

INSTRUCTION MANUAL

Shark Series

Industrial LED floodlight, one manual for the whole series:
the Shark in AC with the remote driver, and the Shark in 24 V and in 48
V DC with the drivers on board.

DOCUMENT

MAN-SHS-EN

REVISION

1

DATE

07 / 09 / 2026

LANGUAGE

EN



Read before installation

Keep for future use

Qualified personnel only

SHAC01

SHDC01 · 24 V

SHDC02 · 48 V

Contents

This manual covers the whole Shark Series. Most of what follows applies to every version, because the housing, the bracket and the optics are shared. Where a section applies to one version only, the version is named in the heading or in the row.

BEFORE YOU START

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WHICH VERSION DO YOU HAVE

Code on the label	Version
SHAC01	Shark AC, 320 W, remote BLD320 or TLD320
SHDC01	Shark DC 24 V, 20 to 35 VDC, drivers on board
SHDC02	Shark DC 48 V, 35 to 60 VDC, drivers on board

The three look identical from the front. The label on the rear of the housing tells them apart, and so does the tail: four cores on AC, two on DC. Section 2.5 explains the label, including the second code that is not an article number.

PRODUCT PAGE



Photometric files per optic, drawings, the datasheet and the current version of this manual.

jelproducts.nl/en/products/shark

KEEP THIS MANUAL

Store it with the site or machine documentation and pass it on to every person who works on the luminaire.

1 About this document

Read this manual and understand its safety instructions before you install, operate or maintain the luminaire. Failure to do so can result in serious injury or death.

1.1 Who this document is for

This manual is written for the buyer, the installer, the machine builder, the maintenance technician and the end user. Assembly, installation, commissioning and maintenance may only be carried out by a qualified person: someone with electrical training who can recognise the risks described here and avoid the hazards that arise during the work.

Every person who works on the luminaire must have read these warnings and must follow them. Keep the manual for the service life of the installation.

1.2 Hazard classes

Safety information in this manual is graded. The class tells you how serious the consequence is if the instruction is ignored.

DANGER

A hazard with a high level of risk which, if not avoided, will result in death or serious injury.

WARNING

A hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

CAUTION

A hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

NOTE

Information that matters for a correct result but that is not related to a hazard.

1.3 Symbols



Electrical hazard

Live parts. Isolate the supply before working on the luminaire.



General hazard

Described in the text beside the symbol.



Optical radiation

Do not look into the operating light source.



Hot surface

The housing and the driver run warm in service.



Crush hazard

Moving parts during mounting and aiming.



Two persons

This step must be carried out by two people.



Read the manual

Read and understand it before use.



Protective earth

Terminal for the protective earth conductor.



CE marking

Complies with the applicable European legislation.



Separate collection

Not unsorted municipal waste.

1.4 Feedback

The latest version is on the product page. If you find an error, write to info@jelproducts.nl. We would rather correct a sentence than have an installer guess.

1.5 Revision history and what this edition replaces

The Shark has been supplied with the DCbright operating instruction of 22 April 2024, one document for every version. **This edition supersedes it.** Where they disagree, this manual applies.

Date	Revision	Change
22 April 2024	-	DCbright Operating Instruction Shark Series, nine pages, SH-66 320AC, SH-66 320DC and SH-120 160-240NOP. Superseded
7 September 2026	1	First edition of the JEL Products manual, AC, DC 24 V and DC 48 V in one document, to the JEL Products manual standard. Corrected against the 2024 instruction: the ambient range is minus 45 to plus 50 degrees Celsius, the service life is TM-21 L90B05 above 360,000 h and not the LM80 figure printed there, the wide optic is 69 degrees, the hazard distance is given per optic in section 4.3, and the driver box is an ordered item and not part of every AC delivery

2 The product

The Shark is the second generation of the JEL heavy duty floodlight line: 50,000 lumens from 320 W in a cast aluminium housing rated IP69K and IK10, on a 316L bracket that is shock rated to 200 G. It is built on thirteen years of Barracuda experience in mining, and it is lighter per lumen. It is the floodlight for machines, cranes, mobile masts and DC supplies.

2.1 The three versions

Same housing, same bracket, same optic set. What differs is the supply and where the driver sits.



Shark AC. 90 to 305 or 180 to 528 VAC with a remote BLD320 or TLD320 driver, bare or in a driver box. SHAC01



Shark DC 24 V. 20 to 35 VDC, drivers on board, for machines, vessels and mobile light towers. SHDC01



Shark DC 48 V. 35 to 60 VDC, drivers on board, for large electric cranes on a 48 V supply, with no inverter in the chain. SHDC02

	Shark AC	Shark DC 24 V	Shark DC 48 V
Article base code	SHAC01	SHDC01	SHDC02
Luminous flux	50,000 lm	46,000 lm	46,000 lm
Power	320 W	320 W	320 W
Efficacy	156 lm/W	144 lm/W	144 lm/W
Supply	90 to 305 VAC via BLD320, 180 to 528 VAC via TLD320	20 to 35 VDC, 24 V nominal, 13.4 A	35 to 60 VDC, 48 V nominal, 6.7 A
Driver	Remote, bare or in a DRB-1 or DRB-2	On the board in the housing	On the board in the housing
Housing	Cast aluminium, less than 0.08 per cent copper, e-coated Titanium Black, or Marine White on request		
Front	Polycarbonate IK10 as standard, chemically hardened glass IK09 on request		
Bracket	High tensile 316L stainless steel, fully rotatable through 360 degrees in 30 degree steps, shock rated to 200 G		
Optics	14 degree spot, 38 and 69 degree symmetric, 14 × 46 degree flare, or without optics at 120 degrees. Combinations in one luminaire possible		
Termination	H07BQ-F 4 cores, 2 × 2.5 plus 2 × 0.5 mm ² , 2.0 m, free ends	H07BQ-F 2 × 2.5 mm ² , 2.0 m, free ends	H07BQ-F 2 × 2.5 mm ² , 2.0 m, free ends
Ingress and impact	IP66, IP67, IP68, IP69K · IK10 with polycarbonate, IK09 with glass		
Ambient	minus 45 to plus 50 °C		
Weight, with bracket	9.2 kg, 10.35 kg with the loose driver, 13.4 kg with a DRB-1	9.2 kg	9.2 kg
Warranty	5 years on the complete luminaire		

The DC versions share their optics with the AC version, so one lighting calculation serves a mixed site; only the flux differs. There is no 316L and no high temperature Shark. That is deliberate: the Barracuda fills both, in 316L and to plus 120 degrees Celsius, on the same accessory line.

2.2 Intended use

The Shark is intended for permanent professional installation as area and task lighting, outdoors or indoors, within the ambient temperature range and the supply range of the version you have. It is mounted on a mast, a bracket, a crane boom, a machine or a structure capable of carrying its weight, its wind load and, on mobile plant, its shock load, and is aimed according to a lighting design. Typical applications:

Version	Where it is used
Shark AC	Mobile light towers including the 2Axle units, reach stackers and straddle carriers, mobile crushing and screening plant, drilling rigs and workover rigs, crane booms with the Crane Light Stabilizer, container terminals and stacking yards, quays, jetties and ro-ro ramps, bulk terminals and stockpiles, outdoor storage and log yards, heavy vehicle yards, perimeter and high mast lighting
Shark DC 24 V	Mining haul trucks, excavators and loaders, vessels and workboats with a DC supply, forestry, agricultural and winter service machines, battery and solar powered temporary lighting, standby and emergency circuits on a DC supply, offshore installations in Marine White
Shark DC 48 V	Large electric cranes on a 35 to 60 V DC supply, ship to shore and RTG crane booms, 48 V vehicle and vessel systems, DC/DC converter fed boom lighting, where the alternative is an inverter and a mains luminaire on a moving boom

2.3 What the luminaire is not for

The following uses are outside the intended use. They are not covered by the warranty and, in several cases, they are unsafe.

- **Explosive atmospheres.** No Shark is ATEX or IECEx certified. None may be installed in a zoned hazardous area.
- **Mains on a DC version, or a battery supply on an AC version.** The three versions are the same housing. Only the type label and the tail tell them apart.
- **Mains directly into any Shark.** On the AC version mains goes to the remote driver. The luminaire itself is a 50 V device.
- **48 V on the 24 V version, or 24 V on the 48 V version.** SHDC01 stops at 35 V and is destroyed above it; SHDC02 does not light below 35 V.
- **Ambient above plus 50 degrees Celsius.** There is no high temperature Shark. For process heat use the Barracuda HT.
- **Permanent immersion.** IP68 is verified as a test class, not as a continuous operating condition. IP69K covers washdown, not submersion.
- **Permanent salt exposure beyond C5.** Marine White is a colour, not a stainless housing. For offshore and chemical plant use the Barracuda SS.
- **Road lighting or any position where the cut off matters.** The Shark is a controlled floodlight. Where a site borders houses or a protected zone, the DarkLight range is the correct answer.
- **Consumer, decorative or domestic lighting.**
- **Emergency or escape route lighting from an internal battery.** No Shark has battery back up or a self test. A DC Shark can be fed from a standby or emergency DC circuit, but the battery is in that circuit, not in the luminaire.
- **Direct mounting against thermal insulation or a closed ceiling.** A minimum of 75 mm clear space behind the fin field is required.
- **Operation with a damaged front, housing, bracket or tail, or on the AC version with a driver other than the BLD320 or TLD320 supplied.**

2.4 Order codes

SHAC01-65K.38

SHAC01	Shark AC, 320 W, remote BLD320 for 90 to 305 VAC or TLD320 for 180 to 528 VAC
SHDC01	Shark DC 24 V, 320 W, 20 to 35 VDC
SHDC02	Shark DC 48 V, 320 W, 35 to 60 VDC
65K to 22K	6500, 5000, 4000, 2700 K, amber 2200 K. 6500 K delivers the same flux as 4000 K
BIC	Bi-colour 4000 K with amber 2200 K, switched in operation, section 9.3
.14.38.69.14x46	Optic. Combinations within one luminaire are possible and are stated at quotation
.NOP	Supplied without optics, 120 degrees

Power is a driver setting on the AC version: a lower wattage is ordered as an extra suffix. DC versions run at a fixed constant current, so another power level there is a custom build. Marine White, the glass front, the bracket type, the control protocol, the cable length beyond 2.0 m and the Ra 80 or Ra 90 option are confirmed at quotation and are not part of the code. High voltage DC between 250 and 740 V is available on request.

NOTE, THE 48 V CODE

The Shark datasheet of August 2026 prints SHDC01 for both DC versions. The 48 V version is **SHDC02**, as our product specification and our photometric files carry it; the datasheet is being corrected. Read the supply range on the label, not the code alone.

2.5 The type label, and the second code on it

The type label on the rear of the housing carries the article code, the electrical data, the protection class, the ingress rating and the serial number, and on the AC version the driver carries a label of its own. Both also show a **second code that is not an article number and that will not match what you ordered**. That is correct and it is deliberate.

NOTE

The second code is a JEL Products internal production code, such as SH-66 320DC-OP. It records the specific printed circuit board fitted, the production batch and the production date. We use it for traceability, for warranty and for service. It carries no information you need in order to specify, order or reorder a luminaire.

When you contact us about a luminaire, quote both. The article code tells us what it is. The internal code tells us exactly which one it is, which board is in it and when it was built. **Photograph the label before you fit the luminaire:** on a mast it is out of reach.

WARNING, THREE VERSIONS, ONE HOUSING

SHAC01, SHDC01 and SHDC02 are the same housing and the same bracket. From the front nothing tells them apart. **Read the label and look at the tail:** four cores is the AC version, two cores is DC, and only the label says whether that DC luminaire wants 24 or 48 V.



The rear of the Shark: the fin field, the cable gland in the centre and the 316L bracket

3 Technical data

All values apply to the standard configuration at 6500 K and 25 degrees Celsius ambient, including lens losses and driver consumption. A hyphen means the entry does not apply to that version.

