint on primed surface. Standard colour - Aqua<br>Additional costs for non standard colours   |
| Accessories           | Internal or external reflector. Pivot bracket for directional control<br>Pendant mount. Wire Guard  |
| Weight                | 15.0Kgs   |
| Features              | Ultra long life. Flicker free start. Low energy consumption<br>Constant light independent of voltage fluctuations<br>Automatic safety cut out in case of lamp failure |



| Standard                                   | Part Number            | T.Class            | Ambient Temp. °C                                 |
|--|------------------------|--------------------|--|
| Size                                       | Standard Luminaire     |                    |  |
| 55watt QL long life<br>85watt QL long life | 620/55 QL<br>620/85 QL | T5 / T4<br>T5 / T4 | -20°C to +40°C / +60°C<br>-20°C to +40°C / +60°C |
| Wire Guard<br>Replacement glass - Clear    | /WG<br>3H69004035      |                    |  |



## Certification and Approval

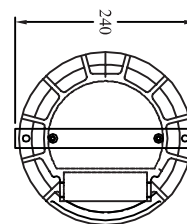
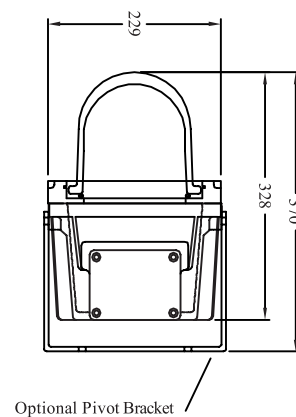
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|-------------------------|---|---------------------|--|
| Certification Code      | Ex de II 2 GD T4 (See lamp tables for T rating) |                     |  |
| Certification numbers   | SIRA 00 ATEX 1048                               | IEC Ex SIR 09.0027  |  |
| Certification standards | EN 60079 EN 61241                               | IEC 60079 IEC 61241 |  |
| Protection              | IP 66   |                     |  |

## Features

Rotating Beacon  
Xenon flashing unit  
IIC as standard  
Heavy Duty construction  
Integral EEx e terminal chamber

## Options

Range of fresnel colours or glass colouring  
Long Life LED options  
Range of warning and flash options  
High ambient version



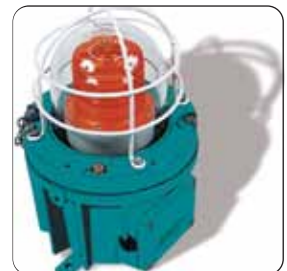
Xenon Flash with Fresnel



LED cluster



Terminal block housing



# Technical Data

|                            |  |
|----------------------------|--|
| Supply Voltage             | Beacons 240v      Warning Lights      AC – 24 to 277 50/60Hz      DC also  |
| Operating Temperature      | -20°C to +70 °C  |
| Control Gear (when Fitted) | Electronic flasher unit. Rotating Reflector drive  |
| Lamp Options               | Beacons:    150w GLS max (ES, E27 or BC) - Static<br>25w SL (ES, E27 or BC), 20w PLCE - Static<br>55w of 70w (supplied) - Rotating<br>Xenon 195,000 CD Peak (II joules) - Flashing |
| Cable Entries              | 2 x M20 – ISO (I plugged) as Standard. Other threads available.  |
| Terminals                  | 4 (4mm) wire and earth with looping facility. Cable crimping required at installation when looping   |
| Mounting Facility          | Back mounted fixing strap  |
| Access                     | Terminals accessed via terminal cover retained by cap screws<br>Lamp and gear accessed via removable glass dome  |
| Material                   | Corrosion resistant marine grade aluminium body and bezel. Toughened Borosilicate glass dome   |
| Finish                     | 2 Pack epoxy paint on primed surface. Standard colour - Aqua<br>Additional costs for non standard colours  |
| Accessories                | Internal or external reflector      Pivot bracket for directional control      Pendant mount<br>Wire Guard      Glass colouring available  |
| Weight                     | 9.0Kgs   |
| Fresnel & Glass Colours    | Red, Blue, Green, Amber etc.   |

| Standard                  | Part Number                         |         |                  |
|---------------------------|-------------------------------------|---------|------------------|
| Size                      | Standard Luminaire                  | T.Class | Ambient Temp. °C |
| 150W GLS Max              | 610C/150W GLS                       | T4      | -20°C to +40°C   |
| 25W SL                    | 610C/25W SL                         | T4      | -20°C to +70°C   |
| 20W PLCE                  | 610C/20W PLCE                       | T4      | -20°C to +70°C   |
| 55W Rotating              | 610C/55W/ROT                        | T4      | -20°C to +70°C   |
| 75W Rotating              | 610C/70W/ROT                        | T4      | -20°C to +70°C   |
| Xenon Flasher 5J          | 610C/5J/XEN                         | T4      | -20°C to +55°C   |
| Xenon Flasher 10J         | 610C/10J/XEN                        | T4      | -20°C to +55°C   |
| Xenon Flasher 11J         | 610C/11J/XEN                        | T4      | -20°C to +55°C   |
| Wire Guard                | /WG                                 |         |                  |
| Fresnel and Glass Colour  | /Clear, Red, Blue, Green, Amber etc |         |                  |
| Replacement glass - Clear | 2H69004080                          |         |                  |

## Certification and Approval

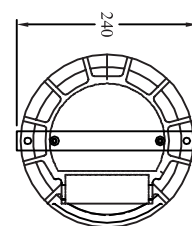
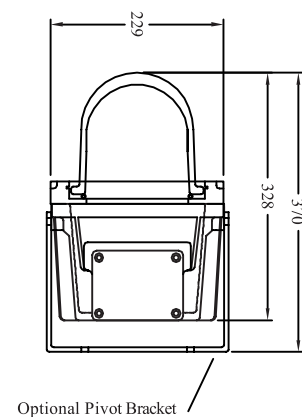
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| Certification Code      | Ex de II 2 GD IIC T3 - T4 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 00 ATEX I048  | IEC Ex SIR 09.0027  |
| Certification standards | EN 60079 EN 61241  | IEC 60079 IEC 61241 |
| Protection              | IP 66  |                     |

## Features

Range of lamp sources available  
IIC as standard  
Heavy duty construction  
Integral EEx e Terminal chamber

## Options

Range of lamp sources  
Low and high temperature versions  
Internal and external reflectors  
Coloured glass range



610 Threaded flame path



Terminal block access



610 blue lens



## Technical Data

|                            |   |
|----------------------------|---|
| Supply Voltage             | 240v 50Hz Check for alternative voltages  |
| Operating Temperature      | -20°C to +70 °C   |
| Control Gear (when Fitted) | Ballast, ignitor and capacitor can be fitted within the luminaire   |
| Lamp Options               | Certified with elliptical lamps (Lamps not provided)<br>50w, 70w, 110w SON-E and 70w SON-R<br>50w, 80w ,125w HPMV/MBF<br>25w SL or 20w PLCE<br>150w GLS with ES (E27) lamp holder. BC holder also available |
| Cable Entries              | 2 x M20 – ISO (1 plugged) as Standard. Other threads available.   |
| Terminals                  | 4 (4mm) wire and earth with looping facility. Cable crimping required at installation when looping  |
| Mounting Facility          | Back mounted fixing strap   |
| Access                     | Terminals accessed via terminal cover retained by cap screws<br>Lamp and gear accessed via removable glass dome   |
| Material                   | Corrosion resistant marine grade aluminium body and bezel. Toughened Borosilicate glass dome  |
| Finish                     | 2 Pack epoxy paint on primed surface. Standard colour - Aqua<br>Additional costs for non standard colours   |
| Accessories                | Internal or external reflector Pivot bracket for directional control<br>Pendant mount Wire Guard  |
| Weight                     | 9kg to 12kgs lamp dependant   |

| Standard                  | Part Number                        | T.Class | Ambient Temp. °C |
|---------------------------|------------------------------------|---------|------------------|
| Size                      | Standard Luminaire                 |         |                  |
| 150W GLS Max              | 610C/150W GLS                      | T4      | -20°C to +40°C   |
| 25W SL                    | 610C/25W SL                        | T4      | -20°C to +70°C   |
| 20W PLCE                  | 610C/20W PLCE                      | T4      | -20°C to +70°C   |
| 70W SON                   | 610C/70W SON                       | T4      | -20°C to +40°C   |
| 70W SON-R                 | 610C/70W SON-R                     | T3      | -20°C to +55°C   |
| 80W HPMV                  | 610C/80W HPMV                      | T4      | -20°C to +40°C   |
| 125W HPMV                 | 610C/125W HPMV                     | T3      | -20°C to +35°C   |
| Wire Guard                | /WG                                |         |                  |
| Fresnel and Glass Colour  | /Clear,Red, Blue, Green, Amber etc |         |                  |
| Replacement glass - Clear | 2H69004080                         |         |                  |

## Certification and Approval

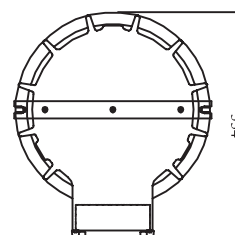
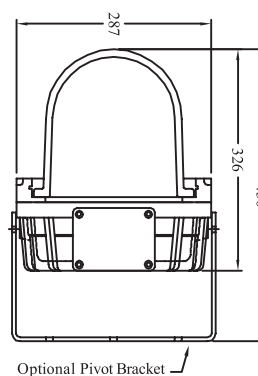
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| Certification Code      | Ex de II 2 GD IIC T2 – T5 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 00 ATEX I047  | IEC Ex SIR 09.0028  |
| Certification standards | EN 60079 EN 61241  | IEC 60079 IEC 61241 |
| Protection              | IP 66  |                     |

## Features

Large lamp option range  
High Ambient options available  
Rapid re lamping and gear access  
Integral EEx e Terminal chamber

## Options

Large range of lamp options  
Low and high temperature versions  
Coloured glass range



