Making Hazardous Environments Work
Our Vision

We aim to be the first choice supplier of lighting equipment to hazardous and industrial markets worldwide.
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Founded in 1929, Victor has over 75 years of experience in manufacturing hazardous area equipment to the highest standards of quality and reliability.

A division of Hubbell Ltd, Victor Lighting is part of the Hubbell Harsh and Hazardous group and is based in Glasgow, Scotland.

Victor has developed a range of unique technologies that are used to create innovative lighting solutions. These are installed and relied upon in the most arduous environments throughout the world.

This hazardous area catalogue features a range of world class light fittings that are designed in accordance with IEC electrical standards. This product range will fulfil all lighting requirements in hazardous or industrial environments and in both onshore, and offshore installations.

The entire Victor Lighting hazardous area range is certified to comply with the latest ATEX directive. In addition a number of products are certified as part of the IEC Ex scheme and under Russian (GOST), Thai (TIS) and Chinese (GB) standards.

For further information on hazardous areas, their classification and the appropriate safety standards, please refer to the International Reference Guide to Hazardous Areas Section (page 110) of this catalogue.

Victor Lighting is committed to quality, sustainable development and the environment. Victor is certified by Lloyds Register to ISO 9001:2008, in addition the company has implemented the requirements of the WEEE and RoHS directives.
LiteGuide™ Lighting Design Software

Victor Lighting has created a design program to assist in the development of your installation's lighting design. This easy to use package allows new designs to be developed rapidly, removing the need to use time consuming and complicated photometric tables. This package is available free of charge, no licence is required to run LiteGuide™.

LiteGuide™ allows you to:

- Design lighting layouts from the very basic to the extremely complex
- Account for shadowing and effects of reflection
- Incorporate interior and exterior components in a single scheme
- Use shortcut icons to:
  - Turn individual fittings on/off or assess in emergency mode
  - Move, change or delete luminaires easily
  - Re-size icons to suite the scale of your project
- Use scrolling wheel mouse to zoom in/out
- Import and export to CAD packages (DXF format)
- Print to a pdf or hardcopy (A0 to A4 sizes)

LiteGuide™ also includes quantity estimators for interior, exterior and isle lighting schemes to allow for quick and easy budgeting.

To obtain a copy of LiteGuide™, please visit the Victor Lighting website. Here you can register and download the latest version.

www.victor-lighting.com
ATEX Certificate No. SIRA00ATEX1021X

II 2 GD Ex d IIC (for 18W Version)

II 2 GD Ex d IIB (for 36W & 58W Versions)

18W Ex d IIC T6 (Ta = -20°C to +55°C)

36W Ex d IIB T6 (Ta = -20°C to +53°C)
or Ex d IIB T5 (Ta = -20°C to +55°C)

58W Ex d IIB T6 (Ta = -20°C to +49°C)
or Ex d IIB T5 (Ta = -20°C to +55°C)

Ingress protection to IP66, IP67 IP68 (on application)

GOST-R Approved

UNRIVALLED UV PROTECTION

Reflector acts as a solar shield to reduce the degradation effects of UV rays.

CASSETTE RELAMPING

Unique lamp cassette design allows for quick and easy lamp replacement, reducing maintenance costs and potential exposed lamp breakages.

SMALL GASKET AREA

The Trident has the smallest gasket area of any Zone 1 fluorescent luminaire, irrespective of lamp wattage. This design ensures high levels of ingress protection.
LAMP IN-LID TECHNOLOGY
Easily convert from standard non emergency (VL125) into an emergency (VL126) version.
Emergency operation is unaffected by a failure of mains lamp due to the dedicated 11W lamp.

HIGH FREQUENCY Ex m BALLAST
End of Life (EOL) Protection - ballast certified to IEC 60079-7.
Over-voltage and harmonic distortion protection.

SPIGOT ENTRY VERSION
The Trident is available as a dedicated spigot entry version with internal cable entry.
(18W and 36W versions)

CATEGORY 2 TYPE Ex ‘e’ INCREASED SAFETY
CERTIFICATION & APPROVALS

IECEx Certificate IECEx SIR 03.0004
ATEX Certificate SIRA03ATEX3206

2 x 18W and 2 x 36W Varients
II 2 GD Ex em IIC T4 -45°C to +55°C*

2 x 58W Varient
II 2 GD Ex em IIC T4 -45°C to +50°C*

Ingress protection to IP66, IP67
IP68 (on application)

GOST-R Approved
TIS Approved
GB (China) Approved

*For operation below -20°C
please contact technical sales

DIMENSIONS

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Overall Dim A</th>
<th>Fixing centres Dim B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x18W</td>
<td>995</td>
<td>400</td>
</tr>
<tr>
<td>2x36W</td>
<td>1605</td>
<td>700</td>
</tr>
<tr>
<td>2x58W</td>
<td>1910</td>
<td>700</td>
</tr>
</tbody>
</table>

Dimensions in millimetres

FEATURES AND BENEFITS

Unique three part construction = easy maintenance • Excellent ingress protection • Cassette relamping • Convert standard to emergency

Spigot entry version
TECHNICAL SPECIFICATION

LAMP TYPES

T8, Ø26mm, G13 cap bi-pin fluorescent.
Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.

POWER SUPPLY

110V-254V, 50/60Hz AC/DC (2 x 18W)
220V-254V, 50/60Hz AC/DC (2 x 36W and 2 x 58W)
110V-130V, 50/60Hz AC/DC (2 x 36W)

POWER FACTOR

Better than 0.95.

TERMINALS

4 core up to 4 mm² conductors with looping.
Through wiring is available as an option.
Terminals for live constant, live switched, neutral & earth are provided. External earth terminal is an option.

CABLE ENTRIES

Two x 20mm clearance holes supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIE/218/BI</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>TRIE/236/BI</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>TRIE/258/BI</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

OPTIONS - SUFFIX TO CATALOGUE REF.

/120 Specific voltage (110/130V) - 36W only
/25 25mm Entries
/T Through wiring
/SC Screwed connection terminal block (6mm² conductors)
/M20 M20 Threaded entry pad c/w earth lead to T/Block
/M25 M25 Threaded entry pad c/w earth lead to T/Block
/SE Spigot entry version (18W & 36W)
/ZR Powder coated zincic reflector
/IEC Supplied with IECEx certification label

TEMPERATURE CLASSIFICATION

Gas environments: T4.
Dust environments: T100°C.

AMBIENT TEMPERATURE RANGE

-45°C to +55°C (18W & 36W versions)
-45°C to +50°C (58W version)

MATERIALS

Enclosure Polycarbonate moulding.
Lamp Envelope Polycarbonate.
Reflector Epoxy powder coated stainless steel.
Gasket Silicone.
External Fasteners Stainless steel.

WEIGHT

<table>
<thead>
<tr>
<th>Variant</th>
<th>2x18W Lamps</th>
<th>2x36W Lamps</th>
<th>2x58W Lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>3.8Kg</td>
<td>5.4Kg</td>
<td>6.2Kg</td>
</tr>
<tr>
<td>Through-Wired</td>
<td>4.4Kg</td>
<td>6.0Kg</td>
<td>6.8Kg</td>
</tr>
<tr>
<td>Pole-Mount</td>
<td>4.1Kg</td>
<td>5.7Kg</td>
<td>6.5Kg</td>
</tr>
</tbody>
</table>

SUSPENSION

Standard mounting is direct to the external reflector.
Optional ceiling, wall, pole mounting brackets, and eye bolts are available on request.
Direct spigot mounting option for up to 42mm diameter is available for the 18W and 36W versions.

ACCESSORIES

Pole mount bracket (38-42mm) SPOL4-100004
Pole mount bracket (48-52mm) SPOL4-100005
Pole mount bracket (58-62mm) SPOL4-100006
Ceiling mount bracket assembly SEXCE-00001
M8 eye bolt SEXCE-00008
Wall bracket SEXCE-00009
Wall mounting outreach bracket (for use with /SE version) NPRO4-0007
Wall mounting outreach bracket (for use with standard 18W version) NPRO4-0008
Wall mounting outreach bracket (for use with standard 36W version) NPRO4-0012
Conversion Kit: Converts VL125 to a VL126 EM Luminaire STRIE-00001

To calculate photometric values for lighting design, please use the free Victor LiteGuide™ software package.
To request your copy, please contact your local Victor agent or download a copy from the website.
Design is subject to alteration without notice. Please refer to the website www.victor-lighting.com for the latest details.
All products are sold subject to our conditions of sale, available on request.
**FEATURES AND BENEFITS**

Dedicated emergency lamp with battery backup • Proven ingress protection • Over voltage and harmonic distortion protection

**CERTIFICATION & APPROVALS**

- **IECEx** Certificate IECEx SIR 03.0004
- **ATEX** Certificate SIRA03ATEX3206

2 x 18W and 2 x 36W Variants

II 2 GD Ex em IIC T4 -15°C to +55°C

2 x 58W Variant

II 2 GD Ex em IIC T4 -15°C to +50°C

Ingress protection to IP66, IP67
IP68 (on application)

- **GOST-R** Approved
- **TIS** Approved
- **GB (China)** Approved

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Fitting wattage</th>
<th>Overall Length Dim A</th>
<th>Fixing centres Dim B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x18W</td>
<td>995</td>
<td>400</td>
</tr>
<tr>
<td>2x36W</td>
<td>1605</td>
<td>700</td>
</tr>
<tr>
<td>2x58W</td>
<td>1905</td>
<td>700</td>
</tr>
</tbody>
</table>

Dimensions in millimetres
Zone 1 Type Ex ‘e’ Increased Safety

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All products are sold subject to our conditions of sale, available on request.

### Technical Specification

#### Lamp Types

- T8, Ø26mm, G13 cap bi-pin fluorescent.
- Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W

#### Power Supply

- 220V-254V, 50/60Hz AC/DC (2 x 18W, 2 x 36W and 2 x 58W)
- 110V-130V, 50/60Hz AC/DC (2 x 18W and 2 x 36W)

#### Power Factor

Better than 0.95.

#### Emergency Operation

- 11W lamp emergency light output is 11%.
- Duration is typically 3 hours.

#### Battery

- 5 cell - 4Ah, 6V internal Ni-Cad.

#### Terminals

- 4 core up to 4 mm² conductors with looping. Through wiring is available as an option.
- Terminals for live constant, live switched, neutral & earth are provided. External earth terminal is an option.

#### Cable Entries

- Two x 20mm clearance holes supplied with 1 x transit plug and 1 x Ex blanking plug.
- Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

### Ordering Reference

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIE/218/8/EM</td>
<td>2 x 18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>TRIE/236/8/EM</td>
<td>2 x 36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>TRIE/258/8/EM</td>
<td>2 x 58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

An 11W compact fluorescent emergency lamp is factory fitted.

### Options - Suffix to Catalogue Ref.

- **/120**: Specific voltage (110/130V) - 18W/36W only
- **/25**: 25mm Entries
- **/T**: Through wiring
- **/SC**: Screwed connection terminal block (6mm² conductors)
- **/M20**: M20 Threaded entry pad c/w earth lead to T/Block
- **/M25**: M25 Threaded entry pad c/w earth lead to T/Block
- **/SE**: Spigot entry version [18W & 36W]
- **/BCM**: Battery control management system
- **/ZR**: Powder coated zinc reflector
- **/IEC**: Supplied with IECEx certification label

### Temperature Classification

- Gas environments: T4.
- Dust environments: T100°C.

### Ambient Temperature Range

- -15°C to +55°C (18W & 36W versions)
- -15°C to +50°C (58W version)

### Materials

- **Enclosure**: Polycarbonate moulding.
- **Lamp Envelope**: Polycarbonate.
- **Reflector**: Epoxy powder coated stainless steel.
- **Gasket**: Silicone.
- **External Fasteners**: Stainless steel.

### Weight

<table>
<thead>
<tr>
<th>Variant</th>
<th>2x18W Lamps</th>
<th>2x36W Lamps</th>
<th>2x58W Lamps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>5.4Kg</td>
<td>7.0Kg</td>
<td>7.8Kg</td>
</tr>
<tr>
<td>Through-Wired</td>
<td>6.0Kg</td>
<td>7.6Kg</td>
<td>8.4Kg</td>
</tr>
<tr>
<td>Pole-Mount</td>
<td>5.7Kg</td>
<td>7.3Kg</td>
<td>8.1Kg</td>
</tr>
</tbody>
</table>

### Suspension

- Standard mounting is direct to the external reflector.
- Optional ceiling, wall, pole mounting brackets, and eye bolts are available on request.
- Direct spigot mounting option for up to 42mm diameter is available for the 18W and 36W versions.

### Accessories

- Pole mount bracket (38-42mm) SPOL4-100004
- Pole mount bracket (48-52mm) SPOL4-100005
- Pole mount bracket (58-62mm) SPOL4-100006
- Ceiling mount bracket assembly SEXCE-00001
- M8 eye bolt SEXCE-00008
- Wall bracket SEXCE-00009
- Wall mounting outreach bracket (for use with /SE version) NPRO4-0007
- Wall mounting outreach bracket (for use with standard 18W version) NPRO4-0008
- Wall mounting outreach bracket (for use with standard 36W version) NPRO4-0012
POLE MOUNT BRACKET

SPOL4-100004 (38-42mm dia)
SPOL4-100005 (48-52mm dia)
SPOL4-100006 (58-62mm dia)

WALL MOUNTING OUTREACH BRACKET

NPRO4-0007 (for use with /SE version)
NPRO4-0008 (for std. 18W version) in conjunction with SPOL4-100004
NPRO4-0012 (for std. 36W version) in conjunction with SPOL4-100004

<table>
<thead>
<tr>
<th>PART DETAILS</th>
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<tbody>
<tr>
<td>Part I.D.</td>
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<td>1</td>
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<tr>
<td>1</td>
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<tr>
<td>1</td>
</tr>
</tbody>
</table>

DEPENDANT ON POLE DIAMETER
CEILING MOUNT BRACKET
SEXCE-00001

M8 EYE BOLT
SEXCE-00008

WALL MOUNT BRACKET
SEXCE-00009
CERTIFICATION & APPROVALS

ATEX Certificate BAS00ATEX2190
II 2 GD Ex em II T4 T100°C
Ambient temperature range: -35°C to +55°C*
Ingress protection to IP66 and IP67

GOST-R Approved
TIS Approved

*For operations below -20°C please contact technical sales

FEATURES AND BENEFITS
Proven track record offshore • Excellent ingress protection • Cassette relamping for easy maintenance • End of Life protection

DIMENSIONS

<table>
<thead>
<tr>
<th>Fitting wattage</th>
<th>Overall length Dim A</th>
<th>Fixing centres Dim B</th>
</tr>
</thead>
<tbody>
<tr>
<td>18W</td>
<td>1023</td>
<td>633</td>
</tr>
<tr>
<td>36W</td>
<td>1633</td>
<td>1243</td>
</tr>
</tbody>
</table>

Dimensions in millimetres
ZONE 1 TYPE Ex ‘e’ INCREASED SAFETY

TECHNICAL SPECIFICATION

LAMP TYPES
Mono pin - T8, Ø26mm. 18W and 36W ‘cold start’ with Fa6 caps.
Bi-pin - T8, Ø26mm. 18W and 36W with G13 caps.

POWER SUPPLY
18W High voltage 110V-254V AC/DC 50/60Hz.
36W High voltage 220V-254V AC/DC 50/60Hz.
36W Low voltage 110V-130V AC/DC 50/60Hz. (/120)

TEMPERATURE CLASSIFICATION
Gas environments: T4.
Dust environments: T100°C.

AMBIENT TEMPERATURE
-35°C to +55°C.

MATERIALS
Control Gear Housing: Polycarbonate with silicone rubber gaskets.
Lamp Envelope: Polycarbonate end mouldings and extruded tube.
Reflector: Epoxy powder coated stainless steel.
External Fasteners: Stainless steel.

WEIGHT
18W luminaire - 6.3kg.
36W luminaire - 7.8kg.

SUSPENSION
Standard via two saddle brackets (fixing centres 633mm - 18W & 1243mm - 36W). Other fixings available upon request.
Optional ceiling, wall, pole mounting brackets, and eye bolts are also available on request.
The luminaire may be mounted in any orientation.

ORDERING REFERENCE

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<tr>
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<tbody>
<tr>
<td>EXCE/218/BI</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>EXCE/236/BI</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>EXCE/218/MO</td>
<td>2x18W</td>
<td>Mono-Pin</td>
</tr>
<tr>
<td>EXCE/236/MO</td>
<td>2x36W</td>
<td>Mono-Pin</td>
</tr>
</tbody>
</table>

OPTIONS - SUFFIX TO CATALOGUE REF.

/120 Specific voltage 110/130V (36W only)
/M25 25mm Entries
/T Through wiring
/SC Screwed connection terminal block (6mm² conductors)

ACCESSORIES

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole mount bracket (38-42mm)</td>
<td>SPOL4-100004</td>
</tr>
<tr>
<td>Pole mount bracket (48-52mm)</td>
<td>SPOL4-100005</td>
</tr>
<tr>
<td>Pole mount bracket (58-62mm)</td>
<td>SPOL4-100006</td>
</tr>
<tr>
<td>Ceiling mount bracket assembly</td>
<td>SEXCE-00001</td>
</tr>
<tr>
<td>M8 eye bolt</td>
<td>SEXCE-00008</td>
</tr>
<tr>
<td>Wall bracket</td>
<td>SEXCE-00009</td>
</tr>
<tr>
<td>Wire guard s/s (600mm)</td>
<td>SEXCE-00011</td>
</tr>
<tr>
<td>Wire guard s/s (1200mm)</td>
<td>SEXCE-00010</td>
</tr>
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**CERTIFICATION & APPROVALS**

*ATEX* Certificate BAS00ATEX2191

Ⅱ 2 GD Ex emd IIC T4 T100°C

Ambient temperature range: -10°C to +55°C

Ingress protection to IP66 and IP67

**GOST-R** Approved

**TIS** Approved

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**DIMENSIONS**

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<th>Fitting wattage</th>
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<td>18W</td>
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<td>623</td>
</tr>
<tr>
<td>36W</td>
<td>1633</td>
<td>1243</td>
</tr>
</tbody>
</table>

Dimensions in millimetres
**ZONE 1 TYPE Ex ‘e’ INCREASED SAFETY**

**TECHNICAL SPECIFICATION**

**LAMP TYPES**
Mono pin - T8, Ø26mm, 18W and 36W ‘cold start’ with Fa6 caps.
Bi-pin - T8, Ø26mm, 18W and 36W with G13 caps.

**EMERGENCY OPERATION**
Typically 3 hours duration for 18W and 36W versions at 25°C ambient.

18W - 35% of one lamp. 36W - 30% of one lamp

**BATTERY**
12V 4Ah external Ni-Cad

**POWER SUPPLY**
Standard voltage 220V-254V AC 50/60Hz.
Low voltage 110V-130V AC 50/60Hz. (/120)

**POWER FACTOR**
Better than 0.95.

**TERMINALS**
4 core up to 4 mm² conductors with looping.
Through wiring is available as an option.
Terminals for live constant, live switched, neutral & earth are provided. Internal earth is on gland entry plate, external earth terminal is supplied as standard with an M6 brass stud.

**WEIGHT**
18W luminaire - 10.5kg. 36W luminaire - 12.0kg.

**ORDERING REFERENCE**

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<th>Lamp Type</th>
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</thead>
<tbody>
<tr>
<td>EXCE/218/BI/EM</td>
<td>2x18W</td>
<td>Bi-Pin</td>
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<td>EXCE/236/BI/EM</td>
<td>2x36W</td>
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<tr>
<td>EXCE/218/MO/EM</td>
<td>2x18W</td>
<td>Mono-Pin</td>
</tr>
<tr>
<td>EXCE/236/MO/EM</td>
<td>2x36W</td>
<td>Mono-Pin</td>
</tr>
</tbody>
</table>

**OPTIONS - SUFFIX TO CATALOGUE REF.**

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/120</td>
<td>Specific voltage (110/130V)</td>
</tr>
<tr>
<td>/M25</td>
<td>M25 Entries</td>
</tr>
<tr>
<td>/T</td>
<td>Through wiring</td>
</tr>
<tr>
<td>/SC</td>
<td>Screwed connection terminal block (6mm² conductors)</td>
</tr>
<tr>
<td>/RI</td>
<td>Remote inhibition</td>
</tr>
<tr>
<td>/BCM</td>
<td>Battery control management with remote inhibition</td>
</tr>
</tbody>
</table>

**CABLE ENTRIES**
Two x M20 threaded entries supplied with 1 x transit plug and 1 x Ex blanking plug.

Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

**TEMPERATURE CLASSIFICATION**
Gas environments: T4.
Dust environments: T100°C.

**AMBIENT TEMPERATURE**
-10°C to +55°C.

**MATERIALS**
Control Gear Housing
Polycarbonate with silicone rubber gaskets.
Lamp Envelope
Polycarbonate end mouldings and extruded tube.
Reflector/Battery Tube
Epoxy powder coated stainless steel.
External Fasteners
Stainless steel.

**SUSPENSION**
Standard via two saddle brackets (fixing centres 633mm - 18W & 1243mm - 36W). Other fixings available upon request.

Optional ceiling, wall, pole mounting brackets, and eye bolts are also available on request.

The luminaire may be mounted in any orientation.

**ACCESSORIES**

**POLE MOUNT BRACKET**
- Pole mount bracket (38-42mm)
  - SPOL4-100004
- Pole mount bracket (48-52mm)
  - SPOL4-100005
- Pole mount bracket (58-62mm)
  - SPOL4-100006

**CEILING MOUNT BRACKET ASSEMBLY**
- Ceiling mount bracket assembly
  - SEXCE-00001

**WALL BRACKET**
- Wall bracket
  - SEXCE-00009

**WIRE GUARD S/S**
- Wire guard s/s (600mm)
  - SEXCE-00011
- Wire guard s/s (1200mm)
  - SEXCE-00010

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**PATHFINDER VL114**

**FEATURES AND BENEFITS**
Lightweight yet robust construction • Mount in any orientation • Ideal for over-door lighting • Supplied complete with lamps

**CERTIFICATION & APPROVALS**

**IECEx** Certificate IECEx SIR 05.0004
**ATEX** Certificate SR03ATEX3556 T110°C

**VL114 Standard Luminaire**

II 2 GD Ex em II

Ambient Temperature Range
- 2x18W T4 -45°C to +30°C*
- T3 -45°C to +40°C*
- T3 -45°C to +40°C*
- 1x11W T3 -45°C to +40°C*

**VL114 Emergency 1 x 11W Luminaire**

II 2 GD Ex em II

Ambient Temperature Range
- Non-Maintained T4 -15°C to +60°C
- T5 -15°C to +40°C
- T6 -15°C to +25°C
- Maintained T3 -15°C to +40°C

Ingress protection to IP66, IP67
IP68 (on application)

**GOST-R** Approved
**GB (China)** Approved

*For operations below -20°C please contact technical sales

**DIMENSIONS**

Dimensions in millimeters
TECHNICAL SPECIFICATION

LAMP TYPES
11W and 18W compact fluorescent lamps are factory fitted.

POWER SUPPLY
<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage Range</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>VL114S</td>
<td>220V-254V, 50/60Hz only (1x11W)</td>
<td></td>
</tr>
<tr>
<td>VL114E</td>
<td>110V-254V, 50/60Hz (2x18W)</td>
<td></td>
</tr>
<tr>
<td>VL114E</td>
<td>220V-254V, 50/60Hz only (1x11W)</td>
<td></td>
</tr>
</tbody>
</table>

POWER FACTOR
Better than 0.95.

EMERGENCY OPERATION
11W non-maintained emergency light output is 11%. Duration is typically 3 hours.

BATTERY
5 cell - 4Ah, 6V internal Ni-Cad.

TERMINALS
3 core up to 4 mm² conductors with looping.
Terminals for live constant, live switched, neutral & earth are provided.

CABLE ENTRIES
Two x 20mm clearance holes supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

TEMPERATURE
Gas environments are dependant on gas and ambient temperature
Non-Maintained: T4, T5 & T6. Maintained: T3
Dust environments: 100°C

AMBIENT TEMPERATURE
<table>
<thead>
<tr>
<th>Model</th>
<th>Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>VL114E</td>
<td>-15°C to +60°C</td>
</tr>
<tr>
<td>VL114S</td>
<td>-45°C to +60°C</td>
</tr>
</tbody>
</table>

MATERIALS
- Enclosure: Polycarbonate moulding.
- Gasket: Silicone.
- External Fasteners: Stainless steel.

WEIGHT
<table>
<thead>
<tr>
<th>Model</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>VL114E</td>
<td>2.5kg</td>
</tr>
<tr>
<td>VL114S</td>
<td>1.8kg</td>
</tr>
</tbody>
</table>

SUSPENSION
Standard mounting is direct to the main housing.

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATE/111/CF</td>
<td>1x11W</td>
<td>Compact Fluorescent</td>
</tr>
<tr>
<td>PATE/218/CF</td>
<td>2x18W</td>
<td>Compact Fluorescent</td>
</tr>
<tr>
<td>PATE/111/CF/EM*</td>
<td>1x11W</td>
<td>Compact Fluorescent</td>
</tr>
</tbody>
</table>

*Non maintained as standard
All Pathfinder models are supplied complete with lamps.

OPTIONS - SUFFIX TO CATALOGUE REF.

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/120</td>
<td>Specific voltage 110/130V (for VL114E non maintained only)</td>
</tr>
<tr>
<td>/25</td>
<td>25mm Entries</td>
</tr>
<tr>
<td>/MEM</td>
<td>Maintained emergency (220-254V only)</td>
</tr>
<tr>
<td>/M20</td>
<td>M20 Threaded entry pad c/w earth lead to T/Block</td>
</tr>
<tr>
<td>/M25</td>
<td>M25 Threaded entry pad c/w earth lead to T/Block</td>
</tr>
<tr>
<td>/IEC</td>
<td>Supplied with IECEx certification label</td>
</tr>
</tbody>
</table>

ACCESSORIES

- Lamp assembly (11watt): SPATE-00004
- Lamp assembly (18watt): SPATE-00001
- Exit sign, rigid plastic, chain hanging (no direction): SPATE-00005
- Exit sign, rigid plastic, chain hanging (up arrow): SPATE-00006
- Exit sign, rigid plastic, chain hanging (down arrow): SPATE-00007
- Exit sign, rigid plastic, chain hanging (right arrow): SPATE-00008
- Exit sign, rigid plastic, chain hanging (left arrow): SPATE-00009
- Exit sign, rigid plastic, chain hanging (double sided arrow left & arrow right): SPATE-00011
- Exit sign, adhesive (up, down, left and right): SPATE-00012

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RECESSIBLE TYPE VL77C

CERTIFICATION & APPROVALS

**ATEX** Certificate Baseefa05ATEX0236

II 2 GD Ex eqm II T4 Tamb 55°C

Ambient temperature range:
-40°C to +45°C* (insulated)
-40°C to +55°C* (non-insulated)

Ingress protection to IP65

**GOST-R** Approved

**SOLAS** B15 Fire rated

*For operations below -20°C please contact technical sales

FEATURES AND BENEFITS

Suitable for M300 and plasterboard ceilings • Automatic lamp de-energisation on opening • Resistant to voltage fluctuations

- Single screw height adjustment
- Adjust to ensure ceiling integrity
- Standard Clear Diffuser
- Prismatic Diffuser (/PD)
- Low Glare Louvre (/LG)
TECHNICAL SPECIFICATION

LAMP TYPES
18W & 36W bi-pin fluorescent (T8)
Available in the following configurations: 2 x 18W, 2 x 36W.

POWER SUPPLY
220-254V AC/DC,
220-300V DC 50-60Hz.

TERMINALS
3 core up to 4 mm² conductors with looping.
Through wiring facility as standard.
Terminals for live constant, neutral & earth are provided. External earth terminal as standard.