	Shark AC SHAC01	Shark DC 24 V SHDC01	Shark DC 48 V SHDC02
PERFORMANCE			
Luminous flux	50,000lm	46,000lm	46,000lm
Power consumption	320 W	320 W	320 W
Efficacy	156lm/W	144lm/W	144lm/W
Colour temperature	6500, 5000, 4000, 2700 K, amber 2200 K, and bi-colour 4000 K with amber 2200 K		
Colour rendering	Ra above 70 standard, Ra 80 or Ra 90 on request. MacAdam step 3 or better		
Optics	14 degree spot, 38 degree medium, 69 degree wide, 14 × 46 degree flare, or without optics 120 degrees. Combinations possible		
Upward light output ratio	0 per cent at nil tilt		
ELECTRICAL AND DRIVER			
Supply voltage range	90 to 305 VAC via BLD320, or 180 to 528 VAC via TLD320, 50 or 60 Hz	20 to 35 VDC, 24 V nominal	35 to 60 VDC, 48 V nominal
Current draw	2.9 A at 110 V, 1.5 A at 220 V, 0.9 A at 380 V	13.4 A at 24 V	6.7 A at 48 V
Driver	Remote BLD320 or TLD320, 225 × 68 × 38.5 mm, 1,120 or 1,150 g. Both fit the DRB-1	DC drivers on the board	DC drivers on the board
Driver case temperature and life	Tc minus 40 to plus 90 °C. Above 100,000 h at Tc 75 °C, MTBF above 280,000 h	-	-
Power factor and THD	Above 0.95 with BLD320, above 0.9 with TLD320. THD below 15 per cent at 60 to 100 per cent load	-	-
Inrush current at 220 V	BLD320: 31.2 A peak, T50 1.3 ms. TLD320: 64 A peak, T50 400 μs	-	-
Luminaires per MCB, B16 · C16 · C25 · D16	BLD320: 2 · 4 · 7 · 8. TLD320: 4 · 7 · 11 · 8	-	-
Surge protection	6 kV line to line, 10 kV line to earth, IEC 61000-4-5	Surge and reverse polarity protected on the board	Surge and reverse polarity protected on the board
Leakage current	0.7 mA maximum, IEC 60598-1	-	-
Dimming	0 to 10 V, PWM, DALI-2, or set over NFC on the driver	On request	On request
Cable and termination	H07BQ-F, 4 cores, 2 × 2.5 plus 2 × 0.5 mm², 2.0 m, free ends	H07BQ-F, 2 × 2.5 mm², 2.0 m, free ends	H07BQ-F, 2 × 2.5 mm², 2.0 m, free ends

Luminaires per MCB is the manufacturer figure on an ABB S200 at 220 V, a guide for engineering and not a substitute for the installation calculation. A bi-colour or high CRI build changes the luminous flux, and the quotation states the figure that applies. Cable lengths beyond 2.0 m are supplied on request.

3 Technical data, continued

All versions

CONSTRUCTION

Housing	Cast aluminium, less than 0.08 per cent copper
Surface finish	Conversion layer plus two layer titanium-based e-coating, Titanium Black. Marine White on request, a colour and not a separate version
Bracket	High tensile 316L stainless steel, rotatable through 360 degrees in 30 degree steps on a twelve hole index ring, shock rated to 200 G
Front	UV resistant polycarbonate IK10 as standard, chemically hardened glass IK09 on request
Protection class	Class II
Ingress protection	IP66, IP67, IP68 and IP69K, each class tested separately, so IP69K does not imply IP68
Impact resistance	IK10 with polycarbonate, IK09 with glass, IEC 62262
Vibration and shock	6 G at the resonant frequency, IEC 60068-2-6. Shock tested to IEC 60068-2-27. Bracket rated to 200 G
Corrosion class	C5 industrial and marine, ISO 9223

DIMENSIONS, LIFE AND WARRANTY

Dimensions, from the drawing	Luminaire 335 × 350 × 90 mm. With the standard bracket 338.2 mm wide, 349.2 mm high, 102.2 mm deep over the bracket. Foot 319.2 × 87.5 mm, section 3.1
Weight	9.2 kg with the bracket. AC: 10.35 kg with the loose driver, 13.4 kg with the driver in a DRB-1
Ambient temperature	minus 45 to plus 50 degrees Celsius
Storage temperature	minus 45 to plus 50 degrees Celsius, dry, in the original packaging
LED service life, TM-21 L90B05	above 360,000 h at 50 °C, so on the AC version the driver is the wear part
Warranty	5 years on the complete luminaire

WHERE THE DRIVER IS

On the DC versions there is nothing outside the luminaire at all: the drivers sit on the board, with reverse polarity and surge protection, and the machine or the crane gets one sealed component on a two core tail. On the AC version the driver is a separate BLD320 or TLD320, joined to the luminaire by the four core tail. It is supplied bare, or in a DRB-1 or DRB-2 driver box, and it lives outside the wash zone. The LEDs outlive three drivers, and the driver is replaced without opening the housing: a driver fault is a ground level job instead of a lift and a dismantled luminaire.

NOTE, 48 V DC, WHICH ALMOST NOTHING ELSE OFFERS

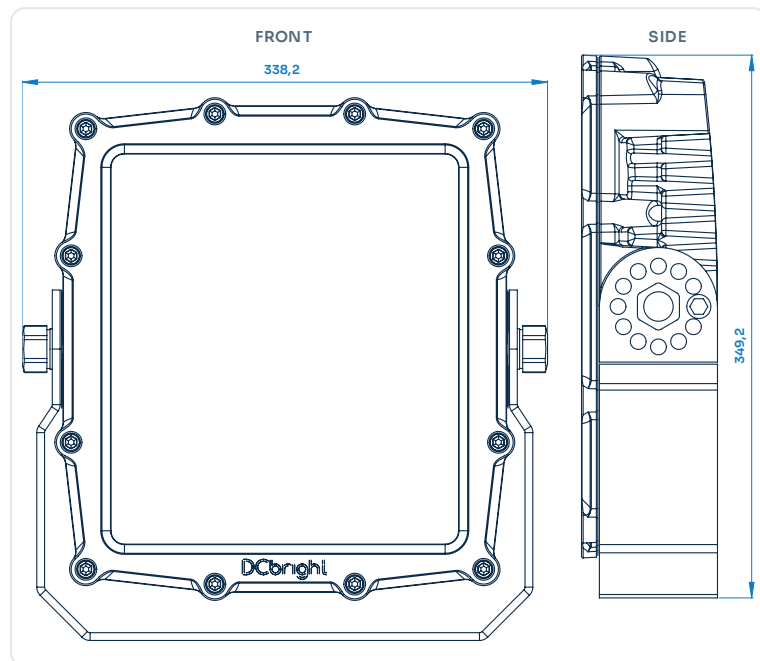
Large electric cranes run at 35 to 60 V DC. The Shark 48 V delivers 46,000 lumens on that supply directly, with no inverter in the chain and half the current of the 24 V version, which is what makes a 40 m boom run feasible in 4 mm². Section 7.7 has the worked example.

THREE THINGS THIS RANGE DOES NOT DO

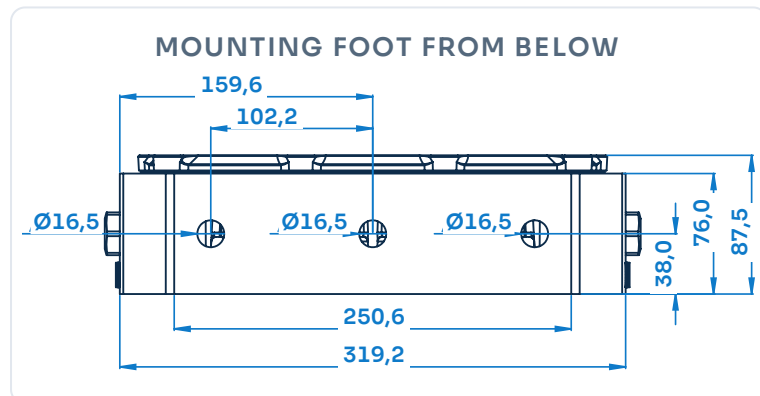
316L housing	Not available on the Shark. For permanent salt and process chemistry take the Barracuda SS
High temperature	No HT version. Above plus 50 degrees Celsius take the Barracuda HT
12 V	The 24 V version stops at 20 V. For a 12 V machine take the Piranha 6 or the Goby

3.1 Dimensions, weight and wind load

All drawings are dimensioned in millimetres and are taken from the production drawing DCB-SH-66. DXF and STEP models are available on request. The figures below are what the structural engineer needs: they determine the bracket, the mast and the bolt size.



Shark with the standard bracket, front and side. 338.2 mm wide over the pivot bolts, 349.2 mm high on its foot, 102.2 mm deep over the bracket. The twelve hole index ring is on the side of the arm



The mounting foot from below: 319.2 × 87.5 mm, three holes of Ø 16.5 at 250.6 mm between the outer centres, 38 mm from the rear edge

DIMENSIONS, FROM THE DRAWING

Luminaire	335 × 350 × 90 mm
With the standard bracket	338.2 × 349.2 × 102.2 mm

MOUNTING INTERFACE

Mounting foot	319.2 × 87.5 mm
Fixing holes	3 × Ø 16.5 mm, for M16
Hole centres	250.6 mm between the outer holes, 38 mm from the rear edge
Adjustment	360 degrees in 30 degree steps
Shock rating, bracket	200 G

WEIGHT

Luminaire with bracket	9.2 kg
Plus loose driver, AC	10.35 kg
Plus driver in DRB-1, AC	13.4 kg

WIND LOAD, CALCULATED FROM THE ENVELOPE

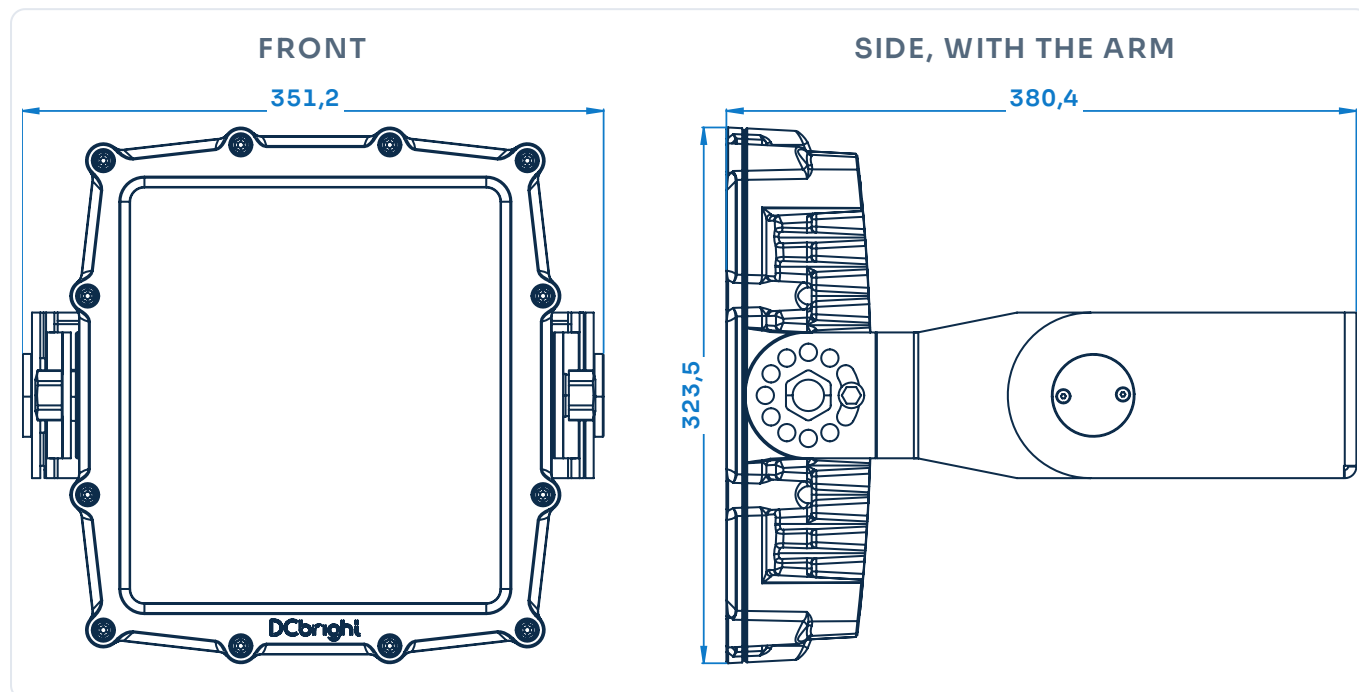
Frontal	0.118 m ²
Side	0.035 m ²
Maximum, tilted	0.142 m ²
Force at 45 m/s	Approximately 215 N at Cd 1.2 and an air density of 1.25 kg/m ³ , tilted

NOTE

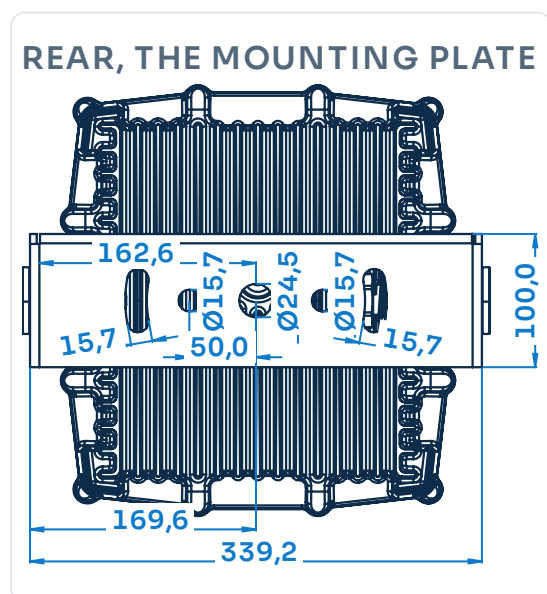
The wind figures are areas, not forces. Multiply by the drag coefficient and the dynamic pressure for your site to get the load on the structure. On a machine the wind figure is academic: the 200 G shock rating of the bracket and the 6 G vibration rating of the luminaire are what size the bolts.

