



Navigation Lights



Signalling Lights



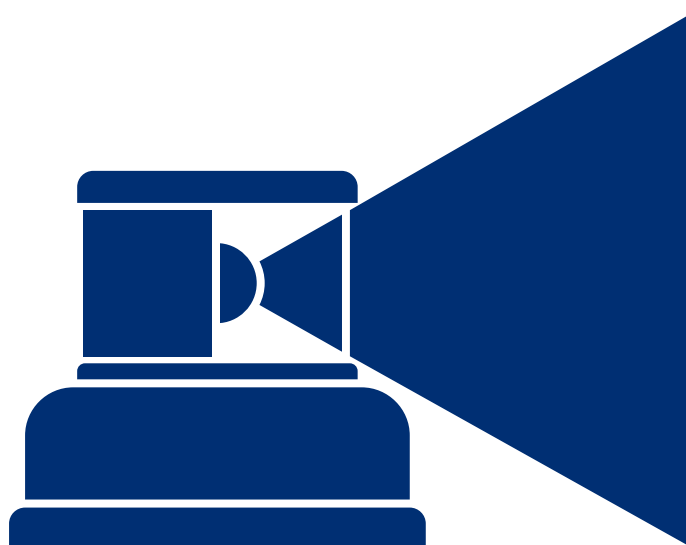
Searchlights



Whistles

TECHNICAL MANUAL

DHR80 LED



MED2014/90/EU

46 CFR 111.75-17

Den Haan Rotterdam



DISCLAIMER

Despite constant care and attention DHR puts in its manuals it is still possible that information in this manual is incomplete or incorrect.

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TECHNICAL DATA

Application:

- As Navigation light for all sea-going vessels with a length of more than 20 metres
- For all vessels used in (European) inland navigation
- UL1104 (USA): for vessels of 65 feet or more in length

In compliance with:

- Directive 2014/90/EU
- Regulation (EU) 2017/306 Annex A.1/6.1
- US Code of Federal Regulations Title 46 CFR 111.75-17

Conform standards:

- COLREG Annex I/14
- IMO Resolution A.694 (17)
- IMO Resolution MSC.253 (83)
- EN 14744 (2005) + latest amendments
- IEC 60945 (2002) + latest amendments
- UL1104 (USA) + latest revisions



EC Type Approval

- Certificate No. : 40613/A (and latest revisions)

Quality System Approval

- Certificate No. : SMS.MED2.D/47678/B (and latest revisions)



Meets UL 1104 (United States of America)

- USCG accepted laboratory: **ITL Boulder**
- Report No.: **Pending** OF CERTIFICATION-DHR80
- Date of Type-Test: -

Materials:

- Housing: Seawater resistant aluminium, hard anodised, black
- LED driver: Epoxy potted
- Screen: Seawater resistant aluminium, anodised black
- Lens: Borosilicate glass
- Base: Polyamide black

Min. visibility:

Sector lights

Starboard - bright	3NM
Port - bright	3NM
Masthead - bright	6NM
Stern - bright	3NM
Towing - bright	3NM

All-round

White - bright	3NM
Manoeuvring	5NM
Red - bright	3NM
Green - bright	3NM
Yellow - bright	3NM

Electrical insulation class:

I, (grounded) / III

Power supply:

24VDC -20% +30%

Protection class:

IP 66

life time:

50,000 Hours

Operation temperature:

-30°C up to +55°C

Mounting:

