INTRODUCTION

underwater lights limited™ specialise in the design, manufacture and sale of Marine Lighting.

Our first request for an underwater light™ came in 1991 when marine engineer Peter Urquhart, Managing Director, was approached by the engineer of a 55m yacht whose owner wanted an underwater light. Peter worked for Lloyds Register, so knew the approval criteria for boats of that size, and consequently came up with four underwater lights- trade marked as the BULLEYT. An industry was born.

The UL Ti MATE range of underwater lights™ superseded the BULLEYT in 2004 and is now the most efficient light in the market place. All of our lights are independently tested.

Underwater Lights Limited™ prides itself on high quality products, overseeing the material purchased and the production. Our underwater products are rigorously designed to perform in the harsh marine environment and are type approved by Lloyds Register of Shipping.

All of our lights are designed and manufactured in our own factory.

We have supplied over 20,000 underwater lights for ships, yachts and boats all over the world, have worked with leading yacht designers, and have been involved with some winning superyachts awards such as M.Y Solemar, M.Y Ilona, S.Y Maltese Falcon, M.Y Kismet and M.Y Anna. Our lights have also been installed on M.Y. Eclipse and M.Y. Palladium

Underwater Lights Limited™ has upgraded the UL Ti MATE 70 and 130 lights to the UL Ti MATE 75 FIXED and 130 FIXED which now have the larger lens giving 25% more light output. These models are competitively priced.

Serious investment into research and development has enabled Underwater Lights Limited™ to expand its product range, using its experience and knowledge of the present and future technology.

Our latest venture into LED is the QT LED range which has some of our unique inventions, such as a new generation of reflectors, and lenses.

LED chip powers have increased to 100 watts giving a lumen output of around 8,000 lm. per single chip.

To keep up with the LED changes we have developed new mains voltage dimming drivers and 12-48 vdc powered drivers.

We now manufacture our own cable specifically designed for the LED market.

Note only part of the QT LED range is in this brochure. Please visit www.QTLED.com for further information.

For sales telephone numbers visit www.underwaterlights.com
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underwater lights limited™ is the designer and manufacturer of the Original underwater lights™ Brand since 1991.

Our first underwater light™, trademarked as BULLEYT, has now been superseded by our latest product range, UL Ti MATE. Wherever you find the UL Ti MATE, you are buying the Original underwater light™. Over the years we have worked with major shipyards and designers and have installed thousands of lights worldwide. We are proud to have worked, with shipyards including:

- Abrasserdam Yachtbuilding BV
- Abeking & Rasmussen GmbH
- Aleynacht
- Alloy Yachts International
- Alewijnse Marine BV
- Amels Holland
- Assens Shipyard
- Astilleros de Mallorca
- Attene SA
- Azimut SpA
- Benetti Yachts
- Burger Boat Company
- CBI Navi SpA
- CRN SpA
- Christensen Shipyard
- Cantieri Navali Codecasa
- Delta Marine
- Derecktor Shipyard
- Devonport
- Fairline
- Fraser Yacht Services
- Hakvoort Shipyard
- Icon Yachts
- Lurssen Werft
- Marina Barcelona `92
- Oceanco
- Palmer Johnson, Inc
- Pendennis
- Perini Navi
- Princess
- Royal De Vries Scheepsbouw BV
- Royal Van Lent Shipyard
- Royal Huisman Shipyard
- Barillec Marine
- Bell Licht BV
- Damen Shipyards
- Holland Jachttbouw BV
- Deckma GmbH
- Blohm & Voss
- Jachtwerf Jongert BV
- Intershalt GmbH
- Koersvelt Yacht Projects BV
- Lenny Yachts
- Makma Yachting
- Moonen Shipyards
- Scanel International
- Van Binsbergen Marine Experts
- Vitters Shipyards
- Heesen Shipyards
- Cantieri di Lavagna
- Cantieri T Mariotti
- Cantieri Navali Baglietto
- Royal Denship
- Danish Yachts
- Cizgi Yachts
- Proteksan A.S
- TSMM Teknecilik LTD STI
- C.M.B Yachts
- Dunya Yachts
- Peri Yachts
- Sunrise Yachts
- Shipyard Mengi-Yay Yatcilik
- Sunseeker
- Yachting Developments NZ
- Imtech
- Westport Shipyards
DESCRIPTION
This is our most popular “through-hull” submersible marine light IPX8 rated to 10 bar for coastal power boats and some ten thousand have been installed worldwide.
The light is suitable for installation into GRP-fibreglass and wooden hulls and must be installed below the minimum waterline.
The boat must be hauled out for installation, although maintenance is carried out from inside the hull.
The light has a sealed integral igniter which makes it safer, and allows the ballast to be located away from the bilge area.
The latest UL Ti MATE 80 can also be fitted with a wide beam lens.
Also available in an extended version.

TECHNICAL SPECIFICATION
Lamp Type - Xenon bulb
Lamp Life - 3000 Hours - Colour Temp - 7000 K
Voltage / Amp 12VDC/6.4A - 24VDC/2.5A
Glass Lens - Borosilicate glass
Classification - Lloyds Approved
Material - Aluminium Bronze and 5083 ALU
Light Output - 4,800 Lumens

NOTE-
Installation Instruction:
The hole cut-out should be 61 mm.
Hull thickness range 12-65 mm and 80-110 mm.
Recommended distance between lights 1 to 2 metres

Electrical Information:
Recommend only 2 lights for each power supply cable.
See wiring diagram on opposite page.

For additional information please visit our web site.
UL Ti MATE RANGE - MODEL NUMBER - S02652-V5/V6

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Manufacturers of the Original underwater lights™
Brand Marine Lighting Products since 1991

WIRING DIAGRAM 24V/V5

UL TiMATE 80 STANDARD
PART S02652

UL TiMATE 80 BALLAST
PART S95305

FUSE 10AMP

SOCKET

FUSE 10AMP

SOCKET

MAX 2 LAMPS 24VOLT SUPPLY
MARINE GRADE CABLE

START UP CURRENT: 4.5 A - Voltage 12-14vdc
CONTINUOUS CURRENT: 2.2 A
CONNECTING WIRE BETWEEN LAMPS: AWG10

WIRING DIAGRAM 12V/V6

UL TiMATE 80 STANDARD
PART S02652

UL TiMATE 80 BALLAST
PART S95304

FUSE 10AMP

SOCKET

FUSE 10AMP

SOCKET

MAX 2 LAMPS 12VOLT SUPPLY
MARINE GRADE CABLE

START UP CURRENT: 8 A - Voltage 21-27vdc
CONTINUOUS CURRENT: 4.5 A
CONNECTING WIRE BETWEEN LAMPS: AWG10
DESCRIPTION
This “through-hull” submersible marine light IPX8 rated to 10 bar, is suitable for smaller boats. The light is suitable for GRP, fibreglass and wooden hulls and must be installed below the minimum waterline. The boat must be hauled out for installation, although maintenance is carried out from inside the hull. This UL Ti MATE 80 uses a 100w halogen lamp and runs on 12 or 24 VDC.