3.2 The swing bracket and the other brackets

The standard bracket is the plate foot of section 3.1. For a crane boom or a structure that moves, the Shark is also supplied in the **swing bracket**, drawing DCB-SH-66-SB: a 316L arm on the pivot of the luminaire and a mounting plate on the structure, so that the luminaire hangs and absorbs movement instead of transmitting it into the housing.



Shark in the swing bracket, front and side. 351.2 mm wide, 323.5 mm high, 380.4 mm deep over the arm. The arm carries the index ring; the mounting plate is at the end of the arm



The mounting plate from behind: 339.2 × 100 mm, two holes of Ø 15.7 at 50 mm either side of the centre, two slots of 15.7, and the cable entry of Ø 24.5 in the centre

SWING BRACKET, DCB-SH-66-SB

Overall	380.4 × 351.2 × 323.5 mm, d × w × h
Mounting plate	339.2 × 100 mm, mounting centres 339.2 mm, 169.6 mm from the centre
Fixing holes	2 × Ø 15.7 mm at plus and minus 50 mm from the centre, plus two slots of 15.7 mm
Cable entry	Ø 24.5 mm, central, through the plate
Use	Boom and structure mounting, absorbs movement

REAR MOUNT BRACKET, AC VERSION

Use	Flat against a structure, with the driver carried on the back of the luminaire. Option on the AC version, dimensions with the quotation
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CRANE LIGHT STABILIZER

Use	AC and DC. Holds the aim while the boom moves. Separate datasheet and instruction
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NOTE, THE WIND AREA OF THE SWING BRACKET

The arm changes the lever on the mounting plate, not the area. Take the 0.142 m² of section 3.1 and the 380 mm arm into the structural check.

3.3 The bracket, and why it is rated to 200 G

A haul truck and a crawler crane do not vibrate, they hit. The bracket that carries a 9.2 kg floodlight on a machine like that has to survive the hit, not the shake, and that is what decides service life on mobile plant. The Shark bracket is a high tensile 316L plate with a foot of 319.2 mm and two arms, and it is shock rated to **200 G**. The luminaire tilts about the two pivot bolts in the arms and is locked by an index bolt in a twelve hole ring on each side, which is where the 30 degree steps come from.



The pivot on the side of the arm: the pivot bolt in the centre of the twelve hole ring, and the index bolt in one of the holes. Both sides are the same

TILT, ON THE PIVOT

Range	360 degrees, in steps of 30
Pivot bolt	M8, one each side, 20 Nm
Index bolt	M8 in one of twelve holes, both sides in the same hole

FOOT, TO THE STRUCTURE

Bolts	3 × M16 through Ø 16.5, at least two used
Torque	175 Nm class 8.8, section 6.6

NOTE, THE INDEX BOLT IS THE LOCK

The pivot bolt clamps the arm by friction, and at 200 G friction is nothing. The index bolt in the ring is what holds the angle. Always seat it, and always in the same hole on both arms. A Shark that has slowly rolled on its pivots is the most common aiming complaint on mobile plant, and it is always a luminaire aimed on the pivots alone.

WARNING, THREE HOLES, AT LEAST TWO BOLTS

The foot offers three holes at 250.6 mm centres. Use at least the two outer ones, and all three on a machine. A Shark on one bolt is 9.2 kg on a pendulum.

WHY 316L FOR THE BRACKET ON AN ALUMINIUM LUMINAIRE

The bracket is the part that is hit, bent back and hit again. A stainless plate takes that without cracking, and it takes it in the same salt spray that would strip a coated steel bracket in a season. The housing is e-coated to C5; the bracket needs no coating at all.



The Shark in Marine White: the same housing and the same bracket, in the colour of a vessel or an offshore installation

3.4 Standards and verification

Subject	Standard	By
Luminaire safety	IEC/EN 60598-1, -2-5	In house
EMC emission and immunity	EN 55015, EN 61547	TÜV
Marine EMC	IEC 60533, bridge and open deck	TÜV
Ingress	IEC 60529, ISO 20653	In house
Impact	IEC 62262, IK10 polycarbonate, IK09 glass	In house

Subject	Standard	By
Vibration	IEC 60068-2-6, 6 G at resonance	In house
Shock	IEC 60068-2-27, bracket to 200 G	In house
Corrosion	ISO 9223, class C5	In house
Photometry	IES LM-79, TM-21 for lifetime	In house
Substances	RoHS, REACH	Self-declaration

This table lists how the product is verified. The harmonised standards named on the declaration of conformity are listed separately in section 14.1. Photobiological safety is covered in section 4.3. ISO 20653 is the road vehicle ingress standard, where the IP69K high pressure and steam test comes from; on a haul truck that test is the weekly pressure wash. To check the authenticity of a test or inspection report and certificate, contact JEL Products on +31 (0)33 785 9809 or at info@jelproducts.nl.

OPTICS AND BEAM ANGLES

Every Shark carries a lens per LED, chosen from the lighting calculation, and combinations within one luminaire are possible. The beam angle is the full angle at 50 per cent of the peak intensity, the field angle at 10 per cent, both read from our IES files.

Optic	Distribution	Beam angle	Field angle	Typical use
14°	Spot, symmetric	13°	27°	Beyond 100 m: high masts, booms, stockpiles
38°	Medium, symmetric	37°	69°	Beyond 30 m: yards, benches, haul roads
69°	Wide, symmetric	72°	103°	To around 35 m: decks, machine areas
14° × 46°	Flare, asymmetric	13° × 45°	30° × 70°	Haul roads, quay edges
None, .NOP	Very wide, symmetric	120°	-	Close range, machine mounted

Nothing is emitted above the horizontal at nil tilt; section 6.7 shows what tilt does to that figure. The 14 degree spot is the optic that sets the hazard distance in section 4.3. The lens is part of the sealed front and is not changed on site.



The Shark without optics, .NOP: 120 degrees for close range on a machine

WHAT EACH RATING MEANS HERE

IK10	The polycarbonate front. 20 joules, a 5 kg mass from 400 mm. It is the reason the Shark is specified where material flies
200 G	The shock rating of the bracket. The luminaire itself is tested to IEC 60068-2-27 and 6 G at resonance
C5	Industrial and marine. Marine White does not change the class; for CX take the Barracuda SS
Class II	No protective earth of its own. On the AC version the driver box and the tray are earthed

4 Safety

This chapter lists the hazards that arise when a Shark is installed, operated and maintained, and what to do about each of them. It does not replace the national and local electrical, machinery and working at height regulations that apply on your site.

4.1 Electrical hazard

DANGER, LIVE PARTS

Working on the driver, in the driver box or on the tail of an AC luminaire while the supply is on can cause death or serious injury. Isolate the supply, secure it, and verify that the circuit is dead before you touch a conductor. Check twice.

DANGER, MAINS NEVER ENTERS THE LUMINAIRE

On SHAC01 mains goes to the **remote driver**. The four core tail carries the driver output and the temperature signal, and nothing else. Mains on the tail destroys the luminaire and creates a shock hazard on a Class II housing.

- Every Shark is a Class II luminaire. The housing is not earthed through the supply, but on the AC version the driver box, the driver tray and any metal enclosure must be earthed correctly.
- Make the connection to the standards and directives that apply in your country, within the supply range in chapter 3 and of the right type: AC to the driver, 20 to 35 VDC on SHDC01, 35 to 60 VDC on SHDC02.
Read the label before you connect.
- Only use the driver and the cable supplied for an AC luminaire. Keep one metre to a radio receiver.
- At 13.4 A a 24 V Shark is a heavy DC load. A loose terminal at that current is a hot spot. Torque every DC terminal and check it at the first inspection.

4.2 Falling objects

WARNING, FALLING LUMINAIRE

A luminaire that comes loose from a mast, a boom or a structure can injure whoever is under it. Verify the structure, use at least two bolts in the foot, and fit a secondary retention above a walkway, a working area or a road, and always on anything that moves.

The luminaire weighs 9.2 kg with the bracket, 13.4 kg with a driver box on the same tray. Under EN 60598-1 the suspension has to withstand four times the mass; on a machine the bracket is rated to 200 G and the bolts into the structure have to be as good. **The weld and the bolts are the weak point, not the foot.**

4.3 Optical radiation

WARNING, OPTICAL RADIATION

Never look into the operating light source. Direct exposure at close range can cause permanent eye damage.

Photobiological safety is classified to **EN 62471**, with the blue light hazard assessed to **IEC/TR 62778**. That gives a **hazard distance**: beyond it the luminaire is Risk Group 1 and no exposure limit is reached in normal viewing. **It follows the optic**, because it is set by the peak intensity and not by the light output. The figures below come from our own LM-63 photometric files.

Optic	Shark AC	Shark DC, 24 and 48 V
14 degree spot	12.7 m	12.2 m
14 × 46 flare	7.9 m	7.5 m
38 degrees	5.3 m	5.1 m
69 degrees	3.4 m	3.3 m
No optic, .NOP	2.0 m	2.0 m

The rule on site. Take **15 m** where a 14 degree spot is fitted, **10 m** for the flare and **6 m** for anything else. Nobody works or stands within that distance looking towards the front. On a mobile light tower or a crane boom that is the reason the luminaire is aimed at the work and not at the access ladder, the banksman or the cab of the next machine. Aim or focus with the luminaire switched off.

Method: the square root of the peak intensity divided by the threshold illuminance at the Risk Group 1 boundary, taken as 3,500 lx for the 6500 K LED. The Shark AC with the 14 degree spot peaks at about 566,000 cd, which is where the 12.7 m comes from. Calculated from our own photometric files, not a measurement report.

4.4 Hot surfaces



CAUTION, WARM HOUSING

A Shark runs warm in service: 320 W with the fin field as the only cooling path. At plus 50 degrees Celsius ambient the housing is uncomfortable to hold. Let it cool before handling. The driver case of an AC version may reach plus 90 degrees Celsius.

- Isolate the supply and let the luminaire cool to hand temperature before any work.
- Do not mount the luminaire against an exhaust, an engine hood or a generator canopy outlet. The ambient limit of plus 50 degrees Celsius applies to the air at the fins.
- Never run cold water onto a hot glass front. The thermal shock can break it. See section 10.5. Polycarbonate tolerates it, but the pressure washer rule in that section still applies.
- The BLD320 or TLD320 on an AC version sits in an ambient of at most plus 50 degrees Celsius. On a light tower that rules out the engine canopy.

4.5 Crush and handling

CAUTION, MOVING PARTS

The housing swings freely on the two pivots once the index bolts are out and the pivot bolts are slack, through 480 degrees. Keep fingers clear of the pivots and of the gap between the housing and the bracket arms while aiming. On a boom, the machine is switched off and locked out before anyone climbs to the luminaire.