Terminal block access



620 External reflector



Swivel stirrup mounting

# Technical Data

|                            |  |
|----------------------------|--|
| Supply Voltage             | 240v 50Hz Check for alternative voltages   |
| Operating Temperature      | -20°C to +40 °C standard supply<br>For operation at -45°C or up to 90°C consult sales office prior to ordering             |
| Control Gear (when Fitted) | Ballast, ignitor and capacitor can be fitted within the luminaire  |
| Lamp Options               | 150w SON-E and 250w SON-I<br>125w and 250w HPMV/MBF<br>Up to 300w GLS, 25w SL or 20w PLCE                                  |
| Cable Entries              | 2 x M20 – ISO (1 plugged) as Standard. Other threads available.  |
| Terminals                  | 4 (4mm) wire and earth with looping facility. Cable crimping required at installation when looping                         |
| Mounting Facility          | Back mounted fixing strap  |
| Access                     | Terminals accessed via terminal cover retained by cap screw<br>Lamp and gear accessed via removable glass dome             |
| Material                   | Corrosion resistant marine grade aluminium body and bezel. Toughened Borosilicate glass dome                               |
| Finish                     | 2 Pack epoxy paint on primed surface. Standard colour - Aqua<br>Additional costs for non standard colours                  |
| Accessories                | Internal or external reflector      Pivot bracket for directional control<br>Pendant mount                      Wire Guard |
| Weight                     | 12.5 to 16.0 kgs   |

| Standard                  | Part Number        |                            | T.Class |    | Ambient T °C |       |
|---------------------------|--------------------|----------------------------|---------|----|--------------|-------|
| Size                      | Standard Luminaire | High Temperature Luminaire | STD     | HT | STD          | HT    |
| 200W GLS                  | 620C/200W GLS      | 620C/HT/300W GLS           | T3      | T3 | 55 °C        | 85 °C |
| 300W GLS                  | 620C/300W GLS      | 620C/HT/300W GLS           | T3      | T3 | 55 °C        | 85 °C |
| 150W SON/MBI              | 620C/150W SON/MBI  | 620C/HT/150W SON/MBI       | T4      | T3 | 40 °C        | 90 °C |
| 250W SON-I                | 620C/250W SON-I    | 620C/HT/250W SON-I         | T3      | T3 | 40 °C        | 70 °C |
| 250W MBI                  | 620C/250W MBI      | 620C/HT/250W MBI           | T3      | T3 | 40 °C        | 70 °C |
| 125W HPMV                 | 620C/125W HPMV     | 620C/HT/125W HPMV          | T4      | T3 | 40 °C        | 90 °C |
| 250W HPMV                 | 620C/250W HPMV     | 620C/HT/250W HPMV          | T3      | T2 | 39 °C        | 65 °C |
| Wire Guard                | /WG                | /WG                        |         |    |              |       |
| Reflector                 | /R                 | /R                         |         |    |              |       |
| Replacement glass - Clear | 3H69004035         | 3H69004037                 |         |    |              |       |



## Certification and Approval

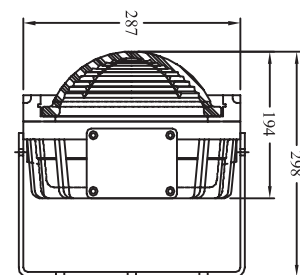
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| Certification Code      | Ex de II 2 GD IIC T3 – T6 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 00 ATEX 1047  | IEC Ex SIR 09.0028  |
| Certification standards | EN 60079 EN 61241  | IEC 60079 IEC 61241 |
| Protection              | IP 66  |                     |

## Features

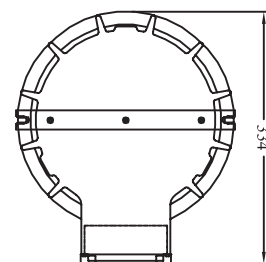
Shallow profile for confined space  
IIC as standard  
Integral EEx e Terminal chamber  
Heavy duty construction

## Options

Shallow profile for confined spaces  
Cow and high temperature versions  
Extended lamp range  
Coloured glass range



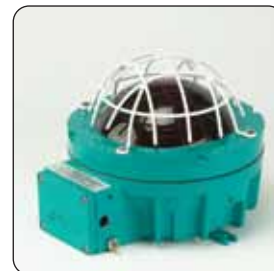
Optional Pivot Bracket



621 with wire guard



Terminal block access and  
local external earthing



Coloured glass option

# Technical Data

|                            |   |
|----------------------------|---|
| Supply Voltage             | 240v 50Hz Check for alternative voltages  |
| Operating Temperature      | -20°C to +40 °C standard supply.<br>For operation up to 90°C consult sales office prior to ordering                   |
| Control Gear (when Fitted) | Ballast, ignitor and capacitor all fitted within the luminaire  |
| Lamp Options               | Certified with elliptical lamps (Lamps not provided)<br>50w or 70w SON<br>50w, 80w or 125w HPMV/MBF<br>Up to 200w GLS |
| Cable Entries              | 2 x M20 – ISO (I plugged) as Standard. Other threads available.   |
| Terminals                  | 4 (4mm) wire and earth with looping facility. Cable crimping required at installation when looping                    |
| Mounting Facility          | Back mounted fixing strap   |
| Access                     | Terminals accessed via terminal cover retained by cap screw<br>Lamp and gear accessed via removable glass dome        |
| Material                   | Corrosion resistant marine grade aluminium body and bezel. Toughened Borosilicate glass dome                          |
| Finish                     | 2 Pack epoxy paint on primed surface. Standard colour - Aqua<br>Additional costs for non standard colours             |
| Accessories                | Internal or external reflector Pivot bracket for directional control<br>Pendant mount Wire Guard                      |
| Weight                     | 12kgs to 14kgs lamp dependant   |

| Standard                  | Part Number        |                            | T.Class |    | Ambient T °C |       |
|---------------------------|--------------------|----------------------------|---------|----|--------------|-------|
| Size                      | Standard Luminaire | High Temperature Luminaire | STD     | HT | STD          | HT    |
| 200W GLS                  | 621C/200W GLS      | 621C/HT/200W GLS           | T4      | T3 | 33 °C        | 60 °C |
| 25W SL                    | 621C/25W SL        | 621C/HT/25W SL             | T6      | T5 | 40 °C        | 60 °C |
| 20W PLCE                  | 621C/20W PLCE      | 621C/HT/20W PLCE           | T6      | T5 | 40 °C        | 60 °C |
| 50W SON                   | 621C/50W SON       | 621C/HT/50W SON            | T4      | T4 | 40 °C        | 60 °C |
| 70W SON                   | 621C/70W SON       | 621C/HT/70W SON            | T4      | T4 | 40 °C        | 60 °C |
| 50W HPMV                  | 621C/50W HPMV      | 621C/HT/50W HPMV           | T4      | T3 | 40 °C        | 90 °C |
| 80W HPMV                  | 621C/80W HPMV      | 621C/HT/80W HPMV           | T4      | T3 | 40 °C        | 90 °C |
| 125W HPMV                 | 621C/125W HPMV     | 621C/HT/125W HPMV          | T4      | T3 | 40 °C        | 70 °C |
| Wire Guard                | /WG                | /WG                        |         |    |              |       |
| Replacement glass - Clear | 2H69004041         | 2H69004033                 |         |    |              |       |

## Certification and Approval

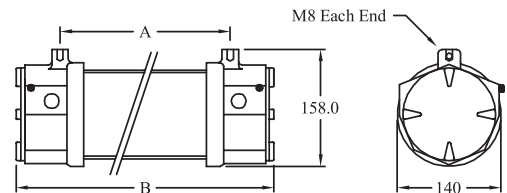
|                         |   |                     |
|-------------------------|---|---------------------|
| Certification Code      | Ex d II 2 G IIB or IIC T4 - T6 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 01 ATEX 1033X  | IEC Ex SIR 09.0029X |
| Certification standards | EN 60079 EN 61241   | IEC 60079 IEC 61241 |
| Protection IP 66        |   |                     |

## Features

High Impact Resistant Polycarbonate lens  
Anodised marine grade Aluminium  
50,000 hr electronic ballast  
EOL lamp protection  
Vibration resistant

## Options

Wide range of voltage options  
Large range of lamp options  
IP68 versions  
Through wiring



| Size | Model (Lamp) - Single & Twin   | A    | B    |
|------|--------------------------------|------|------|
| 1    | 8W(T5), 11W, 18W, 26W(CF)      | 335  | 448  |
| 2    | 14W(T5), 18W(T8), 36W, 55W(CF) | 632  | 752  |
| 4    | 28W(T5), 36W(T8)               | 1242 | 1362 |
| 5    | 58W(T8)                        | 1542 | 1662 |
| 6    | 70W(T8)                        | 1806 | 1926 |