TECHNICAL SPECIFICATION
Lamp Type - 100W Halogen
Lamp Life - 2000 Hours - Colour Temp - 3000 K
Voltage - 12VDC/8.3A - 24VDC/4.2A
Glass Lens - Borosilicate glass
Classification - Lloyds Approved
Material - Aluminium Bronze and 5083 ALU
Light Level - 750 Lumens

NOTE-
Installation Instruction:
The hole cut-out should be 61 mm.
Hull thickness range 12-65 mm.
Recommended distance between lights 1 to 2m.
Electrical Information:
Recommend only 2 lights for each power supply cable. See wiring diagram on opposite page.

For additional information please visit our web site.
DESCRIPTION
The UL Ti MATE 80, 20W LED is a “through-hull” submersible marine light rated IP68 to 10 bar. The light is suitable for small boats and can be installed into GRP-fiberglass and wooden hulls. It must be installed below the minimum waterline. The boat must be hauled out for installation, although maintenance of the LED is carried out from inside the hull. The LEDs are available in blue, red, green or white. The LED driver is integral with the light.

TECHNICAL SPECIFICATION
Lamp Type - 7 x single 110 lumen LED-

Lamp Life - 30,000 Hours - Colour Temp - 7200K

Voltage/Amps - 12vdc/1.6 A - 24vdc/0.8 A

Glass Lens - Borosilicate glass

Classification - Lloyds Approved

Material - Aluminium Bronze and 5083 ALU

Light Output - 1,400 Lumens

NOTE-
Installation Instruction
The hole cut-out should be 61 mm. Hull thickness range 12-65mm Recommended distance between lights 1 to 2meters.

Electrical Information
See diagram opposite. The 12/24vdc driver is integral, just connect the red wire to the +VE and black wire to the -VE 12/24vdc power supply.

Maximum number of lights on one supply cable TWO
For additional information please visit our web site.
LENS INFORMATION FOR UL Ti MATE 80, 75 & 130 SA

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Manufacturers of the Original underwater lights™
Brand Marine Lighting Products since 1991

UL Ti MATE 80 Xenon lens comparison

The above pictures of a 25 meter swimming pool are illuminated using the UL Ti MATE 80 with a 55 watt xenon lamp. The left hand picture has the normal flat lens which does not effect the light pattern produced by the reflector. The picture on the right has a wide angle lens fitted. This lens makes the beam wider horizontally and narrow vertically.

The diffuser lens takes the strong part of the light beam and spreads the light. This effect is similar to having a frosted lens. It can also be achieved by altering the position of the lamp in relationship to the reflector (See pictures above). The light beam/pattern is spread.

UL Ti MATE 75 and 130 SA

The pictures below show the UL Ti MATE SA (self adjustment) beam and angular adjustments. This system has a 20 degree universal adjustment which allows a flush insert to be used instead of a 30 degree insert and a 30 degree insert instead of a 50 degree. With the UL Ti MATE SA the lamp power can be increased to 250 watts. A great advantage of the SA is that the final adjustments can be made to the lights in clear water to get the maximum underwater lighting effect.
### DESCRIPTION

The cone angle in the body restricts the width of the light beam angle. The 50 degree is 65 degrees, while the flush and UL Ti MATE 130 have an angle of 100 degrees.

The centre of the light beam should be kept to 15 degrees down from the horizontal. Taking into account the reflector adjustment, a flush body can be installed at an angle of 35 degrees to the vertical. The spherical is then adjusted to 20 degrees and then locked. This gives the required 15 degree beam angle.

### BEAM ANGLE AND LUX INFORMATION

#### MAXIMUM DIRECTIONAL ADJUSTMENT 20 DEGREES

The above pictures on the left show the directional adjustment. The centre pictures show how the lamp is moved back to create a tight beam and the right hand pictures shows the lamp moved forward to create a wide beam.

**NOTE:** When the lamp is adjusted for a wide beam, the lux level at the centre will decrease but will increase on the outer part of the beam, giving a more uniform light pattern.
DESCRIPTION
This is the most flexible and powerful “through-hull” submersible marine light for the large sports fish yachts and is suitable for GRP-fibreglass and wooden hulls. The design and development of the UL Ti MATE 130 SA gave the marine market their wish with the internal adjustment (SA) which allows the beam angle to be varied from a narrow to wide beam and to universally move the beam direction by 20 degrees from within the projector housing. The UL Ti MATE 130 SA has a larger aperture which increases the light output by 25%. We advise that the light be installed 250mm below the minimum waterline. The boat must be hauled out for installation, although maintenance of the light is carried out from inside the hull. The light is IPX8 to 10 bar.

TECHNICAL SPECIFICATION
Lamp Type - MSD Metal Halide 150w or 250w
Lamp Life - 3000 Hours - Colour Temp - 7000 K
Voltage/Amps - 150 watt 120(V3)/230(V2)volt - 1.4/0.7.A
Voltage/Amps - 250 watt 198/264vac- 1.2A
Glass Lens - Borosilicate glass
Material - Aluminium Bronze and 5083 ALU
Light Level - 150w 12,000 Lumens - 250w 19,000 lms

NOTE
Installation Instruction:
The hole cut-out should be 100 mm. For Lamp Maintenance allow 170mm behind the projector lid. Hull thickness range 12 to 120 mm.
Electrical Information:
150w - Recommended maximum distance between ballast and projector 10m. 250w - Recommended maximum distance between ballast and projector 25m.
Cable - 150w-250w High temp. silicone 3 core (Part No S00111, 0.75).
For additional information please visit our web site.
DESCRIPTION
This is a 150 watt MSD discharge lamp “through-hull” submersible marine light with a flush lens for the large sports fish boats, motor and sailing yachts and is suitable for GRP-fibreglass and wooden hulls.

The UL Ti MATE 130 FIXED has a larger aperture than our original screwed fitting which has increased the light output by 25%.

We advise that the light be installed 250mm below the minimum waterline.

The boat must be hauled out for installation, although maintenance of the light is carried out from inside the hull. The light is IPX8 to 10 bar.

TECHNICAL SPECIFICATION

Lamp Type - MSD Metal Halide 150w

Lamp Life - 3000 Hours - Colour Temp - 7000 K

Voltage - 120(V3) or 230(V2) vac-

Amps - 120 v = 1.4 amps  230 volt = 0.7 amps

Flush Glass Lens - Borosilicate glass

Material - Aluminium Bronze and 5083 ALU

Light Level - 150w 12,000 Lumens

NOTE
Installation Instruction:
The hole cut-out should be 100-101 mm.

For Lamp Maintenance allow 150mm behind the projector lid.

Hull thickness range 12 to 75 mm.

Electrical Information:
150w - Recommended maximum distance between ballast and projector 10m.

Cable - 150w-High temperature silicone 3 core (Part No S00111).

For additional information please visit our web site.
BASIC CRITERIA
All weld-ins must have a minimum depth of 250-300mm below a waterline based on a loading of 50% fuel and 50% freshwater. They can be used to a maximum depth of 150 metres.
Spacing of the weld-ins: stern - 1.5 to 2.5 metres: port or starboard - 2.0 to 6.0 metres.
Angle of the weld-in light beam to the waterline: 15-20 degree. There are three different angled weld-ins available to maintain a constant waterline angle (CWLA). A sudden change in the CWLA will look like an installation error. Keep the CWLA as constant as possible.