- Wear gloves, safety boots and a hard hat during assembly and installation. Two people on a mast or a boom: one holds 9.2 kg level while the other starts the first bolt.
- Do not work alone at height. Use rated and secured ladders, lifts or the machine's own access, and never use the luminaire or its bracket as a handhold or a step.

4.6 Heat and surroundings

- Keep at least 75 mm clear behind the fin field and around the housing, and 150 mm around a driver box. Do not cover or wrap the luminaire and do not mount it against insulation material.
- Keep the fins on the rear of the housing clear. On a machine they fill with mud, dust and grease, and trapped dirt reduces cooling and shortens the life of the LEDs. The Shark has no fan and no vents.
- Do not install a Shark near a heat source that takes it beyond plus 50 degrees Celsius ambient. There is no high temperature version; for process heat use the Barracuda HT.
- Do not expose the luminaire to corrosive chemicals outside its corrosion class without checking with your supplier first. For permanent salt exposure and process chemistry beyond C5, use the Barracuda SS.

4.7 Laying the luminaire down

CAUTION

Stand the luminaire on its **bracket foot**, the way it was delivered. **Never rest it on its front**, and never on its back: the cable leaves the centre of the fin field, and the luminaire's weight on the gland is the load it is not designed for.

On the Shark the front is the whole face of the luminaire. A polycarbonate front put down on grit takes scratches that show in the beam, and a glass front takes a chip at the edge that becomes a leak path at the first washdown. The foot is a flat 316L plate and carries the weight without complaint, which is why the luminaire is shipped standing on it. In the swing bracket, lay the assembly on the mounting plate, arm up.

NOTE

Keep the free ends of the tail capped and dry until they are terminated. A tail that has stood in a puddle carries water into the gland by capillary action, and that shows up months later.

4.8 What must never be done

DANGER, DO NOT OPEN THE HOUSING

Do not remove the front, the front frame or any part of the housing, and do not shorten or cut the tail at the luminaire. The seal, the ingress protection and the electrical safety all depend on a housing that has not been opened. Nothing on a Shark is designed to be opened in the field. Opening it voids the warranty and the declaration of conformity.

- Do not modify, repair or open the luminaire. Repairs are carried out by JEL Products or by a company it appoints.
- Do not install or switch on a luminaire with a cracked front, a damaged housing, bracket or tail, and do not use it in the applications listed in section 2.3.
- Do not connect mains to a DC luminaire or to the tail of an AC luminaire, do not reverse the polarity on a DC luminaire, and do not put a luminaire on a supply outside the range on its label. SHDC01 stops at 35 V; SHDC02 starts there.
- Do not mount the luminaire on one bolt, and do not aim it without seating the index bolts on both sides.
- Do not put the driver of an AC version in the wash zone, in the engine canopy or above plus 50 degrees Celsius.

4.9 Emergency and exceptional situations

- If an electrical fault occurs in a luminaire, a driver or a driver box, switch off the supply immediately.
- If a luminaire is severely damaged during operation, by a rock, a bucket or a collision, switch off the supply immediately and do not switch it on again until the luminaire has been replaced or released by JEL Products. A cracked front on a luminaire that still works is still a luminaire out of service.
- No Shark has battery back up. A DC Shark on a standby circuit is emergency lighting only if the circuit behind it is, and that circuit is the site's responsibility.

4.10 Potential health consequences

If ignored	Consequence
Working on a live driver, box or tail	Severe injury or death by electric shock
Mains connected to a DC luminaire or to a tail	Destroyed luminaire, arc, fire and shock risk
48 V on a 24 V luminaire	Destroyed board, possible fire
Looking into the operating light source	Permanent eye damage, at up to 12.7 m with the spot
Touching a hot housing or driver	Burns, minor to moderate
One bolt, or no secondary retention above a walkway	Injury from a falling luminaire of up to 13.4 kg
Luminaire used as a handhold or step	Fall from height, bent bracket
Fingers at the pivot	Crushing, minor to moderate injury
Cold water on hot glass	Broken front, glass fragments, loss of ingress protection
Luminaire rested on its front or its back	Scratched or chipped front, damaged gland, water ingress, later failure
Loose DC terminal at 13.4 A	Hot spot, melted insulation, fire
Index bolts not seated on a machine	Luminaire rolls out of aim, glare to other operators, loosened pivots

NEVER, ON ANY SHARK



Never open the housing or remove the front



Never rest the luminaire on its back, the cable side



Never carry or suspend it by the cable



Never aim a pressure washer at the gland



Never cover or wrap the luminaire



Never fit a driver other than the one supplied

5 Preparation

Everything that has to be right before the first bolt goes into the structure.

5.1 Transport and storage

- Transport and store the luminaire in its original packaging, in a dry place, at **minus 45 to plus 50 degrees Celsius**.
- Do not stack pallets beyond the marking on the packaging.
- Store the box the right way up, so that the luminaire stands on its foot and the front does not carry the weight.
- Keep the tail coiled in the box with its ends capped until the luminaire is at its position.
- On the AC version, keep the driver with its luminaire. A BLD320 programmed for a lower wattage and a TLD320 for the 400 V supply look alike on a shelf.

5.2 Contents of the delivery

- | | |
|---|--|
| 1 | Shark luminaire in the ordered configuration, on its 316L standard bracket or in the swing bracket, with a 2.0 m tail with |
| x | free ends. Four cores on AC, two on DC |
| 1 | Remote driver on SHAC01: BLD320 for 90 to 305 VAC or TLD320 for 180 to 528 VAC, as ordered. Bare, or in a DRB-1 or |
| x | DRB-2 driver box if ordered |
| 1 | This instruction manual |
| x | |

NOTE, THE DRIVER BOX IS AN ORDERED ITEM

The 2024 instruction listed a driver box in every AC delivery. It is not: the driver is supplied **bare** unless a DRB-1 or a DRB-2 was ordered, for an existing enclosure or a tray. Check the packing list against the quotation.

Mounting bolts for the structure are not supplied, because they depend on the structure. **The safety cable is not supplied as standard**, see section 6.5.

5.3 Unpacking

- 1 Read the label on the box and check that the article code matches what you ordered and what the lighting design says. Optics and colour temperatures differ between luminaires on the same mast, and the three versions look identical.
- 2 Cut the tape along the seams. Do not push the knife deeper than the tape.
- 3 Lift the luminaire out by the bracket, two hands, never by the tail. 9.2 kg is a two person lift out of a pallet box.
- 4 Check that the article code on the type label matches the code on the box, note the internal production code as well, see section 2.5, and **read the supply type and range on the label**.
- 5 Inspect the front, the housing, the bracket, the gland and the tail for cracks, impact damage or a wet cable end.
- 6 Keep the packaging until the luminaire is installed and working. A luminaire that has to be returned travels in its own box.

WARNING, DAMAGED PRODUCT

If you find any damage, do not install the luminaire and do not switch it on. Contact JEL Products.

5.4 Tools

The list names the bolt and not a spanner size, because the bolt into the structure is your choice: bring a socket or ring spanner that fits the M16 you have chosen for the foot, or the M14 for the swing bracket plate.

Tool	Used for
Socket or ring spanner for the foot bolts	Up to three M16 through the foot, or two M14 plus two through the slots on the swing bracket plate
Socket or ring spanner, 13 mm	The M8 pivot bolts and the M8 index bolts, both sides
Torque wrench, 10 to 200 Nm	Foot bolts 175 Nm, pivots and index bolts 20 Nm, section 6.6
Two open ended spanners for the cable gland	The glands in the driver box or the junction box, one holds the body, one turns the cap nut
Wire stripper and cutter, end sleeve crimping tool	Preparing the tail and the site cable for the terminals, up to 16 mm ² on a 24 V run
Voltage tester	Verifying that the circuit is dead before a cover comes off
Multimeter	Checking the supply voltage, on DC under load at the luminaire
Insulation resistance tester	Commissioning an AC installation, chapter 8
Heat gun	Heat shrink tubing over a gland or a joint, section 7.6
Inclinometer, or a phone with one	Setting and recording the tilt
Anti-seize compound	Every stainless bolt in a stainless thread, section 6.6

Do not drill the foot to another pattern. The three holes at 250.6 mm are what the 200 G rating was tested with.

NOT SUPPLIED WITH THE LUMINAIRE

Site cable	Sized from section 7.7, to the junction box on DC or to the driver on AC
Junction box	An IP67 box where the 2.0 m tail meets the site cable, unless the driver box or the DC distribution is within reach of the tail, section 7.5
Mounting bolts	Three per luminaire, A4 or 316 stainless steel or hot dip galvanised class 8.8, with locking
Safety cable	Ordered separately, see section 6.5
Heat shrink tubing and self amalgamating tape	For sealing a gland or a joint, section 7.6
DC fuse or breaker	Sized to the cable, section 7.8. 20 A on a single 24 V Shark is typical
Threadlocker	On a machine, always. A Shark is fitted to things that hit

NOTE

The reason the tool list names a bolt and not a spanner size is that the bolt into the structure is your choice, not ours. The foot offers three holes, and what goes through them follows from the structure: a mast bracket, a welded plate on a boom, a light tower head or a concrete wall each ask for a different fixing.

TWO PEOPLE

A Shark is a two person job at height, every time: one holds 9.2 kg level under the mast bracket while the other starts the first bolt, and nobody does that alone from a ladder. At ground level, on a light tower head lowered for service, one person fits it.



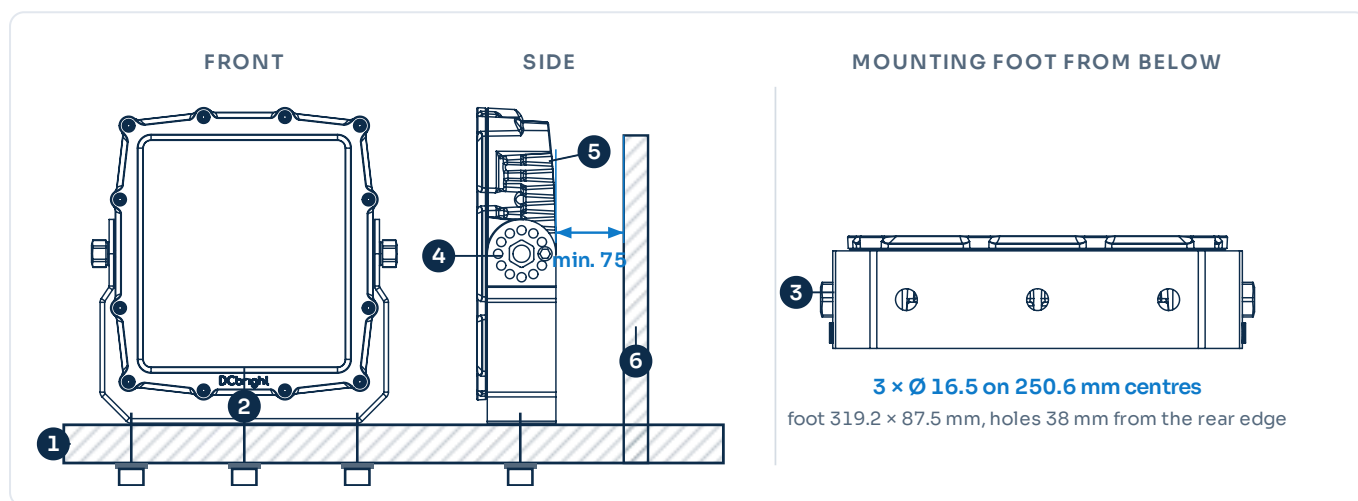
The Shark as delivered: housing, standard bracket and the tail

6 Mechanical mounting

Every Shark is delivered with the standard bracket fitted, or in the swing bracket where that was ordered. Mount the foot or the plate to the structure first, then set the angle, then make the electrical connection. The procedure is identical for the three versions; only the tail differs.

⚠ DANGER

Isolate the supply and secure it against being switched on again before you start. On a machine, switch the machine off and lock it out. Installation may only be carried out by a qualified person, and at height by two of them.