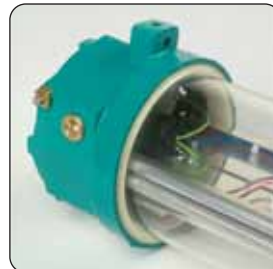
All dimensions in mm



Easy lamp change system



Threaded end cap



Threaded mounting



Through wiring connection  
plug

## Technical Data

|                       |   |                                |        |
|-----------------------|---|--------------------------------|--------|
| Supply Voltage        | 230v 50/60Hz<br>Check for alternative voltages  |                                |        |
| Operating Temperature | -20°C to +55°C standard supply subject to lamp and ambient<br>temperature combinations (see table opposite).  |                                |        |
| Control Gear          | Electronic instant start, Switch start  |                                |        |
| Lamp Options          | 8W, 14W, 28W (T5 lamp), 18W, 36W, 58W, 70W (T8 lamp), 11W, 18W, 26W, 36W, 55W (Compact Fluorescent)   |                                |        |
| Cable Entries         | 2 x M20 - 2 each end, ( 2 plugged) as standard  |                                |        |
| Terminals             | 3 wire and earth. Cable size 4mm <sup>2</sup> max<br>Through wiring option available on 18w to 70w sizes  |                                |        |
| Mounting Facility     | 2 x M8 tapped holes vertical and horizontal at both ends.   |                                |        |
| Access                | Terminals accessed via threaded end cover as is the gear tray which slides out.   |                                |        |
| Material              | Corrosion resistant marine grade anodised aluminium body and high impact polycarbonate tube.  |                                |        |
| Finish                | 2 Pack epoxy paint on primed surface.<br>Standard colour - Aqua<br>Additional costs for non standard colours  |                                |        |
| Weight                | Size 1  | 8W(T5), 11W, 18W, 26W(CF)      | 3.0Kgs |
|                       | Size 2  | 14W(T5), 18W(T8), 36W, 55W(CF) | 5.0Kgs |
|                       | Size 4  | 28W(T5), 36W(T8)               | 7.0Kgs |
|                       | Size 5  | 58W(T8)                        | 8.0Kgs |
|                       | Size 6  | 70W(T8)                        | 9.0Kgs |
| Features              | Highly versatile luminaire with large lamp and voltage ranges<br>Durable and slim line construction<br>Removable lamp assembly for ease of lamp change.<br>High IP rating |                                |        |

| Standard            | Part Number   | Gas Group | T.Class | Ambient T °C           |
|---------------------|---------------|-----------|---------|------------------------|
| Size                |               |           |         |                        |
| <b>T5 Lamp</b>      |               |           |         |                        |
| 1 x 8W              | 7108/S1/HF    | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 8W              | 7208/S1/HF    | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 14W             | 7114/S2/HF    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 14W             | 7214/S2/HF    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 28W             | 7128/S4/HF    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 28W             | 7228/S4/HF    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| <b>T8 Lamp</b>      |               |           |         |                        |
| 1 x 18W             | 7118/S2/HF    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 18W             | 7218/S2/HF    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 36W             | 7136/S4/HF    | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 36W             | 7236/S4/HF    | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 58W             | 7158/S5/HF    | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 58W             | 7258/S5/HF    | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 70W             | 7170/S6/HF    | IIB       | T5 / T4 | -20°C to +40°C / +55°C |
| 2 x 70W             | 7270/S6/HF    | IIB       | T5 / T4 | -20°C to +40°C / +55°C |
| <b>Compact Lamp</b> |               |           |         |                        |
| 1 x 11W             | 7111/S1/HF/CF | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 11W             | 7211/S1/HF/CF | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 18W             | 7118/S1/HF/CF | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 18W             | 7218/S1/HF/CF | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 26W             | 7126/S1/HF/CF | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 26W             | 7226/S1/HF/CF | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 36W             | 7136/S2/HF/CF | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 36W             | 7236/S2/HF/CF | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 55W             | 7155/S2/HF/CF | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 55W             | 7255/S2/HF/CF | IIC       | T6 / T5 | -20°C to +40°C / +55°C |

## Spares and Accessories



Ballast



Ceiling Bracket



Eyebolt



## Certification and Approval

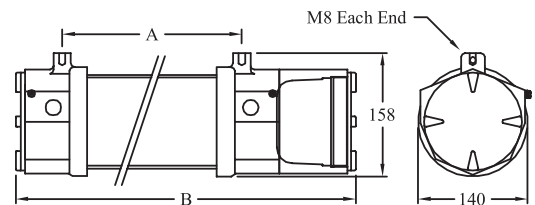
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|-------------------------|--|---------------------|
| Certification Code      | Ex d II 2 G IIB or IIC T4 or T6 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 01 ATEX 1033X   | IEC Ex SIR 09.0029X |
| Certification standards | EN 60079 EN 61241  | IEC 60079 IEC 61241 |
| Protection              | IP 66  |                     |

## Features

Internally mounted batteries giving 3 hr duration  
EOL lamp protection  
50,000 hour electronic ballast

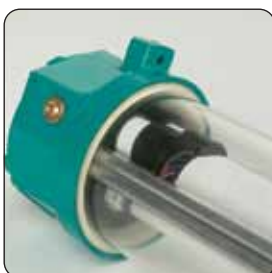
## Options

Wide range of voltage options  
Large range of lamp options  
IP68 versions



| Size | Model (Lamp) - Single & Twin   | A    | B    |
|------|--------------------------------|------|------|
| 1    | 8W(T5), 11W, 18W, 26W(CF)      | 335  | 448  |
| 2    | 14W(T5), 18W(T8), 36W, 55W(CF) | 632  | 752  |
| 4    | 28W(T5), 36W(T8)               | 1242 | 1449 |
| 5    | 58W(T8)                        | 1542 | 1749 |

All dimensions in mm



Internal charger inverter



Separate battery chamber  
(some sizes)



Terminal block access



Exit fitting

## Technical Data

|                       |   |                                |         |                       |
|-----------------------|---|--------------------------------|---------|-----------------------|
| Supply Voltage        | 230v 50/60Hz<br>Check for alternative voltages. Suitable for central battery operation  |                                |         |                       |
| Operating Temperature | -20°C to +55°C standard supply subject to lamp and ambient temperature combinations (see table opposite).   |                                |         |                       |
| Control Gear          | Electronic instant start, Switch start. One lamp lit in emergency mode  |                                |         |                       |
| Lamp Options          | 8W, 14W, 28W (T5 lamp), 18W, 36W, 58W (T8 lamp), 11W, 18W, 26W, 36W, 55W (Compact Fluorescent)  |                                |         |                       |
| Cable Entries         | 4 x M20 - 2 each end, (2 plugged) as standard   |                                |         |                       |
| Terminals             | 3 wire and earth. Cable size 4mm <sup>2</sup> max<br>Through wiring option available on 18w to 70w sizes  |                                |         |                       |
| Mounting Facility     | 2 x M8 tapped holes vertical and horizontal at both ends.   |                                |         |                       |
| Access                | Terminals accessed via threaded end cover as is the gear tray which slides out.   |                                |         |                       |
| Material              | Corrosion resistant marine grade anodised aluminium body and high impact polycarbonate tube.  |                                |         |                       |
| Finish                | 2 Pack epoxy paint on primed surface.<br>Standard colour - Aqua<br>Additional costs for non standard colours  |                                |         |                       |
| Weight                | Size 1  | 8W(T5), 11W, 18W, 26W(CF)      | 5.1Kgs  | Internal Battery Pack |
|                       | Size 2  | 14W(T5), 18W(T8), 36W, 55W(CF) | 6.8Kgs  | Internal Battery Pack |
|                       | Size 4  | 28W(T5), 36W(T8)               | 10.0Kgs | Remote Battery Pack   |
|                       | Size 5  | 58W(T8)                        | 10.4Kgs | Remote Battery Pack   |
| Features              | Highly versatile luminaire with large lamp and voltage ranges<br>Durable and slim line construction<br>Removable lamp assembly for ease of lamp change.<br>High IP Rating |                                |         |                       |

| Standard                                 | Part Number              | Gas Group | T.Class | Ambient T °C           |
|--|--------------------------|-----------|---------|------------------------|
| Size                                     |                          |           |         |                        |
| <b>T5 Lamp</b>                           |                          |           |         |                        |
| 1 x 8W (Maintained or Non-Maintained)    | 7108/S1/HF/EM/M or NM    | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 8W (Sustained)- EXIT / KELUAR Label  | 7208/S1/HF/EM/S          | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 14W (Maintained or Non-Maintained)   | 7114/S2/HF/EM/M or NM    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 14W (Maintained)                     | 7214/S2/HF/EM/M          | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 28W (Maintained or Non-Maintained)   | 7128/S4/HF/EM/M or NM    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 28W (Maintained)                     | 7228/S4/HF/EM/M          | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| <b>T8 Lamp</b>                           |                          |           |         |                        |
| 1 x 18W (Maintained or Non-Maintained)   | 7118/S2/HF/EM/M or NM    | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 18W (Maintained)                     | 7218/S2/HF/EM/M          | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 36W (Maintained or Non-Maintained)   | 7136/S4/HF/EM/M or NM    | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 36W (Maintained)                     | 7236/S4/HF/EM/M          | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 58W (Maintained)                     | 7158/S5/HF/EM/M          | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 58W (Maintained)                     | 7258/S5/HF/EM/M          | IIB       | T6 / T5 | -20°C to +40°C / +55°C |
| <b>Compact Lamp</b>                      |                          |           |         |                        |
| 1 x 11W (Maintained or Non-Maintained)   | 7111/S1/HF/CF/EM/M or NM | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 11W (Sustained)- EXIT / KELUAR Label | 7211/S1/HF/CF/EM/S       | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 18W (Maintained or Non-Maintained)   | 7118/S1/HF/CF/EM/M or NM | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 18W (Maintained)                     | 7218/S1/HF/CF/EM/M       | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 26W (Maintained or Non-Maintained)   | 7126/S1/HF/CF/EM/M or NM | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 2 x 26W (Maintained)                     | 7226/S1/HF/CF/EM/M       | IIC       | T5 / T4 | -20°C to +40°C / +52°C |
| 1 x 36W (Maintained or Non-Maintained)   | 7136/S2/HF/CF/EM/M or NM | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 36W (Maintained)                     | 7236/S2/HF/CF/EM/M       | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 1 x 55W (Maintained)                     | 7155/S2/HF/CF/EM/M       | IIC       | T6 / T5 | -20°C to +40°C / +55°C |
| 2 x 55W (Maintained)                     | 7255/S2/HF/CF/EM/M       | IIC       | T6 / T5 | -20°C to +40°C / +55°C |