UL Ti MATE POSITION
From the yacht’s general arrangement drawing first mark the positions where it is not possible to fit the weld-in and then work about those areas.

GENERAL ARRANGEMENT DRAWING
A line of weld-ins should be mirrored around its centre line (see above). Using transverse frame drawings predict the largest waterline angle that will occur on the yacht with a 50° Insert.
THE UL Ti MATE 75 SA INSTALLATION (Steel and aluminium hulls)

The UL Ti MATE 75 SA welding procedures shown are typical for most installations and are for guidance purposes only. Always use a certified welder and a fire watch when welding. Protect all threads against welding, grinding and painting.

316L SS WELDING PROCEDURE

<table>
<thead>
<tr>
<th>RUN</th>
<th>PROCESS</th>
<th>SIZE OF FILLER METAL</th>
<th>CURRENT A</th>
<th>VOLTAGE V</th>
<th>TYPE OF CURRENT/POLARITY</th>
<th>WIRE FEED m/min</th>
<th>TRAVEL SPEED* mm/s</th>
<th>HEAT INPUT* kJ/mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-7</td>
<td>MMA</td>
<td>3.2</td>
<td>100-115</td>
<td>≥ 55 OCV</td>
<td>AC</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Welding procedure Ref.No: UL-CSS-TB-01
Joint type: Full penetration butt with fillet
Preparation & cleaning: Thermal cut and grind
Parent material spec: ASTM A276:316L stainless to BS 4360:43A carbon steel
Material thickness (mm): 4-20 (Bulleyt) to 8mm plate
Outside diameter (mm): 100mm
Filler metal classification: AWS A5.4:E309MOL-17
Filler metal tradename: ESAB OK 67.70

Welding position: Butt: Horizontal (PC) and vertical up (PF)
Preheat temperature: 10°C min.
Interpass temperature: 240°C max.
Temperature control: Thermal indicating crayon

5083 WELDING PROCEDURE

<table>
<thead>
<tr>
<th>RUN</th>
<th>PROCESS</th>
<th>SIZE OF FILLER METAL</th>
<th>CURRENT A</th>
<th>VOLTAGE V</th>
<th>TYPE OF CURRENT/POLARITY</th>
<th>WIRE FEED m/min</th>
<th>TRAVEL SPEED* mm/s</th>
<th>HEAT INPUT* kJ/mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>MIG</td>
<td>1.2</td>
<td>160 - 180</td>
<td>20 - 21</td>
<td>DC positive</td>
<td>± 10.0</td>
<td>10 - 15</td>
<td>-</td>
</tr>
</tbody>
</table>

Welding procedure Ref.No: UL-AL-TB-01
Joint type: Full penetration butt with fillet
Preparation & cleaning: Cut, grind, wirebrush & degrease
Parent material spec: BS 1474:5083:0 (Bulleyt) to BS 1470:5083:0 (plate)
Material thickness (mm): 4-20 (Bulleyt) to 6mm plate
Outside diameter (mm): 100mm
Filler metal classification: BS 2901:pt 4:5356
Filler metal tradename: INCO ALLOYS 5356

Welding position: Butt: Horizontal (PC) and vertical up (PF)
Preheat temperature: 20 LPM
Details of back gouging: Back grind root of butt
Gas flux shielding: Argon gas
Gas flow rate: 10°C min.
DESCRIPTION
The UL Ti MATE 75 Fixed is a “through-hull” submersible marine light for welding into aluminium and steel hulls. Maintenance of the light is carried out from inside the hull. It does not include the SA 'Super Adjustable' unit and has been introduced to compete fairly with other fixed lights on the market. The lens aperture is exactly the same as the SA to give the same maximum light output. This new light is also shorter in length to the SA unit so that it is easier to fit into those small areas.
We advise that the light be installed minimum 250mm below the waterline when the yacht is loaded with 50% fuel and 50% water, and that the light be angled 15 degrees downwards. To achieve this there are 3 models- Flush, 30 degree and 50 degree. The stainless steel model comes as standard with Ice Class Lloyds Approval and has been pressurised to 80 bar. The aluminium model is IPX8 to 10 bar. The range is also GL Approved.

TECHNICAL SPECIFICATION
Lamp Type - MSD Metal Halide 150w
Lamp Life - 3000 Hours - Colour Temp - 7000 K
Voltage/Amps - 150 watt 120(V3)/230(V2) - 1.4/0.7 A
Ballast - 150 watt electronic in IP 65 Enclosure
Glass Lens - Borosilicate glass
Material - Steel and 5083 ALU
Light Level - 150w 12,000 Lumens

NOTE
Installation Instruction:
The hole cut-out should be cut to suit the insert angle. Maximum hull plate thickness should be 12mm for the flush and 20mm for the 30 & 50 degree.
For Lamp Maintenance allow 60mm behind the cable gland.

Electrical Information:
150w - Recommended maximum distance between ballast and projector 10m.
Cable - High temp. silicone 3 core (Part No S00111).
For additional information please visit our web site.

For sales telephone numbers visit www.underwaterlights.com
DESCRIPTION
This is a “through-hull” submersible marine light for welding into aluminium and steel hulls. Maintenance of the light is carried out from inside the hull.
Our patent pending internal SA (Super Adjustable) unit allows the beam angle to be varied from a narrow to wide beam, and to universally move the beam direction by 20 degrees from within the projector housing.
We advise that the light be installed 250mm below the minimum waterline when the yacht is loaded with 50% fuel and 50% water, and that the light be angled 15 degrees downwards. To achieve this there are 3 models- Flush, 30 degree and 50 degree.
The UL Ti MATE 75 SA has a larger aperture which increases the light output by 25%.
The stainless steel model comes as standard with Ice Class Lloyds Approval and has been pressurised to 80 bar. The aluminium model is IPX8 to 10 bar.

TECHNICAL SPECIFICATION
Lamp Type - MSD Metal Halide 150w
Lamp Life - 3000 Hours - Colour Temp - 7000 K
Voltage/Amps - 150 watt 120(V3)/230(V2) - 1.4/0.7.A
Ballast - 150 watt electronic in IP 65 Enclosure
Glass Lens - Borosilicate glass
Material - Steel and 5083 ALU
Light Level - 150w 12,000 Lumens

NOTE-
Installation Instruction:
The hole cut-out should be cut to suit the insert angle. Maximum hull plate thickness should be 12mm for the flush and 20mm for the 30 & 50 degree.
For Lamp Maintenance:
allow 170mm behind the cable gland.
Electrical Information:
150w - Recommended maximum distance between ballast and projector 10m.
Cable - High temp. silicone 3 core (Part No S00111).