Mounting principle. Three views from the production drawing DCB-SH-66 to scale. Three bolts through the foot, the index bolt in the twelve hole ring as the lock, and the fin field 75 mm clear of anything behind it

- | | |
|---|--|
| <p>1 Load bearing structure: a mast bracket, a welded plate on a boom, a light tower head, a wall or a beam. Verify it for four times the weight in chapter 3 plus the wind load, and on a machine for the shock</p> | <p>4 Pivot bolt, M8 at 20 Nm, in the centre of the twelve hole index ring, with the index bolt in the hole for the angle. One set on each arm, both in the same hole, section 6.1</p> |
| <p>2 Bolts through the foot, M16 through the Ø 16.5 holes, washer under each nut, 175 Nm for class 8.8. At least two, all three on a machine</p> | <p>5 Fin field on the rear, with the cable gland in the middle of it. Route the tail clear of the fins, with a drip loop, and clamp it so that no load reaches the gland</p> |
| <p>3 Mounting foot, 319.2 × 87.5 mm, three holes at 250.6 mm between the outer centres, 38 mm from the rear edge. The plan view is the pattern to mark out</p> | <p>6 Minimum 75 mm free space behind the fins, drawn to scale. No fan, no vents: the fin field is the only cooling path</p> |

BEFORE YOU GO UP

- The lighting design is on site, with position, optic, tilt and rotation per luminaire.
- The surface under the foot is flat and at least 320 mm across: a foot bolted onto a curved boom chord without a plate is under permanent bending load and cracks at the bend.
- The structure carries four times the weight plus the wind load, and on a machine the shock. A retrofit onto the fixings of a lighter floodlight is checked for the new load.
- Mounting hardware is A4 or 316 stainless steel or hot dip galvanised class 8.8, with a locking method. The cable route and, on AC, the driver position outside the wash zone are decided.
- The supply circuit can be isolated and secured, and the machine can be locked out.

6.1 Standard bracket

- 1 **Check the position.** Follow the lighting design. Check that the mounting surface is flat, clean and free of obstructions, and that the structure carries the load.
- 2 **Mark and drill the holes from the foot,** three at 250.6 mm between the outer centres, Ø 17 mm for M16, with the luminaire off the structure. Do not use a percussion drill with the luminaire next to it.
- 3 **On an AC version, mount the driver first,** outside the wash zone, in an ambient of at most plus 50 degrees Celsius, reachable, section 7.5.
- 4 **Offer the luminaire up, two people,** and fit the bolts with a washer under each nut, A4 or 316 stainless steel or hot dip galvanised class 8.8. At least two bolts, all three on a machine.
- 5 **Tighten to the torque** in section 6.6 with a torque wrench, and mark the nuts.
- 6 **Set the tilt.** Take the index bolts out on both arms, slacken the pivot bolts, turn the housing to the design angle with an inclinometer rather than by eye, put both index bolts back in the hole for that angle, and tighten the pivots and the index bolts to **20 Nm**. Both arms in the same hole, or the housing is twisted on its arms.
- 7 **Check the tilt.** On a fixed installation do not tilt more than fifteen degrees above the design angle. Beyond that the upward light output ratio is no longer nil, see section 6.7. Record the angle.
- 8 **Fit the secondary retention** if section 6.5 applies.

NOTE, WHY THE INDEX BOLT MATTERS

The pivot bolt clamps the arm by friction, and at 200 G friction is nothing. The index bolt in the ring is what holds the angle. Always seat it, and always in the same hole on both arms. Where a design angle falls between two holes, take the nearer hole; the lighting design tolerates 15 degrees more than a loose luminaire does.

WARNING, DO NOT USE THE LUMINAIRE AS A HANDHOLD

A Shark on a light tower head or a mast platform looks like a grab rail. It is not. Neither the housing nor the bracket is a handhold or a step.



The rear of the Shark: the fin field, the gland in the centre and the foot with its three holes

FIXING PER LUMINAIRE

Standard bracket	
Foot	319.2 × 87.5 mm
Holes	3 × Ø 16.5, 250.6 mm centres
Bolts to the structure	M16, 175 Nm, at least two
Pivot and index	M8, 20 Nm, both arms
Adjustment	360 degrees, 30 degree steps
Weight to carry	9.2 kg, 13.4 kg with a DRB-1 on the same tray

AFTER MOUNTING, BEFORE WIRING

- ☐ Foot bolts tightened to torque, locked and marked.
- ☐ Tilt set and recorded, both index bolts in the same hole, pivots at 20 Nm.
- ☐ Secondary retention fitted where required.
- ☐ Tail free, not under tension, with a drip loop below the gland.
- ☐ Nothing within 75 mm of the fin field.
- ☐ AC only: the driver sits outside the wash zone.

6.2 The mounting configurations

Which one you have follows from the order and the accessories. All three are available on every version; the rear mount bracket, which carries the driver on the back of the luminaire, is an option on the AC version only.



Standard bracket. The plate foot to a mast bracket, a wall, a light tower head or a machine, 360 degrees in 30 degree steps



Swing bracket. The 316L arm on the pivot and the mounting plate on a boom or a structure that moves, section 6.3



Crane Light Stabilizer. AC and DC. Holds the aim while the boom moves. Own datasheet and instruction

6.3 The swing bracket

In the swing bracket the luminaire hangs from an arm on its own pivot, and the arm is bolted to the structure through a plate of 339.2 × 100 mm. The cable leaves through the Ø 24.5 hole in the centre of that plate, so nothing hangs outside the arm on a boom.

- 1 **Mark the plate holes from the plate**, two of Ø 15.7 at 50 mm either side of the centre and the two slots, and the cable hole of Ø 24.5 in the centre. Drill the cable hole first where the cable passes through the structure.
- 2 **Feed the tail through the plate** before the plate goes on. The gland is on the luminaire and the tail is 2.0 m; it does not come back through a bolted plate.
- 3 **Bolt the plate** with at least the two round holes, M14 with a washer under each nut, then the slots. Torque per section 6.6.
- 4 **Set the tilt on the pivot** exactly as on the standard bracket, section 6.1 step 6, index bolts in the same hole on both sides.
- 5 **Fit the secondary retention to the plate or the structure**, not to the arm, so that it does not swing with the luminaire.

WARNING

The arm puts the luminaire 380 mm out from the plate. That lever, at 200 G, is what the plate bolts see. Use the class 8.8 bolts and the torque in section 6.6, never a lower grade because the hole is smaller.

6.4 Mounting attitude and position

Attitude	Foot down, front forward, at nil tilt: the front is vertical and the beam axis horizontal. That is the attitude the photometry and the ULOR of nil assume. On a mast the luminaire is tilted down from there
Cable exit	The tail leaves the centre of the fin field. Route it down and away with a drip loop, and clamp it within 300 mm on anything that moves
Clearance	At least 75 mm behind the fin field. Do not pack the gap between the housing and the structure
Driver box clearance	At least 150 mm around a DRB-1 or a DRB-2 on an AC installation
Maximum mounting height	50 m. No limit on the elevation of the site itself
Wash down zones	The luminaire is IP69K and may sit in the wash down zone. A driver box may not: put it outside
Salt and chemistry	To C5, in Titanium Black or Marine White. Beyond that, the Barracuda SS
Light towers and canopies	The ambient at the fins must stay below plus 50 degrees Celsius. The exhaust side of a generator canopy does not
Cold	Every version runs to minus 45 degrees Celsius and starts at full output. Bring the luminaire in dry and keep the tail ends capped until they are terminated, so no frost forms on the conductors

6.5 Secondary retention

WARNING

Fit a secondary retention wherever the luminaire is mounted above a walkway, a working area or a road, and always on anything that moves: a crane boom, a mobile light tower, a machine, a vehicle or a vessel. A Shark lives on things that move, so on a Shark the retention is the rule and the fixed mast the exception.

NOTE, THE SAFETY CABLE IS AN ORDERED ITEM

The safety cable is **not supplied as standard**. It is supplied with the luminaire when it is ordered, and it is rated for the weight of the luminaire it is supplied for. State the configuration when you order it: a Shark with a driver box on the same tray is a different load from a bare luminaire.

Length	1 m
Rating	Matched to the weight of the luminaire it is supplied for
Anchor	To the structure, independent of the foot bolts, not to the tail
Supply	Ordered separately, never as standard

- 1 Choose an anchor point independent of the foot bolts that carries four times the mass of the luminaire. At 1 m the cable is short, so the anchor has to be close. Pick it before you drill.
- 2 Loop the cable around that anchor and attach the other end to the bracket, around the arm or through the foot, not to the housing and not to the tail.
- 3 Leave a little slack, enough to adjust the tilt later but not so much that the luminaire can gather speed if the fixings fail.
- 4 Record the safety cable in the site or machine documentation, so that it is inspected at every maintenance visit and every crane inspection.

DANGER

Do not substitute a cable, chain or strap of your own without having it rated. A longer cable turns a drop into a swing, and 9.2 kg swinging under a boom hits whoever is on the deck before it hits anything else.

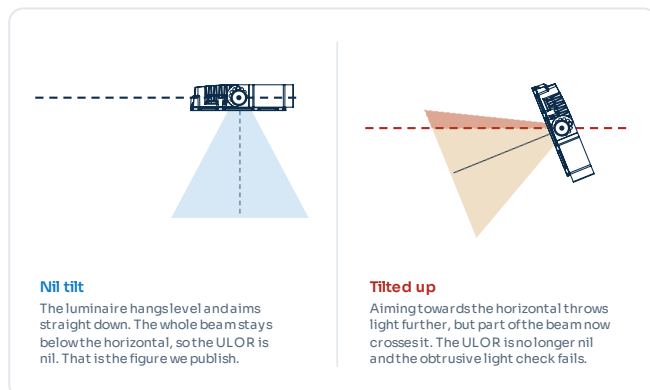
6.6 Tightening torques

Use a torque wrench. Overtightening a stainless bolt in a stainless thread causes galling; undertightening lets it work loose, and the Shark is fitted to things that hit.

Connection	Size	Torque
Pivot bolt, both arms	M8	20 Nm
Index bolt in the ring, both arms	M8	20 Nm
Foot bolts, class 8.8	M16	175 Nm
Swing bracket plate, class 8.8	M14	115 Nm
Bolts on a bracket, class 8.8	M20	341 Nm
Bolts on a bracket, class 8.8	M24	590 Nm
Cable gland cap nut, box	M20	2.5 Nm, and dimension L in section 7.6

Torques apply to clean, dry, undamaged threads. For an A4 or 316 bolt in a stainless thread use an anti-seize compound and reduce the torque by about a third. Class 12.9 bolts: M20 576 Nm, M24 995 Nm. Where the hardware comes from another supplier, that supplier's torque takes precedence.

6.7 Aiming and obtrusive light



The bracket turns through 360 degrees in steps of 30. What tilting costs you

Nil tilt means the luminaire hangs level and aims straight down. In that position the upward light output ratio is nil. That is the figure a permitting authority asks for when a terminal or a yard borders a residential area or a protected zone, and it is the starting point for an assessment against NEN-EN 12464-2 and the NSVV guidance on obtrusive light.

Every degree away from straight down eats into that figure, and beyond a certain angle the beam crosses the horizontal. Aim from the lighting design. Where no design is available, keep the tilt at or below fifteen degrees from straight down and have the result verified. On mobile plant the question is usually the operator, not the permit: the bi-colour version switches to amber for fog and dust, section 9.3.