CABLE ENTRIES
4 x 20mm entries, two at each end (not suitable for looping both ends). Supplied with 1 x transit plug and 3 x Ex blanking plugs.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

TEMPERATURE
Gas environments: T4.
Dust environments: 195°C.

AMBIENT TEMPERATURE RANGE
-40°C to +45°C (insulated)
-40°C to +55°C (non-insulated)

MATERIALS
Enclosure White polyester painted zinc coated steel body & frame.
Diffuser Clear polycarbonate.
Reflector White polyester painted zinc coated steel.
Gasket Silicone rubber.

WEIGHT
2 x 18W - 16Kg,
2 x 36W - 23Kg,

SUSPENSION
Standard mounting is fixed side brackets with swing out arms, with provision for drop rod mounting.
For details of appropriate ceiling types and dimensions see pages 24 and 25.

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>V77E/218/Bl</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V77E/236/Bl</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

OPTIONS - SUFFIX TO CATALOGUE REF.

| /120 | Specific voltage (110/130V) |
| /25  | 25mm Entries |
| /EL  | Extra live termination facility (compatible with 4-core switched emergency circuits) |
| /LG  | Low glare louvre |
| /PD  | Prismatic diffuser |
| /PC  | Plasterboard (solid) ceiling |
| /SC  | Screwed connection terminal block (6mm² conductors) |

ACCESSORIES

There are no accessories for this product.
RECESSIBLE TYPE VL78C

CERTIFICATION & APPROVALS

ATEX Certificate Baseefa05ATEX0236

II 2 GD Ex eqm II T4 Tamb 55°C

Ambient temperature range:
-20°C to +45°C (insulated)
-20°C to +55°C (non-insulated)

Ingress protection to IP65

GOST-R Approved

SOLAS B15 Fire rated

FEATURES AND BENEFITS

Back up battery for emergency operation • Battery management, monitoring and self test • End of Life protection

End of Life Protection

90 Min Operation

3 Hour Operation

Standard Clear Diffuser

Prismatic Diffuser (/PD)

Low Glare Louvre (/LG)
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**TECHNICAL SPECIFICATION**

**LAMP TYPES**

18W & 36W bi-pin fluorescent (T8).
Available in the following configurations: 2 x 18W, 2 x 36W

**POWER SUPPLY**

220-254V AC/DC.

**EMERGENCY OPERATION**

90 minutes to EN60598-2-22, 3 hour option (/3H).
50% of one lamp (18W).
25% of one lamp (36W).

**BATTERY**

6V, 4Ah Internal Ni-Cad.

**TERMINALS**

4 core up to 4 mm² conductors with looping.

Through wiring facility as standard.

Terminals for live constant, live switched, neutral & earth are provided. External earth terminal as standard.

**CABLE ENTRIES**

4 x 20mm entries, two at each end (not suitable for looping both ends). Supplied with 1 x transit plug and 3 x Ex blanking plugs.

Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

**ORDERING REFERENCE**

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>V78E/218/BI/EM</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V78E/236/BI/EM</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

**TEMPERATURE**

Gas Environments - T4.
Dust Environments - T95°C.

**AMBIENT TEMPERATURE RANGE**

-20°C to +45°C (insulated)
-20°C to +55°C (non-insulated)

**MATERIALS**

**Enclosure**
White polyester painted zinc coated steel body & frame.

**Diffuser**
Clear polycarbonate.

**Reflector**
White polyester painted zinc coated steel.

**Gasket**
Silicone rubber.

**WEIGHT**

2 x 18W - 19Kg,
2 x 36W - 26Kg.

**SUSPENSION**

Standard mounting is fixed side brackets with swing out arms, with provision for drop rod mounting.

For details of appropriate ceiling types and dimensions see pages 24 and 25.

**OPTIONS - SUFFIX TO CATALOGUE REF.**

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/120</td>
<td>Specific voltage (110/130V)</td>
</tr>
<tr>
<td>/25</td>
<td>25mm Entries</td>
</tr>
<tr>
<td>/LG</td>
<td>Low glare louvre</td>
</tr>
<tr>
<td>/PD</td>
<td>Prismatic diffuser</td>
</tr>
<tr>
<td>/PC</td>
<td>Solid ceiling</td>
</tr>
<tr>
<td>/3H</td>
<td>3 hour battery duration (Light output - 30% 18W, 25% 36W)</td>
</tr>
<tr>
<td>/HEO</td>
<td>High emergency output (36W only, 90 min duration - 45% of emergency lamp)</td>
</tr>
<tr>
<td>/NST</td>
<td>High frequency non self testing ballast [reccomended for sleeping quarters]</td>
</tr>
<tr>
<td>/SC</td>
<td>Screwed connection terminal block (6mm² conductors)</td>
</tr>
</tbody>
</table>

**ACCESSORIES**

There are no accessories for this product.

---

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M300 PLANK CEILING TYPES

Dimensions in millimetres

View of plank ceiling with recessed luminaire

Typical aperture:
Tile length x 800mm (18W)
Tile length x 1415mm (36W)

Typical 275 x 25mm tile mounting system

Dimensions

2 x 21mm cable entry holes at each end, complete with 3 blanking plugs & 1 transit plug.

3 sided 25mm skirt
Typical aperture:
300mm x 740/750mm (18W)
300mm x 1355/1356mm (36W)

View of solid ceiling with recessed luminaire

Typical solid ceiling/panel mounting system

DIMENSIONS

Swing out arms
Mounting height using swing out arms
Min. - 34mm
Max. - 70mm

2 x 21mm cable entry holes at each end, complete with 3 blanking plugs & 1 transit plug.

Dimensions in millimetres
CERTIFICATION & APPROVALS

**ATEX** Certificate Baseefa05ATEX0237X

- **Ex** II 2 GD Ex eqm II T4
- Ambient temperature range: -20°C to +40°C
- Ingress protection to IP65
- **GOST-R** Approved
- **SOLAS** B15 Fire rated

FEATURES AND BENEFITS

Suitable for modular ceiling types • Simple and easy access for re-lamping • Automatic lamp de-energisation upon opening
TECHNICAL SPECIFICATION

LAMP TYPES
18W & 36W bi-pin fluorescent (T8)
Available in the following configurations: 2 x 18W, 2 x 36W, 4 x 18W, 4 x 36W.

POWER SUPPLY
220-254V AC/DC.
220-300V DC 50-60Hz.

TERMINALS
3 core up to 4 mm² conductors with looping.
Through wiring facility as standard. Terminals for live constant,
neutral & earth are provided.
External earth terminal.

CABLE ENTRIES
3 x 20mm holes located on the rear panel, two at one end, one
at the other end. Supplied with 1 x transit plug and 2 x Ex
blanking plugs.

TEMPERATURE
Gas Environments - T4.
Dust Environments - 170°C.

AMBIENT TEMPERATURE RANGE
-20°C to +40°C.

MATERIALS
Enclosure White polyester painted zinc coated steel
body & aluminium frame.
Diffuser Clear polycarbonate with prismatic diffuser.
Reflector White polyester painted zinc coated steel.
Gasket EPDM rubber.
External Fasteners Stainless steel.

WEIGHT
2 x 18W - 12.5Kg.
2 x 36W - 16.0Kg.
4 x 18W - 16.0Kg.
4 x 36W - 20.0Kg.

SUSPENSION
Standard mounting is fixed cantilever side brackets, there is also
a provision for drop rod mounting.

For details of appropriate ceiling types and dimensions
see pages 30 and 31.

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>104E/218/Bl*</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>104E/418/Bl</td>
<td>4x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>104E/236/Bl*</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>104E/436/Bl</td>
<td>4x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

* Only available in 600mm x 600mm (2 x 18W) and
600mm x 1200mm (2 x 36W) body.
The standard VL104 is supplied with a 3mm clear outer panel
and prismatic diffuser.

OPTIONS - SUFFIX TO CATALOGUE REF.

/MET Modular - Exposed "T" ceiling
/MST Modular - Spring "T" ceiling
/120 Specific voltage (110/130V)
/25 25mm Entries
/EL Extra live termination facility (compatible
with 4-core switched emergency circuits)
/LG Low glare louvre
/SC Screwed connection terminal block
(6mm² conductors)

ACCESSORIES

There are no accessories for this product.

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RECESSIBLE VL104 Em

CERTIFICATION & APPROVALS

- ATEX Certificate Baseefa05ATEX0237X
  - Ex II 2 GD Ex eqm II T4
  - Ambient temperature range: -20°C to +40°C
  - Ingress protection to IP65
- GOST-R Approved
- SOLAS B15 Fire rated

FEATURES AND BENEFITS

- Back up battery for emergency operation
- Suitable for modular ceiling types
- Battery management technology
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## TECHNICAL SPECIFICATION

### LAMP TYPES

- **18W & 36W bi-pin fluorescent (T8)**
  - Available in the following configurations: 2 x 18W, 2 x 36W, 4 x 18W & 4 x 36W.

### POWER SUPPLY

- 220-254V AC/DC.

### EMERGENCY OPERATION

- 90 minutes to EN60598-2-22 3 hour option (/3H).
- 50% of one lamp (18W).
- 25% of one lamp (36W).

### BATTERY

- 6V, 4Ah Internal Ni-Cad.

### TERMINALS

- 4 core up to 4 mm² conductors with looping.
- Through wiring facility as standard.
- Terminals for live constant, live switched, neutral & earth are provided. External earth terminal.

### CABLE ENTRIES

- 3 x 20mm holes located on the rear panel, two at one end, one at the other end. Supplied with 1 x transit plug and 2 x Ex blanking plugs.
- Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

### ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>104E/218/B/EM</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>104E/418/B/EM</td>
<td>4x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>104E/236/B/EM*</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>104E/436/B/EM</td>
<td>4x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

* Only available in 600mm x 600mm (2 x 18W) and 600mm x 1200mm (2 x 36W) body

The standard VL104 is supplied with a 3mm clear outer panel and prismatic diffuser.

### OPTIONS - SUFFIX TO CATALOGUE REF.

<table>
<thead>
<tr>
<th>SUFFIX</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>/MET</td>
<td>Modular - Exposed &quot;T&quot; ceiling</td>
</tr>
<tr>
<td>/MST</td>
<td>Modular - Spring &quot;T&quot; ceiling</td>
</tr>
<tr>
<td>/120</td>
<td>Specific voltage (110/130V)</td>
</tr>
<tr>
<td>/25</td>
<td>25mm Entries</td>
</tr>
<tr>
<td>/LG</td>
<td>Low glare louvre</td>
</tr>
<tr>
<td>/3H</td>
<td>3 hour battery duration (Light output - 30% 18W, 25% 36W)</td>
</tr>
<tr>
<td>/HEO</td>
<td>High emergency output (36W only, 90 min duration - 45% of emergency lamp)</td>
</tr>
<tr>
<td>/NST</td>
<td>High frequency non self testing ballast (recommended for sleeping quarters)</td>
</tr>
<tr>
<td>/SC</td>
<td>Screwed connection terminal block (6mm² conductors)</td>
</tr>
<tr>
<td>/2L</td>
<td>Two lamp emergency operation</td>
</tr>
</tbody>
</table>

### ACCESSORIES

There are no accessories for this product.

### TEMPERATURE

- **Gas Environments** - T4.
- **Dust Environments** - T70°C.

### AMBIENT TEMP RANGE

- -20°C to +40°C.

### MATERIALS

- **Enclosure** - White polyester painted zinc coated steel body & aluminium frame.
- **Diffuser** - Clear polycarbonate with prismatic diffuser.
- **Reflector** - White polyester painted zinc coated steel.
- **Gasket** - EPDM rubber.
- **External Fasteners** - Stainless steel.

### WEIGHT

- 2 x 18W - 14.5Kg
- 2 x 36W - 18.0Kg
- 4 x 18W - 18.0Kg
- 4 x 36W - 22.0Kg

### SUSPENSION

Standard mounting is fixed cantilever side brackets, there is also a provision for drop rod mounting.

For details of appropriate ceiling types and dimensions see pages 30 and 31.
CEILING TYPE OPTIONS

View of Exposed “T” Ceiling with recessed luminaire, typical 600mm x 600mm tile grid mounting system (/MET).

View of Spring “T” Ceiling with recessed luminaire, typical 600mm x 600mm tile grid mounting system (/MST).

View of Solid Ceiling with recessed luminaire.
Exposed “T” Ceiling (/MET) dimensions.

Spring “T” Ceiling (/MST) dimensions.

Solid Ceiling dimensions.

Overall height (including cover) 144mm
Overall height (excluding cover) 138.5mm

Dimensions in millimetres
FEATURES AND BENEFITS

Cool running - suitable for high ambient areas • Standard uni-strut mounting • Efficient high frequency control gear

CERTIFICATION & APPROVALS

ATEX Certificate SIRA00ATEX1021X

II 2 GD Ex d IIC (18W)
II 2 GD Ex d IIB (36W & 58W)

Refer to ordering reference table for T Class and ambient

Ingress protection to IP66, IP67 IP68 (on application)

GOST-R Approved
TIS Approved

DIMENSIONS

<table>
<thead>
<tr>
<th>Fitting wattage</th>
<th>Overall Length Dim A</th>
</tr>
</thead>
<tbody>
<tr>
<td>18W</td>
<td>916</td>
</tr>
<tr>
<td>36W</td>
<td>1316</td>
</tr>
<tr>
<td>58W</td>
<td>1616</td>
</tr>
</tbody>
</table>

Dimensions in millimetres
**ZONE 1 TYPE Ex ‘d’ FLAMEPROOF**

**ORDERING REFERENCE**

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C (Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISD/218/BI</td>
<td>2x18W</td>
<td>Bi-Pin</td>
<td>T8</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +55°C</td>
</tr>
<tr>
<td>VISD/136/BI</td>
<td>1x36W</td>
<td>Bi-Pin</td>
<td>T8</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +53°C</td>
</tr>
<tr>
<td>VISD/236/BI</td>
<td>2x36W</td>
<td>Bi-Pin</td>
<td>T8</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +53°C</td>
</tr>
<tr>
<td>VISD/158/BI</td>
<td>1x58W</td>
<td>Bi-Pin</td>
<td>T8</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +53°C</td>
</tr>
<tr>
<td>VISD/258/BI</td>
<td>2x58W</td>
<td>Bi-Pin</td>
<td>T8</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +49°C</td>
</tr>
</tbody>
</table>

**TECHNICAL SPECIFICATION**

**LAMP TYPES**

T8, Ø26mm, G13 cap bi-pin fluorescent. Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.

**POWER SUPPLY**

110V-254V, 50/60Hz AC/DC (2 x 18W)
220V-254V, 50/60Hz AC/DC (2 x 36W and 2 x 58W)
110V-130V, 50/60Hz AC/DC (2 x 36W)

**POWER FACTOR**

Greater than 0.95

**TERMINALS**

3 core up to 4 mm² conductors with looping.
Terminals for live constant, neutral & earth are provided.
Internally earthed, external earth terminal also as standard.

**CABLE ENTRIES**

Two M20 x 1.5 entries as Standard with an option for two M25 x 1.5 entries. Other cable entries available on request.
Supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

**TEMPERATURE**

Refer to table above.

**AMBIENT TEMPERATURE**

Refer to table above.

**MATERIALS**

Main body: LM6 aluminium alloy.
Lampglass: Borosilicate glass overtube.
Reflector: Stainless steel.

**WEIGHT**

2 x 18W Lamps - 9Kg
2 x 36W Lamps - 13Kg
2 x 58W Lamps - 15Kg
1 x 36W Lamp - 13Kg
1 x 58W Lamp - 15Kg

**SUSPENSION**

Standard support channel supplied will accept Ø10mm fasteners with variable fixing points and compatible with existing cable support systems.

**OPTIONS - SUFFIX TO CATALOGUE REF.**

/120  Specific voltage (110/130V) - 2 x 36W & 58W only
/M25  M25 Entries
/3R   Powder coated zintec reflector
/3-4” NPT  3/4 inch NPT cable entry
/IIC  Suitable for IIC gas areas (18W only)

**ACCESSORIES**

- Pole mount bracket (38-42mm) SPOL4-100004
- Pole mount bracket (48-52mm) SPOL4-100005
- Pole mount bracket (58-62mm) SPOL4-100006
- Ceiling mount bracket assembly SEXCE-00001
- Wall bracket SEXCE-00009
- Wire guard - 18W SVISD-00008
- Wire guard - 36W SVISD-00009
- Wire guard - 58W SVISD-00010

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 FEATURES AND BENEFITS
Battery back up for emergency operation (3 hours) • Cool running - suitable for high ambient areas • Standard uni-strut fixing

CERTIFICATION & APPROVALS

ATEX Certificate SIRA00ATEX1021X

II 2 GD Ex d IIC (18W)
II 2 GD Ex d IIB (36W & 58W)

Refer to ordering reference table for T Class and ambient

Ingress protection to IP66, IP67 IP68 (on application)

GOST-R Approved
TIS Approved

DIMENSIONS

<table>
<thead>
<tr>
<th>Fitting wattage</th>
<th>Overall Length Dim A</th>
</tr>
</thead>
<tbody>
<tr>
<td>18W</td>
<td>916</td>
</tr>
<tr>
<td>36W</td>
<td>1516</td>
</tr>
<tr>
<td>58W</td>
<td>1816</td>
</tr>
</tbody>
</table>

Dimensions in millimetres
**ZONE 1 TYPE Ex ‘d’ FLAMEPROOF**

### TECHNICAL SPECIFICATION

**LAMP TYPES**

T8, Ø26mm, G13 cap bi-pin fluorescent. Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.

**POWER SUPPLY**

220V-254V, 50/60HZ AC

110V-130V, 50/60HZ AC

**EMERGENCY OPERATION**

Typically 3 hours duration at 25°C

32% of one lamp (18W).

14% of one lamp (36W).

9% of one lamp (58W).

**BATTERY**

6V, 4Ah external Ni-Cad.

**POWER FACTOR**

Greater than 0.95

**TERMINALS**

4 core up to 4 mm² conductors with looping. Terminals for live constant, live switched, neutral & earth are provided. Internally earthed, external earth terminal also as standard.

**CABLE ENTRIES**

Two M20 x 1.5 entries as standard with an option for two M25 x 1.5 entries. Other cable entries available on request. Supplied with 1 x transit plug and 1 x Ex blanking plug. Cable entry devices (i.e. glands) must maintain the IP rating for the luminaire.

**AMBIENT TEMPERATURE**

Refer to table above.

**MATERIALS**

- **Main body**: LM6 aluminium alloy.
- **Lampglass**: Borosilicate glass overtube.
- **Reflector**: Stainless steel.

**WEIGHT**

- 2 x 18W Lamps - 9Kg
- 2 x 36W Lamps - 16Kg
- 2 x 58W Lamps - 18Kg

**SUSPENSION**

Standard support channel supplied will accept Ø10mm fasteners with variable fixing points and compatible with existing cable support systems.

---

**OPTIONS - SUFFIX TO CATALOGUE REF.**

- **/120**: Specific voltage (110/130V)
- **/M25**: M25 Entries
- **/ZR**: Powder coated zintec reflector
- **/3-4” NPT**: 3/4 inch NPT cable entry
- **/IIC**: Suitable for IIC gas areas (18W only)

---

**ACCESSORIES**

- **Pole mount bracket (38-42mm)**
  - SPOL4-100004
- **Pole mount bracket (48-52mm)**
  - SPOL4-100005
- **Pole mount bracket (58-62mm)**
  - SPOL4-100006
- **Ceiling mount bracket assembly**
  - SEXCE-00001
- **Wall bracket**
  - SEXCE-00009
- **Wire guard - 18W**
  - SVISD-00008
- **Wire guard - 36W**
  - SVISD-00009
- **Wire guard - 58W**
  - SVISD-00010

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VISCOUNT 8W

CERTIFICATION & APPROVALS

**ATEX** Certificate SIRA00ATEX1021X

II 2 GD Ex d IIB

Ex d IIB T6 (Ta = -20°C to +55°C)

Ingress protection to IP66, IP67

IP68 (on application)

**GOST-R** Approved

**TIS** Approved

FEATURES AND BENEFITS

Ideal for escape route and over-door illumination • Optional battery back-up • Maintained, non maintained or switched emergency operation

DIMENSIONS

Dimensions in millimetres

End of Life Protection

3 Hour Operation

Adhesive exit sign

End of Life Protection

3 Hour Operation
ZONE 1 TYPE Ex ‘d’ FLAMEPROOF

TECHNICAL SPECIFICATION

LAMP TYPES
T5 Bi-pin fluorescent 8W.

POWER SUPPLY
220 - 254V 50/60Hz AC (non emergency)
220 - 240V 50/60Hz AC (emergency)

EMERGENCY OPERATION
3 hours duration at 25°C
30% of total light output.

BATTERY
2.4V 4Ah internal Ni-Cad.

POWER FACTOR
Greater than 0.95

TERMINALS
4 core up to 4 mm² conductors with looping. Terminals for live constant, live switched, neutral & earth are provided. Internally earthed, external earth terminal also as standard.

CABLE ENTRIES
Two M20 x 1.5 entries as Standard with an option for two M25 x 1.5 entries. Other cable entries available on request. Supplied with 1 x transit plug and 1 x Ex blanking plug. Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

TEMPERATURE
Gas environments: T6.
Dust environments: T85°C

AMBIENT TEMPERATURE
-20°C to +55°C

MATERIALS
Main body: LM6 aluminium alloy.
Lampglass: Borosilicate glass overtube.
Reflector: Stainless steel.

WEIGHT
1 x 8W Lamp - 5kg
2 x 8W Lamp - 5kg
1 x 8W Lamp Emergency- 5.5kg

SUSPENSION
Standard support channel supplied will accept Ø 12mm fasteners with variable fixing points and compatible with existing cable support systems.

OPTIONS - SUFFIX TO CATALOGUE REF.

/M25 M25 Entries
/NM Non-maintained emergency version
(1x8W emergency only)
/IR Powder coated zintec reflector
/3-4” NPT 3/4 inch NPT cable entry
/IIC Suitable for IIC gas areas

ACCESSORIES

Pole mount bracket (38-42mm)
SPOL4-100004

Pole mount bracket (48-52mm)
SPOL4-100005

Pole mount bracket (58-62mm)
SPOL4-100006

Ceiling mount bracket assembly
SEXCE-00001

Wall bracket
SEXCE-00009

Wire guard
SVISD-00007

Exit sign chain hanging (no direction)
SPATE-00005

Exit sign chain hanging (up arrow)
SPATE-00006

Exit sign chain hanging (down arrow)
SPATE-00007

Exit sign chain hanging (right arrow)
SPATE-00008

Exit sign chain hanging (left arrow)
SPATE-00009

Exit sign, rigid plastic, chain hanging (double sided arrow left & arrow right)
SPATE-00011

Exit sign, adhesive (up, down, left and right)
SPATE-00012

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<table>
<thead>
<tr>
<th>Std. Cat. Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C (Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISD/108/B1</td>
<td>1x8W</td>
<td>Bi-Pin</td>
<td>T5</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +55°C</td>
</tr>
<tr>
<td>VISD/208/B1</td>
<td>2x8W</td>
<td>Bi-Pin</td>
<td>T5</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +55°C</td>
</tr>
<tr>
<td>VISD/108/B1/EM*</td>
<td>1x8W</td>
<td>Bi-Pin</td>
<td>T5</td>
<td>T6</td>
<td>85</td>
<td>-20°C to +55°C</td>
</tr>
</tbody>
</table>

* Maintained as standard
CERTIFICATION & APPROVALS

**IECEx** Certificate IECEx BAS.08.0038X
**ATEX** Certificate Baseefa08ATEX0102X

Non Emergency:

- Ex II 2 GD
- Ex e mb IIIC T4 Gb
- Ex tb IIIC T100°C Db

Emergency:

- Ex II 2 GD
- Ex e ib mb IIIC T4 Gb
- Ex tb IIIC T100°C Db

Ambient temperature range:

-45°C TO +55°C

Ingress protection to IP66 and IP67

Meets current CAA (CAP 437) and ICAO guidelines for helicopter landing area lighting

DIMENSIONS

Dimensions in millimetres
**TECHNICAL SPECIFICATION**

**ORDERING REFERENCE**

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>T Class</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>VANE/801/LE/HE</td>
<td>8 x 1W</td>
<td>Green Light Emitting Diode (LED)</td>
<td>T4</td>
<td>-45°C to +55°C</td>
</tr>
<tr>
<td>VANE/801/LE/EM/HE</td>
<td>8 x 1W</td>
<td>Green Light Emitting Diode (LED)</td>
<td>T4</td>
<td>[-45°C] -20°C to +55°C</td>
</tr>
</tbody>
</table>

* Requires /LT suffix

**LAMP TYPES**

8 x 1W light emitting diodes (LED)

**POWER SUPPLY**

110-254V, AC/DC 50/60 Hz.

**TERMINALS**

3 core up to 4 mm² conductors with looping.

Through wiring facility as standard. Terminals for live constant, live switched (emergency version only), neutral & earth are provided.

External earth terminal as standard.

**CABLE ENTRIES**

3 x M20 entries, two at one end & one at the other end.

Supplied with 1 x transit plug and 2 x Ex blanking plugs.

Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

**TEMPERATURE**

Gas Environments - T4, Dust Environments - T1100°C.

**AMBIENT TEMPERATURE RANGE**

-45°C to +55°C (non-emergency),
-20°C to +55°C (standard emergency),
-45°C to +55°C (low temperature emergency).

**MATERIALS**

Main body: LM6 die cast aluminium, with epoxy paint finish.
Lampglass: Clear borosilicate (diffused pattern).
Gaskets: Silicone.
Wire guard: 10 SWG zinc plated wire epoxy powder coated.
External fastners: Stainless steel.

**WEIGHT**

Non-emergency - 5.9kg, Emergency - 6.8kg.

**SUSPENSION**

Four Ø10.3 fixing holes are provided.

**EMERGENCY OPERATION**

90 minutes, 100% light output.

**BATTERY**

4.8V 4 Ah internal Ni-Cad.

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**OPTIONS - SUFFIX TO CATALOGUE REF.**

/LT Low temp -45°C to +55°C [Emergency version only]

---

**ACCESSORIES**

Wireguard
SVANE-00001

Wireguard with integrated bird spike
SVANE-00008

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All products are sold subject to our conditions of sale, available on request.
VANGUARD VL35 LED

FEATURES AND BENEFITS
LED Bulkhead luminaire • Range of coloured LED's • Maintenance free (> 80,000 hours operation) • Emergency version available

CERTIFICATION & APPROVALS
IECEx Certificate IECEx BAS.08.0038X
ATEX Certificate Baseefa08ATEX0102X

Non Emergency:
Ex Ⅱ 2 GD
Ex e mb IIC T4 Gb
Ex tb IIC T100°C Db

Emergency:
Ex Ⅱ 2 GD
Ex e ib mb IIC T4 Gb
Ex tb IIC T100°C Db

Ambient temperature range:
-45°C TO +55°C

Ingress protection to IP66 and IP67

DIMENSIONS
Dimensions in millimetres
TECHNICAL SPECIFICATION

LAMP TYPES
8 x 1W light emitting diodes (LED)

POWER SUPPLY
110-254V, AC/DC 50/60 Hz.

TERMINALS
3 core up to 4 mm² conductors with looping.
Through wiring facility as standard. Terminals for live constant, live switched (emergency version only), neutral & earth are provided.
External earth terminal as standard.

CABLE ENTRIES
3 x M20 entries, two at one end & one at the other end.
Supplied with 1 x transit plug and 2 x Ex blanking plugs.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

TEMPERATURE
Gas Environments - T4.
Dust Environments - T100°C.

AMBIENT TEMPERATURE RANGE
-45°C to +55°C (non-emergency).
-20°C to +55°C (standard emergency).
-45°C to +55°C (low temperature emergency).