For additional information please visit our web site.
DESCRIPTION
This is a “through-hull” submersible marine light for welding into aluminium and steel hulls. Maintenance of the light is carried out from inside the hull.
Our patent pending internal SA (Super Adjustable) unit allows the beam angle to be varied from a narrow to wide beam, and to universally move the beam direction by 20 degrees from within the projector housing.
We advise that the light be installed 250mm below the minimum waterline when the yacht is loaded with 50% fuel and 50% water, and that the light be angled 15 degrees downwards. To achieve this there are 3 models-
Flush, 30 degree and 50 degree.
The UL Ti MATE 75 SA has a larger aperture which increases the light output by 25%.
The stainless steel model comes as standard with Ice Class Lloyds Approval and has been pressurised to 80 bar. The aluminium model is IPX8 to 10 bar. The range is also GL Approved.

TECHNICAL SPECIFICATION
Lamp Type - MSD Metal Halide 250w
Lamp Life - 3000 Hours- Colour Temp- 7000 K
Voltage/Amps - 250 watt 198/264vac- 1.2A
Ballast - 250 watt electronic in IP 65 Enclosure
Glass Lens - Borosilicate glass
Material - Steel and 5083 ALU
Light Level - 250w 19,000 Lumens

NOTE-
Installation Instruction
The hole cut-out should be cut to suit insert angle.
Maximum hull plate thickness should be 12mm for the flush and 20mm for the 30 & 50 degree.
For Lamp Maintenance allow 170mm behind the cable gland.
Electrical information
250w - Recommended maximum distance between ballast and projector 25m.
Cable - The projector will be fully connected with 2 meters of 3 core by 0.75 cable which will have a M145 socket connected.
For additional information please visit our web site.
DESCRIPTION
This is a “through-hull” submersible marine light for welding into steel hulls. This light has been specially designed for installation and operation in fresh or seawater ballast tanks. It is not recommended to fit these lights in fuel oil tanks or hazardous areas. The boat must be hauled out for installation, although maintenance of the light can be carried out from inside the tank. Please allow access for maintenance.

We advise that the light be installed 250mm below the minimum waterline when the yacht is loaded with 50% fuel and 50% water and that the light be angled 15 deg downward. To achieve this there are 3 weld-ins -

Flush, 30 degree and 50 degree.

The light has a stainless steel watertight projector case which screws onto the insert. The standard S.S. inserts are purchased separately. The hydraulic hose and cable are used to route the cable from the ballast to the projector. The hose and cable length must be specified and these are ordered separately.

TECHNICAL SPECIFICATION
Lamp Type - MSD Metal Halide 150w or 250w
Lamp Life - 3000 Hours - Colour Temp - 7000 K
Voltage/Amps - 150 watt 120(V3)/230(V2) - 1.4/0.7.A
Voltage/Amps - 250 watt 90/265vac- 2.4/1.2A
Glass Lens - Borosilicate glass
Material - Steel
Light Level - 150w 12,000 Lumens - 250w 19,000 lms

NOTE
Installation Instruction:
The hole cut-out should be cut to suit the insert angle. Maximum hull plate thickness should be 12mm for the flush and 20mm for the 30 & 50 degree.
For Lamp Maintenance Allow 200mm.
Electrical Information
150w - Recommended maximum distance between ballast and projector 10m.
250w - Recommended maximum distance between ballast and projector 25m.
Cable - 150w - High temp. silicone 3 core (Part No S00111)
- 250w-2 core 1mm square- Max diameter 6mm (Part No S92532-1.0).
NOTE-
The water tight projector for the **UL Ti MATE 75 SA** is manufactured from 316 S.S.
It can house the **150 (W2)** and **250 (W1)** watt lamp/reflector adjustment assembly.
Each water tight projector has the hydraulic connections fitted as shown in above photo.
The remaining hydraulic parts are supplied separately with the projector-
00117-1 - 2 pcs, 00117-2 - 1pc, 0117-3 - 2 pcs, 00117-4 - 2pcs, 00117-6 - 1pc & 00117-7 - 1pc
The hydraulic hose is not supplied as standard as the length is unknown until the lights are fitted.
The projector is screwed onto the insert and can be tightened with a spanner (**S00114-WT**) which has to be ordered separately.
Part 00117-7 is an acetal plug with an M20 x 1,5 thread. This is for a cable gland.

For additional information please visit our web site.
DAMAGED CABLES SHOWN IN THE PICTURES OPPOSITE WILL RESULT IN BALLAST FAILURE

DO NOT SWITCH THE BALLAST ON AND OFF AS THIS COULD RESULT IN BALLAST OR LAMP FAILURE.

MAXIMUM AMBIENT TEMPERATURE FOR 150 AND 250 WATT BALLASTS 40 DEG C

LED FUNCTION (normal operation)
- **Green on** - Ballast and light working
- **Green and Yellow on** - Maximum ambient air temperature warning. The underwater light will stay on.
- **Red on, Green and Yellow off** - Exceeded them maximum running temperature. The ballast will shut down and will reset after it has cooled down. Approximate time 10 minutes
- **Red on, Green and Yellow off** - Indicates the ballast is working after a high temperature shutdown and the lamp is on.

LED FUNCTION (for problems)
- **Green flashing** - Indicates ballast trying to strike a hot lamp. The ballast will try to strike for 10 minutes. If lamp does not strike - **Green off and Yellow flashing** - Switch Off Power.
- **Red on, Green and Yellow off** - On initial start up - Indicates a **FAULT** with the cable connection, igniter or lamp.

ALWAYS SWITCH OFF POWER TO THE BALLAST WHEN THE YELLOW LED IS FLASHING.

For trouble shooting see manual.
DECK LIGHT - MODEL - PAR 30 FLOOD - 15mm

DESCRIPTION
The PAR 30 Adjustable Flood Light with bolted bezel is used for exterior flood lighting onto areas such as decks or masts. The fitting uses a 15mm thick borosilicate glass for installation into areas open to heavy weather and requires an insert to be welded onto the superstructure. The inserts are manufactured in aluminium 5083 (part number S23061-A) or in 316 stainless steel (part number S23062-A). The light is available with a 150w metal halide bulb max 150w - or with a halogen bulb -max 75w. The electronic ballast for the metal halide fitting is remote from the lamp. The maximum distance from the ballast to the lamp is 10 metres. The light has been tested for water tightness to IP 56.

TECHNICAL SPECIFICATION
Lamp Type - 150w metal halide. 75w halogen
Voltage - 12v or 24v / 120v 230v transformer
IP Rating - IP 56
Glass Lens Finish - clear or frosted (15mm)
Bezel Finish - bolted 316 stainless steel
Insert - 4/15mm bezel Alu or S.Steel
Ballast - S00800-A-V2/V3 - Transformer - 120/230V

NOTE-
Installation Instruction:
The hole cut-out is 178mm with insert. The light is supplied with one meter of 3 core cable. Longer cable can be fitted on request.
Part no-
S23014 - (150w metal halide) with 150w ballast (S00800-A-V2/3) and with 15mm glass and S.S. bolted bezel.
S23016 - V5/V6 for halogen 75w max 12v/24v- and with 15mm glass and S.S bolted bezel.
S23016 - V2 halogen with 12v/230v transformer- and with 15mm glass and S.S bolted bezel.
S23016 - V3 halogen with 12v/120v transformer- and with 15mm glass and S.S bolted bezel.