7 Electrical installation

DANGER, LIVE PARTS

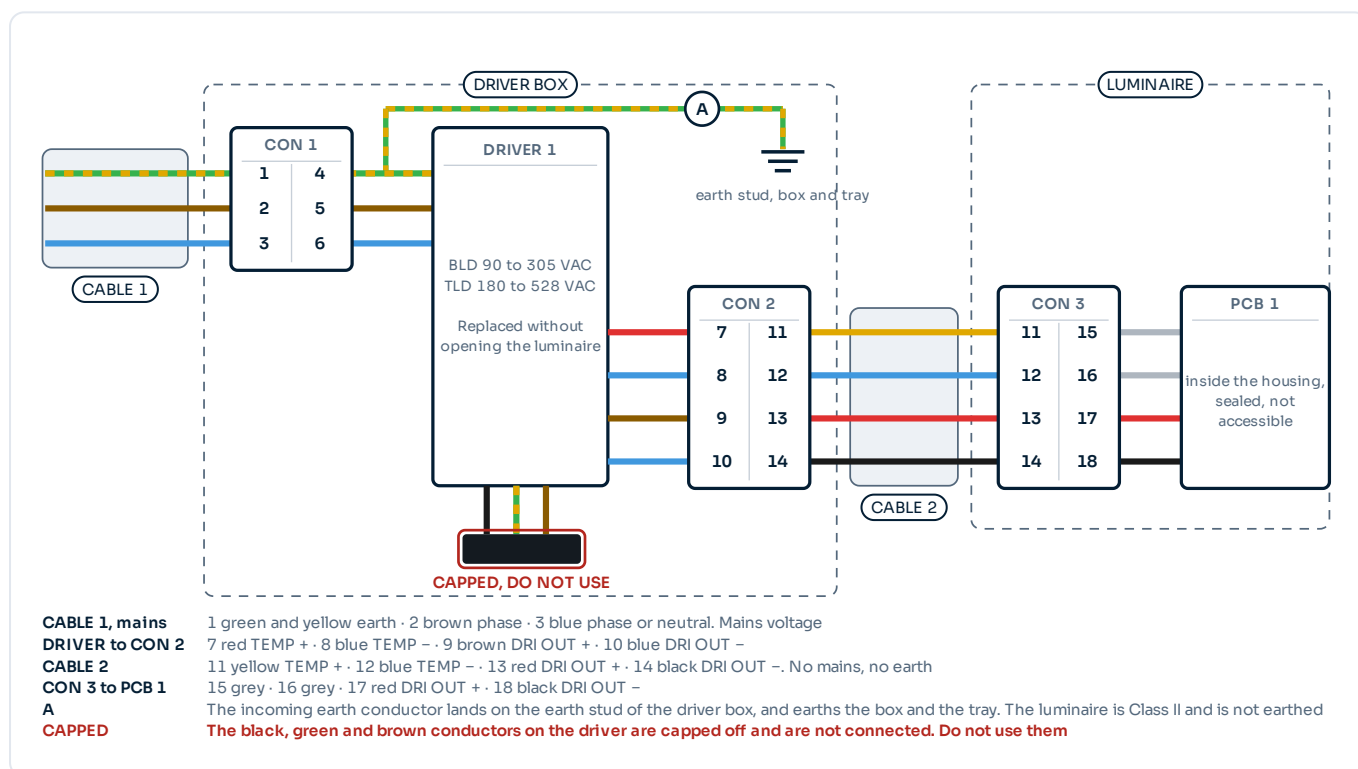
Isolate the supply, secure it against being switched on again, and verify that the circuit is dead before a cover comes off. Only a qualified person may make the electrical connection.

7.1 Architecture, the AC version

On SHAC01 the driver sits **outside the luminaire**. Mains arrives at connector 1 in the driver box, the driver feeds connector 2, and cable 2, which on the Shark is the four core tail, carries the driver output and the temperature signal to the luminaire. That is why a driver fault on an AC Shark is a ground level job.

ONE DIAGRAM FOR EVERY AC VERSION IN THE RANGE

The diagram below is the same diagram as in the other JEL floodlight manuals: the conductor count, the colours, the connectors and the terminal numbering are shared across the range. On the Shark the driver is the **BLD320** for 90 to 305 VAC or the **TLD320** for 180 to 528 VAC, and cable 2 is the H07BQ-F tail of the luminaire, 2 × 2.5 mm² for the driver output and 2 × 0.5 mm² for the temperature signal, 2.0 m. Connector 3 is inside the luminaire and is not accessible.



Every conductor, colour and terminal number as on the production drawing. Cable 1 carries mains, cable 2 the driver output and the temperature feedback

DANGER, THE CAPPED CONDUCTORS ARE NOT SPARE WIRES

The driver leaves the factory with **three capped conductors: black, green and brown**, part of the driver control lead and **not connected on purpose**. Leave the cap in place and do not use them as an earth, a neutral or a spare core. Adding dimming later is a driver change, done by JEL Products or by a qualified person with the driver documentation.

The incoming **earth conductor lands on the earth stud of the driver box**, marked **A**, and earths the box and the tray. Cable 2 carries no protective earth and the luminaire itself is not earthed: the driver sits outside the housing, so the luminaire is Class II.

This diagram applies to models from 2025 onward. For an older luminaire, check the connection against the diagram supplied with it before you rewire anything.

7.2 Conductors, SHAC01

No	Colour	From, to	Function
1	Green and yellow	Incoming cable to CON 1	Earth
2	Brown	Incoming cable to CON 1	Phase
3	Blue	Incoming cable to CON 1	Phase or neutral
4	Green and yellow	CON 1 to driver 1	Earth
5	Brown	CON 1 to driver 1	Phase
6	Blue	CON 1 to driver 1	Phase or neutral
7	Red	Driver 1 to CON 2	Temperature, plus, NTC plus
8	Blue	Driver 1 to CON 2	Temperature, minus, NTC minus
9	Brown	Driver 1 to CON 2	Driver output, plus
10	Blue	Driver 1 to CON 2	Driver output, minus
11	Yellow	CON 2 to CON 3, the tail	Temperature, plus, 0.5 mm ²
12	Blue	CON 2 to CON 3, the tail	Temperature, minus, 0.5 mm ²
13	Red	CON 2 to CON 3, the tail	Driver output, plus, 2.5 mm ²
14	Black	CON 2 to CON 3, the tail	Driver output, minus, 2.5 mm ²
15	Grey	CON 3 to PCB	Dimming signal, plus
16	Grey	CON 3 to PCB	Dimming signal, minus
17	Red	CON 3 to PCB	Driver output, plus
18	Black	CON 3 to PCB	Driver output, minus

WARNING, THE THIN PAIR IS THE TEMPERATURE PAIR

The two 0.5 mm² cores in the tail, conductors 11 and 12, carry the temperature signal from the luminaire to the driver. **They are not a dimming input.** Dimming enters at the driver. An installation that leaves the thin pair unconnected leaves the thermal protection disconnected.

Connector 3 and the board are inside the sealed housing. Rows 15 to 18 are listed so that the numbering matches the other JEL manuals and the production drawing; nothing in those rows is touched on site.

7.3 Circuit breakers

Maximum number of luminaires on one miniature circuit breaker, the manufacturer figure per driver on an ABB S200 at 220 V.

Driver	B16	C16	C25	D16
BLD320, 90 to 305 V	2	4	7	8
TLD320, 180 to 528 V	4	7	11	8

It is the **inrush** that limits the count, not the running current: the BLD320 peaks at 31.2 A with a T50 of 1.3 ms, the TLD320 at 64 A with 400 microseconds, while the luminaire draws 1.5 A at 220 V. A guide for the engineering phase, not a substitute for the installation calculation.

NOTE

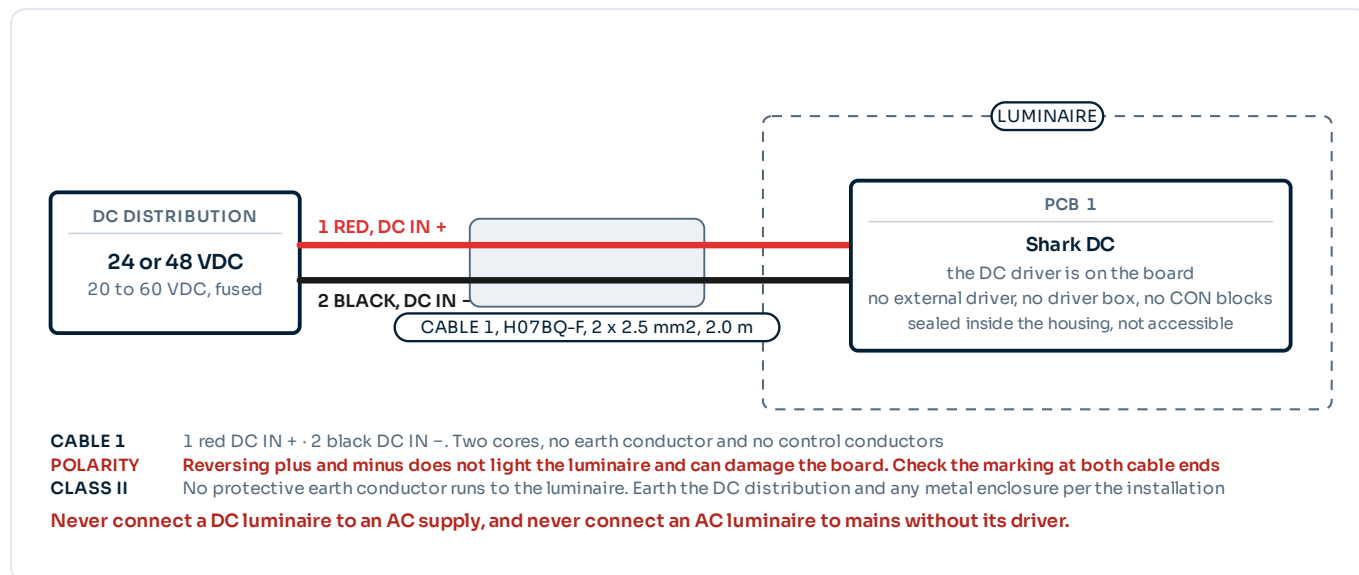
Where a residual current device is fitted, the combined leakage current of the circuit decides the count. One Shark AC draws at most 0.7 mA.

TWO DRIVERS, TWO SUPPLY RANGES

The BLD320 is the driver for 90 to 305 VAC, the TLD320 for 180 to 528 VAC: 400 V between two phases, or a 480 V site supply. They have the same case and fit the same box. Check the driver label against the supply before you connect: a BLD320 on 400 V is a driver exchange at best.

7.4 Architecture, the DC versions

The DC versions have their drivers on board. There is no external driver and no driver box. A two core tail of 2.0 m leaves the luminaire with free ends, and it is joined to the site cable in a junction box or landed directly in the DC distribution. SHDC01 and SHDC02 are wired the same; only the voltage range and the current differ.



Two conductors and a fuse. Red is plus, black is minus, on every DC luminaire in the JEL range

Core	Tail	Function
+	Red	DC in, plus. 20 to 35 V on SHDC01, 35 to 60 V on SHDC02
-	Black	DC in, minus
SHDC01, 24 V		20 to 35 VDC, 13.4 A at 24 V, 16 A at 20 V
SHDC02, 48 V		35 to 60 VDC, 6.7 A at 48 V, 9.2 A at 35 V
Tail		H07BQ-F 2 x 2.5 mm², 2.0 m, free ends
Protection		Reverse polarity and surge protected on the board
Fuse		Sized to the cable, per luminaire: 20 A on a 24 V Shark, 10 A on a 48 V Shark, as a starting point
Dimming		On request, built to order

DANGER, POLARITY AND SUPPLY TYPE

Never connect a DC luminaire to an AC supply. Never reverse the polarity. Never exceed 35 V on SHDC01 or 60 V on SHDC02. Any of these destroys the luminaire and is covered by no warranty.

WARNING, 13.4 A IS A HEAVY LOAD

A 24 V Shark draws the current of a small starter motor, continuously. The tail is 2.5 mm² for 2.0 m; the site cable is sized on section 7.7 and is thicker than the tail on any run beyond 10 m. Torque every terminal, use end sleeves, and put the joint in a box that is rated for the current.

WHICH DC VERSION

On a 24 V machine or vessel, the 24 V version. On a large electric crane with a 35 to 60 V supply, or wherever a 24 V battery feeds a DC/DC converter to get the current down on a long boom, the 48 V version: half the current, four times the cable length at the same cross section. **Measure the supply at the luminaire under load** before you choose; a 24 V system under charge sits at 28 V, still inside the 24 V version, and a 48 V system at 54 V, inside the 48 V version.

Dimming on a DC Shark is a build option and not a site fitted accessory. A standard DC Shark is a switched luminaire.