MATERIALS
Main body - LM6 die cast aluminium, with epoxy paint finish.
Lamp glass - Clear borosilicate (diffused pattern).
Gaskets - Silicone.
Wire guard - 10 SWG zinc plated wire epoxy powder coated.
External fasteners - Stainless steel.

WEIGHT
Non-emergency - 5.9kg  Emergency - 6.8Kg.

SUSPENSION
Four Ø10.3 fixing holes are provided.

EMERGENCY OPERATION
90 minutes, 100% light output.

BATTERY
4.8V 4 Ah internal Ni-Cad.

OPTIONS - SUFFIX TO CATALOGUE REF.

/LT  Low temp -45°C to +55°C
       (Emergency version only)
/RDE  Red LED’s
/GDE  Green LED’s
/BDE  Blue LED’s
/ADE  Amber LED’s

ACCESSORIES

Wireguard
SVANE-00001

Wireguard with integrated bird spike
SVANE-00008

To calculate photometric values for lighting design, please use the free Victor LiteGuide™ software package.
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TITAN VL38

CERTIFICATION & APPROVALS

ATEX Certificate SIRA01ATEX1049

II 2 GD Ex de II C T4*

Ambient temperature range:
-20°C to +68°C* (standard)
-50°C to +68°C* (low temperature)

Ingress protection to IP66 & IP67

GOST-R Approved

* Refer to matrix for lamp ‘T’ rating on pendant mounted versions.

FEATURES AND BENEFITS

Extreme ambient temperature range • Maintenance free QL option • Extensive range of lamp types

DIMENSIONS

Dimensions in millimetres
TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATION

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C (Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBD/050/H5</td>
<td>50W</td>
<td>HPS</td>
<td>E27</td>
<td>T4</td>
<td>110</td>
<td>(-50°C**)</td>
</tr>
<tr>
<td>TBD/050/MV</td>
<td>50W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T4</td>
<td>120</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/070/MF</td>
<td>70W</td>
<td>HPS &amp; Metal Halide</td>
<td>E27</td>
<td>T4</td>
<td>110</td>
<td>(-50°C**)</td>
</tr>
<tr>
<td>TBD/080/MV</td>
<td>80W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T4</td>
<td>120</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/125/MV</td>
<td>125W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T4</td>
<td>123</td>
<td>-20°C to +48°C</td>
</tr>
<tr>
<td>TBD/100/GL</td>
<td>100W</td>
<td>GLS</td>
<td>E27</td>
<td>T4</td>
<td>108</td>
<td>(-50°C**)</td>
</tr>
<tr>
<td>TBD/200/GL</td>
<td>200W</td>
<td>GLS</td>
<td>E27</td>
<td>T4</td>
<td>115</td>
<td>(-50°C**)</td>
</tr>
<tr>
<td>TBD/113/CF</td>
<td>1x10/13W</td>
<td>Compact Fluorescent</td>
<td>G24q</td>
<td>T4</td>
<td>85</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/118/CF</td>
<td>1x18W</td>
<td>Compact Fluorescent</td>
<td>G24q</td>
<td>T4</td>
<td>85</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/126/CF</td>
<td>1x26W</td>
<td>Compact Fluorescent</td>
<td>G24q</td>
<td>T4</td>
<td>85</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/213/CF</td>
<td>2x10/13W</td>
<td>Compact Fluorescent</td>
<td>G24q</td>
<td>T4</td>
<td>85</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/218/CF</td>
<td>2x18W</td>
<td>Compact Fluorescent</td>
<td>G24q</td>
<td>T4</td>
<td>85</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/226/CF</td>
<td>2x26W</td>
<td>Compact Fluorescent</td>
<td>G24q</td>
<td>T4</td>
<td>85</td>
<td>-20°C to +60°C</td>
</tr>
<tr>
<td>TBD/055/GL</td>
<td>55W</td>
<td>QL</td>
<td>QL</td>
<td>T4</td>
<td>93</td>
<td>-50°C to +63°C</td>
</tr>
<tr>
<td>TBD/085/GL</td>
<td>85W</td>
<td>QL</td>
<td>QL</td>
<td>T4</td>
<td>97</td>
<td>-50°C to +57°C</td>
</tr>
</tbody>
</table>

** Requires /LT suffix.

LAMP TYPES

SON - 50W & 70W
MBF - 50W, 80W & 125W
GLS - 200W Max (E27)
Compact Fluorescent - Single & Twin 10/13W, 18W & 26W
Philips QL - 55W & 85W

POWER SUPPLY

SON & MBF
220V, 230V, 240V & 254V, 50Hz or 60Hz

250V Max

Compact Fluorescent
220V - 250V 50/60Hz and 200V - 250V DC

GLS
200V - 240V 50/60Hz AC/DC (standard)
110V - 130V 50/60Hz AC/DC (optional)

POWER FACTOR

Better than 0.85 for High Intensity Discharge Luminaire
Better than 0.95 for QL & Compact Fluorescent Luminaire

TERMINALS

3 core up to 6 mm² conductors with looping.
Terminals for live, neutral & earth are provided.
Internally earthed, external earth terminal as standard.

CABLE ENTRIES

Two M20 x 1.5 entries as Standard with an option for two M25 x 1.5 entries. Other cable entries available on request.
Supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

MATERIALS

Main body - Marine grade aluminium alloy with full epoxy powder coating.
Lampglass - Borosilicate glass.

WEIGHT

HID & QL Luminaire 10.0 kg
GLS & Compact fluorescent 7.5 kg

SUSPENSION

Mounting supplied with luminaire is for pendant operation suitable for two Ø 10mm fasteners on 275mm centres.
Optional stirrup mounting available for wall/directional applications.

OPTIONS - SUFFIX TO CATALOGUE REF.

/60  60Hz
/120 120V - QL lamps only
/M25 M25 Entries
/S Stirrup version for universal mounting***
/SLC Sealed lamp chamber - Maintenance free (QL version)
/LT Low temperature version (-50°C)

*** T rating and ambient may vary for universal (stirrup) mounting. Please contact technical sales.

ACCESSORIES

Strap mount bracket
STBD-00001

Wire Guard
STBD-00002

External Reflector
STBD-00003

Pole clamp
STBD-00005
(For use with 40-60mm dia. pole)

To calculate photometric values for lighting design, please use the free Victor LiteGuide™ software package.
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TITAN VL39

FEATURES AND BENEFITS

Wide ambient temperature range • Maintenance free QL option • Extensive range of lamp types

CERTIFICATION & APPROVALS

ATEX Certificate SIRA01ATEX1274

II 2 GD Ex de II C T4*

Ambient temperature range: -20°C to +55°C* (standard)

Ingress protection to IP66 & IP67

GOST-R Approved

TIS Approved

* Refer to matrix for lamp ‘T’ rating on pendant mounted versions.

DIMENSIONS

Dimensions in millimetres
TECHNICAL SPECIFICATION

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C(Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIPD/150/MS</td>
<td>150W</td>
<td>HPS &amp; Metal Halide</td>
<td>E40</td>
<td>T3</td>
<td>145</td>
<td>-20°C to +50°C**</td>
</tr>
<tr>
<td>TIPD/250/MS</td>
<td>250W</td>
<td>HPS &amp; Metal Halide</td>
<td>E40</td>
<td>T4</td>
<td>125</td>
<td>-20°C to +35°C**</td>
</tr>
<tr>
<td>TIPD/400/MS</td>
<td>400W</td>
<td>HPS &amp; Metal Halide</td>
<td>E40</td>
<td>T4</td>
<td>170</td>
<td>-20°C to +40°C**</td>
</tr>
<tr>
<td>TIPD/250/MV</td>
<td>250W</td>
<td>Mercury Vapour</td>
<td>E40</td>
<td>T3</td>
<td>145</td>
<td>-20°C to +50°C**</td>
</tr>
<tr>
<td>TIPD/400/MV</td>
<td>400W</td>
<td>Mercury Vapour</td>
<td>E40</td>
<td>T4</td>
<td>125</td>
<td>-20°C to +40°C**</td>
</tr>
<tr>
<td>TIPD/500/GL</td>
<td>500W</td>
<td>GLS</td>
<td>E40</td>
<td>T4</td>
<td>170</td>
<td>-20°C to +40°C**</td>
</tr>
<tr>
<td>TIPD/165/QL</td>
<td>165W</td>
<td>QL</td>
<td>E40</td>
<td>T4</td>
<td>105</td>
<td>-20°C to +55°C**</td>
</tr>
</tbody>
</table>

** For low temperature versions (/LT) contact sales.

SUSPENSION

Mounting supplied with luminaire is for pendant operation suitable for two M12 fasteners on 370mm centres.
Optional stirrup mounting available for wall/directional applications.

OPTIONS - SUFFIX TO CATALOGUE REF.

- /60 60Hz
- /M25 M25 Entries
- /S Stirrup version for universal mounting***
- /SLC Sealed lamp chamber - Maintenance free (QL version)
- /120 120V - QL lamps only
- /LT Low temperature -50°C to 50°C

*** T rating and ambient may vary for universal (stirrup) mounting. Please contact technical sales.

LAMP TYPES

SON - 150W, 250W & 400W
MBI - 150W, 250W & 400W
MBF - 150W, 250W & 400W
GLS - 500W Max
Philips QL - 165W (not suitable for reflector lamps).

POWER SUPPLY

SON, MBI & MBF 220V, 230V, 240V & 250V, 50Hz or 60Hz
GLS 250V Max
QL Lamps 200V - 240V 50/60Hz AC/DC (standard)
110V - 130V 50/60Hz AC/DC (optional)

POWER FACTOR

Better than 0.95 for QL, GLS
Better than 0.85 for High Intensity Discharge Luminaire.

TERMINALS

3 core up to 6 mm² conductors with looping.
Terminals for live, neutral & earth are provided.
Internally earthed, external earth terminal as standard.

CABLE ENTRIES

Two M20 x 1.5 entries as Standard with an option for two M25 x 1.5 entries. Other cable entries available on request.
Supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

MATERIALS

Main body - Marine grade aluminium alloy with full epoxy powder coating.
Lampglass - Borosilicate glass.

WEIGHT

HID 23.0 kg
QL Luminaire 20.0 kg
GLS 19.0 kg

ACCESSORIES

- Stirrup mount bracket STIPD-00001
- Wire guard STIPD-00002
- External reflector STIPD-00003
- Pole clamp STIPD-00005 (For use with 70-80mm dia. pole)

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CERTIFICATION & APPROVALS

IECEx Certificate IECEx SIR 04.0033
ATEX Certificate SIRA04ATEX1220

II 2 GD Ex de II C T4*

Ambient temperature range:
-50°C to +70°C*

Ingress protection to IP66 & IP67

GOST-R Approved

* Refer to matrix for lamp ‘T’ rating on pendant mounted versions.

FEATURES AND BENEFITS

Extreme ambient temperature range • Simple mounting arrangement • Unique design eliminates exposed flame path reducing maintenance

DIMENSIONS

Dimensions in millimetres

/SE Spigot mount version
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ZONE 1 TYPE Ex ‘d’ FLAMEPROOF

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C(Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>TI7D/050/HS</td>
<td>50W</td>
<td>HPS</td>
<td>E27</td>
<td>T4</td>
<td>120</td>
<td>-50°C to +70°C</td>
</tr>
<tr>
<td>TI7D/050/MV</td>
<td>50W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T4</td>
<td>120</td>
<td>-20°C to +70°C</td>
</tr>
<tr>
<td>TI7D/070/HS</td>
<td>70W</td>
<td>HPS</td>
<td>E27</td>
<td>T4</td>
<td>120</td>
<td>-50°C to +70°C</td>
</tr>
<tr>
<td>TI7D/070/MH</td>
<td>70W</td>
<td>Metal Halide</td>
<td>E27</td>
<td>T4</td>
<td>120</td>
<td>-50°C to +70°C</td>
</tr>
<tr>
<td>TI7D/080/MV</td>
<td>80W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T4</td>
<td>128</td>
<td>-20°C to +68°C</td>
</tr>
<tr>
<td>TI7D/125/MV</td>
<td>125W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T4</td>
<td>130</td>
<td>-20°C to +50°C</td>
</tr>
<tr>
<td>TI7D/150/HS</td>
<td>150W</td>
<td>HPS</td>
<td>E27</td>
<td>T3</td>
<td>122</td>
<td>-50°C to +74°C</td>
</tr>
<tr>
<td>TI7D/200/GL</td>
<td>200W</td>
<td>GLS</td>
<td>E27</td>
<td>T4</td>
<td>130</td>
<td>-50°C to +65°C</td>
</tr>
</tbody>
</table>

TECHNICAL SPECIFICATION

LAMP TYPES

SON - 50W & 70W
SON/T - 150W (White SON - E27 Cap only)
MBI - 70W & 100W
MBF - 50W, 80W & 125W
GLS - 200W Max (E27)

POWER SUPPLY

SON, MBI & MBF
GLS
220V, 230V, 240V & 250V, 50Hz or 60Hz 250V max

POWER FACTOR

Better than 0.85 for High Intensity Discharge Luminaire

TERMINALS

3 core up to 6 mm² conductors with looping.
Terminals for live, neutral & earth are provided.
Internally earthed, external earth terminal as standard.

CABLE ENTRIES

Two M20 x 1.5 entries as standard. Pole-mount only has 1 x M20 entry. Other cable entries available on request.
Supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

MATERIALS

Main body: Marine grade aluminium alloy with full epoxy powder coating.
Lampglass: Borosilicate glass.

ACCESSORIES

There are no accessories for this product.

OPTIONS - SUFFIX TO CATALOGUE REF.

/220 220V
/230 230V
/254 254V
/60 60Hz
/SE Spigot mounted
/IEC Supplied with IECEx certification label

SUSPENSION

Mounting supplied with luminaire is for pendant operation suitable for two Ø10mm fasteners on 290mm centres.
Spigot mount is for direct mounting to poles up to Ø42mm via a single cable entry.

WEIGHT

HID 9.0kg
GLS 7.5kg
Ex ‘e’ TERMINAL CHAMBER

Provides access to terminal block for easy installation, simplifying maintenance routines.
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**ZONE 1 TYPE Ex ‘d’ flameproof**

**EXCELLENT PHOTOMETRIC OUTPUT**
Large surface area of cover glass ensures a high light output ratio (LOR) and optimum photometric performance.

**AIMING QUADRANT**
Stainless steel aiming quadrant for accurate and consistent floodlight positioning.

Hinged cover provides safe and easy access to lamp chamber.

The VL64 features captive cover bolts to ensure they are not lost during re-lamping and maintenance.
**Certification & Approvals**

- **IECEx** Certificate IECEx BAS 07.0052
- **ATEX** Certificate Baseefa058ATEX0228
- II 2 GD Ex de IIB T*
- Ambient temperature range: 
  \(-20°C \leq T_{\text{amb}} \leq +*°C\)
- Ingress protection to IP66 and IP67

**GOST-R** Approved

**TIS** Approved

* Refer to matrix for lamp, “T” rating.

**Features and Benefits**

- Excellent photometric output
- Integral control gear
- Use with twin-arc tube lamps for >55,000 hours operation

**Dimensions**

Dimensions in millimetres

- **Stirrup mounting bracket**: 2 holes 13mm Dia., 300mm Dia., 228mm
- **Exe Terminal box**: 2xM20 Entries
- **Aiming quadrant for stirrup**: 370mm

*Dimensions shown are for reference purposes only.*
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## TECHNICAL SPECIFICATION

### LAMP TYPES

- SON/T - 150W, 200W, 400W
- MBH - 150W, 200W, 400W
- MBFU - 250W and 400W
- Tungsten Halogen 500W

### POWER SUPPLY

220V, 230V, 240V or 254V 50Hz Available via a multi-tapped ballast. All luminaires factory set to 240V 50Hz. 60Hz versions also available.

### POWER FACTOR

Better than 0.85

### TERMINALS

3 core up to 6 mm² conductors with looping. Terminals for live, neutral & earth are provided. Internally earthed, external earth terminal as standard.

### CABLE ENTRIES

Two entry terminal box with M20 x 1.5 tapping, other entries available on request. Supplied with 1 x transit plug and 1 x Ex blanking plug. Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

### MATERIALS

- Main Body: LM6 aluminium with epoxy paint finish as standard.
- Lampglass: Toughened soda lime glass plate.
- External fasteners: Stainless steel.

### WEIGHT

- Discharge lamp versions - 31.0Kg.
- Tungsten halogen lamp versions - 26.0Kg

### SUSPENSION

- Stirrup bracket pre-drilled with 2 holes 13mm diameter. Complete with locking and aiming quadrant.

### BEAM PATTERNS

Narrow or wide beam patterns available.

## OPTIONS - SUFFIX TO CATALOGUE REF.

- /60: 60Hz
- /M25: M25 Entries
- /N: Narrow beam reflector
- /IEC: Supplied complete with IECEx certification label

## ACCESSORIES

- Pole mount bracket: 56428-0001
- Anti-glare shield (cannot be used with wire guard): 56428-0002
- Wire guard (cannot be used with anti-glare shield): 56428-0003
- Combined Anti-glare shield and wire guard: 56428-0004
CERTIFICATION & APPROVALS

ATEX Certificate SIRA04ATEX1062

II 2 GD Ex de IIB T3

Ambient temperature range: -50°C to +55°C*

Ingress protection to IP66 and IP67

GOST-R Approved

* Refer to matrix for lamp, 'T' rating.

FEATURES AND BENEFITS

Compact mini flood with integral control unit • Ex ‘e’ terminal chamber • Captive cover bolts and hinged cover

DIMENSIONS

Dimensions in millimetres
**ZONE 1 TYPE Ex ‘d’ FLAMEPROOF**

**ORDERING REFERENCE**

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C(Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>V65D/050/HS</td>
<td>50W</td>
<td>HPS</td>
<td>E27</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +55°C</td>
</tr>
<tr>
<td>V65D/050/MV</td>
<td>50W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +55°C</td>
</tr>
<tr>
<td>V65D/070/MS</td>
<td>70W</td>
<td>HPS/Metal Halide</td>
<td>E27</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +55°C</td>
</tr>
<tr>
<td>V65D/080/MV</td>
<td>80W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +55°C</td>
</tr>
<tr>
<td>V65D/125/MV</td>
<td>125W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +55°C</td>
</tr>
<tr>
<td>V65D/250/TH</td>
<td>250W</td>
<td>Tungsten Halogen</td>
<td>E27</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +30°C</td>
</tr>
</tbody>
</table>

**TECHNICAL SPECIFICATION**

**LAMP TYPES**
- SON/T 50W & 70W
- MBI or MBI-T 70W
- MBFU 50W, 80W, 125W
- Tungsten Halogen 250W max

**POWER SUPPLY**
- Factory wired to 240V 50Hz.
- Tungsten Halogen, 250W max.
- 60Hz versions also available.

**POWER FACTOR**
- Better than 0.85

**TERMINALS**
- 3 core up to 6 mm² conductors with looping.
- Terminals for live, neutral & earth are provided. Internally earthed, external earth terminal as standard.

**CABLE ENTRIES**
- Two entry terminal box with M20 x 1.5 tapping as standard.
- M25 available on request. Other tappings available on request.
- Supplied with 1 x transit plug and 1 x Ex blanking plug.
- Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

**MATERIALS**
- Main Body: LM6 aluminium with epoxy paint finish as standard.
- Lampglass: Toughened soda lime glass plate.
- External fasteners: Stainless steel.

**WEIGHT**
- Discharge lamp versions - 13Kg
- Tungsten halogen lamp versions - 10Kg

**MOUNTINGS**
- Stirrup bracket pre-drilled with central hole of 21 mm diameter and two 13mm diameter holes on 220mm centres for fixing.
- The luminaire can be mounted in any orientation.

**BEAM PATTERNS**
- Narrow, medium or wide beam patterns available. MBFU lamps must be used in the forward lamp position for wide beam patterns.

**OPTIONS - SUFFIX TO CATALOGUE REF.**

- /60 60Hz
- /M25 M25 Entries
- /N Narrow beam reflector
  (Not available with Mercury Vapour lamps)
- /M Medium beam reflector
  (Not available with Mercury Vapour lamps)

**ACCESSORIES**

There are no accessories for this product.

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MARQUIS II VL53

FEATURES AND BENEFITS
Lightweight and slimline construction • Simple to install and maintain • High frequency control gear • Single and twin lamp versions

CERTIFICATION & APPROVALS

IECEx Certificate IECEx SIR 06.0055X
ATEX Certificate SIRA06ATEX4191X

II 3 GD Ex nA II T4

Ambient temperature range: -20°C to +45°C*
Ingress protection to IP65
TIS Approved

*Dependant on lamp type & voltage

DIMENSIONS

Dimensions in millimetres

<table>
<thead>
<tr>
<th>GRP Body</th>
<th>2x18W</th>
<th>1x36W</th>
<th>2x36W</th>
<th>1x58W</th>
<th>2x58W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 900</td>
<td>1312</td>
<td>1612</td>
<td>1612</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B 500</td>
<td>800</td>
<td>1100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C 172</td>
<td>172</td>
<td>172</td>
<td>172</td>
<td></td>
<td></td>
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<tr>
<td>D 106</td>
<td>106</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stainless Steel Body

<table>
<thead>
<tr>
<th>2x18W</th>
<th>1x36W</th>
<th>2x36W</th>
<th>1x58W</th>
<th>2x58W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 700</td>
<td>1312</td>
<td>1612</td>
<td>1612</td>
<td></td>
</tr>
<tr>
<td>B 500</td>
<td>800</td>
<td>1100</td>
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<td></td>
</tr>
<tr>
<td>C 172</td>
<td>172</td>
<td>172</td>
<td>172</td>
<td></td>
</tr>
<tr>
<td>D 106</td>
<td>106</td>
<td>106</td>
<td>106</td>
<td></td>
</tr>
</tbody>
</table>
**ZONE 2 TYPE Ex ‘n’ NON SPARKING**

### TECHNICAL SPECIFICATION

#### LAMP TYPES

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA2N/218/Bi</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/136/Bi</td>
<td>1x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/236/Bi</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/158/Bi</td>
<td>1x58W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/258/Bi</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

A stainless steel body version is also available. To order substitute MA2N with MS2N.

#### POWER SUPPLY

- 220V-254V, 50/60Hz AC/DC
- 120V, 50/60Hz AC only [option]

#### TEMPERATURE CLASSIFICATION

Gas environments: T4.
Dust environments: T85°C.

#### AMBIENT TEMPERATURE RANGE

- 220V-240V: -20°C to +45°C.
- 254V: -20°C to +35°C
- 110V-130V: -20°C to +30°C

#### MATERIALS

- **Body**: Corrosion resistant glass reinforced polyester (GRP) or stainless steel.
- **Diffusers**: Polycarbonate.
- **Clips**: Stainless Steel (18Wx6, 36Wx8 & 58Wx10).
- **Gear Tray**: Painted mild steel.

#### WEIGHT

<table>
<thead>
<tr>
<th></th>
<th>GRP Body</th>
<th>Stainless Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 36W Lamp</td>
<td>3.3Kg</td>
<td>1 x 36W Lamp</td>
</tr>
<tr>
<td>1 x 58W Lamp</td>
<td>3.7Kg</td>
<td>1 x 58W Lamp</td>
</tr>
<tr>
<td>2 x 18W Lamps</td>
<td>2.6Kg</td>
<td>2 x 18W Lamps</td>
</tr>
<tr>
<td>2 x 36W Lamps</td>
<td>3.6Kg</td>
<td>2 x 36W Lamps</td>
</tr>
<tr>
<td>2 x 58W Lamps</td>
<td>4.1Kg</td>
<td>2 x 58W Lamps</td>
</tr>
</tbody>
</table>

#### SUSPENSION

8mm clearance holes. Sealing washers are provided. A range of mounting accessories are available, see below.

#### CABLE ENTRIES

- Pre-drilled Ø20mm.
- Supplied with 1 x transit plug and the required number of Ex blanking plugs.
- Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

### OPTIONS - SUFFIX TO CATALOGUE REF.

- **/120**: 120V (36W & 58W only)
- **/MF**: Mains fuse
- **/EA**: External earth
  - (earth tag GRP body)
  - (earth stud stainless body)
- **/CM**: Fixed ceiling mount bracket
  - (stainless body only)

### ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA2N/218/Bi</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/136/Bi</td>
<td>1x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/236/Bi</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/158/Bi</td>
<td>1x58W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2N/258/Bi</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

A stainless steel body version is also available. To order substitute MA2N with MS2N.

### POWER FACTOR

Greater than 0.95

### TERMINALS

- 4 core up to 4 mm² conductors. Through wiring facility as standard. Terminals for live constant, live switched, neutral & earth are provided. Internal earth.

### OPTIONS - SUFFIX TO CATALOGUE REF.

- **/120**: 120V (36W & 58W only)
- **/MF**: Mains fuse
- **/EA**: External earth
  - (earth tag GRP body)
  - (earth stud stainless body)
- **/CM**: Fixed ceiling mount bracket
  - (stainless body only)

### ACCESSORIES

- **Pole mount bracket (38-42mm)**
  - SPOL4-100004
- **Pole mount bracket (48-52mm)**
  - SPOL4-100005
- **Pole mount bracket (58-62mm)**
  - SPOL4-100006
- **Offset ceiling bracket assembly**
  - S3004-100001
- **C’ form hook type ceiling bracket assembly**
  - S3004-100003
- **Flush mounted wall bracket assembly**
  - S3004-100004
- **18W wall mounting outreach bracket**
  - (use with S3004-100002)
  - NPRO4-0008
- **36W wall mounting outreach bracket**
  - (use with S3004-100002)
  - NPRO4-0012
- **58W wall mounting outreach bracket**
  - (use with S3004-100002)
  - NPRO4-0022

---

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**MARQUIS II VL54**

### FEATURES AND BENEFITS

- Battery back up for three hour emergency operation
- High frequency control gear 50/60Hz
- Through wired as standard

### CERTIFICATION & APPROVALS

- IECEx Certificate IECEx SIR 06.0055X
- ATEX Certificate SIRA06ATEX4191X
- **Ex II 3 GD Ex nA II T4**
- Ambient temperature range: -20°C to +40°C*
- Ingress protection to IP65
- **TIS** Approved

*Dependant on lamp type & voltage

### DIMENSIONS

<table>
<thead>
<tr>
<th></th>
<th>2x18W</th>
<th>1x36W</th>
<th>2x36W</th>
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<td>106</td>
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</table>

Dimensions in millimetres
## TECHNICAL SPECIFICATION

### LAMP TYPES

- T8, Ø26mm, G13 cap bi-pin fluorescent.
  - Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.

### POWER SUPPLY

- 220V-254V, 50/60Hz
- 120V 50/60Hz (option)

### POWER FACTOR

- Greater than 0.95

### EMERGENCY OPERATION

- Typically 3 hours duration at 25°C
  - 32% of one lamp (18W).
  - 14% of one lamp (36W).
  - 9% of one lamp (58W).

### BATTERY

- 6V, 4Ah internal Ni-Cad.

### CABLE ENTRIES

- Pre-drilled Ø20mm.
  - Supplied with 1 x transit plug and the required number of Ex blanking plugs.
  - Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

### TERMINALS

- 4 core up to 4 mm² conductors. Through wiring facility as standard. Terminals for live constant, live switched neutral & earth are provided. Internal earth.

### TEMPERATURE CLASSIFICATION

- Gas environments: T4.
- Dust environments: T85°C.

### AMBIENT TEMPERATURE RANGE

- 220V-240V: -20°C to +40°C. 254V: -20°C to +35°C
- 110V-130V: -20°C to +30°C

### MATERIALS

- **Body**
  - Corrosion resistant glass reinforced polyester (GRP) or stainless steel.
- **Diffusers**
  - Polycarbonate.
- **Clips**
  - Stainless Steel (18Wx6, 36Wx8 & 58Wx10).
- **Gear Tray**
  - Painted mild steel.