For additional information please visit our web site.
DESCRIPTION
The PAR 30 Adjustable Flood Light with bolted bezel is used for exterior flood lighting onto areas such as decks or masts. The fitting uses a 4mm thick borosilicate glass for installation into areas not so exposed and can be surface or flush mounted. The flush is recommended and requires an insert which is welded into the superstructure. The inserts are manufactured in aluminium 5083 (part number S23061-A) or in 316 stainless steel (part number S23062-A). The PAR 30 is available with a 150w metal halide bulb - max 150w - or with a halogen bulb - max 75w - The electronic ballast for the metal halide fitting is remote from the lamp. The maximum distance from the ballast to the lamp is 10 meters. The light has been tested for water tightness to IP 55.

TECHNICAL SPECIFICATION
Lamp Type - 150w metal halide. 75w halogen
Voltage -12v or 24v / 120v 230v transformer
IP Rating - IP 55
Glass Lens Finish - clear or frosted (4mm)
Bezel Finish - bolted 316 stainless steel
Insert - 4/15mm bezel Alu or S.Steel
Ballast - S00800-A-V2/V3 - Transformer - 120/230V

NOTE-
Installation Instruction:
The hole cut-out is 122 mm for surface mounting and 178mm with insert. The light is supplied with one meter of 3 core cable. Longer cable can be fitted on request.
Part no-
S23011- (150w metal halide) with 150w ballast (S00800-A-V2/3) and 4mm S.S. bolted bezel.
S23013-V5/V6 for Halogen 75w max 12v/24v- and 4mm S.S bolted bezel
S23013-V2 Halogen with 12v/230v transformer - and 4mm S.S. bolted bezel.
S23013-V3 Halogen with 12v/120v transformer- and 4mm S.S. bolted bezel.
DESCRIPTION
The PAR 30 Adjustable Flood Light with screwed bezel is used for exterior downlighting onto areas such as decks or masts. The fitting can only use a screwed 4mm thick glass bezel for installation onto areas not so exposed and does not require an insert. The light is available with a 150w metal halide lamp or a halogen bulb. It can also accommodate various reflectors with beams of 8, 24 and 45 degrees. (45 degrees being the most common reflector). The electronic ballast for the metal halide fitting is remote from the lamp. The maximum distance from the ballast to the lamp is 10 metres. The arrangement with the low voltage has an integral transformer which can be removed if necessary.

TECHNICAL SPECIFICATION
Lamp Type - 150w metal halide. 75w halogen
Voltage - 12v or 24v / 120v 230v ballast.
IP Rating - IP 55
Glass Lens Finish - clear or frosted (4mm)
Bezel Finish - 316 stainless steel
Insert -N/A
Ballast - S00800-A-V2/V3 - Transformer - 120/230V

NOTE-
Installation Instruction:
The hole cut-out should be 132 mm. Please see drawing above for dimension. The light is supplied with one meter of 3 core cable. Longer cable can be fitted on request. A white silicone gasket is supplied for fitting between the deck head and the light flange.
Part no-
S23001 - (150w HID) including 150w ballast (S00800-A-V2/3) with 4mm glass and SS. screwed bezel.
S23003 - V5/V6 for halogen 75w max 12v/24v and with 4mm glass and SS. screwed bezel.
S23003 - V2 halogen including 12v/230v transformer and with 4mm glass and SS. screwed bezel.
S23003 - V3 halogen including 12v/120v transformer and with 4mm glass and SS. screwed bezel.

For additional information please visit our web site.
DESCRIPTION

This Adjustable Light for Low/High Level Fitting with a 4mm glass can be surface mounted, flush mounted using a weld-in insert and flush mounted using the deckhead insert.

It can be used for steps, walkways, deckheads and floodlighting.

The light is available with a bolted bezel for exposed areas or a screwed bezel for less exposed areas. This light is also available as a fixed version with the same dimensions and specifications - part nos: S3052BF - S3052SF

The bezel is manufactured from 316 Stainless Steel and is bolted or screwed to the stainless steel case.

The light has been tested for water tightness to IP 66. The lamp is changed by removing the bezel.

TECHNICAL SPECIFICATION

Lamp type -MR 16 halogen

Voltage - 12v or 24v- Max 50w

IP Rating - IP 66

Glass lens finish - clear or frosted - 4mm

Bezel Finish - polished 316 stainless steel

Insert - Welded 30545 Alu./30546 S. Steel

Optional Integral Transformer -for 120/230v-60w

NOTE-

Installation Instruction:

For surface mounting the hole cut-out should be 68mm and the fixing screws are on a 76mm P.C.D.

For flush mounting into aluminium or steel plate use the weld-in insert. The hole is 110mm

For installation into deckheads that have a temperature rating of max 65 deg, the deckhead insert should be used. Please specify the deckhead thickness so the correct insert can be supplied.

For additional information please visit our web site.
DESCRIPTION
This Adjustable Light for Low/High Level Fitting with a 15mm glass can be surface mounted or flush mounted and needs to be used with an aluminium or stainless steel insert.

It is suitable for all exposed areas.
The light uses the best quality material and the bolted bezel is manufactured from 316 stainless steel.
It has been tested for water tightness to IP56.
The 15mm glass can either be ordered with a clear or frosted finish depending on how much light is required.

TECHNICAL SPECIFICATION

Lamp Type - MR 16 halogen
Voltage - 12v or 24v- Max 50w
IP Rating - IP 56
Glass Lens Finish - clear or frosted (15mm)
Bezel Finish - bolted 316 stainless steel
Insert - Alu. (S34443) or S. Steel (S34444)
Transformer - Integral for 120/230v

NOTE-
Installation Instruction:
The hole cut-out should be 110mm using an aluminium or steel insert- Please see drawing above with relevant part numbers for the insert.
Part no-
S34440. Please don’t forget to specify the power supply

For additional information please visit our web site.
DESCRIPTION

The Exterior Adjustable Downlight with screwed bezel is designed for exterior use such as overheads or deckheads. The maximum recommended lamp wattage for this light is 50w. A design consideration for this adjustable downlight was given to the contact temperature between the ventilation body and the deckhead. There is a small air gap which separates the main body and screwed bezel from the ventilation body. This reduces the deckhead contact temperature to about 60 degrees Celsius, which is generally lower than the maximum allowed paint temperature and prevents cracking and discolouring of the paint and wood.

TECHNICAL SPECIFICATION

Lamp Type - M16 halogen max 50w
Voltage/Power - 12v or 24v DC
IP Rating - IP 56
Glass Lens Finish - clear or frosted lens
Bezel Finish - stainless steel
Insert - N.A.
Transformer - Required for 120v & 230vac

NOTE -
Installation Instruction:
The hole cut-out should be 92 mm. The lamp is eased into the deckhead cut-out and the clamping screw which is attached to the clamping bracket is pushed up until the bracket springs apart and rests on the top of the deckhead. Tightening the screw secures the downlight.
Part no -
S21600- Please specify power supply.