Base

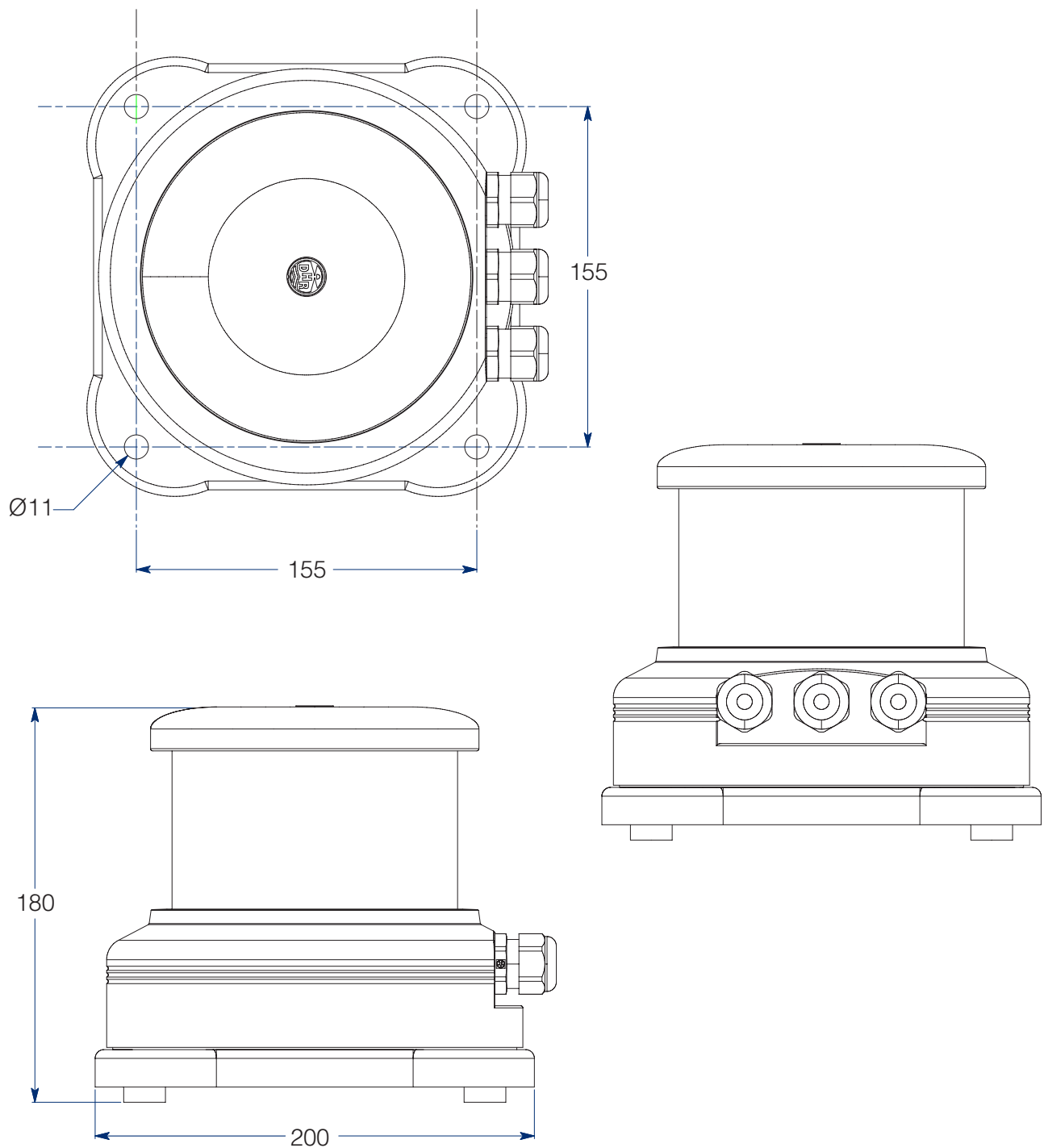
Cable entry:

Two cable glands M20x1.5, for cable diameter **6 - 9** mm

PRODUCT PHOTOS



DIMENSIONS



All dimensions in mm.

