underwater lights limited

The art of superyacht lighting

QTS-75-HP4

FOR ALUMINIUM AND STEEL HULLS

* The **QTS-75-HP-4** underwater light insert uses a high impact **borosilicate glass** lens (Test Pressure 100 bar). The beam angle is120 degrees and the White LED has a lumen output of 25,000.
* Never feel trapped by this fixture. The **LED BALL** has universal adjustment. The **LED BALL** is designed to accept white, Blue and RGB+W configurations and can be easily removed for servicing without the hassle of hauling your boat.
* The **QTS-75-HP-4** The power supply to the driver is 110-240 vac and has DALI control as standard. We can offer a bespoke design service tailored for each individual hull.

* The **QTS-75-HP** has Lloyd's Register Approval and ABS Design Appraisal.
* The **QTS-75-HP4** is suitable for welding into steel and aluminium hulls using our two types of inserts which have been machined so they can be welded flush to the hull plating at appropriate positions.

Maintenance
Inside the Hull

Control Single Colour
Dali-Dimmable/On/Off

Driver
Remote

Lens and Pressure Test
Borosilicate Glass- 100 bar

Power
110-240 VAC - 144 watts

Installation
Weld-in

Hull Material
Aluminium / Steel

Boat Size
30 -200 meters

Lumens
25,000

Kelvin
6,500

Beam Angle
120 Deg

IPX8
Underwater

www.underwaterlights.com

THE QT-LED RANGE IS DESIGNED AND MANUFACTURED BY UNDERWATER LIGHTS LTD IN THE U.K.

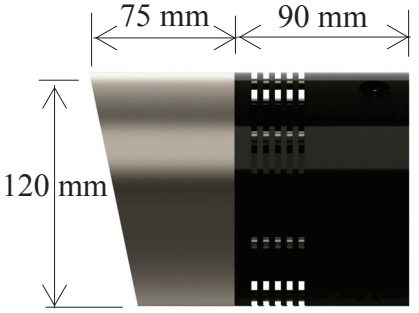
QTS-75-HP

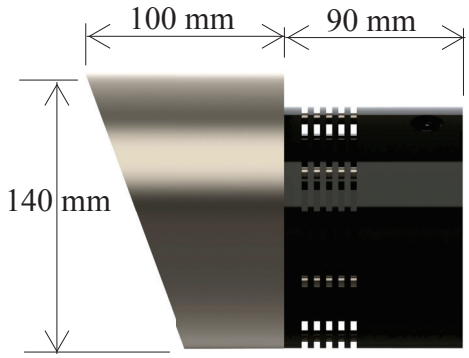
Mounting

Hull Material	Aluminium & Steel
Boat size	30 meters to 200 meters
Spacing	1.5- 2.5meters for Transom & 2.5 to 6meters for P & S)
Beam Angle	120°
Installation Angles	Flush to shell plating

Physical

Lengths and diameters see opposite	
Removal Space Required	100mm 4")
Total weight	SS: 10 - 12.7kg (21 - 28lbs) ALU: 8.2-9.1kg (18 - 20llbs
Driver Dimensions (L x W x H)	9" x 4.9" x 3.5" (220 x 120 x 90mm)
Cable Lengths	3meters (13ft) to 24 meters
Material-Weld in	5083 Aluminium / 316L Stainless Steel
Glass Lens	Borosilicate Glass Lens





Material and Part numbers for WHITE and BLUE				
Material	Diameter 120 mm		Diameter 140 mm	
316L S.S.	QTS-75-3120-W	QTS-75-3120-B	QTS-75-3140-W	QTS-75-3140-B
5083 ALU	QTS-75-6120-W	QTS-75-6120-B	QTS-75-6140-W	QTS-75-6140-B

Technical

Lumens	25,000 Lumens for white
Kelvin	6500
Typical LED Life Expectancy	40,000 hrs
Min-Max Operating Voltage	110 - 240V AC
Current / Amp draw	1.4A - 0.7A
Driver Type	External
Driver Output	96vdc-1.4A
Driver wattage	144 WATTS
Control Option	Dali
Bonding	Welded