### WEIGHT

- **GRP Body**
  - 1 x 36W Lamp - 5.3Kg
  - 1 x 58W Lamp - 5.7Kg
  - 2 x 18W Lamps - 4.6Kg
  - 2 x 36W Lamps - 5.6Kg
  - 2 x 58W Lamps - 6.1Kg
- **Stainless Body**
  - 1 x 36W Lamp - 8.3Kg
  - 1 x 58W Lamp - 8.7Kg
  - 2 x 18W Lamps - 7.6Kg
  - 2 x 36W Lamps - 8.6Kg
  - 2 x 58W Lamps - 9.1Kg

### SUSPENSION

- 8mm clearance holes. Sealing washers are provided.

### MATERIALS

- **Body**
  - Corrosion resistant glass reinforced polyester (GRP) or stainless steel.
- **Diffusers**
  - Polycarbonate.
- **Clips**
  - Stainless Steel (18Wx6, 36Wx8 & 58Wx10).
- **Gear Tray**
  - Painted mild steel.

### ACCESSORIES

- **Pole mount bracket (38-42mm)**
  - SPOL4-100004
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---

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**CERTIFICATION & APPROVALS**

**ATEX** Certificate SIRA01ATEX4227

Ex II 3 G Ex nR II T4 T135°C & T5 T100°C

Ambient temperature range: -20°C to +50°C*

Ingress protection to IP67

**GOST-R** Approved

* Refer to matrix for lamp, ‘T’ rating.

**FEATURES AND BENEFITS**

Easy to install and maintain • Suitable for pendant or 45° mounting • Integrated glass retaining mechanism

**DIMENSIONS**

Dimensions in millimetres
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### TECHNICAL SPECIFICATION

#### LAMP TYPES

- **SON** - 70W (external ignitor type)
- **MBF** - 50W, 80W and 125W
- **MBTF** - 200W GLS (max), 60W

#### POWER SUPPLY

- **HID**: 220V / 230V / 240V / 254V
- **GLS**: 250V (MAX)

Maximum lampholder current rating: 4A.

#### POWER FACTOR

Better than 0.85.

#### TERMINALS

3 core up to 2.5 mm² conductors with looping. Through wiring facility as standard. Terminals for live, neutral & earth are provided. External earth is an option.

#### CABLE ENTRIES

3 x M20 cable entries.

Supplied with 1 x transit plug and 2 x Ex blanking plugs.

Cable entry devices (i.e. glands) must maintain both the restricted breathing properties and the IP rating of the luminaire.

#### AMBIENT TEMPERATURE

- **70W HPS**
  - T5: -20°C to +50°C
  - Pendant at 45° inclination

- **80W Mercury Vapour**
  - T4: -20°C to +50°C

- **125W Mercury Vapour**
  - T4: -20°C to +35°C

- **100W GLS**
  - T4: -20°C to +45°C

- **200W GLS/160W MBTF**
  - T4: -20°C to +40°C

#### MATERIALS

- **Main Body**: LM6 aluminium - with epoxy paint finish.
- **Lamp glass**: Borosilicate glass (prismatic pattern).
- **External fasteners**: Stainless steel.

---

### ACCESSORIES

- **Wire guard**: SMONN-00001
- **Reflector**: SMONN-00002

---

### ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C(Dust)</th>
<th>Ambient °C</th>
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<td>MONN/070/HS</td>
<td>70W</td>
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<td>E27</td>
<td>T5</td>
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<td>MONN/080/MV</td>
<td>80W</td>
<td>Mercury Vapour</td>
<td>E27</td>
<td>T5</td>
<td>100</td>
<td>-20°C to +40°C</td>
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<td>MONN/100/GL</td>
<td>100W</td>
<td>GLS</td>
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<td>T4</td>
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<td>Mercury Vapour</td>
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<td>T4</td>
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<td>MONN/200/GL</td>
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<td>GLS</td>
<td>E27</td>
<td>T4</td>
<td>135</td>
<td>-20°C to +40°C</td>
</tr>
</tbody>
</table>

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### OPTIONS - SUFFIX TO CATALOGUE REF.

- **/60**: 60Hz
- **/D**: Zone 22 Dust applications

---

### WEIGHT

- Discharge lamp versions - 6.3Kg.
- GLS/MBTF versions - 4.8Kg.

---

### SUSPENSION

Mounting strap suitable for two Ø8mm fasteners on 228mm centres.
First secure the chosen mounting base to the desired wall, ceiling, pole or bulkhead. Mains cables can now be easily terminated into the base using the required cable glands to maintain the IP sealing.

Once the base is secure, hang the main body via the hook on the base. This will remain suspended leaving your hands free to complete the connections to the terminal block.

The main body can now be swung into place and secured using a screwdriver or nut driver. The terminal chamber is now sealed.
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The Monarch II incorporates unique features designed to make installation and maintenance quicker and easier. The lamp chamber utilises the restricted breathing Ex nR concept and lamp access by means of the screwed cover glass, whilst the control gear area is separated from the lamp chamber by a barrier and is non-sparking Ex nA, meaning that no special cable glands are required.

The luminaire makes use of the Swing-Barrel Nut System. This allows users to easily install the mounting base first and complete the mains wiring without the need to support the body and lamps during installation. This simple design saves on both time and labour costs during installation and maintenance activities. The Swing-Barrel Nut System can be tightened with an ordinary screwdriver or nut driver without the need for special tools.

The main body of the Monarch II also features a built-in external attachment point, this allows the luminaire to be secured using a secondary safety cable.

Now safely screw the appropriate lamp into the body.

Finally attach the unique threaded lamp glass and turn until a secure seal is achieved.
CERTIFICATION & APPROVALS

IECEx Certificate IECEx BAS 06.0010X
ATEX Certificate Baseefa06ATEX0039X

IECEx II 3 GD Ex nA nR II

Ambient temperature range:
-45°C to +55°C*

Ingress protection IP66

GOST-R Approved
TIS Approved

* Refer to matrix for lamp, ‘T’ rating.

FEATURES AND BENEFITS

Swing barrel nut system for simple installation • Easy access to terminals and control gear • Threaded lamp glass for rapid re-lamping

DIMENSIONS

Dimensions in millimetres

Low wattage glass globe (up to 150W)

Enclosed spun reflector

Glass globe model

458 Dia., Enclosed reflector model

327

447

357 (up to 150W)

147

640 Dia.
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<th>T °C(Dust)</th>
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<td>MO2N/050/HS</td>
<td>50W</td>
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<td>E27</td>
<td>T4</td>
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<td>HPS</td>
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<td>HPS/Metal Halide</td>
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<td>T3</td>
<td>180</td>
<td>-45°C to +35°C</td>
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</table>

### TECHNICAL SPECIFICATION

#### LAMP TYPES

HPS, Metal Halide, Mercury Vapour. Refer to table above.

#### POWER SUPPLY

220, 230, 240V 50Hz (50, 80, 100 & 125W)
220, 230, 240, 254V 50Hz (70, 150, 250 & 400W)

#### TERMINALS

3 core up to 6 mm² conductors with looping. Terminals for live constant, neutral & earth are provided. External earth terminal as an option.

#### CABLE ENTRIES

Up to 4 x M20 cable entries.

Supplied with 1 x transit plug and 1 or 3 x Ex blanking plugs.

Wall mounted version supplied with 1 Ex blanking plug and ceiling mounted version is supplied with 3 Ex blanking plugs.

Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

#### TEMPERATURE

Refer to matrix above for maximum ambient temperature for lamp, T rating & orientation.

#### MATERIALS

- **Main body and base**: Painted aluminium alloy.
- **Lamp glass**: Borosilicate glass.
- **Gasket**: Silicone rubber.

#### WEIGHT

- **HPS**: 7.5Kg (50W), 9.0Kg (100W)
- **HPS/Metal Halide**: 8.0Kg (70W), 11.0Kg (150W), 15.0Kg (250W), 15.5Kg (400W)
- **Mercury Vapour**: 7.5Kg (80W), 8.0Kg (125W), 15.0Kg (250W), 15.5Kg (400W)

#### SUSPENSION

Mounting options include: ceiling and flush, wall mounted, stanchion and pendant mounted options.

Refer to page 64.

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### OPTIONS - SUFFIX TO CATALOGUE REF.

- **/60**: 60Hz
- **/M2S**: M25 cable entries
- **/WM**: Wall mounted version
- **/ST**: Stanchion mounted version
- **/PE**: Pendant mounted version (single M25 entry from top)
- **/TI**: Timed cut out ignitor
- **/ER**: Enclosed spun reflector

### ACCESSORIES

- **Wire guard for low wattage glass globe (up to 150W)**
  E0850-0042

- **Wire guard for high wattage glass globe (200W/400W)**
  E0850-0044

- **Wire guard for enclosed reflector**
  E0850-0043

- **Dome reflector**
  HEC20-0001

- **30° Angled reflector**
  HEC20-0002
MONARCH II

CEILING and FLUSH MOUNTING

WALL MOUNTING (/WM)

25° STANCHION MOUNTING (/ST)

PENDANT MOUNTING (/PE)

To suit pole diameter 70mm (11/2” NPT threaded)

Tapped M25 hole for mounting and cable entry
MOUNTING OPTIONS

SEALED SPUN REFLECTOR (/ER)

DOME REFLECTOR (HEC20-0001)

ANGLE REFLECTOR (HEC20-0002)
FEATURES AND BENEFITS

Easily installed and maintained • Suitable for low temperature applications • Restricted breathing enclosure

CERTIFICATION & APPROVALS

ATEX Certificate SIRA01ATEX4234

Ex II 3 G Ex nR II T4

Ambient temperature range: -50°C to +35°C*

Ingress protection to IP66 and IP67

GOST-R Approved

* Refer to matrix for lamp, ‘T’ rating.

DIMENSIONS

Dimensions in millimetres
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<td>GLS</td>
<td>E27</td>
<td>T3</td>
<td>-50°C to +35°C</td>
</tr>
</tbody>
</table>

### Technical Specification

#### Lamp Types
- SON - 70W
- MBF - 80W
- GLS - 150W (max).

#### Power Supply
- HID: 220V / 230V / 240V / 254V 50Hz (60Hz option).
- GLS: 250V (max).

#### Power Factor
Better than 0.85.

#### Terminals
- 3 core up to 4 mm² conductors with looping. Through wiring facility as standard. Terminals for live, constant, neutral & earth are provided. External earth terminal as an option.

#### Cable Entries
- Side entry luminaire, 3 x M20 cable entries.
- Supplied with 1 x transit plug and 2 x Ex blanking plugs.

#### Cable Entry Devices
Cable entry devices (i.e. glands) must maintain both the restricted breathing properties and the IP rating of the luminaire.

#### Materials
- Main Body: LM6 die cast aluminium, with epoxy paint finish.
- Lampglass: Borosilicate (diffused pattern).
- Gasket: Silicone.
- External Fasteners: Stainless steel.

#### Weight
- Discharge lamp versions - 6.5Kg.
- GLS version - 4.85Kg.

#### Suspension
- Four Ø10.3mm fixing holes are provided outside of the restricted breathing enclosure.
- The luminaire may be mounted in any orientation other than horizontally - glass up.
- GLS versions for ‘glass up’ mounting are available on request.

### Accessories

- Wire guard
  - SVANE-00001

### Options - Suffix to Catalogue Ref.

/60 60Hz
CERTIFICATION & APPROVALS

IECEx Certificate IECEx BAS070025X
ATEX Certificate Baseefa07ATEX0119X

II 3 GD Ex nA nR II
Ambient temperature range:
-50°C to +60°C*
Ingress protection IP66 and IP67

* Refer to matrix for lamp,
  "T" rating.

DIMENSIONS

Dimensions in millimetres
**TECHNICAL SPECIFICATION**

**LAMP TYPES**

SON/MBI = 150W, 250W, 400W (Tubular)
Tungsten Halogen = 500W

**POWER SUPPLY**

220V, 230V, 240V, 254V 50Hz

**POWER FACTOR**

Better than 0.85

**TERMINALS**

3 core up to 6 mm² conductors with looping. Terminals for live constant, neutral & earth are provided. Internally earthed, external earth terminal as standard.

**CABLE ENTRIES**

2 x M20 cable entries.
Supplied with 1 x transit plug and 1 x Ex blanking plug.
Cable entry devices (i.e. glands) must maintain both the restricted breathing properties and the IP rating of the luminaire.

**TEMPERATURE**

Refer to matrix above for maximum ambient temperature for lamp, T rating & orientation.

**MATERIALS**

| Main Body | Epoxy painted marine grade stainless steel. |
| Lampglass | Toughened glass. |
| Gasket | Silicone rubber. |
| External Fasteners | Stainless steel. |

**WEIGHT**

150W - 19Kg
250W - 20.5Kg
400W - 21Kg
500W - 16.5Kg
110/120V - 23Kg

**MOUNTING**

Stainless steel stirrup bracket.

**OPTIONS - SUFFIX TO CATALOGUE REF.**

- **/60**
  - 60Hz
- **/M25**
  - M25 Entries
- **/WA**
  - Suitable for wire guard or anti-glare shield
- **/N**
  - Narrow beam reflector

**ACCESSORIES**

- **Wire guard**
  - S8644-0004
    - (Requires /WA suffix when ordering)
- **Pole mount bracket**
  - S2400-0002
- **Spigot mount bracket**
  - S2400-0007
- **Anti-glare shield**
  - S8644-0002
    - (Requires /WA suffix when ordering)

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**FLOODLIGHT VL100**

### FEATURES AND BENEFITS
- Compact light weight design
- Integral control gear
- Hinged lid assembly for easy re-lamping
- Range of lamp options

### CERTIFICATION & APPROVALS
- **ATEX Certificate SIRA 00ATEX4117**
  - II 3 GD Ex nR II T3 T200°C
- Ambient temperature range: -50°C to +50°C
- Ingress protection to IP66 and IP67
- **TIS Approved**

### DIMENSIONS
- **Main enclosure die cast aluminium**
- **Lamp chamber**
- **Gear chamber**
- **M10 bolt c/w anti-vibration washer**
- **3 mounting holes:**
  - Centre hole Ø21mm
  - Outer holes Ø14mm

Dimensions in millimetres
To calculate photometric values for lighting design, please use the free Victor LiteGuide™ software package.

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### ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
<th>T Class</th>
<th>T °C(Dust)</th>
<th>Ambient °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>V10N/150/MS</td>
<td>150W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +50°C</td>
</tr>
<tr>
<td>V10N/250/MS</td>
<td>250W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +50°C</td>
</tr>
<tr>
<td>V10N/250/MV</td>
<td>250W</td>
<td>Mercury Vapour</td>
<td>E40</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +50°C</td>
</tr>
<tr>
<td>V10N/400/MS</td>
<td>400W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +50°C</td>
</tr>
<tr>
<td>V10N/400/MV</td>
<td>400W</td>
<td>Mercury Vapour</td>
<td>E40</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +50°C</td>
</tr>
<tr>
<td>V10N/500/TH</td>
<td>500W</td>
<td>Tungsten Halogen</td>
<td>E40</td>
<td>T3</td>
<td>200</td>
<td>-50°C to +50°C</td>
</tr>
</tbody>
</table>

### TECHNICAL SPECIFICATION

#### LAMP TYPES
- SON - 150W Tubular
- SON and MBI - 250W Tubular
- SON and MBI - 400W Tubular
- Tungsten Halogen - 500W Max

#### POWER SUPPLY
- 220V, 230V, 240V and 250V 50/60Hz
- 250V Max for halogen & GLS

#### POWER FACTOR
- Greater than 0.85

#### TERMINALS
- 3 core up to 4 mm² conductors with looping. Terminals for live constant, neutral & earth are provided. Internally earthed.

#### CABLE ENTRIES
- 2 x M20 cable entries supplied with 1 x transit plug and 1 x Ex blanking plug.
- Cable entry devices [i.e. glands] must maintain both the restricted breathing properties and the IP rating of the luminaire.

#### TEMPERATURE
- Gas environments: T3
- Dust environments: 1200°C

#### MATERIALS
- Main body: LM6 aluminium alloy.
- Lampglass: Toughened glass.

#### WEIGHT
- 400W SON Lamps - 1.6Kg

#### SUSPENSION
- Galvanised stirrup bracket with protractor for elevation angle setting.

#### OPTIONS - SUFFIX TO CATALOGUE REF.

/60  60Hz
/M  Medium beam reflector

#### ACCESSORIES

- Pole mount bracket
  SV10N-00005
- Spigot mount bracket
  SV10N-00004
Ingress protection IP65 to EN60529
Designed & manufactured to EN60598-1

FEATURES AND BENEFITS
Lightweight and slimline construction • Simple to install and maintain • Copper and Iron control gear • Single and twin lamp versions

CERTIFICATION & APPROVALS

DIMENSIONS

Stainless Steel Body

Dimensions in millimetres

<table>
<thead>
<tr>
<th>1 x 18W / 2x18W</th>
<th>1x36W / 2x36W</th>
<th>1x58W / 2x58W</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRP Body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A 702</td>
<td>1112</td>
<td>1612</td>
</tr>
<tr>
<td>B 500</td>
<td>800</td>
<td>1100</td>
</tr>
<tr>
<td>C 102 / 172</td>
<td>102 / 172</td>
<td>102 / 172</td>
</tr>
<tr>
<td>D 106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

GRP Body

Stainless Steel Body

Dimensions in millimetres

<table>
<thead>
<tr>
<th>1x18W / 2x18W</th>
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<th>1x58W / 2x58W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 780</td>
<td>1112</td>
<td>1612</td>
</tr>
<tr>
<td>B 500</td>
<td>800</td>
<td>1100</td>
</tr>
<tr>
<td>C 172</td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>D 106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>
TECHNICAL SPECIFICATION

LAMP TYPES

18, Ø26mm, G13 cap bi-pin fluorescent. Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.

POWER SUPPLY

230V/240V 50Hz

POWER FACTOR

Greater than 0.80

TERMINALS

4 core up to 4 mm² conductors. Through wiring is available as an option. Terminals for live constant, live switched, neutral & earth are provided. Internally earthed.

CABLE ENTRIES

Pre-drilled Ø20mm.
Supplied with 1 x transit plug and the required number of blanking plugs.
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA2I/118/BI</td>
<td>1x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2I/218/BI</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2I/136/BI</td>
<td>1x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2I/236/BI</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2I/158/BI</td>
<td>1x58W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2I/258/BI</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

A stainless steel body version is also available. To order substitute MA2I with MS2I.

OPTIONS - SUFFIX TO CATALOGUE REF.

<table>
<thead>
<tr>
<th>/MF</th>
<th>/T</th>
<th>/ES</th>
<th>/EA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains fuse</td>
<td>Through wired</td>
<td>Electronic start</td>
<td>External earth (earth tag GRP body) (earth stud stainless body)</td>
</tr>
</tbody>
</table>

MATERIALS

Body
Corrosion resistant glass reinforced polyester (GRP) or stainless steel.

Diffusers
Polycarbonate

Clips
Stainless Steel (18Wx6, 36Wx8 & 58Wx10).

Gear Tray
White polyester painted zinc coated steel.

CONTROL GEAR

Copper & iron pulse start ballast.

WEIGHT

<table>
<thead>
<tr>
<th>GRP Body</th>
<th>Stainless Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 18W Lamp - 2.5Kg</td>
<td>1 x 18W Lamp - 5.5Kg</td>
</tr>
<tr>
<td>1 x 36W Lamp - 3.6Kg</td>
<td>1 x 36W Lamp - 6.6Kg</td>
</tr>
<tr>
<td>1 x 58W Lamp - 4.2Kg</td>
<td>1 x 58W Lamp - 7.2Kg</td>
</tr>
<tr>
<td>2 x 18W Lamps - 3.2Kg</td>
<td>2 x 18W Lamps - 6.2Kg</td>
</tr>
<tr>
<td>2 x 36W Lamps - 4.2Kg</td>
<td>2 x 36W Lamps - 7.2Kg</td>
</tr>
<tr>
<td>2 x 58W Lamps - 5.1Kg</td>
<td>2 x 58W Lamps - 8.1Kg</td>
</tr>
</tbody>
</table>

SUSPENSION

8mm clearance holes, sealing washers are provided.
A range of mounting accessories are available. See below:

ACCESSORIES

| Pole mount bracket (38-42mm) | SPO14-100004 |
| Pole mount bracket (48-52mm) | SPO14-100005 |
| Pole mount bracket (58-62mm) | SPO14-100006 |
| Offset ceiling bracket assembly | S3004-100001 |
| C’ form hook type ceiling bracket assembly | S3004-100003 |
| Flush mounted wall bracket assembly | S3004-100004 |
| 18W wall mounting outreach bracket (use with S3004-100002) | NPRO4-0008 |
| 36W wall mounting outreach bracket (use with S3004-100002) | NPRO4-0012 |
| 58W wall mounting outreach bracket (use with S3004-100002) | NPRO4-0022 |

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MARQUIS II VL55I H/F

FEATURES AND BENEFITS
Lightweight and slimline construction • Simple to install and maintain • High frequency electronic control gear • Single and twin lamp versions

CERTIFICATION & APPROVALS
Ingress protection IP65 to EN60529
Designed & manufactured to EN60598-1

DIMENSIONS
Dimensions in millimetres

<table>
<thead>
<tr>
<th></th>
<th>1 x 18W / 2 x 18W</th>
<th>1 x 58W / 2 x 58W</th>
<th>1 x 36W / 2 x 36W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>702</td>
<td>1312</td>
<td>1612</td>
</tr>
<tr>
<td>B</td>
<td>500</td>
<td>800</td>
<td>1100</td>
</tr>
<tr>
<td>C</td>
<td>102 / 172</td>
<td>102 / 172</td>
<td>102 / 172</td>
</tr>
<tr>
<td>D</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1 x 18W / 2 x 18W</th>
<th>1 x 58W / 2 x 58W</th>
<th>1 x 36W / 2 x 36W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>700</td>
<td>1312</td>
<td>1612</td>
</tr>
<tr>
<td>B</td>
<td>500</td>
<td>800</td>
<td>1100</td>
</tr>
<tr>
<td>C</td>
<td>172</td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>D</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

VL55I with stainless steel body

Stainless Steel Body

GRP Body

3x20mm Dia. cable entry clearance holes 2x1 end
1x opposite.

2x20mm Dia. cable entry clearance holes 1 each end.
TECHNICAL SPECIFICATION

LAMP TYPES

T8, Ø26mm, G13 cap bi-pin fluorescent.
Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.

POWER SUPPLY

120V-254V, 50/60Hz AC
175V-270V DC

POWER FACTOR

Greater than 0.95

TERMINALS

4 core up to 4 mm² conductors. Through wiring is available as an option. Terminals for live constant, live switched, neutral & earth are provided. Internally earthed.

CABLE ENTRIES

Pre-drilled Ø20mm.

Supplied with 1 x transit plug and the required number of blanking plugs.

Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA21/118/BI/HF</td>
<td>1x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA21/218/BI/HF</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA21/136/BI/HF</td>
<td>1x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA21/236/BI/HF</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA21/158/BI/HF</td>
<td>1x58W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA21/258/BI/HF</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

A stainless steel body version is also available. To order substitute MA21 with MS21.

OPTIONS - SUFFIX TO CATALOGUE REF.

/ MF: Mains fuse
/ T: Through wired
/ EA: External earth
  (earth tag GRP body)
  (earth stud stainless body)

MATERIALS

Body: Corrosion resistant glass reinforced polyester (GRP) or stainless steel.

Diffusers: Polycarbonate

Clips: Stainless Steel (18Wx6, 36Wx8 & 58Wx10).

Gear Tray: White polyester painted zinc coated steel.

CONTROL GEAR

High frequency electronic ballast.

WEIGHT

<table>
<thead>
<tr>
<th>GRP Body</th>
<th>Stainless Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 18W Lamp - 2.3Kg</td>
<td>1 x 18W Lamp - 5.3Kg</td>
</tr>
<tr>
<td>1 x 36W Lamp - 3.3Kg</td>
<td>1 x 36W Lamp - 6.3Kg</td>
</tr>
<tr>
<td>1 x 58W Lamp - 3.7Kg</td>
<td>1 x 58W Lamp - 6.7Kg</td>
</tr>
<tr>
<td>2 x 18W Lamps - 2.6Kg</td>
<td>2 x 18W Lamps - 5.6Kg</td>
</tr>
<tr>
<td>2 x 36W Lamps - 3.6Kg</td>
<td>2 x 36W Lamps - 6.6Kg</td>
</tr>
<tr>
<td>2 x 58W Lamps - 4.1Kg</td>
<td>2 x 58W Lamps - 7.1Kg</td>
</tr>
</tbody>
</table>

SUSPENSION

8mm clearance holes, sealing washers are provided.

A range of mounting accessories are available. See below:

ACCESSORIES

- Pole mount bracket (38-42mm)
- Pole mount bracket (48-52mm)
- Pole mount bracket (58-62mm)
- Offset ceiling bracket assembly
- C’ form hook type ceiling bracket assembly
- Flush mounted wall bracket assembly
- 18W wall mounting outreach bracket (use with S3004-100002)
- 36W wall mounting outreach bracket (use with S3004-100002)
- 58W wall mounting outreach bracket (use with S3004-100002)

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CERTIFICATION & APPROVALS

Ingress protection IP65 to EN60529

Designed & manufactured to EN60598-1

FEATURES AND BENEFITS

Battery back up for three hour emergency operation • Simple to install and maintain • Copper and Iron control gear

VL56I with stainless steel body

DIMENSIONS

<table>
<thead>
<tr>
<th></th>
<th>1 x 18W / 2x18W</th>
<th>1x36W / 2x36W</th>
<th>1x58W / 2x58W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>702</td>
<td>1312</td>
<td>1612</td>
</tr>
<tr>
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<td>D</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1x18W / 2x18W</th>
<th>1x36W / 2x36W</th>
<th>1x58W / 2x58W</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>780</td>
<td>1312</td>
<td>1612</td>
</tr>
<tr>
<td>B</td>
<td>500</td>
<td>800</td>
<td>1100</td>
</tr>
<tr>
<td>C</td>
<td>172</td>
<td>172</td>
<td>172</td>
</tr>
<tr>
<td>D</td>
<td>106</td>
<td>106</td>
<td>106</td>
</tr>
</tbody>
</table>

Dimensions in millimetres
## TECHNICAL SPECIFICATION

### LAMP TYPES

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA2/118/BI/EM*</td>
<td>1x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/218/BI/EM</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/136/BI/EM*</td>
<td>1x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/236/BI/EM</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/158/BI/EM*</td>
<td>1x58W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/258/BI/EM</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

* Emergency single lamp versions only available in a twin lamp body.

### POWER SUPPLY

230V/240V, 50Hz

### POWER FACTOR

Greater than 0.80

### EMERGENCY OPERATION

Typically 3 hours duration at 25°C
- 32% of one lamp (18W).
- 14% of one lamp (36W).
- 9% of one lamp (58W).

### BATTERY

6V, 4Ah internal Ni-Cad.

### CABLE ENTRIES

Pre-drilled Ø20mm.

### ORDERING REFERENCE

<table>
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<tr>
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</tr>
</thead>
<tbody>
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<td>Bi-Pin</td>
</tr>
<tr>
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<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/136/BI/EM*</td>
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</tr>
<tr>
<td>MA2/236/BI/EM</td>
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<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/158/BI/EM*</td>
<td>1x58W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>MA2/258/BI/EM</td>
<td>2x58W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

* Emergency single lamp versions only available in a twin lamp body.

A stainless steel body version is also available. To order substitute MA2 with MS2.

### TERMINALS

4 core up to 4 mm² conductors. Through wiring is available as an option. Terminals for live constant, live switched, neutral & earth are provided. Internally earthed.