AVAILABLE MODELS

Sector lights	Min. Visibility	Colour	Nom. Power	Art. Code
Starboard	3 NM	Green	5,9 W	80.01.00.00
Port	3 NM	Red	6,1 W	80.02.00.00
Masthead	6 NM	White	17,9 W	80.03.00.00
Stern	3 NM	White	5,7 W	80.04.00.00
Towing	3 NM	Yellow	6,1 W	80.04.09.00

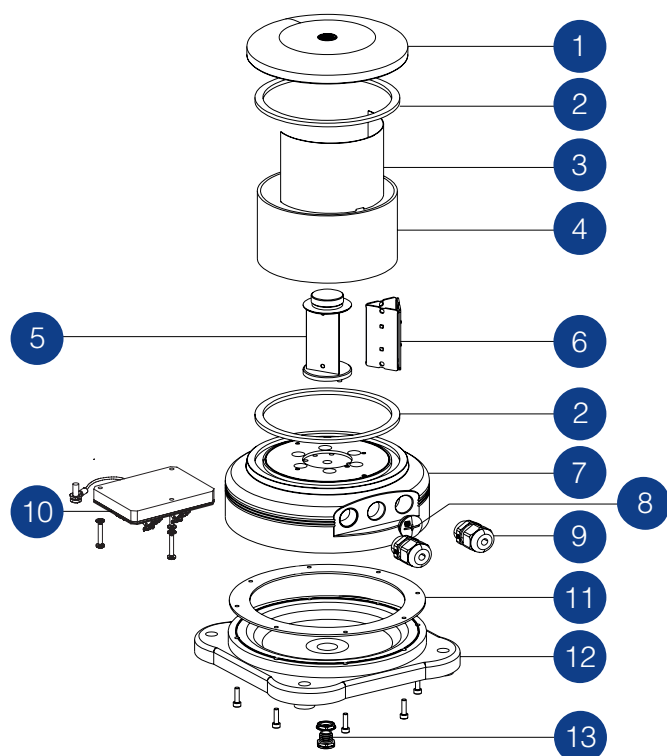
Special sector lights	Min. Visibility	Colour	Nom. Power	Art. Code
Stern - Red (Suez light)	3 NM	Red	6,0 W	80.04.07.00

All-round lights	Min. Visibility	Colour	Nom. Power	Art. Code
White	3 NM	White	5,7 W	80.06.00.00
Manoeuvring	5 NM	White	15,9 W	80.06.10.00
Red	3 NM	Red	6,1 W	80.07.00.00
Red & White	3 NM	Red/White	6,1/8,0 W	80.07.06.00
Red & Green	3 NM	Red/Green	6,1/8.2 W	80.07.08.00
Green	3 NM	Green	5,9 W	80.08.00.00

Screened light ¹⁾	Min. Visibility	Colour	Nom. Power	Art. Code
White 180°	3 NM	White	5,7 W	80.06.01.80
Red 180°	3 NM	Red	6,1 W	80.07.01.80
Green 180°	3 NM	Green	5,9 W	80.08.01.80

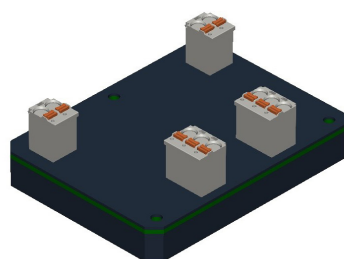
1. - Screened navigation lights should NOT be considered as an official sector navigation light, but as two navigation lights with horizontal sectors that combined form a single all round light of 360°
 - The interpretation of screened navigation lights are stipulated in IMO MSC.1/Circ.1260

EXPLODED VIEW



Item	Part	Material
1	Cover	Seawater resistant aluminium, hard anodized black
2	Gasket lens DHR80	EPDM - shore 30
3	Screen	Seawater resistant aluminium, hard anodized black
4	Glass Tube	Borosilicate glass
5	Heatsink	Seawater resistant aluminium
6	LED PCB	MC-PCB, aluminium 1.55 mm
7	Housing	Seawater resistant aluminium, hard anodized black
8	Plug M20x1,5	Polyamide
9	Gasket 28x20x1,5	PTFE
9	Cable gland M20x15	Body: Polyamide Seal: Neoprene
10	Gasket 28x20x1,5	PTFE
10	LED driver	Potting material: Polyurethane
11	Base plate gasket	NR/SBR - shore 70
12	Base plate	Polyamide black
13	Membrane Vent	Body: Polyamide Membrane: ePTFE