For additional information please visit our web site.
DESCRIPTION

The **Oval Low Level Light** can be surface mounted in areas needing low level lighting such as steps, walkways or doorways. The fitting uses 2 x low voltage halogen capsule G4 pin. The total wattage should not exceed 40 watts. The light should not be installed in exposed areas or below the main deck. However it has been tested for water tightness to IP 56. The light can also be used as a downlight. The glass is available with a frosted or clear lens. The bolted bezel is machined stainless steel.

TECHNICAL SPECIFICATION

- **Lamp Type** - 2x Halogen capsule G4 pin max 40w
- **Voltage/Power** - 12v or 24v DC
- **IP Rating** - IP 56
- **Glass Lens Finish** - clear or frosted glass.
- **Bezel Finish** - polished 316 stainless steel.
- **Insert** - Available if required
- **Integral transformer** fitted for 120 or 230 vac

NOTE-

**Installation Instruction:**
The drawing at the top shows overall dimensions in **blue** and the cut-out and M5 hole locations in **red**. For installation into aluminium superstructure aluminium screws (93656) must be used and the aluminium insert.

**Part no:**

**Halogen** - S30335

For additional information please visit our web site.
DESCRIPTION

The Exterior MR11 and MR16 are surface mounted lights and can be fitted anywhere needing direct lighting. They can be installed on decks, bulkheads and overheads. The lights use the best quality material and are manufactured from 316 stainless steel and have a polished finish as standard. They are tested for water tightness to IP56. The MR11 and MR16 are available with screwed or bulkhead fitting types. For fixing the screwed fitting, stainless steel M5 counter sunk screws are supplied as standard for steel superstructure. Titanium screws are also available for installation into aluminium. There are various lamp reflectors beam angle available.

TECHNICAL SPECIFICATION

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>M16 or M11 - halogen low voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>12 or 24v. MR16 35W- MR11 20W</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP56</td>
</tr>
<tr>
<td>Glass Lens Finish</td>
<td>clear lens</td>
</tr>
<tr>
<td>Bezel Finish</td>
<td>polished 316 stainless steel</td>
</tr>
<tr>
<td>Insert</td>
<td>No insert available</td>
</tr>
<tr>
<td>Ballast</td>
<td>LED driver - Transformer - N.A</td>
</tr>
</tbody>
</table>

NOTE-

Installation Instruction:
Please see diagram above for dimensions. Red dimension for the MR11 & Black dimension for MR16.

Part no:
MR16 (S21610+ B for bulkhead or S for screwed) and MR11(S21110+B/S)
Please specify power supply.

For additional information please visit our web site.
 DESCRIPTION
These are an Adjustable and Fixed Exterior or Interior range of LED lights.
The light is suitable for step lighting, emergency lighting and accent lighting.
It has a light output up to 100 lumens.
The LED is available in cool white, warm white, blue, green and red.
The LED lights require a driver to power them. (see QTD range of drivers for further information)
Maintenance of the light is carried out from the front.
The pictures opposite show the model numbers, IP rating and dimensions.

TECHNICAL SPECIFICATION
Lamp Type - Single 1 watt LED
LED voltage - 3.5 vdc drive current 350mA
IP Rating - See pictures
Lens Finish - clear
Bezel Finish - Polished 316 Stainless Steel
Insert - 40195-Alu or 40195-S.S
LED Driver required

Note - The S40154 can be fitted with acetal and metal inserts to increase the rear IP rating to IP 68
DESCRIPTION
● The QT LED 32 is a Fixed Exterior or Interior side emitting LED light.
● The light is suitable for step lighting, emergency lighting and accent lighting.
● It has a light output up to 100 lumens.
● The LED is available in cool white, warm white, blue, green and red.
● The LED lights require a driver to power them. (see QTD range of drivers for further information)
● Maintenance of the light is subject to the installation and can be carried out from the front.
● The pictures opposite show the model numbers, IP rating and dimensions.

TECHNICAL SPECIFICATION
Lamp Type - Single 1 watt LED

LED voltage - 3.5 vdc drive current 350mA

IP Rating - IP 67

Lens Finish - clear

For Case Finish and material - See website

For Inserts - See website

LED Driver - QTD See Driver Information

Connection system
Part Number S41101

Note-
The QT-LED 32 can be fitted with acetal and metal inserts to increase the rear IP rating to IP 68 and protection against galvanic corrosion. See website for further information.
DESCRIPTION
- The QT LED 34 is an Adjustable Exterior or Interior range of LED lights.
- The light is suitable for step lighting, emergency lighting and accent lighting.
- It has a light output up to 100 lumens.
- The LED is available in cool white, warm white, blue, green and red.
- The LED lights require a driver to power them. (see QTD range of drivers for further information)
- Maintenance of the light is carried out from the front.
- The pictures opposite show the model numbers, IP rating and dimensions.

TECHNICAL SPECIFICATION
Lamp Type - Single 1 watt LED
LED voltage - 3.5 vdc drive current 350mA
IP Rating - See pictures
Lens Finish - clear
Bezel Finish - Polished 316 Stainless Steel
Insert - See Website for further Information
LED - See QTD Driver Information

Connection system
Part Number S41101

Note-
The QT-LED 34 can be fitted with acetal and metal inserts to increase the rear IP rating to IP 68 and protection against galvanic corrosion. See website for further information.
DESCRIPTION

- The QT 42 is an Exterior or Interior range of LED lights.
- The light is suitable for step lighting, emergency lighting and accent lighting.
- It has a light output up to 120 lumens.
- The LED is available in cool white, warm white, blue, green and red.
- The LED lights require a driver to power them. (see QTD range of drivers for further information)
- Maintenance of the light is carried out from the front.
- The pictures opposite show the model numbers, IP rating and dimensions.

TECHNICAL SPECIFICATION

- Lamp Type - Single 1 & 3 watt LED
- LED voltage - 3.5 vdc drive current
- LED volt drive current 350 & 700mA
- Lens Finish - clear or frosted
- Bezel Finish - Polished 316 Stainless Steel
- IP Rating - See pictures
- LED Driver - QTD See Driver

Connection system
Part Number S41101

Note -
The QT-LED 42 is fixed by using the three self tapping countersunk screws. The light can be fixed by using M4 countersunk screws (not supplied as standard).
DESCRIPTION
- The QT LED 44 is an Adjustable Exterior or Interior range of LED lights.
- The light is suitable for step lighting, emergency lighting and accent lighting.
- It has a light output up to 100 lumens.
- The LED is available in cool white, warm white, blue, green and red.
- The LED lights require a driver to power them. (see QTD range of drivers for further information)
- Maintenance of the light carried out from the front.
- The pictures opposite show the model numbers, IP rating and dimensions.