### MATERIALS

<table>
<thead>
<tr>
<th>Body</th>
<th>Diffusers</th>
<th>Clips</th>
<th>Gear Tray</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosion resistant glass reinforced polyester (GRP) or stainless steel. Polycarbonate.</td>
<td>Stainless Steel (18Wx6, 36Wx8 &amp; 58Wx10).</td>
<td>Stainless Steel (18Wx6, 36Wx8 &amp; 58Wx10).</td>
<td>White polyester painted zinc coated steel.</td>
</tr>
</tbody>
</table>

### CONTROL GEAR

Copper & Iron pulse start ballast.

### WEIGHT

<table>
<thead>
<tr>
<th>GRP Body</th>
<th>Stainless Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 18W Lamp</td>
<td>4.8Kg</td>
</tr>
<tr>
<td>1 x 36W Lamp</td>
<td>7.8Kg</td>
</tr>
<tr>
<td>1 x 58W Lamp</td>
<td>8.6Kg</td>
</tr>
<tr>
<td>2 x 18W Lamps</td>
<td>9.6Kg</td>
</tr>
<tr>
<td>2 x 36W Lamps</td>
<td>10.1Kg</td>
</tr>
<tr>
<td>2 x 58W Lamps</td>
<td>11.1Kg</td>
</tr>
</tbody>
</table>

### SUSPENSION

8mm clearance holes, sealing washers are provided.

### OPTIONS - SUFFIX TO CATALOGUE REF.

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/NM</td>
<td>Non-maintained emergency version (single lamp body)</td>
</tr>
<tr>
<td>/MF</td>
<td>Mains fuse</td>
</tr>
<tr>
<td>/T</td>
<td>Through wired</td>
</tr>
<tr>
<td>/ES</td>
<td>Electronic start</td>
</tr>
<tr>
<td>/EA</td>
<td>External earth (earth tag GRP body) (earth stud stainless body)</td>
</tr>
</tbody>
</table>

### ACCESSORIES

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalogue Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pole mount bracket (38-42mm)</td>
<td>SPOL4-100004</td>
</tr>
<tr>
<td>Pole mount bracket (48-52mm)</td>
<td>SPOL4-100005</td>
</tr>
<tr>
<td>Pole mount bracket (58-62mm)</td>
<td>SPOL4-100006</td>
</tr>
<tr>
<td>Offset ceiling bracket assembly</td>
<td>S3004-100001</td>
</tr>
<tr>
<td>C’ form hook type ceiling bracket assembly</td>
<td>S3004-100003</td>
</tr>
<tr>
<td>Flush mounted wall bracket assembly</td>
<td>S3004-100004</td>
</tr>
<tr>
<td>18W wall mounting outreach bracket (use with S3004-100002)</td>
<td>NPR04-0008</td>
</tr>
<tr>
<td>36W wall mounting outreach bracket (use with S3004-100002)</td>
<td>NPR04-0012</td>
</tr>
<tr>
<td>58W wall mounting outreach bracket (use with S3004-100002)</td>
<td>NPR04-0022</td>
</tr>
</tbody>
</table>

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**MARQUIS II VL56I H/F**

**Features and Benefits**
- Battery back up for three hour emergency operation
- High frequency electronic control gear
- Optional battery control management

**Certification & Approvals**
- Ingress protection IP65 to EN60529
- Designed & manufactured to EN60598-1

**Dimensions**

<table>
<thead>
<tr>
<th>1 x 18W / 2 x 18W</th>
<th>1 x 36W / 2 x 36W</th>
<th>1 x 58W / 2 x 58W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td><strong>B</strong></td>
<td><strong>C</strong></td>
</tr>
<tr>
<td>702</td>
<td>500</td>
<td>102 / 172</td>
</tr>
<tr>
<td>1312</td>
<td>800</td>
<td>102 / 172</td>
</tr>
<tr>
<td>1612</td>
<td>1100</td>
<td>102 / 172</td>
</tr>
<tr>
<td><strong>SS Body</strong></td>
<td><strong>SS Body</strong></td>
<td><strong>SS Body</strong></td>
</tr>
<tr>
<td>700</td>
<td>500</td>
<td>172</td>
</tr>
<tr>
<td>1312</td>
<td>800</td>
<td>172</td>
</tr>
<tr>
<td>1612</td>
<td>1100</td>
<td>172</td>
</tr>
</tbody>
</table>

Dimensions in millimetres

![VL56I with stainless steel body](image)
### TECHNICAL SPECIFICATION

<table>
<thead>
<tr>
<th>LAMP TYPES</th>
<th>TERMINALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>18W, Ø26mm, G13 cap bi-pin fluorescent. Available in the following configurations: 2 x 18W, 2 x 36W, 2 x 58W.</td>
<td>4 core up to 4 mm² conductors. Through wiring is available as an option. Terminals for live constant, live switched, neutral &amp; earth are provided. Internally earthed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POWER SUPPLY</th>
<th>MATERIALS</th>
</tr>
</thead>
</table>
| 220-254V, 50/60Hz AC (other voltages available) 120V 50/60Hz AC (option available) | Body: Corrosion resistant glass reinforced polyester (GRP) or stainless steel. Polycarbonate.  
Diffusers: Stainless Steel (18Wx6, 36Wx8 & 58Wx10).  
Clips: Stainless Steel (18Wx6, 36Wx8 & 58Wx10).  
Gear Tray: White polyester painted zinc coated steel. |

<table>
<thead>
<tr>
<th>POWER FACTOR</th>
<th>EMERGENCY OPERATION</th>
</tr>
</thead>
</table>
| Greater than 0.95 | Typically 3 hours duration at 25°C  
32% of one lamp (18W)  
14% of one lamp (36W)  
9% of one lamp (58W) |

<table>
<thead>
<tr>
<th>BATTERY</th>
<th>CABLE ENTRIES</th>
</tr>
</thead>
</table>
| 6V, 4Ah internal Ni-Cad. | Pre-drilled Ø20mm.  
Supplied with 1 x transit plug and the required number of blanking plugs.  
Cable entry devices (ie. glands) must maintain the IP rating for the luminaire. |

<table>
<thead>
<tr>
<th>ORDERING REFERENCE</th>
<th>ACCESSORIES</th>
</tr>
</thead>
</table>
| Std. Cat Ref. | Pole mount bracket [38-42mm]  
Pole mount bracket [48-52mm]  
Pole mount bracket [58-62mm]  
Offset ceiling bracket assembly |

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Voltage</th>
<th>Lamp Type</th>
<th>Std. Cat Ref.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1X18W</td>
<td>220-254V 50/60Hz</td>
<td>Bi-Pin</td>
<td>MA21/118/BI/EM/HF*</td>
<td>4.3Kg</td>
</tr>
<tr>
<td>2x18W</td>
<td>220-254V 50/60Hz</td>
<td>Bi-Pin</td>
<td>MA21/218/BI/EM/HF</td>
<td>7.3Kg</td>
</tr>
<tr>
<td>1x36W</td>
<td>220-254V 50/60Hz</td>
<td>Bi-Pin</td>
<td>MA21/136/BI/EM/HF*</td>
<td>5.3Kg</td>
</tr>
<tr>
<td>2x36W</td>
<td>220-254V 50/60Hz</td>
<td>Bi-Pin</td>
<td>MA21/236/BI/EM/HF</td>
<td>8.3Kg</td>
</tr>
<tr>
<td>1x58W</td>
<td>220-254V 50/60Hz</td>
<td>Bi-Pin</td>
<td>MA21/158/BI/EM/HF*</td>
<td>7.6Kg</td>
</tr>
<tr>
<td>2x58W</td>
<td>220-254V 50/60Hz</td>
<td>Bi-Pin</td>
<td>MA21/258/BI/EM/HF</td>
<td>9.1Kg</td>
</tr>
</tbody>
</table>

* Emergency single lamp versions only available in a twin lamp body.  
A stainless steel body version is also available.  
To order substitute MA21 with MS21.  

<table>
<thead>
<tr>
<th>OPTIONS - SUFFIX TO CATALOGUE REF.</th>
<th>NON-MAIN的老 cylinder of outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>/NM</td>
<td>Non-maintained emergency version (single lamp body)</td>
</tr>
<tr>
<td>/MF</td>
<td>Mains fuse</td>
</tr>
<tr>
<td>/120</td>
<td>120V High frequency ballast (36W &amp; 58W only)</td>
</tr>
<tr>
<td>/T</td>
<td>Through wired</td>
</tr>
</tbody>
</table>
| /EA | External earth (earth tag GRP body)  
(earth stud stainless body) |
| /BCM | Battery control management |

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RECESSIBLE VL77I

Certification & Approvals

- Ingress protection IP54 to EN60529
- Designed & manufactured to EN60598-1
- SOLAS B15 Fire rated

Features and Benefits

- Suitable for M300 and plasterboard ceilings
- Automatic lamp de-energisation on opening
- Resistant to voltage fluctuations

Single screw height adjustment
Adjust to ensure ceiling integrity

Features and Benefits

- Single screw height adjustment
- Standard Clear Diffuser
- Prismatic Diffuser (/PD)
- Low Glare Louvre (/LG)
## TECHNICAL SPECIFICATION

### LAMP TYPES

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>V771/218/Bl</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V771/236/Bl</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

### POWER SUPPLY

120-254V 50/60Hz AC, 175-270V DC

### TERMINALS

3 core up to 4 mm² conductors with looping. Through wiring facility as standard. Terminals for live constant, neutral & earth are provided. External earth terminal as standard.

### CABLE ENTRIES

4 x 20mm entries, two at each end (not suitable for looping both ends).

Supplied with 1 x transit plug and 3 x blanking plugs.

Cable entry devices (i.e. glands) must maintain the IP rating for the luminaire.

### MATERIALS

- **Enclosure**: White polyester painted zinc coated steel body & frame.
- **Diffuser**: Clear polycarbonate.
- **Reflector**: White polyester painted zinc coated steel.
- **Gasket**: Neoprene rubber.

### WEIGHT

2 x 18W - 6Kg, 2 x 36W - 11Kg

### SUSPENSION

Standard mounting is fixed side brackets with swing out arms, with provision for drop rod mounting.

For details of appropriate ceiling types and dimensions see pages 84 and 85.

### OPTIONS - SUFFIX TO CATALOGUE REF.

- **/MF**: Mains fuse
- **/25**: 25mm Entries
- **/LG**: Low glare louvre
- **/PD**: Prismatic diffuser
- **/PC**: Plasterboard (solid) ceiling
- **/EL**: Extra live
- **/SC**: Screwed connection terminal block (6mm² conductors)
- **/DIM**: Analogue dimming

### ACCESSORIES

There are no accessories for this product.

## ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>V771/218/Bl</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V771/236/Bl</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

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RECESSIBLE VL78I

FEATURES AND BENEFITS
- Back up battery for emergency operation
- Battery management, monitoring and self test
- End of Life protection

CERTIFICATION & APPROVALS

- Ingress protection IP54 to EN60529
- Designed & manufactured to EN60598-1
- SOLAS B15 Fire rated

- Standard Clear Diffuser
- Prismatic Diffuser (/PD)
- Low Glare Louvre (/LG)

Single screw height adjustment
Adjust to ensure ceiling integrity
TECHNICAL SPECIFICATION

**LAMP TYPES**
18W & 36W bi-pin fluorescent (T8)

**POWER SUPPLY**
220-254V 50/60Hz AC, 120V 50/60Hz AC

**EMERGENCY OPERATION**
Typically 3 hours duration at 25°C
22% of one lamp (18W)
14% of one lamp (36W)

**BATTERY**
6V, 4Ah internal Ni-Cad.

**TERMINALS**
4 core up to 4 mm² conductors with looping. Through wiring facility as standard. Terminals for live constant, live switched, neutral & earth are provided. External earth terminal as standard.

**CABLE ENTRIES**
4 x 20mm entries, two at each end (not suitable for looping both ends).

Supplied with 1 x transit plug and 3 x blanking plugs.

Cable entry devices (i.e. glands) must maintain the IP rating for the luminaire.

**ORDERING REFERENCE**

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>V78/218/B/EM</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V78/236/B/EM</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

**MATERIALS**

- **Enclosure**: White polyester painted zinc coated steel body & frame.
- **Diffuser**: Clear polycarbonate.
- **Reflector**: White polyester painted zinc coated steel.
- **Gasket**: Neoprene rubber.

**WEIGHT**

- 2 x 18W - 8.5Kg.
- 2 x 36W - 13.5Kg.

**SUSPENSION**

Standard mounting is fixed side brackets with swing out arms, with provision for drop rod mounting.

Suitable for Danacoustic m300 planks or damper cc300 planks.

For details of appropriate ceiling types and dimensions see pages 84 and 85.

**ACCESSORIES**

There are no accessories for this product.

OPTIONS - SUFFIX TO CATALOGUE REF.

- /120 Specific voltage (110/130V)
- /MF Mains fuse
- /25 25mm Entries
- /LG Low glare louvre
- /PD Prismatic diffuser
- /PC Plasterboard (solid) ceiling
- /BCM Battery controlled management

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M300 PLANK CEILING TYPES

Dimensions in millimetres

Typical aperture:
Tile length x 800mm (18W)
Tile length x 1415mm (36W)

View of plank ceiling with recessed luminaire

Typical 275 x 25mm tile mounting system
**SOLID CEILING TYPES**

**DIMENSIONS**

**Typical aperture:**
- 300mm x 740/750mm (18W)
- 300mm x 1355/1356mm (36W)

**View of solid ceiling with recessed luminaire**

**Typical solid ceiling/panel mounting system**

**Swing out arms**
- Mounting height using swing out arms
  - Min. - 34mm
  - Max. - 70mm

**2 x 21mm cable entry holes at each end, complete with**
- 3 blanking plugs & 1 transit plug.

Dimensions in millimetres
FEATURES AND BENEFITS

Suitable for modular ceiling types • Range of diffuser options • Back up battery version • Optional battery management

CERTIFICATION & APPROVALS

Ingress protection IP44* to EN60529

Designed & manufactured to EN60598-1

SOLAS B1S Fire rated

* From front cover only.

/LG - Low glare louvre
## TECHNICAL SPECIFICATION

### LAMP TYPES
18W & 36W bi-pin fluorescent (T8)

### POWER SUPPLY
220-240V AC/DC 50/60Hz - standard version  
220-240V AC/DC 50/60Hz - emergency version

### EMERGENCY OPERATION
Typically 3 hours duration at 25°C  
22% of one lamp (18W)  
14% of one lamp (36W)

### BATTERY
6V, 4Ah internal Ni-Cad.

### CABLE ENTRIES
4 x 20mm holes located on the rear panel, two at one end, two at the other end.  
Supplied with 1 x transit plug and 3 x blanking plugs.  
Cable entry devices (i.e. glands) must maintain the IP rating for the luminaire.

### ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>V104I/218/Bl**</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/418/Bl</td>
<td>4x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/236/Bl**</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/436/Bl</td>
<td>4x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/218/Bl/Em**</td>
<td>2x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/418/Bl/Em</td>
<td>4x18W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/236/Bl/Em**</td>
<td>2x36W</td>
<td>Bi-Pin</td>
</tr>
<tr>
<td>V104I/436/Bl/Em</td>
<td>4x36W</td>
<td>Bi-Pin</td>
</tr>
</tbody>
</table>

** Only available in 600mm x 600mm (2 x 18W) and  
600mm x 1200mm (2 x 36W) body.

The standard VL104 is supplied with a 3mm clear outer panel  
and prismatic diffuser.

### ACCESSORIES
Adjustable arm mounting kit  
SMOKI-000002

### TERMINALS
4 core up to 4 mm² conductors with looping. Through wiring facility as standard. Terminals for live constant, live switched, neutral & earth are provided. External earth terminal as standard.

### MATERIALS
- **Enclosure**: White polyester painted zinc coated steel body & frame.  
- **Diffuser**: Clear polycarbonate with prismatic diffuser.  
- **Reflector**: White polyester painted zinc coated steel.  
- **Gasket**: Neoprene rubber.  
- **External Fasteners**: Stainless steel.

### WEIGHT

<table>
<thead>
<tr>
<th></th>
<th>2 x 18W</th>
<th>2 x 36W</th>
<th>4 x 18W</th>
<th>4 x 36W</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 x 18W EM</td>
<td>8.0kg</td>
<td>14.6kg</td>
<td>8.6kg</td>
<td>16.6kg</td>
</tr>
<tr>
<td>2 x 36W EM</td>
<td>15.0kg</td>
<td>16.6kg</td>
<td>8.6kg</td>
<td>18.0kg</td>
</tr>
</tbody>
</table>

### SUSPENSION
Standard mounting is fixed cantilever side brackets, there is also a provision for drop rod mounting.  
Please refer to pages 88 and 89 for details of ceiling types and dimensions.

### OPTIONS - SUFFIX TO CATALOGUE REF.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/MES</td>
<td>Modular - Exposed “T” ceiling and Spring “T” ceiling types</td>
</tr>
<tr>
<td>/120</td>
<td>Specific voltage 110/130V</td>
</tr>
<tr>
<td>/254</td>
<td>Specific voltage 254V</td>
</tr>
<tr>
<td>/25</td>
<td>25mm entry</td>
</tr>
<tr>
<td>/LG</td>
<td>Low glare louvre</td>
</tr>
<tr>
<td>/2L</td>
<td>2 lamp emergency mode</td>
</tr>
<tr>
<td>/DM</td>
<td>Mains controlled switchable dimming (220-240V)</td>
</tr>
<tr>
<td>/BMT</td>
<td>Battery monitoring and self test</td>
</tr>
</tbody>
</table>

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CEILING TYPE OPTIONS

View of Exposed “T” Ceiling with recessed luminaire, typical 600mm x 600mm tile grid mounting system (/MES).

View of Spring “T” Ceiling with recessed luminaire, typical 600mm x 600mm tile grid mounting system (/MES).

View of Solid Ceiling with recessed luminaire.
Exposed “T” and Spring “T” Ceiling types (MEU) dimensions.

Dimensions in millimetres

Overall Height (including cover) 112mm

4 Holes Ø8
4 x Ø21mm Holes for cable entry

Spring “T” bracket

Exposed “T” bracket

X Sectional View
FEATURES AND BENEFITS

Easy to install and maintain • Suitable for pendant or 45° mounting • Integrated glass retaining mechanism

CERTIFICATION & APPROVALS

Ingress protection IP66 to EN60529
Designed & manufactured to EN60598-1

DIMENSIONS

Dimensions in millimetres
## TECHNICAL SPECIFICATION

### LAMP TYPES

- SON - 70W (external ignitor type)
- MBF - 50W, 80W and 125W
- MBTF - 200W GLS (max), 60W

### POWER SUPPLY

- HID: 220V / 230V / 240V / 254V
- GLS: 250V (MAX)
  - Maximum lampholder current rating: 4A.

### POWER FACTOR

- Better than 0.85.

### TERMINALS

- 3 core up to 2.5 mm² conductors with looping. Through wiring facility as standard. Terminals for live, neutral & earth are provided. External earth is an option.

### CABLE ENTRIES

- 3 x M20 cable entries.
  - Supplied with 1 x transit plug and 2 x blanking plugs.
  - Cable entry devices (i.e. glands) must maintain the IP rating of the luminaire.

### MATERIALS

- **Main Body**: LM6 aluminium - with epoxy paint finish. Cast iron also available.
- **Lamp glass**: Borosilicate glass. (prismatic pattern).
- **External fasteners**: Stainless steel.

### ACCESSORIES

- **Wire guard**: SMONN-00001
- **Reflector**: SMONN-00002

### OPTIONS - SUFFIX TO CATALOGUE REF.

- /60
  - 60Hz

### WEIGHT

- Discharge lamp versions - 6.3Kg.
- GLS/MBTF versions - 4.8Kg.

### SUSPENSION

Mounting strap suitable for two Ø8mm fasteners on 228mm centres.
**FEATURES AND BENEFITS**

Swing barrel nut system for simple installation • Easy access to terminals and control gear • Threaded lamp glass for rapid re-lamping

---

**CERTIFICATION & APPROVALS**

Ingress protection IP66 to EN60529

Designed & manufactured to EN60598-1

---

**DIMENSIONS**

Dimensions in millimetres
ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO2/050/HS</td>
<td>50W</td>
<td>HPS</td>
<td>E27</td>
</tr>
<tr>
<td>MO2/070/MS</td>
<td>70W</td>
<td>HPS/Metal Halide</td>
<td>E27</td>
</tr>
<tr>
<td>MO2/100/MS</td>
<td>100W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>MO2/150/MS</td>
<td>150W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>MO2/250/MS</td>
<td>250W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>MO2/400/MS</td>
<td>400W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>MO2/080/MV</td>
<td>80W</td>
<td>Mercury Vapour</td>
<td>E27</td>
</tr>
<tr>
<td>MO2/125/MV</td>
<td>125W</td>
<td>Mercury Vapour</td>
<td>E27</td>
</tr>
<tr>
<td>MO2/250/MV</td>
<td>250W</td>
<td>Mercury Vapour</td>
<td>E40</td>
</tr>
<tr>
<td>MO2/400/MV</td>
<td>400W</td>
<td>Mercury Vapour</td>
<td>E40</td>
</tr>
</tbody>
</table>

TECHNICAL SPECIFICATION

LAMP TYPES

Refer to table above.

POWER SUPPLY

Mercury Vapour - 220, 230, 240V 50Hz [50, 80, 100 & 125W]
HPS/Metal Halide - 220, 230, 240, 254V 50Hz [70, 150, 220, 250 & 400W]

TERMINALS

Side entry luminaire, 3 core up to 6mm² max conductors with looping.

CABLE ENTRIES

Up to 4 x M20 cable entries.

Supplied with 1 x transit plug and 1 or 3 x blanking plugs.

Wall mounted version supplied with 1 Ex blanking plug and ceiling mounted version is supplied with 3 Ex blanking plugs.

Cable entry devices (ie. glands) must maintain the IP rating for the luminaire.

MATERIALS

Enclosure
Painted aluminium alloy.

Diffuser
Borosilicate glass.

Gasket
Silicone rubber.

WEIGHT

HPS - 7.5Kg (50W), 9.0Kg (100W)
HPS/Metal Halide - 8.0Kg (70W), 11.0Kg (150W), 15.0Kg (250W), 15.5Kg (400W)
Mercury Vapour - 7.5Kg (80W), 8.0Kg (125W), 15.0Kg (250W), 15.5Kg (400W)

SUSPENSION

Mounting options include: ceiling and flush, wall mounted, stanchion and pendant mounted options.

Refer to page 64.

OPTIONS - SUFFIX TO CATALOGUE REF.

/60 60Hz
/MM25 M25 cable entries
/MM25  Wall mounted version
/MM25  Stanchion mounted version
/MM25  Pendant mounted version
/MM25  Enclosed spun reflector

ACCESSORIES

Wire guard for low wattage glass globe
(up to 150W)
E0850-0042

Wire guard for high wattage glass globe
(200W/400W)
E0850-0044

Wire guard for enclosed reflector
E0850-0043

Dome reflector
HEC20-0001

30° Angled reflector
HEC20-0002

To calculate photometric values for lighting design, please use the free Victor LiteGuide™ software package.
To request your copy, please contact your local Victor agent or download a copy from the website.
Design is subject to alteration without notice. Please refer to the website www.victor-lighting.com for the latest details.
All products are sold subject to our conditions of sale, available on request.
FEATURES AND BENEFITS
Easily installed and maintained • LM6 aluminium construction • Range of lamp types

CERTIFICATION & APPROVALS
Ingress protection IP66 and IP67 to EN60529
Designed & manufactured to EN60598-1

DIMENSIONS
Dimensions in millimetres
## TECHNICAL SPECIFICATION

### LAMP TYPES
- SON - 70W
- MH - 70W
- MBF - 80W
- GLS - 150W (max).

### POWER SUPPLY

- HID: 220V / 230V / 240V / 254V 50Hz (60Hz option).
- GLS: 250V (max).

### POWER FACTOR

Better than 0.85

### TERMINALS

3 core up to 4 mm² conductors with looping. Through wiring facility as standard. Terminals for live constant, neutral & earth are provided. External earth terminal as an option.

### CABLE ENTRIES

Side entry luminaire, 3 x M20 cable entries.
Supplied with 1 x transit plug and 2 x blanking plugs.
Cable entry devices (i.e. glands) must maintain the IP rating of the luminaire.

### MATERIALS

- Main Body: LM6 die cast aluminium, with epoxy point finish.
- Lampglass: Borosilicate (diffused pattern).
- Gasket: Silicone.
- External Fasteners: Stainless steel.

### WEIGHT

- Discharge lamp versions - 6.5Kg.
- GLS version - 4.85Kg.

### SUSPENSION

Four Ø10.3mm fixing holes are provided outside gasket to ensure the IP rating.

The luminaire may be mounted in any orientation, the lampholder should be at the bottom when the lamp is mounted vertically.

### ACCESSORIES

- Wire guard
  SVAE-00001

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REGENT VL71I

FEATURES AND BENEFITS
Lightweight Stainless Steel Construction • High efficiency symmetrical reflector • Stainless steel cover with quick release fasteners

CERTIFICATION & APPROVALS

Ingress protection IP66 and IP67 to EN60529
Designed & manufactured to EN60598-1

DIMENSIONS

Dimensions in millimetres

5 holes Ø13mm
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### ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGI/150/MS</td>
<td>150W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>REGI/250/MS</td>
<td>250W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>REGI/400/MS</td>
<td>400W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>REGI/500/TH</td>
<td>500W</td>
<td>Tungsten Halogen</td>
<td>E40</td>
</tr>
</tbody>
</table>

** 110/120V Cat Ref.  
REGI/150/MS/120**  
REGI/250/MS/120**  
REGI/400/MS/120***

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>REGI/150/MS/120**</td>
<td>150W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>REGI/250/MS/120**</td>
<td>250W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>REGI/400/MS/120***</td>
<td>400W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
</tbody>
</table>

** c/w IEC control gear 110/120V supply  
*** c/w Transformer box for 110/120V supply (IEC control gear fitted)

### TECHNICAL SPECIFICATION

#### LAMP TYPES
- SON/MBI = 150W, 250W, 400W (Tubular)  
- Tungsten Halogen = 500W

#### POWER SUPPLY
- 220V, 230V, 240V, 254V 50Hz

#### POWER FACTOR
- Better than 0.85

#### TERMINALS
- 3 core up to 6 mm² conductors with looping. Terminals for live constant, neutral & earth are provided. Internally earthed, external earth terminal as standard.

#### CABLE ENTRIES
- 2 x M20 cable entries.  
- Supplied with 1 x transit plug and 1 x blanking plug.  
- Cable entry devices (i.e. glands) must maintain the IP rating of the luminaire.

#### TEMPERATURE
- Refer to matrix above for maximum ambient temperature for lamp, T rating & orientation.

#### MATERIALS
- **Main Body:** Epoxy painted marine grade stainless steel.  
- **Lampglass:** Toughened glass.  
- **Gasket:** Silicone rubber.  
- **External Fasteners:** Stainless steel.