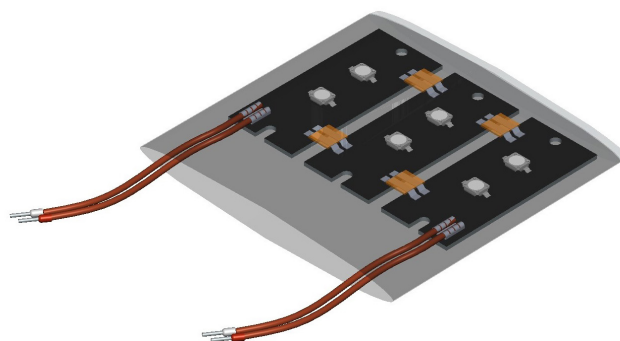
REPAIR KIT



LED-Driver



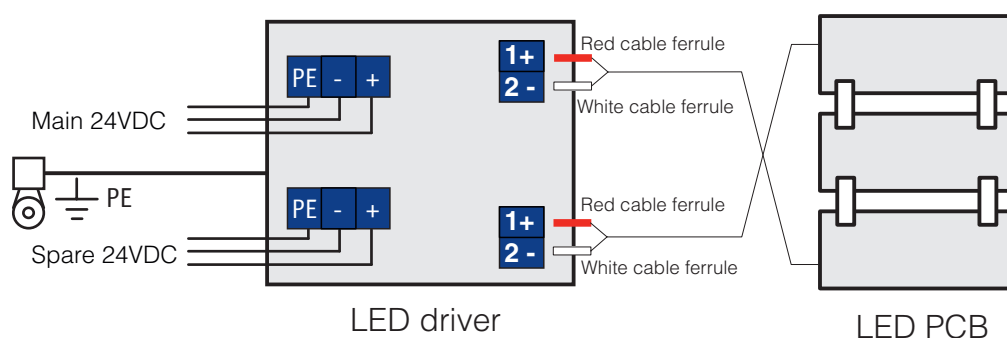
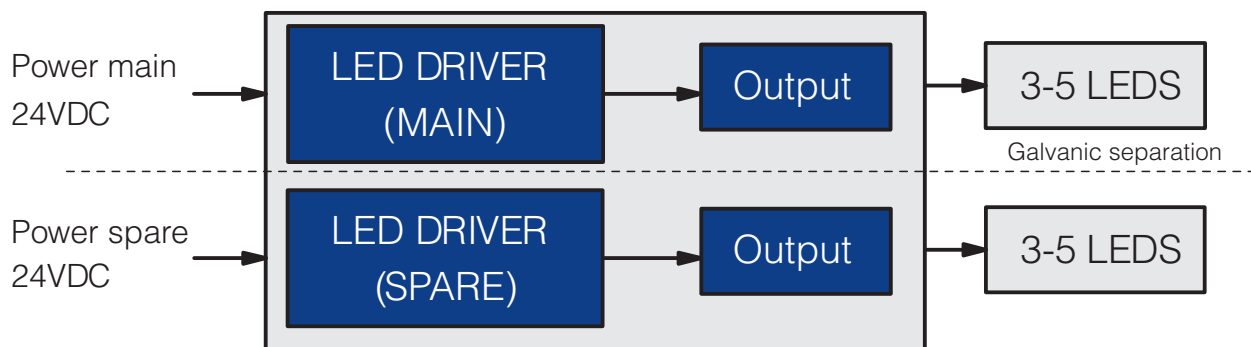
Gasket Lens DHR80 (2x)



LED MC-PCB

Item	Navigation light	Description	Number
A	Starboard All-round green	Maintenance kit for: green	80.99.00.30
B	Port light Stern Red All-round red	Maintenance kit for: red	80.99.00.31
C	Masthead	Maintenance kit for: white 6NM	80.99.00.32
D	Stern All-round white	Maintenance kit for: white 3NM	80.99.00.33
E	Towing light All-round yellow	Maintenance kit for: yellow	80.99.00.34
F	Manoeuvring light	Maintenance kit for: Manoeuvring	80.99.00.36
G	All-round Red & White	Maintenance kit for: Red & white	80.99.00.37
H	All-round Red & Green	Maintenance kit for: Red & Green	80.99.00.38