7.5 The driver box, and where the driver goes

- 1 **Choose the driver position first, not last.** Outside the wash zone, outside the engine canopy, within minus 40 to plus 50 degrees Celsius ambient, and reachable from the ground or a platform. Everything else follows from that choice. On a mast the DRB-1 at the base, on a light tower in the cabinet, on a fixed structure the box near the luminaire.
- 2 **Land the tail in the box.** The 2.0 m tail enters the DRB-1 or the DRB-2 through its own gland and lands on connector 2, four cores, per section 7.2. Where the tail does not reach, extend it in an IP67 junction box with a gland for each cable, never in a heat shrink splice on a machine that is washed.
- 3 **Keep the pairs together.** The $2 \times 2.5 \text{ mm}^2$ carry the driver output and the $2 \times 0.5 \text{ mm}^2$ carry the temperature signal. Extend both pairs; a run with the thin pair left out has no thermal protection.
- 4 **Size the extension on section 7.7.** The driver output is 50 VDC at 6.4 A, so 2.5 mm^2 goes to about 22 m and 6 mm^2 to 54 m.
- 5 **Earth the driver box and the tray.** The luminaire is Class II; the box is not.

DANGER

Never put the driver in the wash zone, in the engine canopy or above plus 50 degrees Celsius, and never extend the tail with a cable that is not rated for the position. A driver failure in a generator canopy is a fire risk as well as a light failure.



DRB-1 driver box. One driver up to 320 W, the BLD320 or the TLD320 of a Shark



DRB-2, for several drivers: a mast head with six Sharks runs from one box at the base

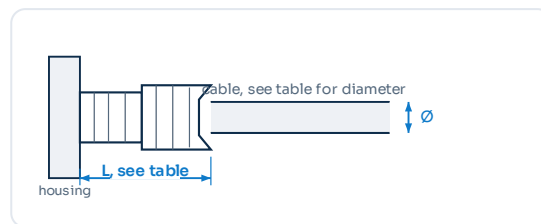
Position the driver by the **ambient**, not by its case temperature. The DC versions have none of this: there is nothing outside the luminaire at all. A separate driver box manual covers the boxes in detail.

THE DRIVER AND ITS BOXES, SHAC01

Driver	BLD320 for 90 to 305 VAC or TLD320 for 180 to 528 VAC, $225 \times 68 \times 38.5 \text{ mm}$, 1,120 or 1,150 g
Driver ambient	minus 40 to plus 50 °C, Tc to plus 90 °C
DRB-1	One driver up to 320 W, BLD320 or TLD320, $276 \times 194 \times 86.5 \text{ mm}$, 4.2 kg, IP66 and IP67
DRB-2	Systems up to 2,000 W, several drivers, $441 \times 290 \times 145 \text{ mm}$, 10.4 kg, IP66 and IP67. Six Sharks on one box
Bare driver	Supplied bare as standard, for an existing enclosure or a tray, with both connections inside an IP67 junction box

7.6 Cable glands

The gland on the luminaire is factory tightened and is not touched in service. The glands you meet are in the driver box, the junction box or the distribution where the tail is landed. Tighten a cap nut to 2.5 Nm and to the dimension in the table, measured over the gland. That is a more reliable instruction on a mast than a torque figure alone. Then apply heat shrink tubing and self amalgamating tape over the gland on anything that is washed. Dimension L runs from the face of the box to the end of the cap nut, with the cable fitted; it is not the thread length.



Where dimension L is measured

Cable	M12×1.5 -D-SI 4 to 8	M20×1.5 -2H 4 to 8	M20×1.5 -H 5 to 10	M20×1.5 6 to 12	M20×1.5 -D 8 to 14
H07BQ-F 4G0.5 mm ² , Ø 6.7 mm	17.7 mm	19.8 mm	n/a	n/a	n/a
H07BQ-F 2G2 mm ² , Ø 7.3 mm	18.4 mm	19.9 mm	n/a	n/a	n/a
H07BQ-F 2G1.5 + 2G0.5 mm ² , Ø 8 mm	18.9 mm	20.0 mm	20.4 mm	n/a	n/a
H07BQ-F 4G1.5 + 2G0.5 mm ² , Ø 10.4 mm	n/a	n/a	21.3 mm	22.2 mm	n/a
H07BQ-F 6G1.5 + 2G0.5 mm ² , Ø 13.6 mm	n/a	n/a	n/a	n/a	20.8 mm
H07BQ-F 2G2.5 + 2G0.5 mm², Ø 9.5 mm	n/a	n/a	21.1 mm	n/a	n/a
H07BQ-F 4G2.5 + 2G0.5 mm ² , Ø 12.3 mm	n/a	n/a	n/a	n/a	21.0 mm
H07BQ-F 6G2.5 + 2G0.5 mm ² , Ø 13.8 mm	n/a	n/a	n/a	n/a	21.1 mm
SiHF-08 2×1 mm ² , Ø 7.9 mm	18.9 mm	20.0 mm	n/a	n/a	n/a
SiHF-08 2×2.5 + 2×0.5 mm ² , Ø 10.7 mm	n/a	n/a	21.3 mm	n/a	n/a
EPDM H07RN-F 3G1.5 mm², Ø 10 mm	n/a	n/a	21.3 mm	n/a	n/a

This table is identical across the JEL floodlight range, so a site with Sharks, Barracudas and Snappers on it works to one set of figures. The rows in bold are the ones that apply to the Shark: the four core tail of the AC version, 2 × 2.5 plus 2 × 0.5 mm², where it enters a driver box or a junction box, and the H07RN-F 3G1.5 recommended for the mains side of the driver box. The two core DC tail, 2 × 2.5 mm², is close to the 2G2 entry and takes the M20 × 1.5-2H gland at about 20 mm. Here n/a means the combination is outside the clamping range of that gland and must not be used. Where a cable and a gland do not appear together in this table, ask JEL Products before you fit them.

7.7 Cable length and voltage drop

Beyond the 2.0 m tail the cable is supplied by the installer, so the cross section is a decision and not a given. The rule is that the voltage drop between the source and the luminaire must not exceed **2 V**. **Every circuit to a Shark is low voltage DC**: 50 V driver output on the AC version, 24 or 48 V on the DC versions. None of them carries mains.

AC VERSION, DRIVER OUTPUT TO LUMINAIRE, 50 VDC AT 6.4 A

Cross section	Maximum length
2.5 mm ²	22 m
4 mm ²	36 m
6 mm ²	54 m
10 mm ²	89 m
16 mm ²	143 m

DC VERSIONS, ONE LUMINAIRE

Cross section	SHDC01, 24 V 13.4 A	SHDC02, 48 V 6.7 A
2.5 mm ²	10 m	21 m
4 mm ²	17 m	34 m
6 mm ²	25 m	51 m
10 mm ²	42 m	85 m
16 mm ²	68 m	136 m
25 mm ²	106 m	213 m

NOTE, WHY THE 48 V VERSION EXISTS

At 24 V a Shark on a 40 m boom needs 10 mm²; at 48 V it needs 4 mm². **Several luminaires on one cable: divide the length by their number**, as a first estimate. JEL Products calculates the actual run; the drawing opposite is one such calculation.

All lengths are the maximum at a 2 V drop, copper, two conductors, one way, rho 0.0175. Where the installation calls for a tighter limit, size the cross section on that.

7.8 Making the connection

DANGER, READ THE LABEL FIRST

On SHAC01 **mains goes to the driver and only the driver output reaches the luminaire**. On SHDC01 and SHDC02 the luminaire is a 20 to 35 V or a 35 to 60 V device and mains destroys it instantly. The three look the same from the front; the label and the tail tell them apart.

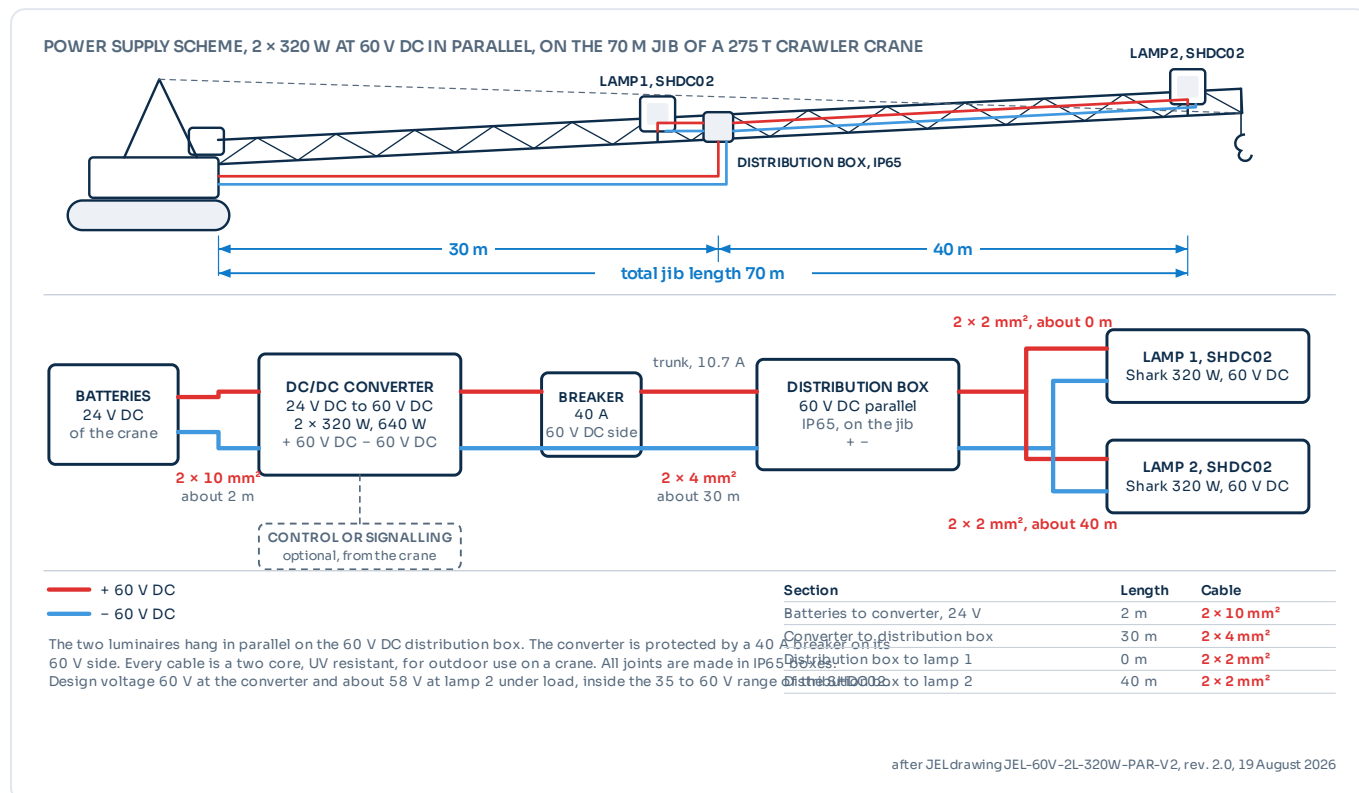
- 1 Confirm the circuit is dead and secured, and on a machine that it is locked out.
- 2 **AC version**: mount the driver or the driver box outside the wash zone and the engine canopy, in an ambient between minus 40 and plus 50 degrees Celsius, reachable. Earth the box, the tray and any metal enclosure.
- 3 **AC version**: land the tail on connector 2 in the box, or extend it in an IP67 junction box per section 7.5. Use end sleeves. One conductor per terminal. Keep the thin pair with the power pair and the mains conductors on their own side of the box.
- 4 **DC versions**: join the tail to the site cable in an IP67 junction box rated for the current, red to plus and black to minus, with end sleeves and terminals torqued, and check the polarity and the voltage with a meter before you close the box.
- 5 Tighten every gland to 2.5 Nm and to dimension L in section 7.6, then seal with heat shrink tubing and self amalgamating tape on anything that is washed.
- 6 Support and clamp the tail and the site cable with a drip loop below the entry, so that no load reaches the gland. On anything that moves, clamp within 300 mm.
- 7 Check that no conductor is pinched under a cover and that every gasket sits in its groove all the way round.