Universal Ball Adjustment

Your Local Dealer

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E: uwl@underwaterlights.com
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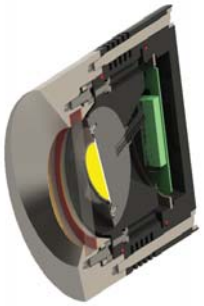
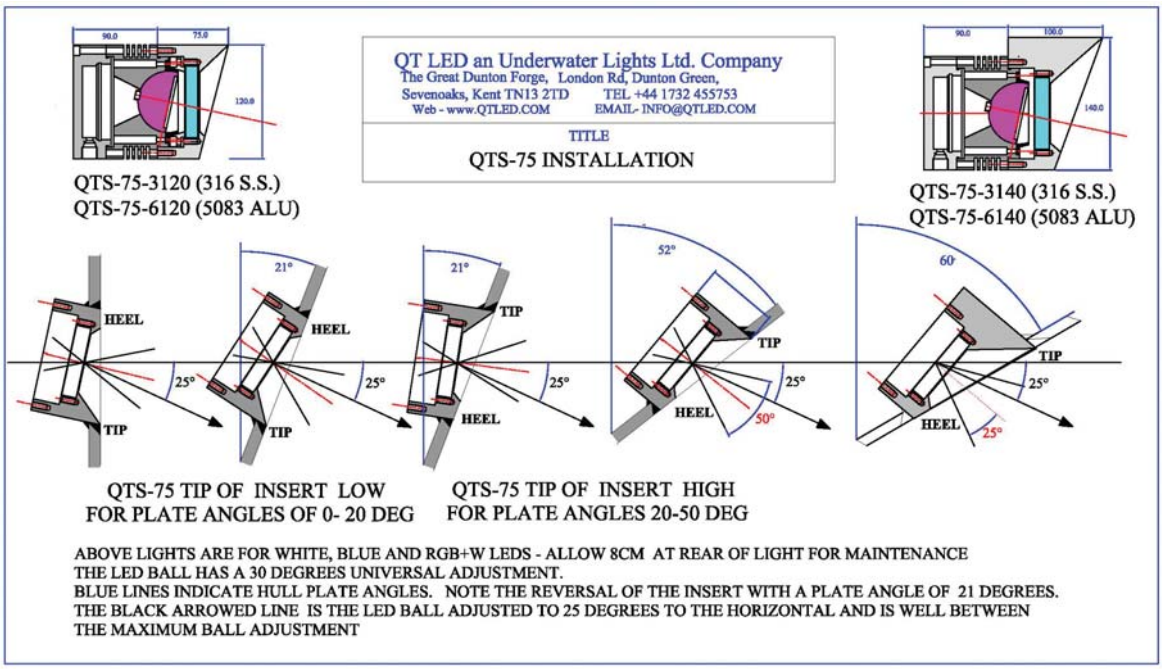
VAT NO: 556 4425 31 Registered in England No: 2348038

QTLED QTS-75

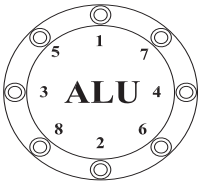


Installation information

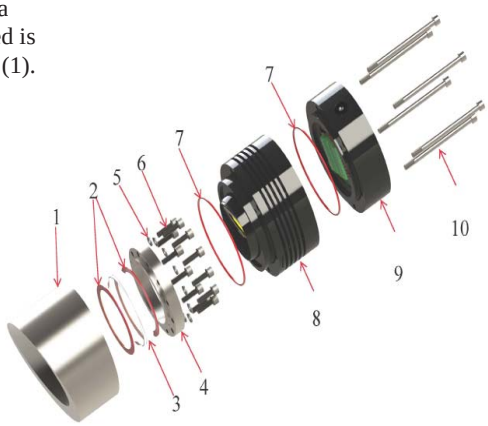
***DESCRIPTION** - The QTS-75 range is a submersible through hull marine light with a universal 30 degree ball adjustment. There are two types of insert which have been machined so they can be welded flush to the hull plating at the appropiate locations. Final adjustment of the beam angle to the horizontal is carried out from inside the hull. See instructional picture below.



*** LED PROJECTOR FITTING INSTRUCTIONS**-The LED heat sink (**8**) with the 'O'ring (**7**) fitted is inserted into the insert (1) and loosly held in place by a bolt (10) so the LED ball can be adjusted. The cover (9) with the 'O' ring fitted is inserted to the LED heat sink (8) and bolted up securing all parts to the insert (1).