ELECTRICAL SPECIFICATION

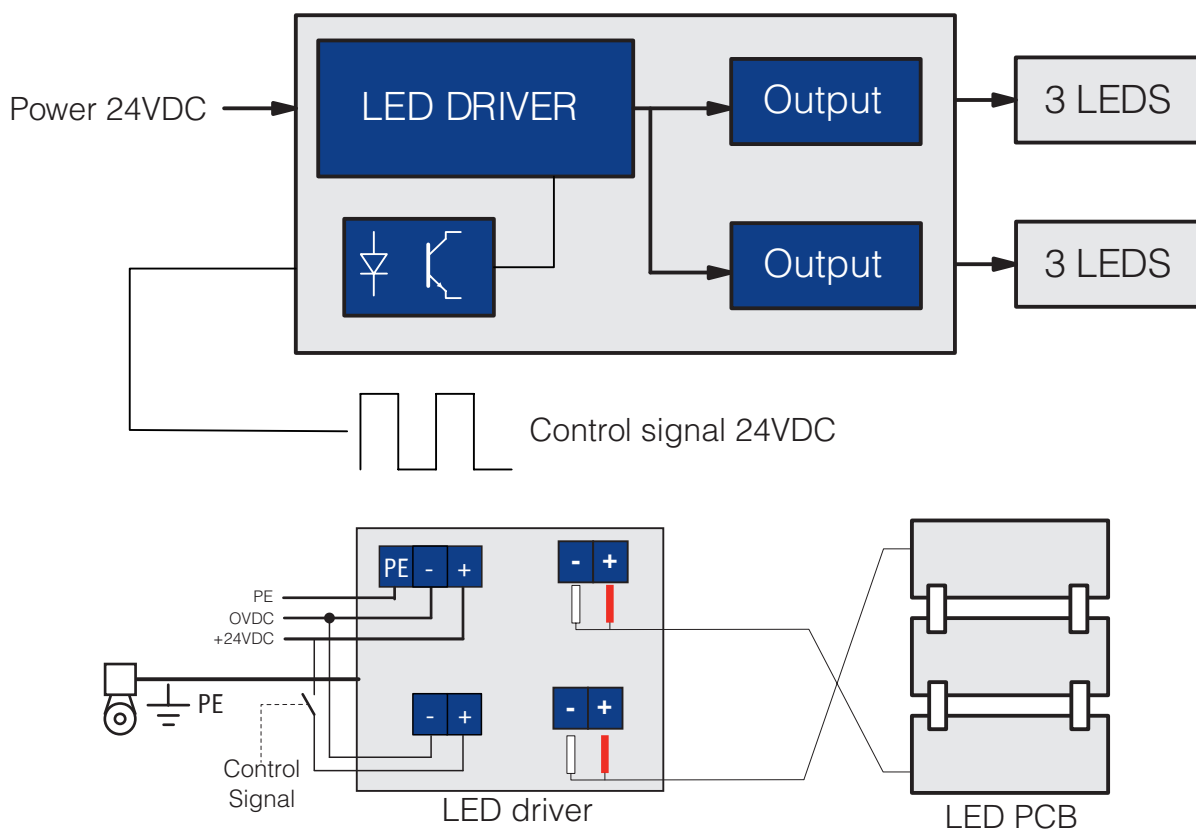


Grounding (PE) is not required, but gives better ESD/EMI protection

Navigation light	Power supply	Nominal voltage	Typical wattage*	Typical current*	Minimum operating current	Error current	Inrush current
Starboard	500 mA	24 VDC	5,9 W	244 mA	>40 mA	<10 mA	20 A
Port	700 mA		6,1 W	248 mA			
Masthead	1000 mA		17,0 W	744 mA			
Stern	500 mA		5,7 W	235 mA			
Stern red (Suez light)	700 mA		6,1 W	248 mA			
Towing	700 mA		6,0 W	248 mA			
All-round white	500 mA		5,7 W	235 mA			
All-round green	500 mA		5,9 W	244 mA			
All-round red	700 mA		6,1 W	248 mA			