## Spares and Accessories



Charger Inverter



Battery



Pole Bracket

## Certification and Approval

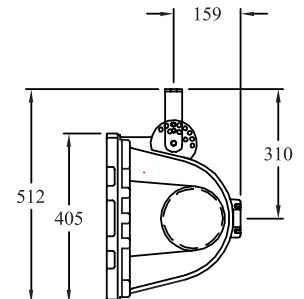
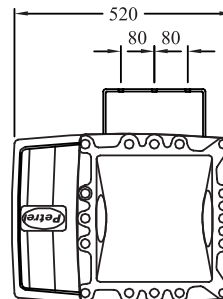
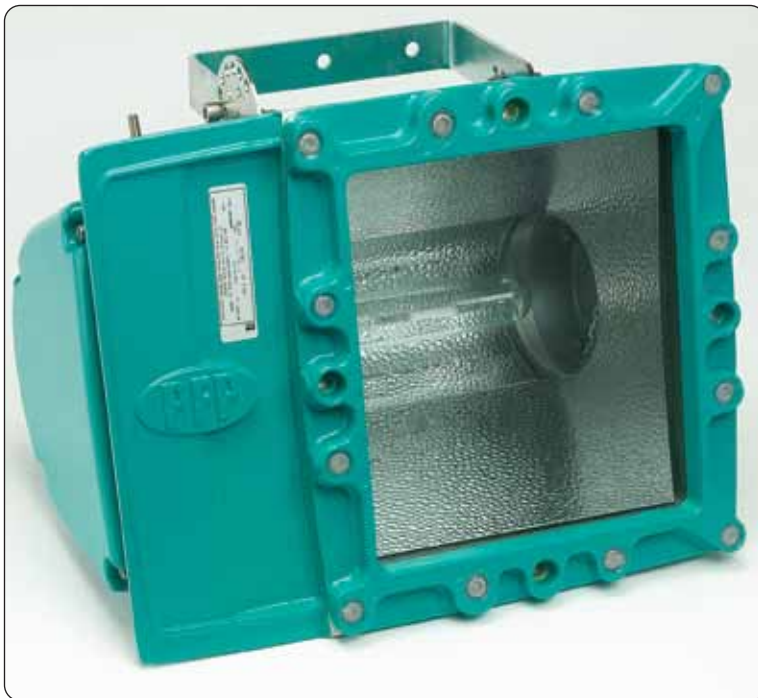
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|-------------------------|--|---------------------|
| Certification Code      | Ex de II 2 GD IIB T2 – T3 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 01 ATEX 1035  | IEC Ex SIR 09.0030  |
| Certification standards | EN 60079 EN 61241  | IEC 60079 IEC 61241 |
| Protection              | IP 66  |                     |

## Features

Rapid re-lamping through threaded access cover  
Narrow/Wide angle beam adjustment  
Symmetrical reflector as standard  
Integral EEx e Terminal chamber

## Options

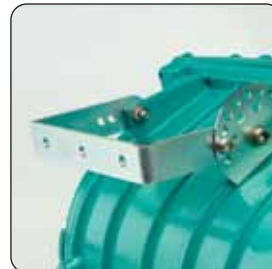
Mounting bracket options  
0.9 power factor when fitted



Lamp access cover



Beam adjustment



Angular adjustment  
mounting plate

## Technical Data

|                       |  |
|-----------------------|--|
| Supply Voltage        | 230v 50Hz Check for alternative voltages and frequency.  |
| Operating Temperature | -20°C to +55°C standard supply but subject to lamp, voltage and ambient temperature combinations .   |
| Control Gear          | Integral within the luminaire and optional power factor correction   |
| Lamp Options          | Tubular: SON, MBI, HPMV, Tungsten. Symmetrical reflector fitted to all versions.   |
| Cable Entries         | 2 x M20 – ISO (1 plugged) as Standard. Other threads available.  |
| Terminals             | 2 wire and earth. Cable size 6mm 2 max with looping facility   |
| Mounting Facility     | Rear pole mounting directly to body or for adjustable angle version graduated angle bracket.   |
| Access                | Terminals accessed via EEx e terminal cover with 4 stainless steel fixings.<br>Lamp change via threaded lamp cover for reduced maintenance time. |
| Material              | Corrosion resistant marine grade aluminium body and covers and toughened Borosilicate glass.   |
| Finish                | 2 Pack epoxy paint on primed surface. Standard colour - Aqua   |
| Weight                | SON, MBI, HPMV 33Kgs<br>Tungsten 29Kgs   |

| Standard                    | Part Number    | T.Class | Ambient Temp. °C |
|-----------------------------|----------------|---------|------------------|
| Size                        |                |         |                  |
| 150W Sodium or Metal Halide | 8/150W SON/MBI | T3      | -20°C to +55°C   |
| 250W Sodium or Metal Halide | 8/250W SON/MBI | T3      | -20°C to +55°C   |
| 400W Sodium or Metal Halide | 8/400W SON/MBI | T3      | -20°C to +40°C   |
| 250W Mercury                | 8/250 HPMV     | T3      | -20°C to +55°C   |
| 400W Mercury                | 8/400W HPMV    | T3      | -20°C to +40°C   |
| 500W T. Halogen             | 8/500W TH      | T3      | -20°C to +55°C   |
| Wire Guard                  | /WG            |         |                  |
| Replacement glass - Clear   | 6H23821020     |         |                  |



## Certification and Approval

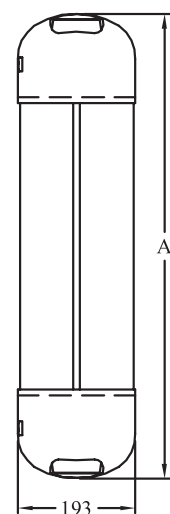
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| Certification Code      | Ex ed II 2G 3D IIC T4 – T5 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 00 ATEX 307I   | IECEX SIR 08.0089   |
| Certification standards | EN 60079 EN6124I  | IEC 60079 IEC 6124I |
| Protection              | IP 66   |                     |

## Features

Integral isolation switch as standard  
Single point locking action  
EOL lamp shut down  
High light output  
Integral battery with 3 hr. duration on emergency versions

## Options

Alternative voltages  
Through wiring  
Omission of isolation switch



| Size  | Length | Fixing centres 100 up to |
|-------|--------|--------------------------|
| 2x18w | 760    | 450                      |
| 2x36w | 1365   | 1055                     |
| 2x58w | 1665   | 1355                     |

All dimensions in mm



Single point diffuser release



Terminal block access



Rear mounting channel  
for T bolt



Ballast pack

# Technical Data

|                       |   |          |           |
|-----------------------|---|----------|-----------|
| Supply Voltage        | 230v 50/60Hz standard, 110v , 254v and 277v optional on some 18w and 36w. 60Hz also optional. Suitable for central battery operation.                                   |          |           |
| Operating Temperature | -20°C to +55°C standard supply subject to ambient temperature requirements.   |          |           |
| Control Gear          | Electronic instant start ballast and integral charger inverter for emergency versions. EOL cut off. 3hr operation with internal battery subject to ambient temperature. |          |           |
| Lamp Options          | Twin 18w, 36w, 58w (Lamps not provided)   |          |           |
| Cable Entries         | 2 x M20 at each end (3 plugged as Standard)   |          |           |
| Terminals             | 3 wire and earth. Cable size 4mm <sup>2</sup> max. Through wiring option available  |          |           |
| Mounting Facility     | 2 x M8 “Quick fit” bolts available on variable centres for ease of mounting.  |          |           |
| Access                | Terminals accessed via quick release diffuser and reflector.  |          |           |
| Material              | Anodised corrosion resistant Aluminium and high impact polycarbonate diffuser and body mouldings. UV Resistant.   |          |           |
| Finish                | Standard colour – Aqua body mouldings natural aluminium for body centre section   |          |           |
| Weight                |   | Standard | Emergency |
|                       | 2x 18w  | 6.8Kgs   | 7.0Kgs    |
|                       | 2 x 36w   | 10.4Kgs  | 11.2Kgs   |
|                       | 2 x 58w   | 12.0Kgs  | 13.0Kgs   |

| Standard         | Part Number |            |              |             | Gas   | T. Class | Ambient        |
|------------------|-------------|------------|--------------|-------------|-------|----------|----------------|
| Size             | Luminaire   | Diffuser   | Ballast Pack | Battery     | Group |          | Temp. °C       |
| 2 x 18W          | 9218/HF     | 6H23400092 | 2H69001218LH | -           | IIC   | T4       | -20°C to +55°C |
| 2 x 36W          | 9236/HF     | 6H23400094 | 2H69001236LH | -           | IIC   | T4       | -20°C to +55°C |
| 2 x 58W          | 9258/HF     | 6H23400095 | 2H69001258LH | -           | IIC   | T4       | -20°C to +55°C |
| <b>Emergency</b> |             |            |              |             |       |          |                |
| 2 x 18W          | 9218/HF/EM  | 6H23400092 | 2H69002218LH | 6H38409003A | IIC   | T4       | -20°C to +55°C |
| 2 x 36W          | 9236/HF/EM  | 6H23400094 | 2H69002236LH | 6H38409003A | IIC   | T4       | -20°C to +55°C |
| 2 x 58W          | 9258/HF/EM  | 6H23400095 | 2H69002258LH | 6H38409004A | IIC   | T4       | -20°C to +55°C |

## 9R Series EEx ed Standard and Emergency Recessed Fluorescent Luminaire

ATEX  
CERTIFIED

CAT II  
ZONE I

### Certification and Approval

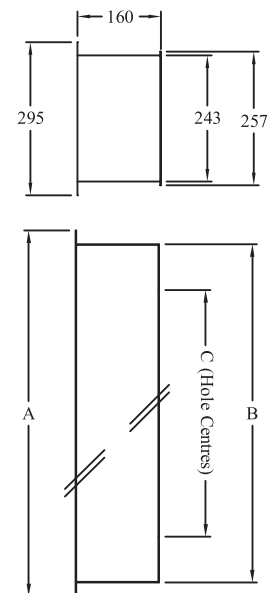
|                         |   |                     |
|-------------------------|---|---------------------|
| Certification Code      | Ex ed II 2G 3D IIC T4 – T5 (See lamp tables for T rating) |                     |
| Certification numbers   | SIRA 00 ATEX 3106   | IEC Ex SIR 09.0039  |
| Certification standards | EN 60079 EN 61241   | IEC 60079 IEC 61241 |
| Protection              | IP 55   |                     |

### Features

Flush fitting – minimizing dust build up  
EOL lamp shut down  
Integral battery with 3hr duration on emergency versions