Part Description	S.S. Qnty	ALU Qnty
1; Insert	1	1
2; Gaskets	2	2
3; Lens	1	1
4; Lens retaining ring	1	1
5; Spring washers	12	0
6; M6 Socket screws	12	8
7; Viton 'O' ring	2	2
8; LED heat sink	1	1
9; LED cover	1	1
10; M6 caphead bolts	6	6



*** LENS FITTING INSTRUCTIONS**-Remove the blanking plate and check the insert (**1**) lens landing surfaces are clean and apply a suitable silicone grease to the gaskets (**2**). Fit the lens (**3**), gaskets (**2**) and lens retaining ring (**4**) . Hand tighten the cap head bolts (**6**) and spring washers (S.S only **5**) making sure the lens retaining ring (**4**)is square. Torque the bolts to 7 Nm (4.5ft/lbs) in the sequence shown above. Check the ring again and re-torque the screws again to the same setting.

***DRIVER INSTALLATION INSTRUCTION** - The driver must be located at least 60 cm above tank top with good ventilation and the maximum ambient temperature should not exceed 40C. The underwater light is fitted with six meters of cable and a IP 68 plug that fits into the driver enclosure socket. For cabinet installation see separate sheets.

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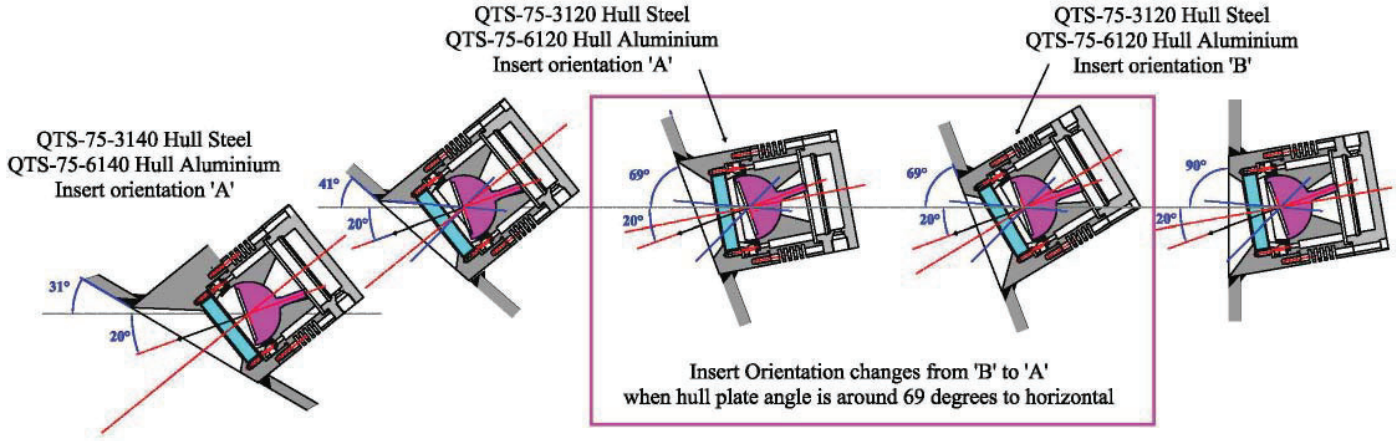
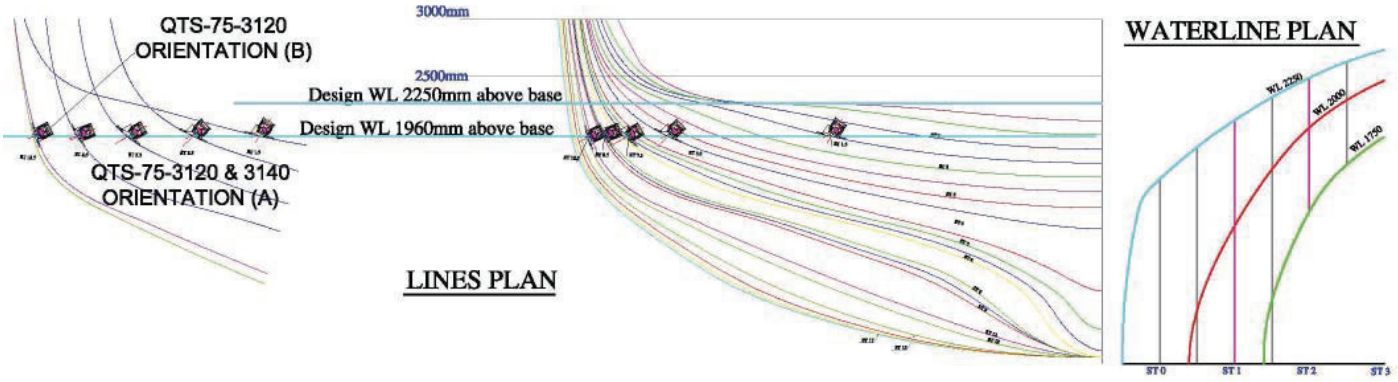
Lloyd's Register TA TYPE APPROVED