TECHNICAL SPECIFICATION
Lamp Type - Single 1 watt LED
LED voltage - 3.5 vdc drive current 350mA
IP Rating - See pictures
Lens Finish - clear
Bezel Finish - Polished 316 Stainless Steel
Insert - 40195-Alu or 40195-S.S
LED - See QTD Driver Information

Connection system
Part Number S41101

Note-
The QT-LED 44 can be fitted with acetal and metal inserts to increase the rear IP rating to IP 68 and protection against galvanic corrosion. See website for further information.
APPLICATIONS
- The bezel, LED, lens and cable gland is one complete unit and has an IP rating of IP 68 to 8 bar. This prevents any ingress of water and breathing which can damage the LED.
- The QT 60-8 range must be submersed in water to keep it cool and can be used for the following applications:
  - Stern underwater lights boats
  - Swimming pools. These can replace existing lights.
  - Contact us for further information.
  - Marine pontoon lighting.
  - Water feature lighting.
- The QT 60-8 shown opposite has a narrow lens and is manufactured from 5083 aluminium and is hard anodised. It is recommended to paint the light with anti fouling paint when used in a marine environment.

TECHNICAL SPECIFICATION
Lamp types - Flat single LED chip- 24 watts - 1,900 lm or 8 LED - 1500 lm
LED Driver required - See QTD Driver Information
IP Rating - IP 68
Glass lens for type 1, - Borosilicate glass. Type 4 - Acrylic
Base Material - 5083 Aluminium and AB2
LED lamp life - 10,000 and 50,000 hours

LENS TYPES

<table>
<thead>
<tr>
<th>LENS</th>
<th>MATERIAL</th>
<th>FINISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=NARROW</td>
<td>5=AB2</td>
<td>0=PAINT</td>
</tr>
<tr>
<td>4=8-LED</td>
<td>6=ALU</td>
<td>2=ANODISED</td>
</tr>
<tr>
<td></td>
<td>4=MACHINE</td>
<td></td>
</tr>
</tbody>
</table>

ORDERING = QT-LED-60-8 - PLUS NUMBERS BELOW

For sales telephone numbers visit www.qtled.com
THE QT-LED RANGE IS DESIGNED AND MANUFACTURED BY UNDERWATER LIGHTS LIMITED
APPLICATIONS

- The Qt 60 Ball, LED, and lens is one complete unit and has an IP rating of **IP 68 to 8 bar**. This prevents any ingress of water and breathing which can damage the LED.
- The light can be fitted by four screws (M5 countersunk) directly to exterior superstructure, interior wall or ledges.
- A mains voltage dimming driver can be used but is not integral with the light.

  The **QT-LED-76-1** can be installed -

  - Into a swim platform for down and side lighting.
  - Into the focsle as a low level light.
  - Around the funnel and aerial tree for flood lighting.
  - Mast lighting
  - Helideck flood lighting
  - Interior use.

  Note it is **not approved** for welding into the hull of the yacht to be used as an underwater light.

TECHNICAL SPECIFICATION

**Lamp types** - Flat single LED chip - 20 watts - 1,200 lm or 8 x 1 watt - 500 lm

**LED Driver** - See QTD Driver Information

**IP Rating** - IP 67

**Glass lens for type 1** - Borosilicate glass. **Type 4** - Acrylic

**Bezel Material** - 5083 Aluminium or 316 S.S.

**LED lamp life** - 10,000 and 50,000 hours

For further specification on the Drivers and LEDs please contact us.

**LENSES TYPES**

**ORDERING =**

QT-LED-76-1 - PLUS NUMBERS BELOW

<table>
<thead>
<tr>
<th>LENS</th>
<th>MATERIAL</th>
<th>FINISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=NARROW</td>
<td>3=S.S.</td>
<td>1=CHROME</td>
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<tr>
<td>4=8-LED</td>
<td>6=ALU</td>
<td>2=ANODISED</td>
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<tr>
<td></td>
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<td>3=POLISHED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4=MACHINE</td>
</tr>
</tbody>
</table>
APPLICATIONS

- The Qt 60 Ball, LED, and lens is one complete unit and has an IP rating of **IP 68 to 8 bar**. This prevents any ingress of water and breathing which can damage the LED.
- The QT 76-2 requires an insert which can be welded into the superstructure.
- A mains voltage dimming driver can be used but is not integral with the light.

The QT-LED-76-2 can be installed -
- Into a swim platform for down and side lighting.
- Into the focsle as a low level light.
- Around the funnel and arial tree for flood lighting.
- Note it is **not approved** for welding into the hull of the yacht to be used as an underwater light.

TECHNICAL SPECIFICATION

Lamp types - Flat single LED chip- 20 watts - 1,200 lm or 8 x 1 watt - 500 lm

LED Driver - See QTD Driver Information

IP Rating - IP 67

Glass lens for type 1, - Borosilicate glass. Type 4 - Acrylic

Bezel Material - 5083 Aluminium or 316 S.S.

LED lamp life - 10,000 and 50,000 hours

For further specification on the Drivers and LEDs please contact us.

**LENS TYPES**

<table>
<thead>
<tr>
<th>LENS</th>
<th>MATERIAL</th>
<th>FINISH</th>
</tr>
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<tbody>
<tr>
<td>1=NARROW</td>
<td>3=S.S.</td>
<td>1=CHROME</td>
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<tr>
<td>4=8-LED</td>
<td>6=ALU</td>
<td>2=ANODISED</td>
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<tr>
<td>3=POLISHED</td>
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<td></td>
</tr>
<tr>
<td>4=MACHINE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPLICATIONS

- The bezel, LED and lens is one complete unit and has an IP rating of **IP 68 to 8 bar**. This prevents any ingress of water and breathing which can damage the LED.
- The light must be fitted into an INSERT which is made from 316 stainless steel or 5083 aluminium for welding into the yacht superstructure.
- A mains voltage dimming driver can be fitted and becomes integral with the light.
  The QT-LED-76-7 can be installed -
  - Into a swim platform for up or down lighting.
  - Into the focse as a low level light.
  - Around the funnel and Ariel tree for flood lighting.
  - Mast lighting
  - Into swimming pools.
  - Helideck Lights as shown opposite.
- Note it is **not approved** for welding into the hull of the yacht to be used as an underwater light.

TECHNICAL SPECIFICATION

**Lamp types** - Flat single LED chip - 20 watts - 1,200 lm or 8 x 1 watt - 500 lm

**LED Driver** - See QDT Driver Information

**IP Rating** - IP 67

**Glass lens for type 1, 2, and 3** - Borosilicate glass. Type 4 - Acrylic

**Bezel Material** - 5083 Aluminium or 316 S.S.

**LED lamp life** - 10,000 and 50,000 hours

For further specification on the Drivers and LEDs please contact us.

<table>
<thead>
<tr>
<th>LENS TYPES</th>
<th>ORDERING = QT-LED-76-7 - PLUS NUMBERS BELOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = NARROW</td>
<td>1 = CHROME</td>
</tr>
<tr>
<td>2 = WIDE</td>
<td>2 = ANODISED</td>
</tr>
<tr>
<td>3 = FLAT</td>
<td>3 = POLISHED</td>
</tr>
<tr>
<td>4 = 8 LED</td>
<td>4 = MACHINE</td>
</tr>
</tbody>
</table>

For sales telephone numbers visit www.qtled.com

THE QT-LED RANGE IS DESIGNED AND MANUFACTURED BY
UNDERWATER LIGHTS LIMITED
APPLICATIONS
- The Qt 60 Fixed, LED, and lens is one complete unit and has an IP rating of IP 68 to 8 bar. This prevents any ingress of water and breathing which can damage the LED.
- The QT-99-5 requires a hole cut out of 80mm. Depth of light is 85mm. Flange diameter 99mm.