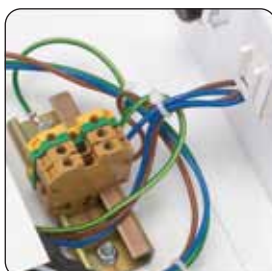
### Options

Alternative voltages  
Through wiring  
Omission of isolation switch



| Size   | A    | B    | C    |
|--------|------|------|------|
| 2 x 18 | 802  | 752  | 642  |
| 2 x 36 | 1402 | 1352 | 1242 |
| 2 x 58 | 1702 | 1652 | 1542 |

All dimensions in mm



Terminal block access



Rear mounting foot



Ballast & lamp  
holder pack

## Technical Data

|                       |   |          |           |
|-----------------------|---|----------|-----------|
| Supply Voltage        | 230v 50/60Hz standard, 110v , 254v and 277 v optional on some 18w and 36w. 60Hz also optional. Suitable for central battery operation.                                  |          |           |
| Operating Temperature | -20°C to +55°C standard supply subject to ambient temperature requirements.   |          |           |
| Control Gear          | Electronic instant start ballast and integral charger inverter for emergency versions. EOL cut off. 3hr operation with internal battery subject to ambient temperature. |          |           |
| Lamp Options          | Twin 18w, 36w, 58w T8 (Lamps not provided)  |          |           |
| Cable Entries         | 2 x M20 clearance holes at each end (3 plugged as Standard)   |          |           |
| Terminals             | 3 wire and earth. Cable size 4mm <sup>2</sup> max. Through wiring option available  |          |           |
| Mounting Facility     | 4 fixing holes on rear of enclosure.  |          |           |
| Access                | Remove toughened glass front panel and quick release diffuser.  |          |           |
| Material              | Polyester coated steel and toughened glass in an aluminium frame.   |          |           |
| Finish                | Standard colour – White polyester coated  |          |           |
| Weight                |   | Standard | Emergency |
|                       | 2 x 18w   | 12.0Kgs  | 10.0Kgs   |
|                       | 2 x 36w   | 14.0Kgs  | 13.0Kgs   |
|                       | 2 x 58w   | 15.0Kgs  | 15.0Kgs   |

| Standard         | Part Number |              |             | Gas   | T. Class | Ambient        |
|------------------|-------------|--------------|-------------|-------|----------|----------------|
| Size             | Luminaire   | Ballast Pack | Battery     | Group |          | Temp. °C       |
| 2 x 18W          | 9R218/HF    | 2H69001218LH | -           | IIC   | T4       | -20°C to +55°C |
| 2 x 36W          | 9R236/HF    | 2H69001236LH | -           | IIC   | T4       | -20°C to +55°C |
| 2 x 58W          | 9R258/HF    | 2H69001258LH | -           | IIC   | T4       | -20°C to +55°C |
| <b>Emergency</b> |             |              |             |       |          |                |
| 2 x 18W          | 9R218/HF/EM | 2H69002218LH | 6H38409003A | IIC   | T4       | -20°C to +55°C |
| 2 x 36W          | 9R236/HF/EM | 2H69002236LH | 6H38409003A | IIC   | T4       | -20°C to +55°C |
| 2 x 58W          | 9R258/HF/EM | 2H69002258LH | 6H38409004A | IIC   | T4       | -20°C to +55°C |

## Certification and Approval

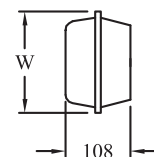
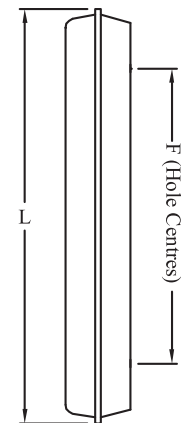
|                        |                       |
|------------------------|-----------------------|
| Certification Code     | Ex nC II 3GD II T4    |
| Certification number   | Epsilon 02 ATEX I I67 |
| Certification standard | EN 60079              |
| Protection             | IP 65                 |

## Features

Unrestricted breathing  
No vacuum test required  
Integral battery with 3hr duration on emergency versions

## Options

Closed cell gasket  
Push fit gear tray  
Stainless steel clips



| Size  | L    | W   | F    |
|-------|------|-----|------|
| 1x36w | 1312 | 102 | 800  |
| 1x58w | 1612 | 102 | 1100 |
| 2x18w | 702  | 172 | 500  |
| 2x36w | 1312 | 172 | 800  |
| 2x58w | 1612 | 172 | 1100 |

All dimensions in mm



Gear tray clips



Lamp mounting



Diffuser clips



Ballast pack



# Technical Data

|                       |  |          |           |
|-----------------------|--|----------|-----------|
| Supply Voltage        | 230v 50/60Hz standard. Suitable for central battery operation.   |          |           |
| Operating Temperature | -40°C to +55°C standard supply subject to ambient temperature requirements.  |          |           |
| Control Gear          | Electronic instant start ballast and integral charger inverter for emergency versions.<br>EOL cut off. 3hr operation with internal battery subject to ambient temperature. |          |           |
| Lamp Options          | Twin 18w, 36w, 58w T8 (Lamps not provided)<br>Single 36w and 58w T8 (Lamps not provided)   |          |           |
| Cable Entries         | 1 x M20 clearance holes at each end (1 plugged as Standard)  |          |           |
| Terminals             | 3 wire and earth. Cable size 4mm <sup>2</sup> max. Through wiring option available   |          |           |
| Mounting Facility     | 2 drill through fixing points on rear of enclosure or "snap on"<br>stainless steel brackets or heavy duty "gull wing" bracket available                                    |          |           |
| Access                | Quick release stainless steel clips to free diffuser and spring clips release gear tray.   |          |           |
| Material              | GRP moulded body, polycarbonate diffuser and coated steel<br>control gear tray. Stainless steel diffuser and tray retaining clips  |          |           |
| Finish                | Standard colour – Light grey non coated moulding   |          |           |
| Weight                |  | Standard | Emergency |
|                       | 2x 18w   | 2.8gs    | 3.8Kgs    |
|                       | 2 x 36w  | 3.6gs    | 4.6Kgs    |
|                       | 2 x 58w  | 5.0Kgs   | 5.6Kgs    |
|                       | 1 x 36w  | 3.2kgs   | 4.0Kgs    |
|                       | 1 x 58w  | 3.4Kgs   | 4.2Kgs    |
| Features              | Resilient construction      Poured seal or closed cell gasket<br>Unrestricted breathing for minimum inspection requirements      Easily maintained.                        |          |           |

| Standard  | Part Number |          |               |              |             |            |
|-----------|-------------|----------|---------------|--------------|-------------|------------|
| Size      | Luminaire   | Diffuser | Diffuser Clip | Ballast Pack | Inverter    | Battery    |
| 1 x 36W   | XN136/HF    | A700002B | G001328A      | 2H69011136LH | -           | -          |
| 1 x 58W   | XN158/HF    | A700003C | G001328A      | 2H69011158LH | -           | -          |
| 2 x 18W   | XN218/HF    | A700019D | G001328A      | 2H69011218LH | -           | -          |
| 2 x 36W   | XN236/HF    | A700004E | G001328A      | 2H69011236LH | -           | -          |
| 2 x 58W   | XN258/HF    | A700005F | G001328A      | 2H69011258LH | -           | -          |
| Emergency |             |          |               |              |             |            |
| 1 x 36W   | XN136/HF/EM | A700002B | G001328A      | 2H69011136LH | 136/CHINVEM | 6H38409003 |
| 1 x 58W   | XN158/HF/EM | A700003C | G001328A      | 2H69011158LH | 158/CHINVEM | 6H38409004 |
| 2 x 18W   | XN218/HF/EM | A700019D | G001328A      | 2H69011218LH | 218/CHINVEM | 6H38409003 |
| 2 x 36W   | XN236/HF/EM | A700004E | G001328A      | 2H69011236LH | 236/CHINVEM | 6H38409003 |
| 2 x 58W   | XN258/HF/EM | A700005F | G001328A      | 2H69011258LH | 258/CHINVEM | 6H38409004 |

### Certification and Approval

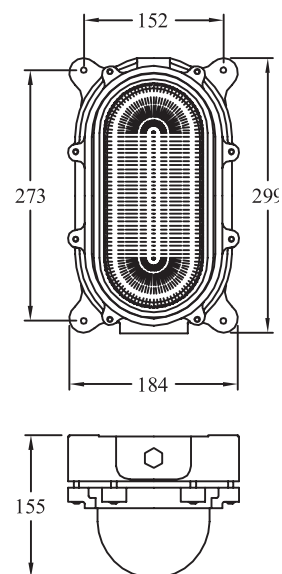
|                        |   |
|------------------------|---|
| Certification Code     | Ex nC II 3GD II T3 or T6 (See lamp tables for T rating) |
| Certification number   | 03 ATEX TF457/01  |
| Certification standard | EN 60079  |
| Protection             | IP 68 to 15m subject to appropriate glanding            |

### Features

Heavy duty cast iron construction  
Low projection and rounded profile  
Ideal for culvert and water treatment works  
High IP rating for arduous conditions

### Options

Alternative voltages  
Through wiring  
Lamp source variants



Cable entry



Lamp access



Terminal block access

## Technical Data

|                       |  |
|-----------------------|--|
| Supply Voltage        | 230v 50Hz standard.  |
| Operating Temperature | -20°C to +40°C standard supply subject to ambient temperature requirements.  |
| Control Gear          | For use with GLS lamp or 25w compact fluorescent. No control gear required.  |
| Lamp Options          | 150w GLS or 25w compact fluorescent  |
| Cable Entries         | 1 x M20 Threaded entry. Available both ends as option  |
| Terminals             | 2 wire and earth. Cable size 4mm <sup>2</sup> max  |
| Mounting Facility     | 4 cast in fixing lugs to take M8 screws.   |
| Access                | Remove bezel retaining screws to release glass lens and gasket   |
| Material              | Cast iron body and bezel, glass lens and coated wire guard   |
| Finish                | 2 Pack epoxy paint on primed surface.<br>Standard colour – Aqua and white plastic coated guard<br>Additional costs for non standard colours.           |
| Weight                | 9.0Kgs   |
| Features              | Very heavy construction.<br>Low projection and rounded profile<br>Ideal for culvert and water treatment works<br>High IP rating for arduous conditions |