QTS-75 INSERT SELECTION

*The QTS-75 insert range of underwater lights are a dedicated LED light unlike the QT-75 insert range that can be used for metal halide (HQI) or LED.
*There are two types of QTS-75 inserts that are machined and cut ready for immediate welding into the hull shell plating without worrying about insert angles only the **orientation** of the insert relative to the plate angle.
*There are two orientations of the insert ‘A’ and ‘B’ which relate to the hull plate angle relative to the horizontal. This is explained below.
*For plate angles 69 - 90 degrees the orientation is (B) and below 69 degrees the orientation is (A)
*The light beam is simply adjusted by a universal ball mechanism inside the LED projector. This is done from inside the hull to get the correct beam angles of around 20 - 30 degrees
*The diagram below has the beam angle adjusted to 20 degrees down relative to the horizontal and the inserts are welded to the shell plate as shown below.
Note the insert orientation. The beam can also be adjusted left or right.



*The LINES PLAN below shows the curvature of the hull transverse frames and the blue horizontal lines indicate the draft where the inserts are located at a minimum of 300mm below the waterline.



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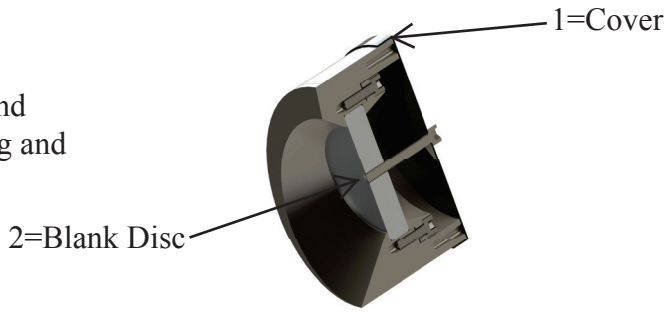
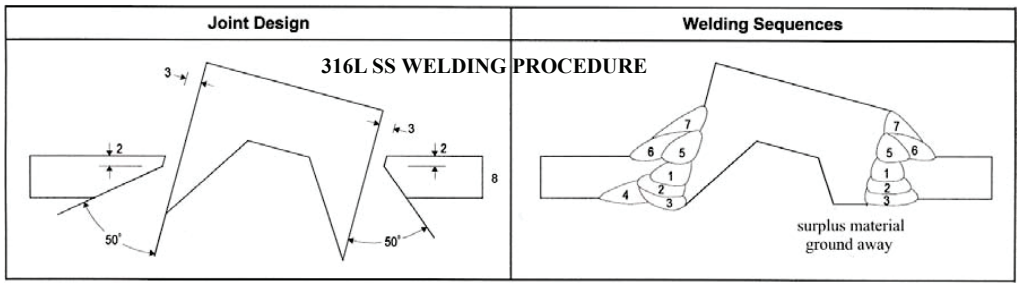
75 INSERT- WELDING, FINISHING & PROTECTION PROCEDURES.

The inserts are delivered fully protected with Cover (1) and Blank disc (2) which must not be removed during welding and painting.