#### WEIGHT
- **150W:** 19Kg  
- **250W:** 20.5Kg  
- **400W:** 21Kg  
- **500W:** 16.5Kg  
- **110/120V:** 23Kg

#### MOUNTING
- Stainless steel stirrup bracket.

### OPTIONS - SUFFIX TO CATALOGUE REF.

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/60</td>
<td>60Hz</td>
</tr>
<tr>
<td>/M25</td>
<td>M25 Entries</td>
</tr>
<tr>
<td>/WA</td>
<td>Suitable for wire guard or anti-glare shield</td>
</tr>
<tr>
<td>/N</td>
<td>Narrow beam reflector</td>
</tr>
</tbody>
</table>

### ACCESSORIES

- **Wire guard**  
  38644-0004  
  (Requires /WA suffix when ordering)

- **Pole mount bracket**  
  S2400-0002

- **Spigot mount bracket**  
  S2400-0007

- **Anti-glare shield**  
  38644-0002  
  (Requires /WA suffix when ordering)
 FEATURES AND BENEFITS
Compact light weight design • Integral control gear • Hinged lid assembly for easy re-lamping • Range of lamp options

CERTIFICATION & APPROVALS
Ingress protection IP66 and IP67 to EN60529
Designed & manufactured to EN60598-1

DIMENSIONS
Dimensions in millimetres

- Main enclosure die cast aluminium
- Lamp chamber
- Gear chamber
- M10 bolt c/w anti-vibration washer
- 3 mounting holes: centre hole Ø21mm, outer holes Ø14mm
INDUSTRIAL AREA FLOODLIGHT LUMINAIRE

ORDERING REFERENCE

<table>
<thead>
<tr>
<th>Std. Cat Ref.</th>
<th>Wattage</th>
<th>Lamp Type</th>
<th>Lampholder</th>
</tr>
</thead>
<tbody>
<tr>
<td>V101/150/MS</td>
<td>150W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>V101/250/MS</td>
<td>250W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>V101/250/MV</td>
<td>250W</td>
<td>Mercury Vapour</td>
<td>E40</td>
</tr>
<tr>
<td>V101/400/MS</td>
<td>400W</td>
<td>HPS/Metal Halide</td>
<td>E40</td>
</tr>
<tr>
<td>V101/400/MV</td>
<td>400W</td>
<td>Mercury Vapour</td>
<td>E40</td>
</tr>
<tr>
<td>V101/500/TH</td>
<td>500W</td>
<td>Tungsten Halogen</td>
<td>E40</td>
</tr>
</tbody>
</table>

TECHNICAL SPECIFICATION

LAMP TYPES
- SON - 150W Tubular
- SON and MBI - 250W Tubular
- SON and MBI - 400W Tubular
- Tungsten Halogen - 500W Max (single ended)
- GLS - 500W Max

POWER SUPPLY
- 220V, 230V, 240V and 250V 50/60Hz
- 250V Max for halogen & GLS

POWER FACTOR
- Greater than 0.85

TERMINALS
- 3 core up to 4 mm² conductors with looping. Terminals for live constant, neutral & earth are provided. Internally earthed.

CABLE ENTRIES
- 2 x M20 cable entries.
- Supplied with 1 x transit plug and 1 x Ex blanking plug.
- Cable entry devices (i.e. glands) must maintain the IP rating for the luminaire.

MATERIALS
- Main body: LM6 aluminium alloy (Die Cast).
- Lampglass: Toughened glass.

WEIGHT
- 400W SON Lamps - 1.6Kg

SUSPENSION
- Galvanized steel stirrup bracket with protractor for elevation angle setting.

OPTIONS - SUFFIX TO CATALOGUE REF.

/60  60Hz
/M  Medium beam reflector

ACCESSORIES

Pole mount bracket
SV10N-00005

Spigot mount bracket
SV10N-00004

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The following table shows typical lumen outputs for common lamp types which can be used with Victor Lighting luminaires.

Individual lamps from different manufacturers may vary from those stated in this table. If you require details on a specific lamp, please check with the lamp supplier.

Lamp lumen output also decreases over time and with continuous usage.

<table>
<thead>
<tr>
<th>LAMP TYPE</th>
<th>LUMEN OUTPUT (Im)</th>
<th>LUMINOUS EFFICACY (Im/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluorescent T8 (White, colour 84)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18W T8</td>
<td>1350</td>
<td>75</td>
</tr>
<tr>
<td>36W T8</td>
<td>3350</td>
<td>93</td>
</tr>
<tr>
<td>58W T8</td>
<td>5200</td>
<td>90</td>
</tr>
<tr>
<td><strong>Compact Fluorescent</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11W</td>
<td>900</td>
<td>82</td>
</tr>
<tr>
<td>18W</td>
<td>1200</td>
<td>67</td>
</tr>
<tr>
<td>26W</td>
<td>1800</td>
<td>69</td>
</tr>
<tr>
<td><strong>HPS, SON-T</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50W (&quot;Super&quot; type)</td>
<td>4400</td>
<td>88</td>
</tr>
<tr>
<td>70W</td>
<td>5900</td>
<td>84</td>
</tr>
<tr>
<td>100W (&quot;Super&quot; type)</td>
<td>10000</td>
<td>100</td>
</tr>
<tr>
<td>150W</td>
<td>14500</td>
<td>97</td>
</tr>
<tr>
<td>250W</td>
<td>27000</td>
<td>108</td>
</tr>
<tr>
<td>400W</td>
<td>48000</td>
<td>120</td>
</tr>
<tr>
<td><strong>HPS, SON-E</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50W</td>
<td>3500</td>
<td>70</td>
</tr>
<tr>
<td>70W</td>
<td>5600</td>
<td>80</td>
</tr>
<tr>
<td>100W (&quot;Super&quot; type)</td>
<td>9500</td>
<td>95</td>
</tr>
<tr>
<td>150W</td>
<td>14000</td>
<td>93</td>
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<tr>
<td>250W</td>
<td>25000</td>
<td>100</td>
</tr>
<tr>
<td>400W</td>
<td>47000</td>
<td>118</td>
</tr>
<tr>
<td><strong>Twin Arc HPS (tubular, clear)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50W</td>
<td>4000</td>
<td>80</td>
</tr>
<tr>
<td>70W</td>
<td>6500</td>
<td>93</td>
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<tr>
<td>150W</td>
<td>17000</td>
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<tr>
<td>250W</td>
<td>32000</td>
<td>128</td>
</tr>
<tr>
<td>400W</td>
<td>55000</td>
<td>138</td>
</tr>
<tr>
<td><strong>Twin Arc HPS (elliptical, coated)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50W</td>
<td>3600</td>
<td>72</td>
</tr>
<tr>
<td>70W</td>
<td>6000</td>
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<tr>
<td>100W</td>
<td>9500</td>
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<tr>
<td>150W</td>
<td>15500</td>
<td>103</td>
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<tr>
<td>250W</td>
<td>30000</td>
<td>120</td>
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<tr>
<td>400W</td>
<td>52500</td>
<td>131</td>
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</tbody>
</table>
### LAMP LUMEN OUTPUT AND EFFICACY

<table>
<thead>
<tr>
<th>LAMP TYPE</th>
<th>LUMEN OUTPUT (lm)</th>
<th>LUMINOUS EFFICACY (lm/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal Halide (tubular, clear)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70W</td>
<td>4800</td>
<td>69</td>
</tr>
<tr>
<td>100W</td>
<td>8100</td>
<td>81</td>
</tr>
<tr>
<td>150W</td>
<td>12600</td>
<td>84</td>
</tr>
<tr>
<td>250W</td>
<td>17100</td>
<td>68</td>
</tr>
<tr>
<td>400W</td>
<td>32400</td>
<td>81</td>
</tr>
<tr>
<td>Metal Halide (elliptical, coated)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70W</td>
<td>4800</td>
<td>69</td>
</tr>
<tr>
<td>100W</td>
<td>7700</td>
<td>77</td>
</tr>
<tr>
<td>150W</td>
<td>11300</td>
<td>75</td>
</tr>
<tr>
<td>250W</td>
<td>20000</td>
<td>80</td>
</tr>
<tr>
<td>400W</td>
<td>38000</td>
<td>95</td>
</tr>
<tr>
<td>Mercury Vapour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50W</td>
<td>1800</td>
<td>36</td>
</tr>
<tr>
<td>80W</td>
<td>3800</td>
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<td>125W</td>
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<td>13000</td>
<td>52</td>
</tr>
<tr>
<td>400W</td>
<td>22000</td>
<td>55</td>
</tr>
<tr>
<td>Mercury-Tungsten Blended</td>
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<tr>
<td>160W</td>
<td>3100</td>
<td>19</td>
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<tr>
<td>Induction QL</td>
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<td></td>
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<tr>
<td>55W</td>
<td>3500</td>
<td>64</td>
</tr>
<tr>
<td>85W</td>
<td>6000</td>
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<tr>
<td>165W</td>
<td>12000</td>
<td>73</td>
</tr>
<tr>
<td>GLS (frosted)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60W</td>
<td>720</td>
<td>12</td>
</tr>
<tr>
<td>100W</td>
<td>1360</td>
<td>14</td>
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<tr>
<td>150W</td>
<td>2200</td>
<td>15</td>
</tr>
<tr>
<td>200W</td>
<td>3100</td>
<td>16</td>
</tr>
</tbody>
</table>
Although all the products on the Victor Lighting range are made to the highest standards using quality materials and workmanship, over time these may need to be replaced. To assist you we have compiled a list of the most commonly requested spare parts and ballasts for our Hazardous Area range.

If you need to replace an item that is not listed below, please contact your local agent or directly to info@victor-lighting.com

### TRIDENT VL125/VL126 COMPONENTS

- **Battery - 6.0V 4Ah 5 cell**: V192053S
- **Ballast cover - Clear**: V192288A
- **Ballast cover - Grey**: V192288
- **Emergency Fuse Assembly**: V948934
- **18W Lamp envelope assembly and spine**: V045032S
- **36W Lamp envelope assembly and spine**: V045032AS
- **58W Lamp envelope assembly and spine**: V045032BS
- **11W Emergency lamp**: SPATE-00004

### EXCALIBUR VL19E/VL24E COMPONENTS

- **Em Battery & Fuse Holder assembly - VL24E**: V949639S
- **Lamp envelope gasket**: V148372
- **Ballast housing**: V148362
- **Ballast housing Gasket**: V148375
- **Battery - 12V 4Ah 10 cell**: V148852
- **Operating Switch**: V148816
- **Microswitch Assembly**: V948803
- **Fuse & Fuse holder Assembly**: V949013S
- **Lampholder - 3 per fitting**: V144300
- **Lampholder Spring - 3 per fitting**: V144301
- **Lampholder Retainer - 3 per fitting**: V144302
- **Lamp centring ring - T8 lamps**: V149704
- **Terminal Block 4 way**: V149067
- **Terminal Block 6 Way**: V149128
- **18W Lamp envelope assembly - Mono-Pin**: V948360CS
- **18W Lamp envelope assembly - Bi-Pin**: V990788AS
- **18W Lamp envelope assembly - Mono-Pin**: V9488816AS
- **18W Lamp envelope assembly - Bi-Pin**: V990789AS
- **Replacement Cover Assembly - VL19E**: V043740A
- **Replacement Cover/Cable/Plug - VL24E**: V043741AS
- **36W Lamp envelope assembly - Mono-Pin**: V948360BS
- **36W Lamp envelope assembly - Bi-Pin**: V990788S
- **36W Lamp envelope assembly - Mono-Pin**: V948816S
- **36W Lamp envelope assembly - Bi-Pin**: V990789S
- **36W Replacement Cover Assembly - VL19E**: V043740S
- **36W Replacement Cover/Cable/Plug Assembly - VL24E**: V043741S
## TRIDENT VL125/126

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Description</th>
<th>Model Number</th>
<th>Voltage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x18watt</td>
<td>Ballast</td>
<td>V992323AS</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Ballast Low voltage</td>
<td>V992604AS</td>
<td>110-130V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast lid</td>
<td>STRIE-00002</td>
<td>Lid Assembly HV/LV</td>
</tr>
<tr>
<td>2x36watt</td>
<td>Ballast</td>
<td>V992323S</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Ballast Low voltage</td>
<td>V992604BS</td>
<td>110-130V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast lid</td>
<td>STRIE-00001</td>
<td>Lid Assembly HV</td>
</tr>
<tr>
<td></td>
<td>Em ballast Low voltage</td>
<td>STRIE-00003</td>
<td>Lid Assembly LV</td>
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<tr>
<td>2x58watt</td>
<td>Ballast</td>
<td>V992323BS</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast lid</td>
<td>STRIE-00001</td>
<td>Lid Assembly HV</td>
</tr>
</tbody>
</table>

## EXCALIBUR VL19E/24E

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Description</th>
<th>Model Number</th>
<th>Voltage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>2x18watt</td>
<td>Electronic Ballast</td>
<td>V044408S</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast/Inverter</td>
<td>V044410BS</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td>2x18watt</td>
<td>Electronic Ballast</td>
<td>V044502S</td>
<td>100-130V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast/Inverter</td>
<td>V044508BS</td>
<td>100-130V 50/60Hz</td>
</tr>
<tr>
<td>2x36watt</td>
<td>Electronic Ballast</td>
<td>V044407S</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast/Inverter</td>
<td>V044409BS</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td>2x36watt</td>
<td>Electronic Ballast</td>
<td>V044501S</td>
<td>100-130V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast/Inverter</td>
<td>V044507BS</td>
<td>100-130V 50/60Hz</td>
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</tbody>
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## PATHFINDER VL114E/114S

<table>
<thead>
<tr>
<th>Description</th>
<th>Model Number</th>
<th>Wattage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballast</td>
<td>V0136H11100S</td>
<td>1x11W Ballast (high Voltage)</td>
</tr>
<tr>
<td>Inverter</td>
<td>STRIE-00001</td>
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</tr>
<tr>
<td>Ballast</td>
<td>V992328BS</td>
<td>2x18W (No Lamp Holders)</td>
</tr>
<tr>
<td>Lamp</td>
<td>SPATE-00004</td>
<td>1x11W lamp assembly</td>
</tr>
<tr>
<td>Lamp</td>
<td>SPATE-00001</td>
<td>1x18W lamp assembly</td>
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## VL77/78

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Description</th>
<th>Model Number</th>
<th>Voltage Range</th>
</tr>
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<tbody>
<tr>
<td>2x18watt</td>
<td>Ballast</td>
<td>G7536-2240-E0L</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Ballast</td>
<td>G7536-2120-E0L</td>
<td>110-120V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7618-5240E0L</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7618-5120-E0L</td>
<td>110-120V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (/3H)</td>
<td>G7618-1240-E0L</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (/3H)</td>
<td>G7618-1120-E0L</td>
<td>110-120V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Battery</td>
<td>PROT2-0005</td>
<td>4Ah</td>
</tr>
<tr>
<td>2x36watt</td>
<td>Ballast</td>
<td>G7536-2240-E0L</td>
<td>220-254V 50/60Hz</td>
</tr>
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<td></td>
<td>Ballast</td>
<td>G7536-2120-E0L</td>
<td>110-120V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7636-4240E0L</td>
<td>220-254V 50/60Hz</td>
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<tr>
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<td>Em ballast - 90min</td>
<td>G7636-4120-E0L</td>
<td>110-120V 50/60Hz</td>
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<tr>
<td></td>
<td>Em ballast - 3 hour (/3H)</td>
<td>G7636-1240-E0L</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (/3H)</td>
<td>G7636-1120-E0L</td>
<td>110-120V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 90min (/HEO)</td>
<td>G7636-5240E0L</td>
<td>220-254V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 90min (/HEO)</td>
<td>G7636-5120-E0L</td>
<td>110-120V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Battery</td>
<td>PROT2-0005</td>
<td>4Ah (90min)</td>
</tr>
<tr>
<td></td>
<td>Battery</td>
<td>PROT2-0006</td>
<td>7Ah (3H &amp; HEO version)</td>
</tr>
</tbody>
</table>
### VL104C

<table>
<thead>
<tr>
<th>2x18watt</th>
<th>Ballast</th>
<th>G7536-2240-E0L</th>
<th>220-277V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7618-5240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (3H)</td>
<td>G7618-1240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2x36watt</th>
<th>Ballast</th>
<th>G7536-2240-E0L</th>
<th>220-277V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7636-5240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (3H)</td>
<td>G7636-1240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4x18watt</th>
<th>Ballast</th>
<th>G7536-2240-E0L</th>
<th>220-277V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7618-5240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (3H)</td>
<td>G7618-1240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4x36watt</th>
<th>Ballast</th>
<th>G7536-2240-E0L</th>
<th>220-277V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Em ballast - 90min</td>
<td>G7636-5240-E0L</td>
<td>220-277V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>Em ballast - 3 hour (3H)</td>
<td>G7636-1240-E0L</td>
<td>220-277V 50/60Hz</td>
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### VISCOUNT VL51A/VL52A

<table>
<thead>
<tr>
<th>1x8watt</th>
<th>Em Inverter</th>
<th>V191689</th>
<th>230/240V 50/60Hz (Non Maintained)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Em Inverter</td>
<td>V191689A</td>
<td>230/240V 50/60Hz (Maintained)</td>
</tr>
</tbody>
</table>

| 1x8watt | Ballast | T-90769905 | 220-240V 50/60Hz |

| 2x8watt | Ballast | T-90769906 | 220-240V 50/60Hz |

| 1x18watt | Ballast | V044888S | 110-254V 50/60Hz |

| 2x18watt | Ballast | V044894S | 220-254V 50/60Hz |
| | Em Ballast/Inverter | V9919295 | 220-254V 50/60Hz |
| | Ballast Low Voltage/VL51A | V044893S | 110-130V 50/60Hz |
| | Ballast/Inverter Low Voltage VL52A | V991929CS | 110-130V 50/60Hz |

| 1x36watt | Ballast | V044890S | 220-254V 50/60Hz |
| | Ballast Low Voltage/VL51A | V044889S | 110-130V 50/60Hz |

| 2x36watt | Ballast | V044896S | 220-254V 50/60Hz |
| | Em Ballast/Inverter | V991929AS | 220-254V 50/60Hz |
| | Ballast Low Voltage/ VL51A | V044895S | 110-130V 50/60Hz |
| | Ballast/Inverter Low Voltage VL52A | V991929DS | 110-130V 50/60Hz |

| 1x58watt | Ballast | V044892S | 220-254V 50/60Hz |
| | Ballast Low Voltage/VL51A | V044891S | 110-130V 50/60Hz |

| 2x58watt | Ballast | V044898S | 220-254V 50/60Hz |
| | Em Ballast /Inverter | V991929BS | 220-254V 50/60Hz |
## Ex Replacement Ballasts & Inverters

### TITAN VL38

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Ballast Type</th>
<th>Ballast Code</th>
<th>Ballast Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>50watt HS</td>
<td>Ballast</td>
<td>V190954</td>
<td>SON 50W 240V 50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1001</td>
<td>6µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5070</td>
<td>50W/70W Max SON</td>
</tr>
<tr>
<td>50watt MV</td>
<td>Ballast</td>
<td>V192142</td>
<td>MBF 50W 240V 50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>V192147</td>
<td>6µF 250V</td>
</tr>
<tr>
<td>55watt QL</td>
<td>Ballast</td>
<td>V192024</td>
<td>55W QL Lamp System</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>V192024A</td>
<td>Lamp/Ballast/Inductor Wand</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>V191022</td>
<td>20µF 250V</td>
</tr>
<tr>
<td>70watt HS</td>
<td>Ballast</td>
<td>V192145</td>
<td>SON/MBI 70W 240V 50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>V192149</td>
<td>10µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>V191022</td>
<td>20µF 250V</td>
</tr>
<tr>
<td>80watt MV</td>
<td>Ballast</td>
<td>V192143</td>
<td>MBF 80W 240V 50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>V192148</td>
<td>8µF 250V</td>
</tr>
<tr>
<td>85watt QL</td>
<td>Ballast</td>
<td>V192024B</td>
<td>85W QL Lamp System</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>V192024E</td>
<td>Standard voltage (220 - 240V)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V192024F</td>
<td>Low voltage (110 - 130V)</td>
</tr>
<tr>
<td>1X15watt CF</td>
<td>Ballast</td>
<td>V192009</td>
<td>CFL 1x10/13W</td>
</tr>
<tr>
<td>1X18watt CF</td>
<td>Ballast</td>
<td>V192009A</td>
<td>CFL 1x18W</td>
</tr>
<tr>
<td>125watt MV</td>
<td>Ballast</td>
<td>V192144</td>
<td>MBF 125W 240V 50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>V192149</td>
<td>10µF 250V</td>
</tr>
<tr>
<td>2X13watt CF</td>
<td>Ballast</td>
<td>V192009C</td>
<td>CFL 2x10/13W</td>
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<tr>
<td>2X18watt CF</td>
<td>Ballast</td>
<td>V192009D</td>
<td>CFL 2x18W</td>
</tr>
<tr>
<td>2X26watt CF</td>
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<tr>
<td>1X26watt CF</td>
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<td>CFL 1x26W</td>
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### TITAN VL39

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Ballast Type</th>
<th>Ballast Code</th>
<th>Ballast Details</th>
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<tbody>
<tr>
<td>150watt MS</td>
<td>Ballast</td>
<td>V192555</td>
<td>SON/MBI 150W 240V 50Hz</td>
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<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-2000</td>
<td>20µF 250V</td>
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<tr>
<td>165watt QL</td>
<td>Ballast</td>
<td>V192024B</td>
<td>165W QL Lamp System</td>
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<tr>
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<td>Capacitor</td>
<td>V192024E</td>
<td>Standard voltage (220 - 240V)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V192024F</td>
<td>Low voltage (110 - 130V)</td>
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<tr>
<td>250watt MS</td>
<td>Ballast</td>
<td>V192556</td>
<td>SON/MBI 250W 240V 50Hz</td>
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<tr>
<td></td>
<td>Capacitor</td>
<td>V191022</td>
<td>30µF</td>
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<tr>
<td>250watt MV</td>
<td>Ballast</td>
<td>V192557</td>
<td>MBF 250W 240V 50Hz</td>
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<td>Capacitor</td>
<td>V191410</td>
<td>16µF</td>
</tr>
<tr>
<td>400watt MS</td>
<td>Ballast</td>
<td>V192561</td>
<td>SON 400W 240V 50Hz</td>
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<tr>
<td></td>
<td>Ballast</td>
<td>V192558</td>
<td>MBI 400W 240V 50Hz</td>
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<td>Capacitor</td>
<td>V190967</td>
<td>40µF</td>
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<tr>
<td>400watt MV</td>
<td>Ballast</td>
<td>V192560</td>
<td>400W M8F-50Hz</td>
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<td></td>
<td>Capacitor</td>
<td>V191089</td>
<td>40µF</td>
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# Ex REPLACEMENT BALLASTS & INVERTERS

## TITAN II VL147

Please contact the technical sales dept, technical@victor-lighting.com

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Component</th>
<th>Part Number</th>
<th>Voltage Range</th>
<th>Power</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>150watt</td>
<td>Ballast</td>
<td>G1191-0150A</td>
<td>220/230/240/254V</td>
<td>150W</td>
<td>50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-2000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5000</td>
<td>Superimposed Ignitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250watt</td>
<td>Ballast</td>
<td>G1191-0250A</td>
<td>220/230/240/254V</td>
<td>250W</td>
<td>50Hz</td>
</tr>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1500 x 2</td>
<td></td>
<td>2 x 15 µF</td>
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</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5000</td>
<td>Superimposed Ignitor</td>
<td></td>
<td></td>
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<tr>
<td>400watt</td>
<td>Ballast</td>
<td>G1191-0400A</td>
<td>220/230/240/254V</td>
<td>400W</td>
<td>50Hz</td>
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<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-2000 x 2</td>
<td></td>
<td>2 x 20 µF</td>
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</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5000</td>
<td>Superimposed Ignitor</td>
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### Ex REPLACEMENT BALLASTS & INVERTERS

#### VL65A

<table>
<thead>
<tr>
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<th>Ballast</th>
<th>Capacitor</th>
<th>Ignitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>50watt</td>
<td>V190954</td>
<td>V190423</td>
<td>V191081D</td>
</tr>
<tr>
<td></td>
<td>SON 50W 240V 50Hz</td>
<td>10µF 250V</td>
<td>35W-70W SON Ignitor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Ballast</th>
<th>Capacitor</th>
<th>Ignitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>70watt</td>
<td>V191246</td>
<td>V190423</td>
<td>V191081D</td>
</tr>
<tr>
<td></td>
<td>SON 70W 240V 50Hz</td>
<td>10µF 250V</td>
<td>35W-70W SON Ignitor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Ballast</th>
<th>Capacitor</th>
<th>Ignitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>80watt</td>
<td>V192143</td>
<td>V147498</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MBI 80W 240V 50Hz</td>
<td>8µF 250V AC</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Ballast</th>
<th>Capacitor</th>
<th>Ignitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>125watt</td>
<td>V192144</td>
<td>V190423</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MBI 125W 240V 50Hz</td>
<td>10µF</td>
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#### VL34 HELI-PAD/ VL35 LED

<table>
<thead>
<tr>
<th>Watt</th>
<th>Driver Unit</th>
<th>Battery Pack</th>
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<tbody>
<tr>
<td>1W</td>
<td>SV34E-0001 LED</td>
<td>SV34-0007 4Ah 5.8V Battery Pack</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SV34-0008 4Ah 5.8V Battery Pack with heater</td>
</tr>
</tbody>
</table>

### MARQUIS II

#### 1x18watt

<table>
<thead>
<tr>
<th>Ballast</th>
<th>G8400-0004</th>
<th>220-254V 50/60Hz AC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Em Inverter</td>
<td>PST2N-0001</td>
<td>220-254V 50/60Hz AC/DC</td>
</tr>
<tr>
<td>Diffuser</td>
<td>B0801-0101</td>
<td>Polycarbonate Diffuser</td>
</tr>
<tr>
<td>Battery</td>
<td>G9000-0145</td>
<td>4Ah battery</td>
</tr>
</tbody>
</table>

#### 2x18watt

<table>
<thead>
<tr>
<th>Ballast</th>
<th>G8400-0001</th>
<th>220-254V 50/60Hz AC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballast – Low Voltage</td>
<td>G8400-0001</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Em Inverter</td>
<td>PST2N-0001</td>
<td>220-254V 50/60Hz AC/DC</td>
</tr>
<tr>
<td>Diffuser</td>
<td>B0801-0104</td>
<td>Polycarbonate Diffuser</td>
</tr>
<tr>
<td>Battery</td>
<td>G9000-0145</td>
<td>4Ah battery</td>
</tr>
</tbody>
</table>

#### 1x36watt

<table>
<thead>
<tr>
<th>Ballast</th>
<th>G8400-0005</th>
<th>220-254V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballast – Low Voltage</td>
<td>G8400-0005</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Em Inverter</td>
<td>PST2N-0002</td>
<td>220-254V 50/60Hz AC/DC</td>
</tr>
<tr>
<td>Em Inverter Low Voltage</td>
<td>PST2N-0005</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Diffuser</td>
<td>B0801-0102</td>
<td>Polycarbonate Diffuser</td>
</tr>
<tr>
<td>Battery</td>
<td>G9000-0145</td>
<td>4Ah battery</td>
</tr>
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#### 2x36watt

<table>
<thead>
<tr>
<th>Ballast</th>
<th>G8400-0002</th>
<th>220-254V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballast – Low Voltage</td>
<td>G8400-0002</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Em Inverter</td>
<td>PST2N-0002</td>
<td>220-254V 50/60Hz AC/DC</td>
</tr>
<tr>
<td>Em Inverter Low Voltage</td>
<td>PST2N-0005</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Diffuser</td>
<td>B0801-0105</td>
<td>Polycarbonate Diffuser</td>
</tr>
<tr>
<td>Battery</td>
<td>G9000-0145</td>
<td>4Ah battery</td>
</tr>
</tbody>
</table>

#### 1x58watt

<table>
<thead>
<tr>
<th>Ballast</th>
<th>G8400-0006</th>
<th>220-254V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballast Low Voltage</td>
<td>G8400-0006</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Em Inverter</td>
<td>PST2N-0003</td>
<td>220-254V 50/60Hz AC/DC</td>
</tr>
<tr>
<td>Em Inverter Low Voltage</td>
<td>PST2N-0006</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Diffuser</td>
<td>B0801-0003</td>
<td>Polycarbonate Diffuser</td>
</tr>
<tr>
<td>Battery</td>
<td>G9000-0145</td>
<td>4Ah battery</td>
</tr>
</tbody>
</table>