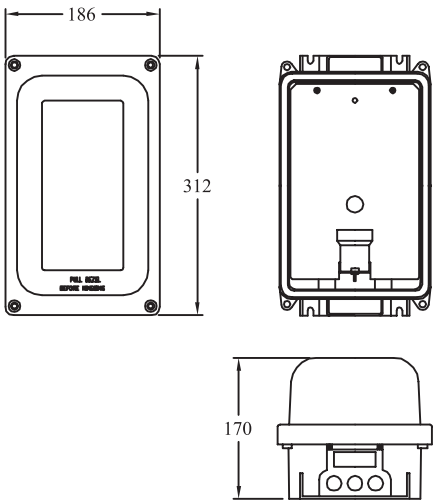
| Standard                  | Part Number        | T.Class | Ambient Temp. °C |
|---------------------------|--------------------|---------|------------------|
| Size                      | Standard Luminaire |         |                  |
| 150W GLS Max              | 457/150W GLS       | T3      | -20°C to +40°C   |
| 25W SL                    | 457/25W SL         | T6      | -20°C to +40°C   |
| Replacement glass - Clear | 6H23241007         |         |                  |

**Certification and Approval**

|                        |                    |
|------------------------|--------------------|
| Certification Code     | Ex nC II 3GD II T3 |
| Certification number   | 03 ATEX TFDN/01    |
| Certification standard | EN 60079           |
| Protection             | IP 65              |

**Features Options**

|                                    |                                |
|------------------------------------|--------------------------------|
| Rapid lamp and control gear access | Lamp source variants           |
| Even light distribution            | Power factor correction        |
| Hinged lens opening                | Various lamp options available |



*Hinged lens opening*



*Screwed bezel fixings*



*Integral mounting feet*

# Technical Data

|                       |  |
|-----------------------|--|
| Supply Voltage        | 230v 50Hz standard.  |
| Operating Temperature | -20°C to +30°C standard supply subject to ambient temperature requirements.                                |
| Control Gear          | Integral within the luminaire and optional power factor correction   |
| Lamp Options          | Elliptical: 70w SON<br>80w HPMV<br>200w GLS<br>26w PL  |
| Cable Entries         | 2 x M20 Threaded entries at one end (1 plugged).   |
| Terminals             | 2 wire and earth. Cable size 4mm <sup>2</sup> max  |
| Mounting Facility     | 4 cast in fixing lugs to take M8 screws.   |
| Access                | Unscrew retaining screws to open hinged lens.  |
| Material              | Die cast aluminium body and bezel and borosilicate glass lens  |
| Finish                | Grey Powder coating or 2 Pack epoxy paint on primed surface.<br>Additional costs for non standard colours. |
| Weight                | 70w and 80w      6.0Kgs<br>200w              4.0Kgs  |
| Features              | Rapid lamp and control gear access<br>Even light distribution<br>Various lamp options available            |

| Standard                  | Part Number        | T.Class | Ambient Temp. °C |
|---------------------------|--------------------|---------|------------------|
| Size                      | Standard Luminaire |         |                  |
| 200W GLS Max              | DN200              | T3      | -20°C to +25°C   |
| 80W HPMV                  | DN80               | T3      | -20°C to +25°C   |
| 70W SON                   | DN70               | T3      | -20°C to +30°C   |
| 26W PL                    | DN200/26W PL       | T3      | -20°C to +25°C   |
| Replacement glass - Clear | 6TL27681009        |         |                  |



## Certification and Approval

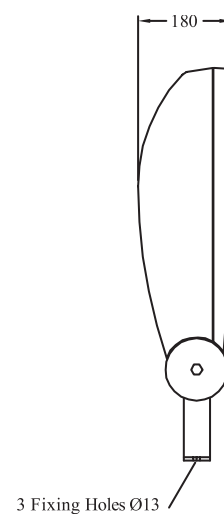
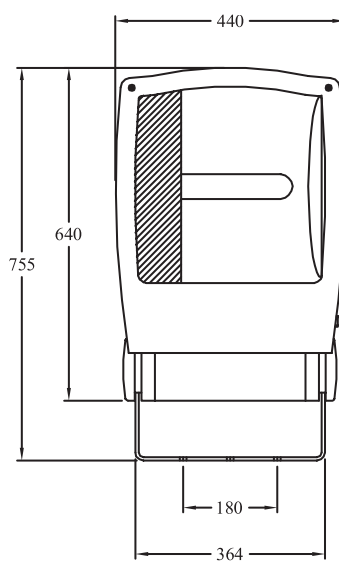
|                        |                    |
|------------------------|--------------------|
| Certification Code     | Ex nR II 3GD II T3 |
| Certification number   | 05 ATEX TFZT/01    |
| Certification standard | EN 60079           |
| Protection             | IP 66              |

## Features

Symmetrical reflector fitted to all versions  
Easy lamp access  
Robust construction  
Directionally adjustable with stirrup mounting bracket

## Options

Lamp source variants  
Power factor correction  
Non standard colour



Hinged lens opening



Cable entry and  
termination block



Adjustable angle  
mounting stirrup

## Technical Data

|                       |   |
|-----------------------|---|
| Supply Voltage        | 230v 50Hz standard..  |
| Operating Temperature | -20°C to +30°C standard supply subject to ambient temperature requirements.   |
| Control Gear          | Integral within the luminaire and optional power factor correction when fitted.   |
| Lamp Options          | Tubular: SON, MBI, Tungsten. 70w to 500w<br>Asymmetrical reflector fitted to all versions. (Lamps not provided)               |
| Cable Entries         | 1 x M20 clearance hole in side of body.   |
| Terminals             | 2 wire and earth. Cable size 4mm <sup>2</sup> max   |
| Mounting Facility     | "U" shaped stirrup bracket with angle adjustment mechanism.   |
| Access                | Unscrew 2 stainless steel screws in hinged glass retaining frame.   |
| Material              | Corrosion resistant die cast aluminium and toughened glass lens.  |
| Finish                | 2 Pack epoxy paint on primed surface.<br>Standard colour – Aqua .Additional costs for non standard colours.                   |
| Weight                | 19.5Kgs to 21Kgs Lamp dependant.  |
| Features              | Symmetrical reflector fitted to all versions<br>Robust construction<br>Directionally adjustable with stirrup mounting bracket |

| Standard                    | Part Number     | T.Class | Ambient Temp. °C |
|-----------------------------|-----------------|---------|------------------|
| Size                        |                 |         |                  |
| 150W Sodium or Metal Halide | ZT/150W SON/MBI | T3      | -20°C to +30°C   |
| 250W Sodium or Metal Halide | ZT/250W SON/MBI | T3      | -20°C to +30°C   |
| 400W Sodium or Metal Halide | ZT/400W SON/MBI | T3      | -20°C to +30°C   |
| 250W Mercury                | ZT/250 HPMV     | T3      | -20°C to +30°C   |
| 400W Mercury                | ZT/400W HPMV    | T3      | -20°C to +30°C   |
| 500W T. Halogen             | ZT/500W TH      | T3      | -20°C to +30°C   |

## Certification and Approval

### Industrial Luminaire

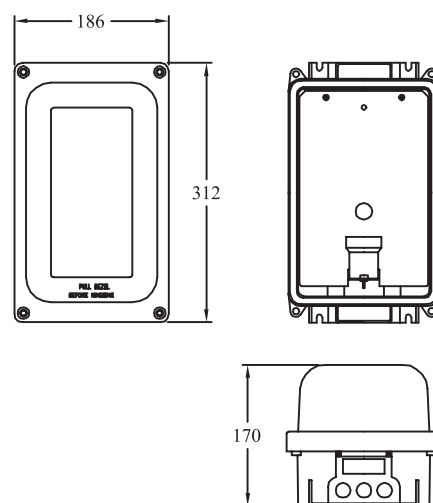
Bulk head fitting suitable for non hazardous industrial and commercial applications  
Available in a range of lamp formats including energy efficient PL's Emergency version with integral battery available with PL lamps (not supplied) Ingress Protection IP 65

### Features

Hinged lens opening  
Rapid lamp and control gear access  
Even light distribution

### Options

Lamp source variants  
Power factor correction  
Various lamp options available



*Hinged lens opening*



*Screwed bezel fixings*



*Integral mounting feet*

## Technical Data

|                       |   |
|-----------------------|---|
| Supply Voltage        | 230v 50Hz standard..  |
| Operating Temperature | -20°C to +25°C standard supply subject to ambient temperature requirements.                                     |
| Control Gear          | Integral within the luminaire and optional power factor correction.<br>Emergency version available for PL lamps |
| Lamp Options          | Elliptical: 70w SON<br>80w HPMV<br>200w GLS<br>PL 26w   |
| Cable Entries         | 2 x M20 Threaded entries at one end (1 plugged).  |
| Terminals             | 2 wire and earth. Cable size 4mm <sup>2</sup> max   |
| Mounting Facility     | 4 cast in fixing lugs to take M8 screws.  |
| Access                | Unscrew retaining screws to open hinged lens.   |
| Material              | Die cast aluminium body and bezel and borosilicate glass lens   |
| Finish                | Grey powder coated or 2 Pack epoxy paint on primed surface.<br>Additional costs for non standard colours.       |
| Weight                | 70w and 80w 8.0Kgs<br>200w 6.5Kgs<br>PL 7.0 Kgs   |
| Features              | Rapid lamp and control gear access<br>Even light distribution<br>Various lamp options available                 |

| Standard                                      | Part Number                           |
|---|---------------------------------------|
| Size  | Standard Luminaire                    |
| 200W GLS Max<br>80W HPMV<br>70W SON<br>26W PL | DB200<br>DB80<br>DB70<br>DB200/26W PL |
| Replacement glass - Clear                     | 6TL27681009                           |