All-round Red & White	700 mA		6,1/8,0 W	248/331 mA			
All-round Red & Green	700 mA		6,1/8,2 W	248/340 mA			
All-round yellow	700 mA		6,0 W	248 mA			

* Depends on temperature and LED production series

ELECTRICAL SPEC. MANOEUVRING LIGHT



Grounding (PE) is not required, but gives better ESD/EMI protection

Navigation light	Power supply	Nominal voltage	Typical wattage*	Typical current*	Minimum operating current	Error current	Inrush current
Manoeuvring	700 mA	24 VDC	15,9 W	662 mA	>40 mA	<10 mA	40 A

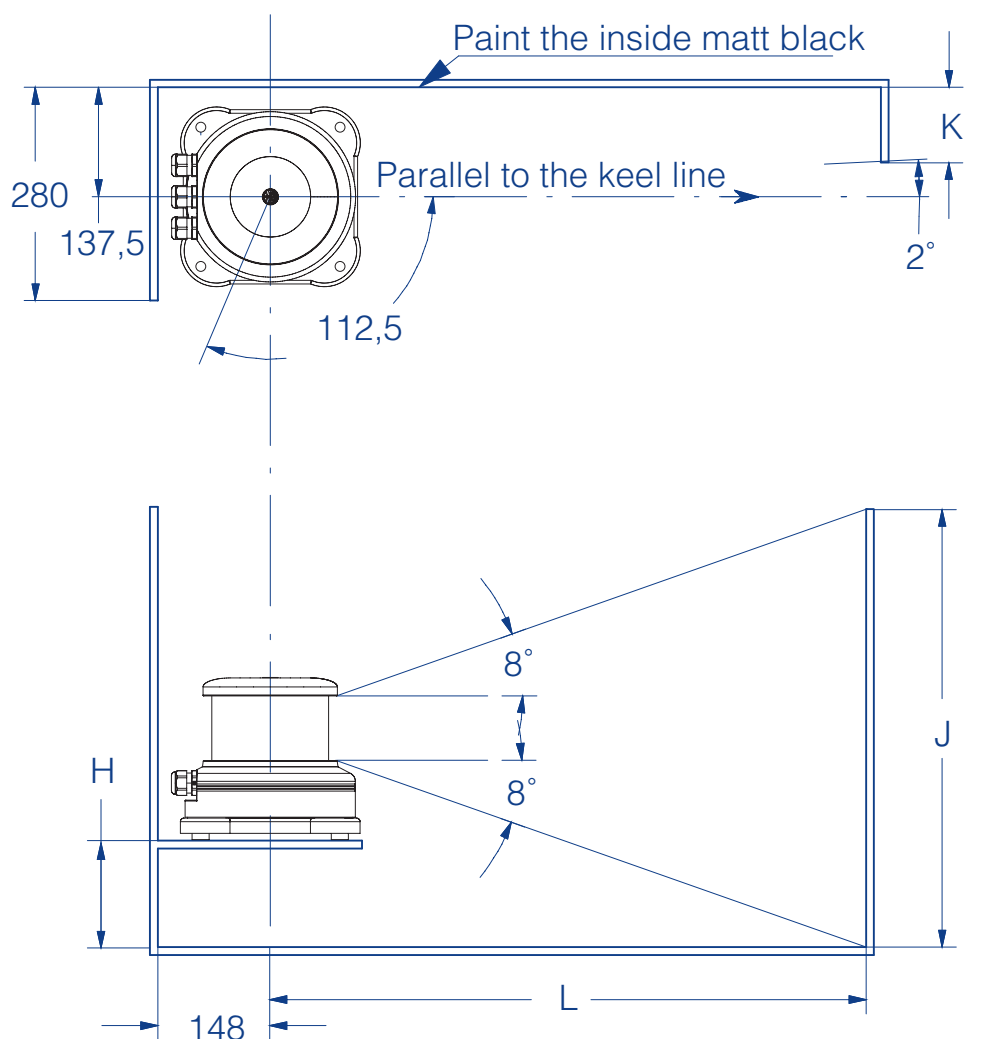
* Depends on temperature and LED production series