#### 2x58watt

<table>
<thead>
<tr>
<th>Ballast</th>
<th>G8400-0003</th>
<th>220-254V 50/60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballast Low Voltage</td>
<td>G8400-0003</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Em Inverter</td>
<td>PST2N-0003</td>
<td>220-254V 50/60Hz AC</td>
</tr>
<tr>
<td>Em Inverter Low Voltage</td>
<td>PST2N-0006</td>
<td>110-130V 50/60Hz AC</td>
</tr>
<tr>
<td>Diffuser</td>
<td>B0801-0106</td>
<td>Polycarbonate Diffuser</td>
</tr>
<tr>
<td>Battery</td>
<td>G9000-0145</td>
<td>4Ah battery</td>
</tr>
</tbody>
</table>
## Ex REPLACEMENT BALLASTS & INVERTERS

### MONARCH VL14

<table>
<thead>
<tr>
<th>70watt HS</th>
<th>Ballast</th>
<th>V190476</th>
<th>SON 70W 240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>V190423</td>
<td>10µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5070</td>
<td>50/70w SON</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>80watt MV</th>
<th>Ballast</th>
<th>V190475</th>
<th>MBF 80W 240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>V148763</td>
<td>8µF 250V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>125watt MV</th>
<th>Ballast</th>
<th>V190422</th>
<th>MBF 125W 240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>V190423</td>
<td>10µF 250V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1x26watt CF</th>
<th>Ballast</th>
<th>V190138</th>
<th>CFL 20W 240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>V148530</td>
<td>4µF 250V</td>
</tr>
</tbody>
</table>

### MONARCH II VL15

<table>
<thead>
<tr>
<th>50watt HS</th>
<th>Ballast</th>
<th>G1250-0050V</th>
<th>SON 50W 220/230/240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5100</td>
<td>70W/100W HS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>70watt MS</th>
<th>Ballast</th>
<th>G1251-0070V</th>
<th>MBI 70W 240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5071</td>
<td>70W/100W HS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>80watt MV</th>
<th>Ballast</th>
<th>G9000-0123</th>
<th>MBF 80W 22/230/240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>100watt MS</th>
<th>Ballast</th>
<th>G0111-0014</th>
<th>MBI 100W 220/240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5100</td>
<td>70W/100W HPS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>125watt MV</th>
<th>Ballast</th>
<th>G9000-0124</th>
<th>MBF 125W 220/230/240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>150watt MS</th>
<th>Ballast</th>
<th>G1191-0150</th>
<th>MBI 150W 220/230/240/250V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-2000</td>
<td>20µF</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5000</td>
<td>150W/250W/400W HS/MS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>250watt MS</th>
<th>Ballast</th>
<th>G1158-0250A</th>
<th>MBI 250W 220/230/240/254V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5000</td>
<td>150W/250W/400W HS/MS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>250watt MV</th>
<th>Ballast</th>
<th>G9000-0125</th>
<th>MBF 250W 220/230/240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-2000</td>
<td>20µF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>400watt MS</th>
<th>Ballast</th>
<th>G1191-0400A</th>
<th>MBI 400W 220/230/240/254V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-2000</td>
<td>20µF</td>
</tr>
<tr>
<td></td>
<td>Ignitor</td>
<td>G2200-5000</td>
<td>150W/250W/400W HS/MS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>400watt MV</th>
<th>Ballast</th>
<th>G9000-0128</th>
<th>MBF 400W 220/230/240V 50Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capacitor</td>
<td>G4800-1000</td>
<td>10µF 250V</td>
</tr>
</tbody>
</table>
### VANGUARD VL20

<table>
<thead>
<tr>
<th>70watt HS</th>
<th>80watt MV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ballast</strong></td>
<td>V149321</td>
</tr>
<tr>
<td><strong>Capacitor</strong></td>
<td>V148902</td>
</tr>
<tr>
<td><strong>Ignitor</strong></td>
<td>G2200-5070</td>
</tr>
<tr>
<td><strong>Ballast</strong></td>
<td>V149450</td>
</tr>
<tr>
<td><strong>Capacitor</strong></td>
<td>V147498</td>
</tr>
</tbody>
</table>

### REGENER VL71

<table>
<thead>
<tr>
<th>150watt HS</th>
<th>250watt HS</th>
<th>400watt HS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ballast</strong></td>
<td>G1185-0150A</td>
<td><strong>Son</strong> 150W 220/230/240/254V 50Hz</td>
</tr>
<tr>
<td>(60 Hz)</td>
<td>G9000-0102</td>
<td><strong>Son</strong> 150W 220/230/240/254V 60Hz</td>
</tr>
<tr>
<td><strong>Capacitor</strong></td>
<td>G4800-2000</td>
<td>20µF</td>
</tr>
<tr>
<td><strong>Ignitor</strong></td>
<td>G2200-5000</td>
<td>150W/250W/400W HS/MS</td>
</tr>
<tr>
<td><strong>Ballast</strong></td>
<td>G1186-0250A</td>
<td><strong>Son</strong> 250W 220/230/240/254V 50Hz</td>
</tr>
<tr>
<td>(60 Hz)</td>
<td>G9000-0101</td>
<td><strong>Son</strong> 250W 220/230/240/254V 60Hz</td>
</tr>
<tr>
<td><strong>Capacitor</strong></td>
<td>G4800-3000</td>
<td>30µF</td>
</tr>
<tr>
<td><strong>Ignitor</strong></td>
<td>G2200-5000</td>
<td>150W/250W/400W HS/MS</td>
</tr>
<tr>
<td>Transformer (110-120V)</td>
<td>G3005-0502</td>
<td>Low to High voltage Transformer</td>
</tr>
<tr>
<td><strong>Ballast</strong></td>
<td>G1158-0400A</td>
<td><strong>Son</strong> 400W 220/230/240V 50Hz</td>
</tr>
<tr>
<td>(60 Hz)</td>
<td>G9000-0130</td>
<td><strong>Son</strong> 400W 220/230/240V 60Hz</td>
</tr>
<tr>
<td><strong>Capacitor</strong></td>
<td>G4800-2000</td>
<td>20µF</td>
</tr>
<tr>
<td><strong>Ignitor</strong></td>
<td>G2200-5000</td>
<td>150W/250W/400W HS/MS</td>
</tr>
<tr>
<td>Transformer (110-120V)</td>
<td>G3005-0502</td>
<td>Low to High voltage Transformer</td>
</tr>
</tbody>
</table>

### VL100

<table>
<thead>
<tr>
<th>150watt HPS/MH</th>
<th>250watt HPS/MH</th>
<th>250watt MV</th>
<th>400watt HPS/MH</th>
<th>400watt MV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ballast</strong> 150W-50Hz</td>
<td>V192012</td>
<td><strong>Son/MBI</strong> 150W 240V 50Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacitor</strong> 20µf 250V</td>
<td>V191089</td>
<td>20µf 250V</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ignitor</strong> 100/400</td>
<td>V148586</td>
<td>100W/400W</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ballast</strong> 250W-50Hz</td>
<td>V192010</td>
<td><strong>Son/MBI</strong> 250W 240V 50Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacitor</strong> 30µf</td>
<td>V191022</td>
<td>30µf 250V</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ignitor</strong> 100/400W</td>
<td>V148586</td>
<td>100W/400W</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ballast</strong> Ballast 220-254V 50Hz</td>
<td>V191948</td>
<td><strong>Son/MBI</strong> 400W 240V 50Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacitor</strong> 40µf</td>
<td>V190967</td>
<td>40µf 250V</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ignitor</strong></td>
<td>V148586</td>
<td>100W/400W</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ballast</strong> 400W 50Hz</td>
<td>V192018</td>
<td><strong>MBF</strong> 250W 240V 50Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacitor</strong> 16µf stud fix</td>
<td>V191410</td>
<td>16µf 250V</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ballast</strong> 400W 50Hz</td>
<td>V192016</td>
<td><strong>MBF</strong> 400W 240V 50Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Capacitor</strong> 20µf 250V</td>
<td>V191089</td>
<td>20µf 250V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### COMMON LAMP TERMINOLOGY

- **HID** High Intensity Discharge
- **CFL** Compact Florescent
- **TH** Tungsten Halogen
- **HPS** High Pressure Sodium
- **SON-E** High Pressure Sodium (Elliptical)
- **SON-T** High Pressure Sodium (Tubular)
- **MBI** Metal Halide
- **HQI** Metal Halide
- **MBFU** Mercury Vapour
- **MBTF** Blended Mercury Vapour
- **QL** Induction Lamp
- **LED** Light Emitting Diode
## International Reference Guide to Hazardous Areas

### Hazardous Area Standards and Approvals

There are different standards used for hazardous areas and electrical equipment designed for use in those environments, depending upon where in the world they are to be used. In Europe EN standards are used to gain compliance with the ATEX directive. In the USA the standard is NEC (National Electric Code), with a variant called CEC (Canadian Electric Code) used in Canada. In addition some countries have their own approval standards (e.g. GOST for Russia and the former Soviet States, TISI for Thailand, etc), however these are often based on IEC standards.

To simplify matters an attempt is being made to harmonise all major standards for use in the IECEx scheme. The aim of the IECEx Scheme is to facilitate international trade in electrical equipment intended for use in explosive atmospheres (Ex equipment) by eliminating the need for multiple national certification while preserving an appropriate level of safety.

Whilst the standards used in Europe and America are intended to achieve the safe installation and operation of electrical equipment in hazardous areas, they are different in principles, classification and approach.

The purpose of the following guide is to detail some of the differences in the two approaches and to use a step-by-step process to select the correct type of luminaire or other electrical equipment for use in a hazardous area.

The classification of hazardous areas into zones is given for gas mixtures, in IEC or EN 60079-10 and selection in IEC or EN 60079-14.

For combustible dust hazards the European standards are EN 61241-10 and EN 61241-14.

The information following is given as background to the use of the above standards. The application of the standards and any local regulation is the responsibility of the user.

### ATEX Directive

The ATEX Directive 94/9/EC is a directive adopted by the European Union (EU) to facilitate free trade in the EU by aligning the technical and legal requirements in the Member States for products intended for use in potentially explosive atmospheres.

The Directive covers electrical and mechanical equipment and protective systems, which may be used in potentially explosive atmospheres (flammable gases, vapours or dusts.) It became mandatory at the end of June 2003 for Europe.

One of the significant changes that was introduced in the ATEX directive was the move away from defining types of equipment by their protection concept and using categories instead. These are in effect levels of safety. They are linked to the protection concept by the wording in the individual harmonised European standards. In fact the definition of the categories aligns the protection concept with it’s traditional area of use.

The directive for use is 99/92/EC.

The table below shows the relationship between the category and the expected zone of use.

It is very important to emphasise that the ATEX categories are levels of safety. The various types of protection are put into these categories of safety as shown in the EN equipment standards. The hazardous area classification into zones is entirely separate.

However, because the types of protection have been designed for use in particular hazardous areas and the application/installation standards give the basic suitability of types of protection for different zones, the ATEX categories align with the zone of use for practical purposes. This is provided that other attributes of the equipment or zone do not conflict and that the risk assessment for the zone does not dictate differently.

### Category 1 - Zone 0

- **Degree of Safety:** Very high level of Safety
- **Design Requirement:** Two independent means of protection or safe with two independent faults
- **Application:** Where explosive atmospheres are present continuously or for lengthy periods
- **Expected Zone of Use:** Zone 0 (gas) and Zone 20 (dust)

### Category 2 - Zone 1

- **Degree of Safety:** High level of Safety
- **Design Requirement:** Safe with frequently occurring disturbances or with a normal operating fault
- **Application:** Where explosive atmospheres are likely to occur
- **Expected Zone of Use:** Zone 1 (gas) and Zone 21 (dust)

### Category 3 - Zone 2

- **Degree of Safety:** Normal level of Safety
- **Design Requirement:** Safe in normal operation
- **Application:** Where explosive atmospheres are likely to occur infrequently and be of short duration
- **Expected Zone of Use:** Zone 2 (gas) and Zone 22 (dust)

### ATEX Categories and Applications

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

Using the table FIG. 1.0 below, ascertain first if the gas present is a group I or group II gas.

- Group I gases are firedamp methane gas. These are usually associated with mining applications.
- Group II gases are all other explosive gases as listed opposite with relevant subdivisions A, B or C according to the nature of the chemical content. These are usually associated with surface applications.

<table>
<thead>
<tr>
<th>GROUP IIA</th>
<th>GROUP IIB</th>
<th>GROUP IIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons:</td>
<td>Ketones:</td>
<td>Chloroethylene (vinyl chloride)</td>
</tr>
<tr>
<td>Alkanes:</td>
<td>Acetone</td>
<td>Ethyl mercaptan</td>
</tr>
<tr>
<td>Methane</td>
<td>Ethyl-methyl ketone</td>
<td>Propyl mercaptan</td>
</tr>
<tr>
<td>Ethane</td>
<td>Propyl-methyl ketone</td>
<td>Thiophene</td>
</tr>
<tr>
<td>Propane</td>
<td>Butyl-methyl ketone</td>
<td>Tetrahydrothiophene</td>
</tr>
<tr>
<td>Butane</td>
<td>Amyl-methyl ketone</td>
<td>Compounds containing Oxyn:</td>
</tr>
<tr>
<td>Pentane</td>
<td>2,4-Pentanedione</td>
<td>Acetol</td>
</tr>
<tr>
<td>Hexane</td>
<td>[acetylacetone]</td>
<td>Acetone</td>
</tr>
<tr>
<td>Heptane</td>
<td>Cyclohexanone</td>
<td>Methyl acetate</td>
</tr>
<tr>
<td>Octane</td>
<td>Esters:</td>
<td>Ethyl formate</td>
</tr>
<tr>
<td>Nonane</td>
<td>Methyl formate</td>
<td>Acetone</td>
</tr>
<tr>
<td>Decane</td>
<td>Ethyl formate</td>
<td>Methylene chloride</td>
</tr>
<tr>
<td>Cyclohexane</td>
<td>Methyl acetate</td>
<td>Chloroethylene (vinyl chloride)</td>
</tr>
<tr>
<td>Cycloheptane</td>
<td>Ethyl acetate</td>
<td>Ethyl mercaptan</td>
</tr>
<tr>
<td>Methylenecloromethane</td>
<td>Propyl acetate</td>
<td>Propyl mercaptan</td>
</tr>
<tr>
<td>Ethylmethylketone</td>
<td>Chloroacetate</td>
<td>Chloroethanol</td>
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<tr>
<td>Ethylcyclopentane</td>
<td>Methyl chloroacetate</td>
<td>Compounds containing Nitrogen:</td>
</tr>
<tr>
<td>Dichloroethylene</td>
<td>Methyl chloride</td>
<td>Acetaldehyde</td>
</tr>
<tr>
<td>Compounds containing Oxygen:</td>
<td>Propyl mercaptan</td>
<td>Chloroethane</td>
</tr>
<tr>
<td>Oxides:</td>
<td>Chloroethane</td>
<td>Chloroform</td>
</tr>
<tr>
<td>[Including ethers]:</td>
<td>Chloroform</td>
<td>Chloroethene</td>
</tr>
<tr>
<td>Carbon monoxide:</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Diisopropyl ether</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Alcohols and phenols:</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Methanol</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Propanol</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Butanol</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Dimethylamine</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Benzene and its derivatives:</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Benzene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Toluene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Xylene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Trimethylbenzene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Cumene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
<tr>
<td>Cymene</td>
<td>Chloroform</td>
<td>Chloroform</td>
</tr>
</tbody>
</table>

**STEP 1**

Establish if the hazardous area is due to the presence of an explosive gas or an explosive dust.

**EXPLOSIVE DUSTS**

If an area is classed as hazardous due to the presence of combustible dust, it is important to establish if it is a metallic or non metallic dust. The latest series of standards for electrical apparatus in the presence of combustible dust that will provide protection concepts, installation and selection requirements will be the EN/IEC 61241 series.

The most commonly used part of the EN 61241 series applicable to luminaires will be EN 61241-1: Protection by enclosures with marking “IP”. It should be noted that this standard outlines two techniques that provide equivalence in safety but different requirements in terms of selection and installation.

The two techniques are “Practice A” and “Practice B”, practice B is principally a prescriptive based technique where practice A is performance based. Practice A is the most commonly used technique, where dust may form in layers up to 5mm thick and where a temperature difference of 75K is specified between the maximum surface temperature and the ignition temperature of the dust; the method of determining dust ingress is according to IEC 60529 the IP code. Practice A and Practice B apply to Zones 21 and 22. For clarity the zones for dust can be described as follows:

**ZONE 21**

Where a combustible dust, as a cloud, is likely to occur during normal operation in sufficient quantity to be capable of producing an explosive concentration of combustible or ignitable dust in mixture with air.

**ZONE 22**

In this zone, combustible dust clouds may occur infrequently, and persist for only a short time, or in which accumulation or layers of combustible dust may be present under abnormal conditions and give rise to ignitable mixtures of dust in air. Where following an abnormal condition, the removal of dust accumulations or layers cannot be assured, then the area shall be classified as zone 21.
STEP 2

Now having established which gas or dusts are present, the next thing to establish is the hazardous area category. FIG 1.1 below sets out the zone definitions to classify your area.

<table>
<thead>
<tr>
<th>ZONE</th>
<th>TYPE OF PROTECTION ASSIGNED TO APPARATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 0</td>
<td>An area in which an explosive atmosphere is continuously present or for long periods or frequently</td>
</tr>
<tr>
<td>Zone 1</td>
<td>An area in which an explosive atmosphere is likely to occur in normal operation occasionally</td>
</tr>
<tr>
<td>Zone 2</td>
<td>An area in which an explosive atmosphere is not likely to occur in normal operation and if it occurs it will exist only for a short time. (Zone 2 is often described as the ‘remotely hazardous area’.)</td>
</tr>
</tbody>
</table>

HAZARDOUS AREA CLASSIFICATION

FIG 1.1

Using the guide in FIG 1.1 you can now classify the hazardous area into a zone. If you are unsure as to which zone an area should be classified as, please refer to your local health and safety officer or your fire brigade for guidance. Victor Lighting or any other manufacturer of hazardous area equipment is not able to offer any advice in this respect.

STEP 3

Having now identified the zone and gas/dust present in the hazardous area, the ignition temperature of the gas/dust needs to be ascertained. For atmospheres containing explosive dust, the ignition temperature of the dust needs to be established both when it is in a cloud and when it is in a layer. This information can be found from the table in FIG 1.2.

EXPLOSIVE GASES

<table>
<thead>
<tr>
<th>GAS</th>
<th>IGNITION TEMP °C</th>
<th>GAS</th>
<th>IGNITION TEMP °C</th>
<th>GAS</th>
<th>IGNITION TEMP °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid (glacial)</td>
<td>464</td>
<td>Isopropyl ether</td>
<td>443</td>
<td>Vinyl chloride</td>
<td>472</td>
</tr>
<tr>
<td>Acetone</td>
<td>465</td>
<td>Methyl isobutyl ketone</td>
<td>448</td>
<td>Ethylene oxide</td>
<td>429</td>
</tr>
<tr>
<td>Acrylonitrile</td>
<td>481</td>
<td>Methane (natural gas)</td>
<td>537</td>
<td>Hydrogen</td>
<td>500</td>
</tr>
<tr>
<td>Ammonia</td>
<td>651</td>
<td>Methyl isobutyl ketone</td>
<td>448</td>
<td>Ethylene oxide</td>
<td>429</td>
</tr>
<tr>
<td>Benzene</td>
<td>498</td>
<td>3-methyl-1-butanol (isoamyl alcohol)</td>
<td>350</td>
<td>Butadiene</td>
<td>420</td>
</tr>
<tr>
<td>Butane</td>
<td>287</td>
<td>Methyl ethyl ketone</td>
<td>404</td>
<td>Propylene oxide</td>
<td>449</td>
</tr>
<tr>
<td>1-butanol (butyl alcohol)</td>
<td>343</td>
<td>Ethylene oxide</td>
<td>429</td>
<td>Propylnitrate</td>
<td>175</td>
</tr>
<tr>
<td>2-butanol (secondary butyl alcohol)</td>
<td>405</td>
<td>Petroleum naphta</td>
<td>288</td>
<td>Ethylene</td>
<td>450</td>
</tr>
<tr>
<td>N-butyl acetate</td>
<td>425</td>
<td>Pyridine</td>
<td>482</td>
<td>Ethylamine</td>
<td>320</td>
</tr>
<tr>
<td>Isobutyl acetate</td>
<td>421</td>
<td>Octanes</td>
<td>206</td>
<td>Ethyl mercaptan</td>
<td>300</td>
</tr>
<tr>
<td>Sec-butyl alcohol</td>
<td>343</td>
<td>Ethane</td>
<td>472</td>
<td>Ethyl sulfide</td>
<td>NA</td>
</tr>
<tr>
<td>Di-isouylene</td>
<td>391</td>
<td>Ethanol (ethyl alcohol)</td>
<td>363</td>
<td>Hydrogen cyanide</td>
<td>538</td>
</tr>
<tr>
<td>Ethylene diamine (anhydrous)</td>
<td>385</td>
<td>Ethylene oxide</td>
<td>429</td>
<td>Hydrogen sulfide</td>
<td>260</td>
</tr>
<tr>
<td>Ethylene dichloride</td>
<td>413</td>
<td>3-propanal (propyl alcohol)</td>
<td>412</td>
<td>Morpholine</td>
<td>310</td>
</tr>
<tr>
<td>Gasoline (56-60 octane)</td>
<td>280</td>
<td>2-propanol (isopropyl alcohol)</td>
<td>399</td>
<td>2-nitropropane</td>
<td>428</td>
</tr>
<tr>
<td>Hexanes</td>
<td>223</td>
<td>Propylene</td>
<td>455</td>
<td>Tetrahydrofuran</td>
<td>321</td>
</tr>
<tr>
<td>Heptanes</td>
<td>204</td>
<td>Styrene</td>
<td>490</td>
<td>Unsymmetrical dimethyl</td>
<td>249</td>
</tr>
<tr>
<td>Isoprene</td>
<td>395</td>
<td>2-propanol (isopropyl alcohol)</td>
<td>399</td>
<td>unsymmetrical dimethyl</td>
<td>249</td>
</tr>
</tbody>
</table>

INTERNATIONAL REFERENCE GUIDE TO HAZARDOUS AREAS
EXPLOSIVE DUSTS METALLIC

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>CLOUD</th>
<th>LAYER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>650</td>
<td>760</td>
</tr>
<tr>
<td>Magnesium</td>
<td>620</td>
<td>490</td>
</tr>
<tr>
<td>Titanium</td>
<td>330</td>
<td>510</td>
</tr>
<tr>
<td>Zinc</td>
<td>630</td>
<td>430</td>
</tr>
<tr>
<td>Bronze</td>
<td>370</td>
<td>190</td>
</tr>
<tr>
<td>Chromium</td>
<td>580</td>
<td>400</td>
</tr>
<tr>
<td>Tin</td>
<td>630</td>
<td>430</td>
</tr>
<tr>
<td>Cadmium</td>
<td>570</td>
<td>250</td>
</tr>
</tbody>
</table>

EXPLOSIVE DUSTS NON METALLIC

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>CLOUD</th>
<th>LAYER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa</td>
<td>460</td>
<td>200</td>
</tr>
<tr>
<td>Cocoa</td>
<td>420</td>
<td>200</td>
</tr>
<tr>
<td>Coffee</td>
<td>410</td>
<td>220</td>
</tr>
<tr>
<td>Corn</td>
<td>400</td>
<td>250</td>
</tr>
<tr>
<td>Cornstarch</td>
<td>380</td>
<td>200</td>
</tr>
<tr>
<td>Malt</td>
<td>400</td>
<td>250</td>
</tr>
<tr>
<td>Skim milk</td>
<td>490</td>
<td>200</td>
</tr>
<tr>
<td>Rice</td>
<td>440</td>
<td>220</td>
</tr>
<tr>
<td>Sugar</td>
<td>350</td>
<td>400</td>
</tr>
<tr>
<td>Wheat</td>
<td>480</td>
<td>220</td>
</tr>
<tr>
<td>Coal (pittsburgh seam)</td>
<td>610</td>
<td>180</td>
</tr>
<tr>
<td>Wheat flour</td>
<td>380</td>
<td>360</td>
</tr>
<tr>
<td>Cellulose acetate</td>
<td>450</td>
<td>390</td>
</tr>
<tr>
<td>Ethyl acetate</td>
<td>450</td>
<td>390</td>
</tr>
<tr>
<td>Nylon</td>
<td>500</td>
<td>430</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>560</td>
<td>-</td>
</tr>
<tr>
<td>Epoxy</td>
<td>540</td>
<td>-</td>
</tr>
<tr>
<td>Polyurethane</td>
<td>550</td>
<td>390</td>
</tr>
<tr>
<td>Cork</td>
<td>490</td>
<td>280</td>
</tr>
<tr>
<td>Wood flour (white pine)</td>
<td>470</td>
<td>260</td>
</tr>
</tbody>
</table>

EXPLOSIVE FIBRES

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>CLOUD</th>
<th>LAYER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton lint</td>
<td>520</td>
<td>-</td>
</tr>
<tr>
<td>Flax</td>
<td>430</td>
<td>230</td>
</tr>
<tr>
<td>Rayon</td>
<td>520</td>
<td>250</td>
</tr>
</tbody>
</table>

FIG 1.2

STEP 4

Knowing the ignition temperature of the explosive atmosphere, the zone and the gas grouping or dust type we are better able to decide upon the appropriate type of electrical apparatus required. It is important therefore to understand the certified protection concepts recognised for safe operation as used for an ATEX category and/or within a zone.

The category in ATEX links to types of protection listed below. If the ATEX categories are used as a cross reference to zones then the protection concepts listed apply.

ATEX CATEGORY PROTECTION TYPE - STANDARDS AND PROTECTION METHODS

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PROTECTION TYPE</th>
<th>STANDARDS</th>
<th>PROTECTION METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ex ‘ia’ Intrinsic Safety.</td>
<td>EN 60079-11</td>
<td>Where the design limits the ignition spark energy to below that which will ignite the explosive gas. Safe even with two simultaneous faults.</td>
</tr>
<tr>
<td></td>
<td>Special protection for Category 1 [and Zone 1]</td>
<td>EN 60079-26</td>
<td>Special construction normally based on the use of two independent types of protection both individually suitable for Category 1.</td>
</tr>
<tr>
<td>2</td>
<td>Intrinsic Safety</td>
<td>EN 60079-11</td>
<td>All protection methods described above for Category 1 are also suitable for Category 2.</td>
</tr>
<tr>
<td></td>
<td>Ex ‘e’ Increased Safety</td>
<td>EN 60079-7</td>
<td>Design prevents any ignition from occurring by ensuring no normally sparking components are used and other components reduce the risk of causing a fault that may cause an ignition. This is achieved by strictly controlling and limiting the temperature of components, ensuring adequate insulation is used, all electrical connections are true and the IP rating offers adequate protection against contamination.</td>
</tr>
<tr>
<td></td>
<td>Ex ‘d’ Flameproof</td>
<td>EN 60079-1</td>
<td>The components may produce sparks that could cause ignition of the explosive gas but which are housed in an explosive proof enclosure. The design of the enclosure may allows the gas to enter, but any explosion is contained within the enclosure.</td>
</tr>
</tbody>
</table>
## Ex 'ib' Intrinsic Safety
As Ex ia but allows for the occurrence of only one component fault.

## Ex ‘ID’
Design ensures dust ingress protection and surface temperature limitation to avoid ignition of dust layer or cloud.