## Certification and Approval

|                         |  |
|-------------------------|--|
| Certification Code      | Ex d II 2 GD IIB T4, T5 or T6 (contents dependant) |
| Certification number    | ITS 09 ATEX I6433X                                 |
| Certification standards | EN 50014 EN 50018 EN 60079                         |
| Operating temperature   | -20°C to +40°C (or +60°C, contents dependant)      |
| Protection              | IP65 / IP66  |

## Features

Heavy duty cast enclosures  
Wide size range for efficient use of space  
Close coupling option for Isolation unit if required  
Cable entries M20 to M75  
G2I starter

## Ordering Equipment - information required

Kilowatt rating  
Cable entry size  
Cable entry quantity  
Starter type, DOL , Star Delta, Reversing 2 speed etc  
Other specific requirements

Full load current  
Cable size  
Voltage and frequency



*G27 and G23 control panels*



*G2I starter*



*Socket G23 starter isolator*



*Cable entry positioning*



## Standard Ranges

|                 |  |
|-----------------|--|
| Motor starters  | 0.25kw to 350kw<br>Direct on Line, Star Delta and Reversing  |
| Optional Extras | Isolators, Status Indicators, Transformers<br>Relays, Fuses, switches  |
| G2I Units       | Control stations up to 4 gang with shrouded or<br>mushroom head and stay put options<br>Switches up to 6 pole 10 amp or 3 pole 24 amp. |
| Finish          | 2 pack grey epoxy coating over etching primer.<br>Other colours at additional cost   |

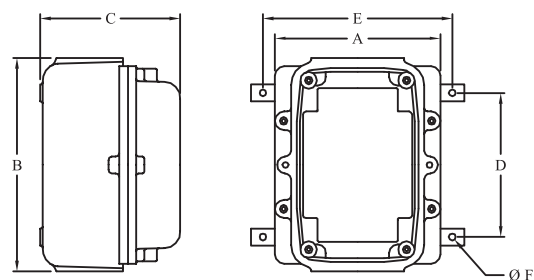
## Dimensional table

|     |    | a   | b   | c   | d   | e   | f  | Wt kgs |
|-----|----|-----|-----|-----|-----|-----|----|--------|
| G21 | Fe | 180 | 155 | 145 | 130 | 195 | 7  | 9      |
| G22 | Fe | 205 | 205 | 156 | 160 | 230 | 9  | 19     |
| G23 | Al | 248 | 316 | 211 | 218 | 230 | 14 | 13     |
| G24 | Al | 321 | 361 | 228 | 291 | 320 | 9  | 21     |
| G25 | Al | 366 | 406 | 228 | 250 | 370 | 11 | 25     |
| G26 | Fe | 416 | 456 | 228 | 300 | 410 | 11 | 50     |
| G27 | Al | 486 | 516 | 228 | 350 | 480 | 14 | 49     |
| G28 | Al | 586 | 670 | 294 | 480 | 580 | 14 | 96     |

## Viewing Windows

| Code | Viewing Diameter |
|------|------------------|
| W2   | 22mm             |
| W3   | 45mm             |
| W4   | 70mm             |
| W5   | 105mm            |

Typical Enclosure Arrangement



A = Box Width  
B = Box Height  
C = Box Depth  
D = Fixing Centre Height  
E = Fixing Centre Width  
F = Diameter Of Fixing Holes

NB.  
Enclosures Can Be Close Coupled Together  
At Either End

### EExd IIB Standard Units

| Direct on Line Starters | Without Isolator | Supply   |
|-------------------------|------------------|----------|
| 5.5 KW                  | S1/G21/5.5       | 415/3/50 |
| 7.5 KW                  | S1/G21/7.5       | 415/3/50 |
| 11 KW                   | S1/G22/11        | 415/3/50 |
| 15 KW                   | S1/G22/15        | 415/3/50 |
| 22 KW                   | S1/G23/22        | 415/3/50 |
| 30 KW                   | S1/G23/30        | 415/3/50 |
| 37 KW                   | S1/G24/37        | 415/3/50 |
| 55 KW                   | S1/G24/55        | 415/3/50 |
| Direct on Line Starters | With Isolator    | Supply   |
| 5.5 KW                  | S1X/G22/5.5      | 415/3/50 |
| 7.5 KW                  | S1X/G22/7.5      | 415/3/50 |
| 11 KW                   | S1X/G23/11       | 415/3/50 |
| 15 KW                   | S1X/G23/15       | 415/3/50 |
| 22 KW                   | S1X/G24/22       | 415/3/50 |
| 30 KW                   | S1X/G24/30       | 415/3/50 |
| 37 KW                   | S1X/G24/37       | 415/3/50 |
| 55 KW                   | S1X/G25/55       | 415/3/50 |
| Star Delta Starters     | Without Isolator | Supply   |
| 11 KW                   | S5/G24/11        | 415/3/50 |
| 15 KW                   | S5/G24/15        | 415/3/50 |
| 22 KW                   | S5/G25/22        | 415/3/50 |
| 30 KW                   | S5/G25/30        | 415/3/50 |
| 37 KW                   | S5/G25/37        | 415/3/50 |
| 55 KW                   | S5/G27/55        | 415/3/50 |
| Star Delta Starters     | With Isolator    | Supply   |
| 11 KW                   | S5X/G24/11       | 415/3/50 |
| 15 KW                   | S5X/G24/15       | 415/3/50 |
| 22 KW                   | S5X/G25/22       | 415/3/50 |
| 30 KW                   | S5X/G25/30       | 415/3/50 |
| 37 KW                   | S5X/G25/37       | 415/3/50 |
| 55 KW                   | S5X/G27/55       | 415/3/50 |

## Certification and Approval

|                         |  |
|-------------------------|--|
| Certification Code      | Ex d II 2 GD IIB T4, T5 or T6 (contents dependant) |
| Certification number    | ITS 09 ATEX I6433X                                 |
| Certification standards | EN 50014 EN 50018 EN 60079                         |
| Operating temperature   | -20°C to +40°C (or +60°C, contents dependant)      |
| Protection              | IP65 / IP66  |

## Features

High quality heavy duty cast enclosures  
Wide size range for efficient use of space  
Close coupling option for Isolation unit if required  
Cable entries M20 to M75.

## Ordering Equipment - information required

Kilowatt rating  
Cable entry size  
Cable entry quantity  
Voltage and frequency  
Starter type, DOL , Star Delta, Reversing 2 speed etc  
Other specific requirements



*G26 control panel*



*Typical panels*



*Cable entry positioning*



*Starter isolator*

## Standard Ranges

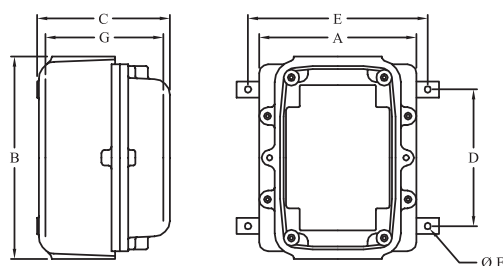
|                 |  |
|-----------------|--|
| Motor starters  | 0.25kw to 350kw<br>Direct on Line, Star Delta and Reversing  |
| Optional Extras | Isolators, Status Indicators, Transformers<br>Relays, Fuses, switches  |
| Distribution    | Up to 600A<br>MCB/MCCB panels, RCCD protection,<br>Fuse boards, Isolator/switch disconnectors  |
| G2I Units       | Control stations up to 4 gang with shrouded or<br>mushroom head and stay put options<br>Switches up to 6 pole 10 amp or 3 pole 24 amp. |
| Finish          | 2 pack grey epoxy coating over etching primer.<br>Other colours at additional cost.  |

| Dimensions and Weights |          |                    |     | IIB Enclosures     |     |     |    |        |    |
|------------------------|----------|--------------------|-----|--------------------|-----|-----|----|--------|----|
| Code                   | Material | External Dimension |     | Mounting Dimension |     |     |    | Weight |    |
|                        |          | A                  | B   | C                  | D   | E   | F  | G      | Kg |
| G2-21                  | Fe       | 180                | 155 | 145                | 130 | 195 | 7  | 100    | 9  |
| G2-22                  | Fe       | 205                | 205 | 156                | 160 | 230 | 9  | 117    | 19 |
| G2-26                  | Fe       | 416                | 456 | 228                | 300 | 410 | 14 | 169    | 50 |
| G2-23                  | Al       | 248                | 316 | 211                | 218 | 230 | 9  | 167    | 13 |
| G2-24                  | Al       | 321                | 361 | 228                | 291 | 320 | 11 | 179    | 21 |
| G2-25                  | Al       | 366                | 406 | 228                | 250 | 370 | 11 | 177    | 25 |
| G2-27                  | Al       | 486                | 516 | 228                | 350 | 480 | 14 | 169    | 49 |
| G2-28                  | Al       | 586                | 670 | 294                | 480 | 580 | 14 | 216    | 96 |

### Viewing Windows

| Code | Viewing Diameter |
|------|------------------|
| W2   | 22mm             |
| W3   | 45mm             |
| W4   | 70mm             |
| W5   | 105mm            |

Typical Enclosure Arrangement



A = Box Width  
B = Box Height  
C = Box Depth  
D = Fixing Centre Height  
E = Fixing Centre Width  
F = Diameter Of Fixing Holes  
G = Internal Depth From Base Plate

NB.  
Enclosures Can Be Close Coupled Together  
At Either End

# Terms and Conditions

## GENERAL

The placing of an order includes the acceptance of the following terms and conditions. In these General Conditions of Sale the "Company" means Petrel Ltd. The "goods" means the goods agreed to be supplied by the Company and shall where required include services. The "Purchaser" means the person, firm or corporation which has agreed to buy the goods.

These conditions shall apply to and form, every part of every contract of sale entered in to between the Company and the Purchaser to the exclusion of any other terms submitted at any time by the Purchaser, and may not be varied without the prior consent in writing of the Company. The Company reserves the right to accept or reject any order received from the Purchaser and to deliver minimum quantities either by value or by reference to the box quantity of the goods in question.