LIFETIME CONTROL

Measurements of the navigation light and specifications retrieved from the OEM, show a conformity with the minimum requirements of COLREG 72 at an operational lifetime of 50000 hrs. To guarantee a proper use of the LED navigation lights, we as a manufacturer advise the following:

- Use the navigation light in combination with a DHR-specified control system, which monitors the status and operational life time of each individual navigation light
- Each navigation light needs to undergo a quality check at least every 5 years of use to verify it still meets the requirements of COLREG 72

POSITIONING SIDE LIGHTS



L	H	K	J
460	0	122	220
500	0	121	225
600	10	118	250
700	20	113	275
800	30	110	300
910	50	106	335

[mm]

Disclaimer:

- The minimum luminous intensity requirements in the forward direction are only guaranteed if the side-lights are mounted in accordance with this drawing and table.
- This is an illustration to indicate the dimensions of the inboard screens, relative to the keel line of the vessel. By no means may this image be used to determine the position of the sidelights on the vessel. For positioning the lights at the vessel always check for compliance with COLREG 72 or local rules.

POSITIONING ALL-ROUND LIGHTS

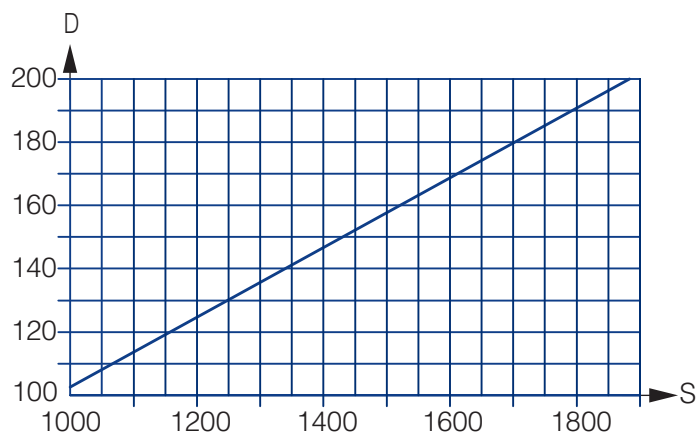
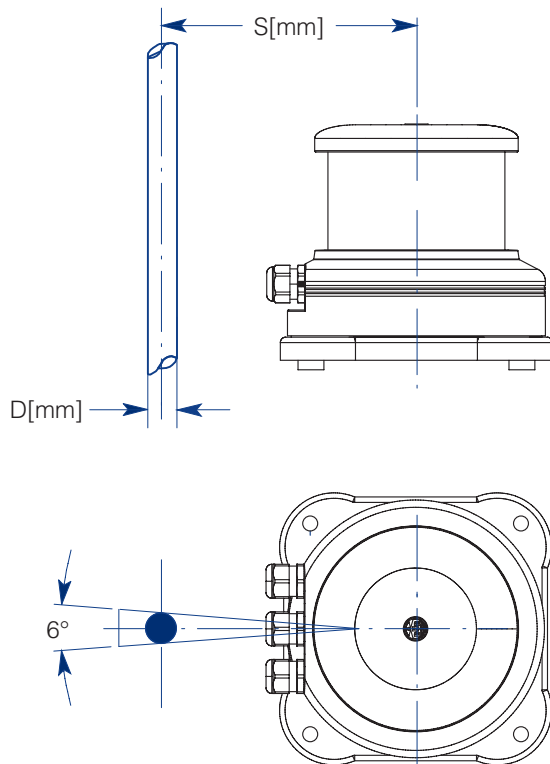
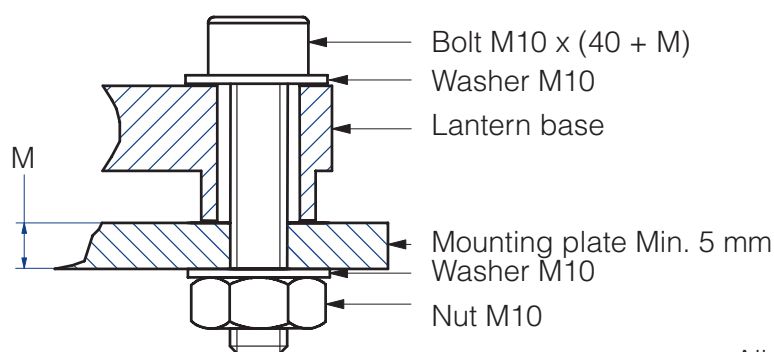