## Ex ‘m’ Encapsulation
Integral components which can potentially ignite an explosive gas are encapsulated allowing the isolation of these components from the explosive atmosphere surrounding them. This allows the strict control of surface temperatures under normal and fault conditions.

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

## Ex ‘s’ Special Protection
As special protection, Ex ‘s’ is not subject to any formal standard as such. It is used where equipment does not comply exactly with standards but where its method of operation is proven to be safe in a hazardous area environment.

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

## All protection methods described above for Category 1 & Category 2 are suitable for use in Category 3

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>PROTECTION TYPE</th>
<th>STANDARDS</th>
<th>PROTECTION METHOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Ex ‘n’ non sparking</td>
<td>EN 60079-15</td>
<td>This is a method very similar to Ex ‘e’ increased safety although not as stringent. The components are designed so as not to produce any sparks or dangerous temperatures in operation.</td>
</tr>
<tr>
<td></td>
<td>Ex ‘nA’ and Ex ‘nR’</td>
<td>EN 60079-15</td>
<td>The Ex non sparking ‘nR’ denotes the use of a restricted breathing enclosure. This technique is used where internal components run hotter than the required T rating. The T rating is achieved by mounting the offending components in a sealed enclosure to prevent the explosive atmosphere contacting them. This technique by virtue incorporates high IP ratings of minimum IP65.</td>
</tr>
<tr>
<td></td>
<td>Ex ‘o’ Oil Immersion</td>
<td>EN 60079-6</td>
<td>Ex ‘o’, involves the immersion of the sparking components in oil with controlled venting.</td>
</tr>
</tbody>
</table>
STEP 5

Now that you have clarified the gases/dusts present, their ignition temperature, the zone and applicable protection methods, the certified temperature codings must be understood for choosing the correct luminaire. Failure to understand the relationships could result in selecting an inappropriate luminaire for the zone and atmosphere. If the luminaires T rating code signifies the surface temperature of the equipment is greater than the ignition temperature of the gas/dust present, the luminaire will ignite the surrounding atmosphere causing an explosion.

Below FIG 1.4 shows the temperature codes related to surface temperatures. Using this table check the ignition temperature of the gas/dust present, as shown in FIG 1.2. This will then indicate the suitability of the equipment you have selected, or the temperature rating of the equipment you need to select.

<table>
<thead>
<tr>
<th>TEMPERATURE CLASSIFICATION</th>
<th>MAXIMUM SURFACE TEMPERATURE OF EQUIPMENT (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>450</td>
</tr>
<tr>
<td>T2</td>
<td>300</td>
</tr>
<tr>
<td>T3</td>
<td>200</td>
</tr>
<tr>
<td>T4</td>
<td>135</td>
</tr>
<tr>
<td>T5</td>
<td>100</td>
</tr>
<tr>
<td>T6</td>
<td>85</td>
</tr>
</tbody>
</table>

FIG 1.4

STEP 6

The environment that the equipment will operate in is also important. Many environments are arduous and may involve the equipment being subject to the following:

<table>
<thead>
<tr>
<th>TYPES OF ENVIRONMENT</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme high or low temperatures</td>
<td>Middle East/Norway</td>
</tr>
<tr>
<td>Arduous weather conditions</td>
<td>Offshore/Marine</td>
</tr>
<tr>
<td>Immersion in water</td>
<td>Dry docks</td>
</tr>
<tr>
<td>Subject to dusty atmospheres</td>
<td>Clean rooms/Grain silos</td>
</tr>
</tbody>
</table>

FIG 1.5

In order to ensure that the equipment selected will perform in the environment for which it is intended, the following factors of equipment performance need to be considered.

- Ambient temperature - Does the equipment have certification to operate within the minimum and maximum temperatures of the environment?
- How much dust/liquid etc will the equipment be subjected to and for how long?
- Will the equipment be subject to any likely impact during its service life?
- Are there any chemicals/vapours present that could attack luminaires with plastic enclosures?

When selecting equipment, the product information will state the certified operating temperature such as the example below. If in selecting equipment the product information contains no statement or reference to ambient temperature be very sceptical and do not assume. Always check and obtain written confirmation from the manufacturer.

Example Floodlight VL65A
-50°C to +55°C
Always check that the ambient temperature certification is applicable to your relevant choice of product as maximum ambient performances are often quoted and may only be applicable to certain product variants.

If the environment will subject the equipment to any dust/fibres/liquids, ensure it is certified to an appropriate level of ingress protection. This can be done using the table below.

**INDEX OF PROTECTION (IP XX)**

IP** degree of protection of enclosures of electrical equipment in accordance with standards IEC 529, EN 60529 and NFC 20-010. The ingress protection number (IP) is found by putting the first and second figure together. An example is shown below.

### 1st figure: Protection against solid bodies

<table>
<thead>
<tr>
<th>IP</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>TESTS</td>
<td>No Protection</td>
<td>Protected against solid bodies of 50 mm and greater (e.g. accidental contact with the hand)</td>
<td>Protected against solid bodies of 12.5 mm and greater (e.g. finger)</td>
<td>Protected against solid bodies of 2.5 mm and greater (e.g. tools, wires)</td>
<td>Protected against solid bodies larger than 1 mm (e.g. thin tools and fine wires)</td>
<td>Protected against dust (no harmful deposit)</td>
<td>Completely protected against dust</td>
</tr>
</tbody>
</table>

### 2nd figure: Protection against liquids

<table>
<thead>
<tr>
<th>IP</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>TESTS</td>
<td>No Protection</td>
<td>Protected against vertically falling drops of water (condensation)</td>
<td>Protected against drops of water falling up to 15° from the vertical</td>
<td>Protected against drops of water falling up to 60° from the vertical</td>
<td>Protected against splashing water from all directions</td>
<td>Protected against jets of water from all directions</td>
<td>Protected against powerful jets of water from all directions</td>
<td>Protected against the effects of temporary immersion in water</td>
<td>Protected against the continuous effects of immersion in water having regard to specific conditions</td>
</tr>
</tbody>
</table>

A third figure is sometimes used in the index of protection. This relates to the degree of mechanical protection the equipment has been certified as having. This relates to the degree of impact energy the equipment will stand before its hazardous area and ingress protection certification is compromised. FIG 2.2 below details the levels of protection.

**INDEX OF MECHANICAL PROTECTION**

<table>
<thead>
<tr>
<th>IK CODE</th>
<th>IK00</th>
<th>IK01</th>
<th>IK02</th>
<th>IK03</th>
<th>IK04</th>
<th>IK05</th>
<th>IK06</th>
<th>IK07</th>
<th>IK08</th>
<th>IK09</th>
<th>IK10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact energy Joule</td>
<td>α</td>
<td>0.14</td>
<td>0.2</td>
<td>0.35</td>
<td>0.5</td>
<td>0.7</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

α not protected to this standard

**STEP 7... FINALLY**

Having covered all the rules and safety considerations of the operation of electrical equipment in a hazardous area it is now possible to select a safe and appropriate product.
INTERNATIONAL STANDARDS AND APPROVALS

A number of products in the Victor Lighting range are certified to national and international standards, details of these are outlined below.

IECEx International Certification Scheme

“The aim of the IECEx Scheme is to facilitate international trade in electrical equipment intended for use in explosive atmosphere (Ex equipment) by eliminating the need for multiple national certification while preserving an appropriate level of safety.”

“The final objective of the IECEx Scheme is worldwide acceptance of one standard, one certificate and one mark.”

GOST-R (Russia)

Gosstandart of Russia is responsible for:

- establishment of the general rules and recommendations for certification of products, services (works) and systems of quality and production harmonised with international norms and rules;
- carrying out the State registration of the mandatory and voluntary certification systems and of the conformity marks.

Russia participates in the following international certification systems:

- System of the International Electrotechnical Commission (IEC) for tests of electrical equipment on conformity to the safety standards.

FSETAN

Rostekhnadzar (Federal service on ecological, technical and nuclear supervision) was formally known as Gosgortekhnadzor (GGTN) and is responsible for the issue of permits and licenses for a broad range of machinery and equipment. As a separate entity to Gosstandart, FSETAN requires product types that fall under its jurisdiction to undergo a further certification process.

All potentially hazardous machinery and equipment, such as pressure vessels, boilers, burners, lifts and cranes is subject to FSETAN approval, even if it has already obtained a GOST-R Coc.

In addition, any machinery to be used in hazardous or potentially explosive environments, such as oil or gas fields, refineries or chemical plants also require a separate FSETAN permit. This applies even where the equipment itself would not normally require GOST-R approval.

GB (China)

The GB mark is the Chinese national safety certification scheme. These standards are aligned to the latest IEC standards.

TIS (Thailand)

Thai industrial standards are a national product certification scheme. This is designed to ensure products used within the county meet minimum electrical and quality standards.
NORTH AMERICAN STANDARDS AND APPROVALS

PRODUCT CODING
As in the European section, products are coded according to their certification for use in particular types of environments.

<table>
<thead>
<tr>
<th>Class Division</th>
<th>Gas Grouping</th>
<th>Surface temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td>Division 2</td>
<td>Groups A, B, C and D</td>
</tr>
</tbody>
</table>

STEP 1
As detailed in the European section in STEP 1 the gas/dust/fibre present in the hazardous area needs to be identified and classified under the CEC/NEC (North American) classifications detailed in FIG 1.9.

### CLASS I (EXPLOSIVE GASES)

**GROUP A ATMOSPHERE**
- Methane (Natural Gas) 580
- Propane 480
- Petrol 400

**GROUP B ATMOSPHERE**
- Acrolein (inhibited) 220
- Arse 未定义
- Butadiene 420
- Ethylene oxide 429
- Propylene oxide 449
- Propyl nitrate 175

**GROUP C ATMOSPHERE**
- Acetylene 305
- Ethylene 450
- Ethylene oxide 320
- Ethyl mercaptan 300
- Ethyl sulfide 未定义
- Hydrazine 500
- Hydrogen cyanide 538
- Hydrogen sulfide 260
- Morpholine 310
- 2-Nitropropane 428
- Tetrahydrofuran 321
- Unsymmetrical dimethyl hydrazine [udm 1, 1-dimethyl hydrazine 249

**GROUP D ATMOSPHERE**
- Acetic acid (glacial) 464
- Acetone 465
- Acrylonitrile 481
- Ammonia 651
- Benzene 498
- Butane 287
- 1-butanol (butyl alcohol) 343
- 2-butanol (secondary butyl alcohol) 405
- N-butyl acetate 425
- Isobutyl acetate 421
- 2-methyl-1-propanol (isobutyl alcohol) 415
- 2-methyl-1-propanol (tertiary butyl) 478
- N-butyl acetate 425
- Petroleum naptha 288
- Tetrahydrofuran 321
Using FIG 1.9 we can also ascertain the ignition temperatures of the identified gas/dust/fibre present.

**STEP 2**
Select the Gas/Dust/Fibre type present from FIG 1.9 and note:

- Material classification
  1 = Gas
  2 = Dust
  3 = Fibre

- The material group

- If the material present is a dust or fibre and whether it forms a cloud or a layer on surfaces

- The ignition temperature of the material

**STEP 3**
Assess the hazardous area as in STEP 2 of the European section with regard to the potential frequency and longevity of an explosive atmosphere. This can be done using the classifications below.
STEP 4

Now having defined the explosive gas/dust/fibres present, the nature of their presence, their ignition temperature and the classification of the hazardous area we, need to determine the temperature classifications to ensure the selection of equipment which will be safe in operation.

The classifications, which are similar to Europe, are further subdivided as follows

NORTH AMERICAN TEMPERATURE CLASSIFICATIONS

<table>
<thead>
<tr>
<th>Temperature in Fahrenheit</th>
<th>Temperature in Celsius</th>
<th>North American Temperature code</th>
</tr>
</thead>
<tbody>
<tr>
<td>842</td>
<td>450</td>
<td>T1</td>
</tr>
<tr>
<td>572</td>
<td>300</td>
<td>T2</td>
</tr>
<tr>
<td>536</td>
<td>280</td>
<td>T2A</td>
</tr>
<tr>
<td>500</td>
<td>260</td>
<td>T2B</td>
</tr>
<tr>
<td>446</td>
<td>230</td>
<td>T2C</td>
</tr>
<tr>
<td>419</td>
<td>215</td>
<td>T2D</td>
</tr>
<tr>
<td>392</td>
<td>200</td>
<td>T3</td>
</tr>
<tr>
<td>356</td>
<td>180</td>
<td>T3A</td>
</tr>
<tr>
<td>329</td>
<td>165</td>
<td>T3B</td>
</tr>
<tr>
<td>320</td>
<td>160</td>
<td>T3C</td>
</tr>
<tr>
<td>275</td>
<td>135</td>
<td>T4</td>
</tr>
<tr>
<td>248</td>
<td>120</td>
<td>T4A</td>
</tr>
<tr>
<td>212</td>
<td>100</td>
<td>T5</td>
</tr>
<tr>
<td>185</td>
<td>85</td>
<td>T6</td>
</tr>
</tbody>
</table>

FIG 2.0

Product markings will often show the actual rated temperature in brackets next to the temperature code to make judgement and selection easier.

STEP 5

Finally we need to take cognisance of the environment in which the equipment will be operating with respect to the concentration of liquids/gas/dust/fibres and ambient temperature.

In North America environmental protection is classified using the NEMA standard as opposed to the European IP protection standard.

On establishing these operating conditions we can determine the desired environmental protection required of the equipment by using the table below.

INDEX OF NEMA PROTECTION

<table>
<thead>
<tr>
<th>Provides a degree of protection against the following environmental conditions</th>
<th>Enclosure type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dripping and light splashing of non-corrosive liquids and falling dirt</td>
<td>2 3 3R 3S 4 4X 5 6 6P 12 12K 13</td>
</tr>
<tr>
<td>Circulating dust, lint, fibres and flyings*</td>
<td>- x - x x x - x x x x x x</td>
</tr>
<tr>
<td>Settling airborne dust, lint, fibres and flyings*</td>
<td>- x - x x x x x x x x x x</td>
</tr>
<tr>
<td>Hose-down and splashing water</td>
<td>- - - - x x - x x - - -</td>
</tr>
<tr>
<td>Corrosion</td>
<td>- - - - - - x - x - - -</td>
</tr>
<tr>
<td>Occasional temporary submersion</td>
<td>- - - - - - - - x x - - -</td>
</tr>
<tr>
<td>Occasional prolonged submersion</td>
<td>- - - - - - - - x - - -</td>
</tr>
<tr>
<td>Oil and coolant seepage, spraying and splashing</td>
<td>- - - - - - - - - - x - - -</td>
</tr>
<tr>
<td>Rain, snow and external formation of ice**</td>
<td>- x x x x x - x x - - -</td>
</tr>
<tr>
<td>External formation of ice***</td>
<td>- - - x - - - - - - - - -</td>
</tr>
<tr>
<td>Wind-blown dust</td>
<td>- x - x x x - x x - - -</td>
</tr>
</tbody>
</table>

FIG 2.1

* These fibres and flyings are non-hazardous materials and are not considered as Class II or III combustible dust or easily ignitable fibres or flyings. For these types of material refer to the Canadian Electrical Code.

** External operating mechanism(s) shall not be required to operate when the enclosure is covered in ice.

*** External operating mechanism(s) shall be operable when the enclosure is covered in ice.
EUROPEAN vs NORTH AMERICAN HAZARDOUS AREA CLASSIFICATIONS

TEMPERATURE RATINGS

<table>
<thead>
<tr>
<th>Temperature in Fahrenheit</th>
<th>Temperature in Celsius</th>
<th>North American Temperature code</th>
<th>IEC Temperature code</th>
</tr>
</thead>
<tbody>
<tr>
<td>842</td>
<td>450</td>
<td>T1</td>
<td>T1</td>
</tr>
<tr>
<td>572</td>
<td>300</td>
<td>T2</td>
<td>T2</td>
</tr>
<tr>
<td>536</td>
<td>280</td>
<td>T2A</td>
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<tr>
<td>500</td>
<td>260</td>
<td>T2B</td>
<td>T2</td>
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<td>446</td>
<td>230</td>
<td>T2C</td>
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</tr>
<tr>
<td>419</td>
<td>215</td>
<td>T2D</td>
<td>T2</td>
</tr>
<tr>
<td>392</td>
<td>200</td>
<td>T3</td>
<td>T3</td>
</tr>
<tr>
<td>356</td>
<td>180</td>
<td>T3A</td>
<td>T3</td>
</tr>
<tr>
<td>329</td>
<td>165</td>
<td>T3B</td>
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</tr>
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<td>160</td>
<td>T3C</td>
<td>T3</td>
</tr>
<tr>
<td>275</td>
<td>135</td>
<td>T4</td>
<td>T4</td>
</tr>
<tr>
<td>248</td>
<td>120</td>
<td>T4A</td>
<td>T4</td>
</tr>
<tr>
<td>212</td>
<td>100</td>
<td>T5</td>
<td>T5</td>
</tr>
<tr>
<td>185</td>
<td>85</td>
<td>T6</td>
<td>T6</td>
</tr>
</tbody>
</table>

Note: Actual temperatures may be shown instead of T-codes in North America.

COMPARISON OF 'NEMA AND IP ENVIRONMENTAL PROTECTION'

<table>
<thead>
<tr>
<th>CSA or NEMA Enclosure type</th>
<th>Ingress protection type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IP23</td>
</tr>
<tr>
<td>2</td>
<td>x</td>
</tr>
<tr>
<td>3</td>
<td>x</td>
</tr>
<tr>
<td>3R</td>
<td>x</td>
</tr>
<tr>
<td>3S</td>
<td>x</td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4X</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

HAZARDOUS AREA CLASSIFICATIONS

North American to IEC / CENELEC Zone method of protection usability chart.
(Use with caution: most Category 1 products cannot be used in North American Class I Div. 1 Areas)

<table>
<thead>
<tr>
<th>North American Approval</th>
<th>CENELEC/IEC equivalent Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I, Division 1</td>
<td>Zone 0 and 1</td>
</tr>
<tr>
<td>Class I, Division 2</td>
<td>Zone 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>North American Gas &amp; Vapour Groups</th>
<th>CENELEC/IEC Gas and Vapour classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>IIC</td>
</tr>
<tr>
<td>Group B</td>
<td>IIC</td>
</tr>
<tr>
<td>Group C</td>
<td>IIB</td>
</tr>
<tr>
<td>Group D</td>
<td>IIA</td>
</tr>
</tbody>
</table>
Victor Lighting is a division of Hubbell Ltd and part of the Hubbell group of companies. Through its market leading brands, Hubbell can also offer a range of related electrical connection and lighting products.

Most types of hazardous and industrial lighting require a secure interface between the luminaire and the electrical supply cable. Victor Lighting therefore recommends the use of Hawke International cable glands. The following is a selection from the range of Hawke glands available for further information visit www.ehawke.com

**501/421**

The 501/421 cable gland provides a seal on the outer cable sheath and is intended for use on non-armoured elastomer and plastic insulated cables.

The cable gland is dual certified EExd and EExe and is suitable for installation in Zone 1 (21) and Zone 2 (22) hazardous areas.

Suitable for restricted breathing applications.

**501/453/UNIVERSAL**

The 501/453/Universal cable gland provides a flameproof seal on the inner cable sheath and an IP seal on the outer sheath. It utilises reversible armour clamp (RAC) technology and can therefore accommodate all types of armoured or braided cables (W, X and Z). An outer deluge boot also helps prevent moisture ingress (DTS-01). The cable gland is particularly suitable for use on ‘soft’ inner cable sheaths that exhibit “Cold Flow” characteristics as the inner diaphragm seal will not damage the cable bedding. The cable gland is dual certified EExd and EExe and is suitable for installation in Zone 1 (21) and Zone 2 (22) hazardous areas.

**501/453/RAC**

The 501/453/RAC cable gland provides a flameproof seal on the inner cable sheath and an IP seal on the outer sheath. It utilises reversible armour clamp (RAC) technology and can therefore accommodate all types of armoured or braided cables (W, X and Z).

The cable gland is dual certified EExd and EExe and is suitable for installation in Zone 1 (21) and Zone 2 (22) hazardous areas.

Suitable for restricted breathing applications.

**ICG 653/UNIVERSAL**

The ICG 653/Universal cable gland provides a flameproof barrier seal on the individual insulated cable cores and prevents entry of the products of an explosion into the cable’s surrounding environment. It also provides an IP seal on the cable outer sheath. The cable gland is suitable for cables that are not effectively filled and for cables with a ‘soft’ inner sheath that exhibit “Cold Flow” characteristics. The cable gland is dual certified EExd and EExe and is suitable for installations in Zone 1 (21) and Zone 2 (22) hazardous areas, where the enclosure is greater than 2 litres in volume and contains an ignition source and requires IIC apparatus.

Suitable for restricted breathing applications.
Hawke International ATEX approved connectors are ideal for explosive environments commonly found in Oil and Gas exploration, production, and process plants. Their features, however, also offer numerous benefits in explosive dust environments as well as harsh and hostile non-explosive applications where temporary but safe disconnection of power is critical.

Hawke International’s Ex range of connectors permit the safe and rapid service, repair, and replacement of key plant, provide quick connection to temporary equipment and greatly reduce hook-up time in capital-intensive processes.

The Ex range of connectors cover three main application areas: Instrumentation, control, and power.

For a guide as to which Ex connector may be best suited to an individual application the table below outlines the main variables.

### SELECTION OVERVIEW

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Minimum Number of Pins</th>
<th>Maximum Number of Pins</th>
<th>Minimum Conductor Size</th>
<th>Maximum Conductor Size</th>
<th>Maximum Voltage</th>
<th>Maximum Current (amps)</th>
<th>Live Demate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrum Ex</td>
<td>4</td>
<td>8</td>
<td>0.14</td>
<td>2.5</td>
<td>250V</td>
<td>10</td>
<td>✓</td>
</tr>
<tr>
<td>Control Ex</td>
<td>3</td>
<td>60</td>
<td>1.5</td>
<td>35</td>
<td>660V</td>
<td>125</td>
<td>✗</td>
</tr>
<tr>
<td>Power Ex</td>
<td>1</td>
<td>4</td>
<td>50</td>
<td>630</td>
<td>750V*</td>
<td>780</td>
<td>✗</td>
</tr>
</tbody>
</table>

* Other voltages available on special request.

**INSTRUM Ex**

This revolutionary design allows the live de-mating of signal and power in hazardous areas safely and quickly. The Instrum Ex connector is available with two insert options: the 4-way option will accept cores ranging between 0.5mm² and 2.5mm² and can operate up to a maximum current of 10A at 250V AC. The 8-way option, designed predominantly for Ethernet applications, will accept cores ranging between 0.14mm² and 0.37mm² and can carry 1A at 250V. Instrum Ex connectors include an integral Hawke cable gland for easy termination of both armoured and un-armoured cables.

**CONTROL Ex**

The 3rd generation of Control Ex connectors include many features and refinements as a result of consumer feedback. And are suitable for control and low/medium power applications. The robust stainless steel body can hold up to 60 contacts and will accept conductor sizes ranging between 0.5mm² and 35mm², operating up to 125A and 600V.

Further information on recommended cable glands for use with the ControlEx connectors can be found at www.ehawke.com

**POWER Ex**

The Power Ex range of connectors have been designed specifically for the extremely demanding requirements of higher power applications. Inserts are available with 1 to 4 contacts with a conductor acceptance range of between 50mm² and 630mm² operating up to 125A and 660V.

There are several innovative features common across the range of Hawke ATEX connectors. Despite their highly advanced design and technical features, the range is extremely simple to use and quick to terminate.

- **Impossible to cross mate**
  The unique mechanical keying system prevents contact damage and ensures safe use by eliminating the possibility of misconnection of circuits. Machined key and keyway also ensures connector alignment.

- **High reliability contacts**
  Each pin and socket is fitted with multilam technology to ensure reliable low resistance connection on each coupling.

- **Ingress and deluge protected**
  All Hawke ATEX connectors meet the requirements of IP66 and IP67 to IEC60529. They are also deluge protected to DTS01 offering long term protection in onerous environments.

- **Robust design**
  Designed and constructed for the most demanding environments, Hawke connectors are durable in almost any environment, requiring no routine maintenance to ensure continued performance.

www.ehawke.com
**Features**

**The Ultimate in Robust GRP Construction**
Designed to withstand impact resistance up to 20Nm. GRP Construction provides a high degree of resistance to corrosive atmospheres.

**Integral Steel Earth Continuity Plate (PL7 Series)**
Provides internal/external earth continuity through to the two external mounting feet.

**Anti-Static Properties**
Removes the risk of ignition sources through static induced sparking.
Insulation Resistance in accordance with EN 50014 : 1998, which does not exceed 1 G Ω.

**External Mounting Feet**
Eliminates the need to remove the lid when mounting the enclosure on the wall.

**Corrosion Resistant Stainless Steel Lid Fixing Screws with Nylon Retaining Washers**
Prevents loss of screws during assembly and maintenance.

**One Piece Durable Captive Moulded Silicone Gasket**
DTS01 deluge protection witnessed by EECS. Provides ingress protection to IP66. Optimum performance at low and high temperature extremes.

**Stainless Steel Rating Label**
Highly durable and corrosion resistant.

---

**Features**

**Robust Stainless Steel Construction**
Enclosure material thickness ranges between 1.2 - 2.0mm with 3mm thick gland plates. Durable stainless steel rating label.

**Electropolished Surface Finish**
Provides high levels of corrosion resistance.

**Softer Finished Rounded Edges**
Safer manual handling of enclosure and gland plates.

**Rigid Slotted External Mounting Feet**
Allows enclosure to be hung onto the structure.

**Corrosion Resistant Stainless Steel Lid Fixing Screws with Nylon Retaining Washers**
Prevents loss of screws during assembly and maintenance.

**Superior Silicone Sponge Gasket**
DTS01 deluge protection witnessed by EECS. Provides ingress protection to IP66. Durable with excellent UV stability and chemical resistance. Good chemical resistance - EMC mesh option.

**Extensive Range of Enclosure Sizes Available**
Nine enclosure sizes available. Sizes range from 153 x 233 x 130 to 740 x 1000 x 210. Gland plates offered on two side faces and bottom face of each enclosure.

---

**EZE SERIES STAINLESS STEEL**

- Better access for faster installation, easier inspection and on-site modification.
- Solid back plate and base frame with a removable clamshell style lid.
- Seals shielded from the environment.
- Clip-in quick release gland plate.
- Under-wiring possible.
- Superior Silicone Compression Gasket.
- Large Terminal Capacity.
Killark is a leading manufacturer of NEC electrical construction products for standard, harsh and hazardous installations. The company has over 85 years of manufacturing experience and is a major participant in the OEM, commercial and industrial construction material markets.

The Killark range encompasses industrial and explosion proof fittings in both iron and aluminium including: HID & fluorescent lighting, emergency lighting, floodlights, enclosures & controls, plugs and receptacles, motor starters and distribution equipment.

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

As part of Hubbell, the strengths of Killark and Victor Lighting are now combined. This partnership has created the largest, most comprehensive range of lighting products and associated apparatus for hazardous locations available within the global market.

Hubbell and Killark are well represented on Codes and Standards committees in the US, Canada, Mexico and internationally. This affords the most cost competitive solutions to be offered to user requirements on a world wide basis, regardless of locality or installation constraints.

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

With a Total Quality Management programme and ISO 9001:2000 accreditation, Killark and Victor Lighting are dedicated to meeting customer needs, with engineering solutions, new product development and on-time delivery in every phase of the project. This underlines an already proven ability to supply lower cost total system solutions and savings over the entire lifetime of a project.

For further information on this NEW expanded range of products or to obtain a dedicated Killark brochure, simply refer to your usual Victor Lighting personnel. Photometric data on the Killark range is also available from the LiteGuide™ lighting design software.
Making Hazardous Environments Work

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E: me@victor-lighting.com