The QT-LED-99-5 can be installed -
- Exterior deckheads but must be above the main deck.
- For interior the lights can be used for down and uplighting.
- For shower and wet areas the light requires our remote SELV mains driver.
- LED colour - warm

TECHNICAL SPECIFICATION

Lamp types - Flat single LED chip- 20 watts - 1,200 lm or 8 x 1 watt - 500 lm

LED Driver can be integral - See QTD for Driver Information

IP Rating 44 between flange and deckhead

Glass lens for type 1, - Borosilicate glass. Type 4 - Acrylic

Bezel Material - 5083 Aluminium or 316 S.S.

LED lamp life - 10,000 and 50,000 hours

For further specification on the Drivers and LEDs please contact us.

LENSES

ORDERING =
QT-LED-99-5 - PLUS NUMBERS BELOW

<table>
<thead>
<tr>
<th>LENS</th>
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<th>FINISH</th>
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<tbody>
<tr>
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<tr>
<td>4=8-LED</td>
<td>6=ALU</td>
<td>1=CHROME</td>
</tr>
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<tr>
<td></td>
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<td>5=ALUCHROMED</td>
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</table>

For sales telephone numbers visit www.qtled.com
THE QT-LED RANGE IS DESIGNED AND MANUFACTURED BY UNDERWATER LIGHTS LIMITED
QTD - DRIVER INFORMATION.
The table below shows the specification of the drivers. The first number (column No 1) identifies the size of the driver. Columns 2, 3, 4 and 5 relate to input power, driver output current, power and output voltage. All the drivers are voltage and power sensing and column 6 and 7 shows the minimum values. When the driver is operated below these values the LED may flash or not work.

<table>
<thead>
<tr>
<th>QTD</th>
<th>TYPE</th>
<th>No</th>
<th>SUPPLY VOLTAGE</th>
<th>mA</th>
<th>MAXIMU M POWER</th>
<th>No</th>
<th>OUTPUT VOLTAGE</th>
<th>No</th>
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<th>No</th>
<th>MINIMUM WATTAG</th>
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<th>CONTROL</th>
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<tbody>
<tr>
<td>3 WAY</td>
<td>0</td>
<td>10-13 DC</td>
<td>0</td>
<td>0</td>
<td>11 W</td>
<td>0</td>
<td>12 DC</td>
<td>0</td>
<td>3 DC</td>
<td>0</td>
<td>3 W</td>
<td>MAINS DIM</td>
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<td>0</td>
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<tr>
<td>4 WAY</td>
<td>1</td>
<td>10-29 DC</td>
<td>1</td>
<td>350</td>
<td>12 W</td>
<td>1</td>
<td>15 DC</td>
<td>1</td>
<td>5 DC</td>
<td>1</td>
<td>5 W</td>
<td>0-10V</td>
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<td>CIRCULAR</td>
<td>2</td>
<td>36 DC</td>
<td>2</td>
<td>500</td>
<td>2</td>
<td>14 W</td>
<td>2</td>
<td>22 DC</td>
<td>2</td>
<td>9 DC</td>
<td>2</td>
<td>7 W</td>
<td>DIGITAL</td>
<td>2</td>
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<td>RECTANGLE</td>
<td>3</td>
<td>48 DC</td>
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<td>700</td>
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<td>15 W</td>
<td>3</td>
<td>27 DC</td>
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<td>15 DC</td>
<td>3</td>
<td>11 W</td>
<td>RGB</td>
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<td>ENC-1</td>
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<td>4</td>
<td>900</td>
<td>4</td>
<td>16 W</td>
<td>4</td>
<td>29 DC</td>
<td>4</td>
<td>16 DC</td>
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<td>DIGITAL-A</td>
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<td>ENC-2</td>
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<td>1000</td>
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<td>20 W</td>
<td>5</td>
<td>39 DC</td>
<td>5</td>
<td>30 DC</td>
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<td>6</td>
<td>1400</td>
<td>6</td>
<td>27 W</td>
<td>6</td>
<td>54 DC</td>
<td>6</td>
<td>6</td>
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<tr>
<td>8</td>
<td>3200</td>
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<td>50 W</td>
<td>8</td>
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<td>100-203 VAC</td>
<td>9</td>
<td>0</td>
<td>9</td>
<td>100 W</td>
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</tbody>
</table>

Below is the QT LED range of lights and the Driver Part Numbers that will operate them.

**QT LED RANGE**

**QT 32, QT 34, QT 44, QT 76-14, QT 76-24, QT 76-74, QT 99-54.**

- QTD-1155221
- QTD-1155222

**QT 60-84, QT 76-21, QT 76-71.**

- QTD-11255221
- QTD-11255222

**QT 60-81.**

- QTD-11655221
- QTD-11655222

**QT 32, QT 34, QT 44, QT 76-14, QT 76-24, QT 76-74, QT 99-54.**

- QTD-28156220

**QT 60-84, QT 76-21, QT 76-71.**

- QTD-28456220

**QT 60-81.**

- QTD-28651220

The Drivers can be installed into industrial polycarbonate IP 67 enclosures.

Below is a table of dimensions in cms. to meet your requirements.

<table>
<thead>
<tr>
<th>QTD - DRIVER ENCLOSURES</th>
<th>DIMENSIONS</th>
<th>HEIGHT</th>
<th>WIDTH</th>
<th>DEPTH</th>
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<tr>
<td>202 x 122</td>
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<tr>
<td>202 x 152</td>
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<td>202 x 162</td>
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<tr>
<td>252 x 162</td>
<td>85</td>
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<tr>
<td>302 x 32</td>
<td>85</td>
<td>55</td>
<td>55</td>
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</tr>
</tbody>
</table>

**Note:** Our company manufactures special cable that connects the output from the driver to the QT LED range of lights.

The cable has been designed to meet LRS - Section 10 (Electric cables-) rules and Flame Retardant to IEC 60332-1-2. For further information please contact us.
Decorative Lights

**underwater lights limited™** also specialises in Bespoke interior and exterior lights. The lights are hand made generally from textured glass and designed to complement the interior design.

Peter Urquhart, Designer and Director of Underwater Lights Limited™ has frequently been asked to assist in the design of bespoke lights, for both land and sea applications. All production has taken place at Underwater Lights Limited™.

These designs have been installed in two Award winning Super Yachts such as M.Y. Solemar and M.Y Anna designed by Michael Leach Designs- See pictures above.

QT LED range for exterior lighting in chalets in Courchevel

QT LED Interior lighting in listed building using single flat chip technology
Don’t be fooled by imitations...if it doesn’t say “limited” on the box, it’s not one of our lights

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Fax: +44 1732 743233
Email: uwl@underwaterlights.com

underwater lights limited™
Manufacturers of the Original underwater lights™ Brand Marine Lighting Products since 1991