Diagram for choosing the minimum distance between obstacle and mounting plate.

Disclaimer:

This is an illustration to indicate the position of the all-round light so not to be obscured by mast, topmasts or structures within the angular sector of more than 6 degrees. By no means may this image be used to determine the position of the all-round lights on the vessel. For positioning the lights on the vessel always check for compliance with COLREG 72 or local rules.

MOUNTING INSTRUCTIONS



All dimensions in mm

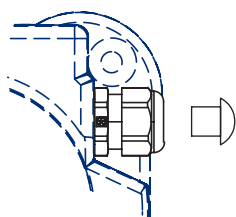
Mounting plate

The mounting plate for navigation lights should be at least 5 mm thick and should not exceed a parallelism of // 00,5.

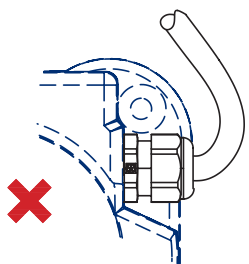
Fasteners

- The permissible torque should be 8 Nm
- Use only A4-grade stainless steel

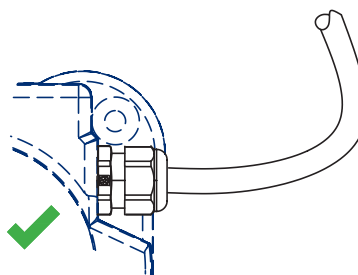
Cable glands



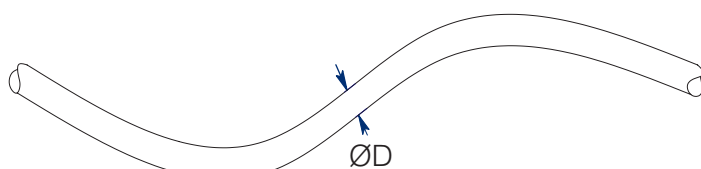
Remove the plug before placing the cable.
If no cable is connected leave the plug in place!



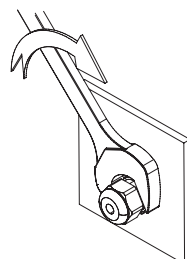
Cable too tight!
This gives unwanted stress at the sealing of the cable gland and water ingress will occur.



Include cable slack at the entering point of the cable gland



Preferred cable diameter D is 6 - 9 mm



Replacing cable gland

- Use gasket between housing and cable gland
- Tighten firmly (6Nm) with wrench

Important

Do not paint or use any other chemical for the lanterns, clean only with fresh water.



Wiring recommendations

EU:

- Neoprene cable H07 RN3x1.5
- Cable diameter 6 - 9 mm

USA:

- Type SJ or equivalent and comply with UL 62 and IEEE 45- 83
- Wire gauge 16 AWG
- No. of conductors 3
- Cable diameter 6 - 9 mm

ADVANCED MARITIME SIGNALLING SOLUTIONS



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