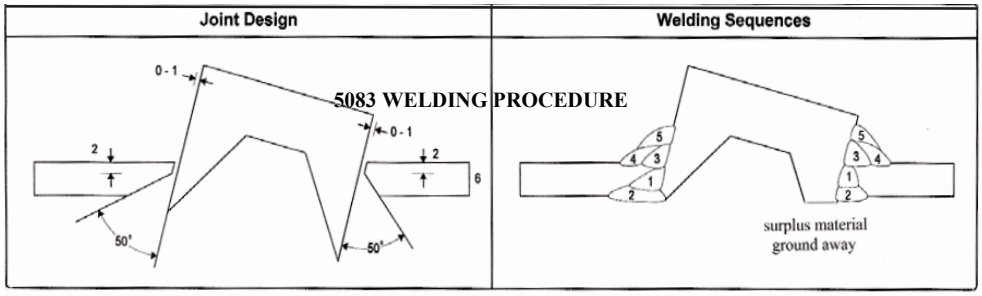
The 75 range welding procedures shown are typical for most installations and are for guidance purposes only. Always use a certified welder and a fire watch when welding. Protect all threads and internal surfaces against welding, grinding and painting.



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

Welding procedure Ref.No: UL-CSSS-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)
Fillet: Overhead |(PD), vertical up (PF) and horizontal vertical (PB)
Gas flux shielding: Acid rutile flux
Details of back gouging: Back grind root of butt
Preheat temperature: 10°C min.
Interpass temperature: 240°C max.
Temperature control: Thermal indicating crayon



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

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)
Fillet: Overhead |(PD), vertical up (PF) and horizontal vertical (PB)
Gas flux shielding: Argon gas
Gas flow rate - shielding: 20 LPM
Details of back gouging: Back grind root of butt
Preheat temperature: 10°C min.

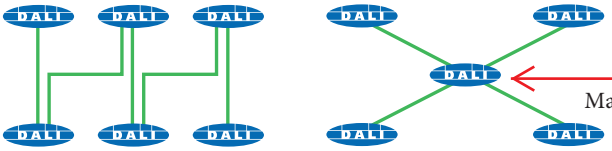
HP4 DALI AND LIGHT ELECTRICAL CONNECTIONS

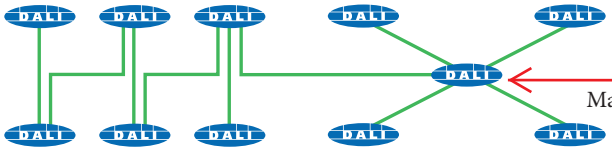
* The information below is ADVISARY only. Please check with the installer who is responsible for the design and installation of the system.

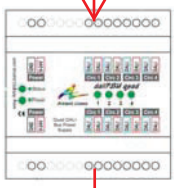
* DALI permits a combination of star and series connections using two core cable for the data connection as seen below. However if there is no decision to chose a single colour underwater light (DALI control) or RGB+W (DMX control) it would be advised to install a suitable three or four core cable that can be used for both DALI and DMX .

*Obviously there will be changes to the hardware such as drivers, LED and DMX splitters but the installed wiring can be used. Please see the DMX specification sheets.

DALI permits a combination of star and series connections, as illustrated below:



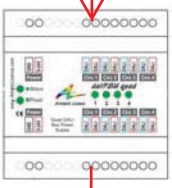




DALI CONTROL

DALI POWER SUPPLY

Maximum - 64 Lights



DALI CONTROL

DALI POWER SUPPLY

Maximum - 64 Lights

ONE QT-HP4-DALI DRIVER INSTALLED VERTICALLY FOR EACH LIGHT

POWER IN & OUT

DALI IN & OUT

To Underwater light

Series wiring may provide easier cable laying, while star configurations can offer an advantage with respect to cable length. The maximum distance between two communicating units should be 300 meters (984 feet)

Maximum system current input of 250mA. Each component connected to the interface may consume a maximum of 2mA. This must be taken into consideration when selecting the power supply. Maximum number of 64 units with an individual address.

Volyage Supply (Control)
In general, the digital interface voltage is 16V, ranging from 22.4 - 9.5V. Different units are capable of supplying the interface:
Due to the low transmission rate, there is no need to use special cables or wires such as twisted or shielded cables. As a rule, a distance of 984 feet (300 meters) should not be exceeded between two communicating units.

WIRE SELECTION
Due to the low transmission rate, there is no need to use special cables or wires such as twisted or shielded cables. As a rule, a distance of 984 feet (300 meters) should not be exceeded between two communicating units.

DISCONNECT POWER BEFORE DISMANTLING

* INPUT 110/240vac 50-60Hz.
* AMP Draw 1.4a - 0.7a
* Maximum LED wattage 150 watts
* OUTPUT Max 97 VDC