Reference to writing or any other form of communication between the parties shall include telex, facsimile and communication by electronic means.

## QUOTATIONS

Quotations submitted by us shall be valid for the period stated, or where no period is stated then for a period of 30 days from the date of issue.

To avoid higher prices being applied to any contract, the Purchaser must ensure that the quotation reference number is quoted in all purchase orders made by the Purchaser in response to quotations from the Company or where special price agreements are applicable.

## PRICES

The price payable for goods shall be ex-works delivery unless otherwise stated in writing by the Company and be exclusive of VAT and unless otherwise stated in writing be the price as agreed between the Company and the Purchaser or, if there is no agreement as to price, the Company's list price ruling at the date of invoice.

Any query by the Purchaser relating to an invoice must be made in writing within 30 days of invoice date.

Agreed prices are based on quantities intended to be taken by the Purchaser. The Company reserves the right to vary the price if the purchaser fails to take delivery of such quantities within the agreed delivery period, or if no such period is agreed, within a reasonable time.

The Company reserves the right to vary the price of goods to take account of any variations in costs including but not limited to any foreign exchange fluctuation, rates of duties, variations in the cost of wages, materials and other costs of manufacture and distribution, taking effect between quotation and delivery.

Small orders carry a surcharge.

## PAYMENT

For standard account terms (where held), payment in respect of each contract must be made in full by a date which will ensure that payment is received by us not later than the 28th day of the month following the month in which the goods were invoiced. Account terms are available, including part payment, payment in advance, and letter of credit and are determined in advance of order acceptance.

In the event of default in payment by the due date, the Company reserves the right to charge interest on money overdue at 2% above the current base rate of HSBC Bank Plc and to suspend all further deliveries until such payment has been made in full. The Company shall hold the Purchaser liable for all direct costs incurred in collecting any amounts outstanding.

## DELIVERY

All dates for delivery of goods are given in good faith but are approximate only and shall not be of the essence of the contract and shall be calculated from the date of acceptance by the Company of the order of the Purchaser.

Where goods are to be delivered in instalments, each delivery shall constitute a separate contract and failure by the Company to deliver any one or more instalments or any claim by the Purchaser under these conditions shall not entitle the Purchaser to reject further instalments or cancel any further contract.

The Purchaser will sign the Advice Note for the receipt of goods. If the Purchaser signs "unexamined" the Company will deem this to be an acknowledgement of the receipt of all pallets, boxes, cartons or packages specified in the Advice Note.

## LOSS OR DAMAGE IN TRANSIT

If the Company agrees to deliver the goods, the Company will only consider claims for non-delivery or damage in transit if notice is received in writing by the Company within 7 days of the date of the Advice Note in the case of non-delivery of the whole consignment and within 3 working days of receipt of the goods in the case of damage in transit or partial loss of the goods and any associated packing for examination by the Company. The Company shall not be liable to the Purchaser for any loss or damage whatsoever if the Purchaser fails to notify the Company in accordance with this clause.

## DEFECTS AFTER DELIVERY

We will make good, by repair or at our option by the way of a replacement, defects which under proper use, appear in the goods within a period of 12 calendar months after the goods have been delivered and arise solely from faulty design, materials or workmanship: provided always that defective goods are returned to us unless otherwise arranged. Provided further that in respect of parts or components not of our manufacture then you will be entitled to such benefits as we receive under any guarantee given to us in respect thereof. Our liability under this clause shall be in lieu of any warranty or condition implied by law as to the equality of fitness for any particular purpose of the goods and save as provided in the clause we shall not be under any liability, whether in contract tort or otherwise in respect of defects in goods delivered or for any injury( other than personal injury caused by our negligence as defined in Section 1 of the Unfair Contract Terms Act 1977) damaged or loss resulting from such defects or for any work done in connection therewith.

## VARIATIONS

If at any time after receipt of an order the purchaser wishes to make modifications or additions to the order, the Purchaser shall only be permitted to do so after obtaining the authority in writing of the Company and after the Company has agreed in writing to any variation in the price and/or any revised delivery date.

Any extra cost or liability incurred by the Company due to suspension of work, rescheduling of deliveries or change in order quantity resulting from the Purchaser's instructions or lack of instructions shall be added to the price of the goods and paid accordingly. No variation or derogation from or addition to these Conditions of Sale shall be binding on the Company unless the same is in writing signed for or on behalf of a Director of the Company.

## STORAGE

If the Company does not receive forwarding instructions sufficient to enable it to despatch the goods within 14 days after notification that they are ready for delivery, the Company shall be entitled to invoice and be paid for the goods as though the goods had been duly delivered in accordance with these Conditions. The Company may arrange storage on the Purchaser's behalf and all charges for storage, insurance and demurrage shall be payable by the Purchaser.

## DESCRIPTIVE MATTER AND ILLUSTRATION

All descriptions and illustrations and particulars of weights and dimensions and performance criteria issued by the Company in catalogues, price lists, advertising matter and specifications are by way of general descriptions and approximate only and shall not form part of any contract or give rise to any liability on the part of the Company.

It is the policy of the Company to endeavour to develop and improve its products, and accordingly the Company reserves the right to change all specifications without prior notification or public announcement pursuant to such policy, provided that nothing in this clause shall oblige the Purchaser to accept goods which do not reasonably comply with the contract.

## RETURN OF GOODS

Goods delivered will not be accepted for return without the prior written consent of the Company and in accordance with the Company's returns procedure. The Company reserves the right to charge the Purchaser a handling charge which the Company may deduct from any credit allowed, unless the reason for any return by the Purchaser is due to any fault or breach of these Conditions on part of the Company.

The Company will not allow credit in respect of returned goods not in a fully re-saleable condition.

Any unauthorised goods returned will not be credited and any costs incurred in disposing of them will be borne by the Purchaser.

## WARRANTY

Unless otherwise agreed or where the Company has notified the Purchaser of special terms as to warranty in respect of specified categories of goods the Company agrees at its option either to refund the cost of or repair or replace goods proved to the Company's reasonable satisfaction to have failed under proper storage and use within 12 months of delivery by reason of defects due to faulty design (other than any design, made furnished or specified by the Purchaser) materials or workmanship, provided that:

a. The Purchaser shall have followed any instructions issued by the Company in relation to the goods and their storage.

b. In the case of defects which would have been apparent to the Purchaser on reasonable examination of the goods on delivery, the Purchaser shall notify the Company of the defects in writing within 14 working days of delivery.

c. In the case of any other defects, the Purchaser shall notify the Company of the defects in writing within 7 working days of the date when the defect becomes apparent.

d. Where in discharge of its obligations under this clause the Company agrees that the Purchaser may undertake any repair work on its behalf, the cost of such work shall be agreed in writing between the Purchaser and the Company before the commencement of such work.

## CONSEQUENTIAL LOSS

Save as may be expressly provided for herein the Company shall not be liable for any consequential loss suffered by the Purchaser, and in particular the Company shall not be liable for any costs, claims, damages or expenses arising out of any tortious act or omission or any breach of contract or statutory duty calculated by reference to profits, income, production or accruals or by reference to accrual of such costs, claims.

## COPYRIGHT

All drawings, descriptions and other information submitted by the Company shall remain the property of the Company together with the copyright therein.

## FORCE MAJEURE

The Company shall be entitled without liability on its part and without prejudice to its other rights, to terminate the contract of any unfulfilled part thereof, or at its option to suspend or make partial deliveries or extend the time or times of delivery, if the manufacture of the goods by the Company or the Company's suppliers, or the delivery of the goods or the performance by the Company of any of its obligations under the contract is hindered or delayed whether directly or indirectly by reason of the Purchaser failing to furnish necessary instructions or information, or by reason of any industrial dispute or any cause beyond the reasonable control of the Company, or its subcontractors, whether or not such cause exists at the date of the Purchaser's order.

## PASSING OF PROPERTY AND RISK

The risk in the goods shall pass to the Purchaser immediately on delivery of the goods to the Purchaser.

The property in the goods shall remain with the Company until payment in full for all the goods and all other goods agreed to be sold by the Company to the Purchaser for which payment is then due, has been received by it in accordance with the terms of the contract.

Until such time as the property in the goods passes to the Purchaser, the Purchaser shall hold the goods on behalf of the Company as a bailee.

While the goods remain the property of the Company, the Purchaser shall keep the goods identifiable and separate from other goods in its possession.

The Company hereby grants to the Purchaser the right to resell the goods, but not as the Company's agent, such right being terminable at the discretion of the Company but in any event upon the insolvency of the Purchaser.

Until such payment as aforesaid has been received in full by the Company, the Purchaser shall be under an obligation to redeliver the goods to the Company if the Company so requires and the Company shall be entitled at any time to retake possession of the goods and for that purpose to enter upon any land or premises of the Purchaser where the goods may be for the time being.

The Company shall be entitled, where the goods have been fixed or attached to any other product, to detach the goods in order to recover possession of them. Such redelivery or retaking of possession shall be without prejudice to the obligation of the Purchaser to the purchase the goods.

## PURCHASERS BREACH

In the event of the Purchaser committing any breach of the contract, or if any distress or execution is levied upon the Purchaser, his goods or assets, or if the Purchaser enters into any negotiations for arrangement or composition with or for the benefits of his creditors or commits any act of bankruptcy or if any petition in bankruptcy shall be presented against him, or if, being a corporate body, the Purchaser will be wound up or if any resolution is proposed or petition presented to wind up the Purchaser (not being a members voluntary winding up for the purpose of reconstruction or amalgamation without insolvency), or if an administrator or receiver of the Purchaser's assets or undertaking or any part thereof shall be appointed or if the Purchaser shall be deemed to be unable to pay its debts, the Company shall be entitled, without prejudice to any other claim or right or remedy which it may have, forthwith to suspend any or all deliveries until the default has been made good or to determine the contract or any unfulfilled part thereof.

## LAW

All contracts to which these General Conditions of Sale apply shall be governed by and construed in accordance with English Law.

*Represented by*

**FERMAX SDN BHD** (638392-P)

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company