MACHINE BUILDERS

Fuse or breaker	Per luminaire, sized to the cable: 20 A on a 24 V Shark, 10 A on a 48 V Shark, as a starting point
Switching	On the supply. A relay that chatters toggles a bi-colour luminaire, section 9.3
Cranking and load dump	The board is surge protected. Below its input range the luminaire goes out and comes back by itself

7.9 Worked example, two Sharks at 60 V DC on a crane jib

A JEL Products power supply scheme for a real installation: two 320 W Sharks on the 70 m jib of a 275 tonne crawler crane, fed from the crane's 24 V battery. It shows why the 48 V version exists and how a DC run is sized when the luminaires are far apart.



After JEL drawing JEL-60V-2L-320W-PAR-V2, revision 2.0 of 19 August 2026: batteries, DC/DC converter, 40 A breaker, distribution box and two luminaires in parallel, with the cable schedule per section

Section	Length	Cable	Why
Batteries to converter, 24 V	2 m	2 × 10 mm²	640 W at 24 V is 27 A
Converter to distribution box, 60 V	30 m	2 × 4 mm²	Both luminaires, 10.7 A
Distribution box to luminaire 1	0 m	2 × 2 mm²	The tail
Distribution box to luminaire 2	40 m	2 × 2 mm²	One luminaire, 5.3 A at 60 V

Cables UV resistant, for outdoor use on a crane. A 40 A breaker on the 60 V side of the converter. The whole chain is 60 V DC, inside the 35 to 60 V range of SHDC02.

WHAT THE EXAMPLE SHOWS

- **The converter does the work, not the cable.** At 24 V the same two luminaires would draw 27 A over 70 m and need 25 mm² to the jib tip. At 60 V they draw 10.7 A on the trunk and 5.3 A on the branch, and 4 and 2 mm² do it.
- **The distribution box is on the jib.** One trunk cable up the jib, one IP65 box near the first luminaire, one branch to the second. Every joint is in a box.
- **Measure at the far luminaire under load.** 60 V at the converter and 58 V at luminaire 2 is the design; 50 V at luminaire 2 means a joint has gone bad.

NOTE

JEL Products draws a scheme like this for every boom installation, on request, with the crane model, the jib length and the supply you have. Ask for it before the electrician sizes the cable.

8 Commissioning

Do not switch on until every item below has been checked. Most warranty cases that turn out not to be a product fault trace back to a step skipped here.

8.1 Checks before switching on

- ☐ Conditions within the range for that version, chapter 3, and no broken mechanical part: front, housing, bracket, gland, tail.
- ☐ Supply type and voltage checked against the label: mains to the driver on SHAC01, 20 to 35 V on SHDC01, 35 to 60 V on SHDC02, DC measured **under load at the luminaire**.
- ☐ DC only: polarity checked at the joint, red to plus, black to minus. Terminals torqued, fuse or breaker fitted and sized to the cable.
- ☐ AC only: all four cores of the tail through to connector 2, the driver outside the wash zone within plus 50 °C ambient, the box earthed and closed, driver range matching the supply.
- ☐ Foot bolts at torque, locked and marked. Pivots and index bolts at 20 Nm, both index bolts in the same hole.
- ☐ Secondary retention fitted where section 6.5 requires it, and on anything that moves.
- ☐ Tail and cable supported with a drip loop and clamped, with no weight on the gland.
- ☐ Nothing within 75 mm of the fin field, and nobody working within the hazard distance of section 4.3.

8.2 First power up

- 1 Restore the supply.
- 2 Confirm that it illuminates. **Do not look into the beam**, see section 4.3: 15 m with the spot.
- 3 Check that the light lands where the design says, from beside the luminaire.
- 4 Correct the aim if required: switch off, take both index bolts out, slacken both pivots, adjust, put both index bolts back in the same hole, torque, switch on and check again.
- 5 Record the installation: both label codes, the serial number, the position, the optic, the colour temperature, the tilt and the index hole, the date and the installer.

8.3 Handover

Leave this manual with the site or machine documentation, together with the record from step 5 of section 8.2 and the run calculation where luminaires share a DC feed.

WARNING

Never adjust, open or work on the luminaire while it is energised, and never on a machine that is not locked out. Isolate first, every time.

NOTE, MEASURE THE VOLTAGE AT THE LUMINAIRE

On a machine the battery may read 24.6 V while the luminaire on the boom tip sees 21 V under load, because of the run and the other consumers on the same feed. **Measure at the luminaire with everything running**, not at the battery with the engine off. On a 48 V crane the same applies at the far end of the jib.

NOTE, MARK THE OPTICS ON THE DRAWING

Mark the position and the optic of each luminaire. A 38 degree and a 69 degree lens look identical from the front, and a spot where the flare belongs lights the sky instead of the haul road.

NOTE, A BI-COLOUR LUMINAIRE ON FIRST POWER UP

A bi-colour build comes up in its default colour, which is normally the white one. Section 9.3 explains how it is switched, and it is worth demonstrating that to the operator at handover.



The Shark fitted and aimed. The first weeks on a machine are what show whether the index bolts and the foot bolts were tightened properly

9 Operation and dimming

9.1 Normal operation

A Shark needs no operator action in normal service. It switches with the circuit and reaches full output immediately, with no warm up and no restrike delay, and it may be switched as often as the application requires. At minus 45 degrees Celsius it starts at full output. There is no lamp to change and nothing to adjust from year to year.

9.2 What each version accepts

Version	What it accepts
SHAC01	0 to 10 V, PWM or DALI-2 , at the remote BLD320 or TLD320, on a driver ordered with dimming. Or a fixed level set over NFC on the driver without power. A lower wattage is a driver setting and is ordered as a suffix
SHDC01 and SHDC02	On request. The drivers are on the board, so dimming is a build option and not a site fitted accessory. A standard DC Shark is a switched luminaire
Bi-colour, BIC	4000 K with amber 2200 K, switched with the supply. See section 9.3. Available on every version

9.3 Bi-colour and amber

A bi-colour Shark carries two colours in one housing and switches between them **on the supply itself**, using how long the luminaire has been off. There is no second control line and no separate switch on the luminaire. On mobile plant that is the fog, dust and night regime: white for the work, amber when the dust comes up, because amber carries through fog, rain and dust far better than cold white.

What you do	What happens
Switch on after more than 5 seconds off	The luminaire comes up in its default colour , normally the white one, whatever colour it was showing before
Switch off and back on within 5 seconds	The luminaire changes to the second colour , the amber one
Repeat the short cycle	It toggles back and forth between the two colours, as often as you like
Several luminaires out of step	Switch the whole group off, wait 30 seconds , and switch on. All of them reset to the default colour and are back in step

Because the switching is on the supply, a bi-colour luminaire fed from a relay that chatters, or from a machine circuit that dips at cranking, can change colour on its own. Where the colour has to be dependable, feed it from a clean switched circuit. Amber 2200 K on its own is available on every optic, for light sensitive surroundings such as a terminal near a nature area.

NOTE, DIMMING AND THE FLUX FIGURES

Every luminous flux figure in chapter 3 is the figure at full output. A dimmed luminaire delivers proportionally less light and slightly better efficacy. If the design relies on a dimmed level, the lighting calculation states that level.

9.4 What the luminaire does by itself

- **Thermal foldback.** The luminaire measures its internal temperature and reduces the current as it rises. On overheating it switches off and comes back when it has cooled. On the AC version that runs through the temperature pair in the tail.
- **Reverse polarity protection.** On DC, a reversed supply does not damage the luminaire and does not light it.
- **Surge protection.** On every version, on the board on DC, and on the AC driver 6 kV line to line and 10 kV line to earth.
- **Undervoltage.** A DC Shark shuts down below its input range and restarts by itself when the supply returns; on a 24 V machine that is a cranking dip. The AC driver behaves the same below its input range.

9.5 What the luminaire does not do

- It does not carry an emergency function. See section 4.9.
- It does not accept a control protocol that is not in its build. Sending DALI to a 0 to 10 V driver has no effect, and a DC luminaire has no control input at all.
- It does not share a driver. Every AC Shark has its own BLD320 or TLD320, programmed for it, even when six of them sit in one DRB-2.

10 Maintenance

DANGER

Isolate the supply and secure it before any maintenance work, and lock out the machine. Let the luminaire cool to hand temperature before touching it.

10.1 Interval

Environment	Interval
Fixed mast, yard, terminal	Once a year
Machines, cranes, light towers, vehicles and vessels	Every machine service, and check the foot bolts, the index bolts and the retention every time
Mining, quarrying, dust or mud	Every service, clean the fins at every wash
Coastal, deck and salt spray	Every three months
Food production and washdown	Weekly, daily on heavy soiling, and after every run on a high fat load. Protocol in section 10.5

Too little cleaning shortens the life of the product, most of all where the fins fill with mud or grease.

10.2 Inspection

- ☐ Front, housing and seals: impact damage, cracks, a scratched polycarbonate front, a chipped glass edge, corrosion.
- ☐ Foot bolts tight. Retighten to the torque in section 6.6.
- ☐ Pivots tight, both index bolts still seated in the same hole of the ring.
- ☐ Bracket and structure sound: no cracks at the bend of the foot, no cracked weld under it, the swing bracket plate bolts tight.
- ☐ Secondary retention present, intact and correctly attached.
- ☐ Tail and site cable: chafe, damage, intact insulation, no exposed conductor, drip loop still below the gland, clamp still holding.
- ☐ Gland tight, box cover bolts tight, no moisture trace at a gasket. DC terminals tight and not discoloured.
- ☐ Fins on the back clear of mud, dust and grease, the 75 mm behind them open.
- ☐ Nothing fitted, stacked or welded within 75 mm of the luminaire or in the beam.
- ☐ Tilt unchanged since installation.
- ☐ **AC only:** the driver is still outside the wash zone and its box is dry inside.

10.3 Records

Record every inspection, fault, repair and replacement, with both codes from the label. Under warranty, that record is the difference between a fast decision and a long discussion.



The fin field of the Shark. This is what has to stay clear

WHY THE FINS MATTER

The Shark has no fan, no vents and no moving part. Everything the LEDs produce, 320 W of it, leaves through this surface, and the housing is sealed precisely so that nothing gets in. Mud on the fins raises the junction temperature, and the lifetime figures in chapter 3 assume a clean heat sink. **On a haul truck the fins fill in a shift**, so the fins are cleaned at every wash, and the wash is done with the luminaire cold.

CAUTION

Do not hammer, pry or scrape between the fins. A soft brush, water and compressed air clear them. A screwdriver breaks a fin, and the fin is cast into the housing.

NOTE, THE DRIVER IS THE WEAR PART

On the AC version the LEDs outlive three drivers. A driver that has run ten years at plus 50 degrees Celsius is due; replace it at a planned stop rather than after it fails on a winter night. Section 12.3 gives the procedure.

10.4 Cleaning, on plant and in a normal environment

- 1 Switch off the supply, lock out the machine and let the luminaire cool.
- 2 Remove loose mud and debris with water and a soft brush.
- 3 Clean the housing and the front with a soft cloth or sponge, water and a mild detergent.
- 4 Clear the fins on the back, then dry the front with a soft cloth. A scratched polycarbonate front shows in the beam, so no grit under the cloth.

CAUTION

Do not use solvents, caustic cleaners or abrasives. Do not aim a high pressure lance at the gland or at a box cover. The Shark is rated IP69K, but the gland is the place where pressure does damage, and the machine around it may not be IP69K at all.

10.5 Cleaning, washdown areas and food production

In a food or washdown area the Shark is cleaned to JEL Products protocol B5.17, version 1.0 of 27 May 2026. Written for the food industry, it is the stricter of the two procedures and it is the one a HACCP file asks for.

BEFORE YOU START

- Switch off the supply to the luminaire.
- Let the luminaire cool to hand temperature.
- Inspect the front, the seals, the gland, the cable and the housing for damage.

PERMITTED

Water	Clean mains water, lukewarm, maximum plus 40 degrees Celsius
Cloth	Soft microfibre cloth
Sponge	Soft sponge

NOT PERMITTED

Cleaning agents	No aggressive or chemical cleaners, no foaming agents, no solvents
Chemistry	No chlorine based, acid based or alkaline cleaners, no alcohols, no degreasers
Mechanical	No wire brushes, no abrasives, no scouring agents
Steam	No steam cleaning
Pressure	No high pressure above 80 bar

IP69K is what makes this possible. Every Shark carries IP69K, the high pressure steam jet test, and that is what a wash-down regime actually applies. Chlorine on an aluminium housing takes the coating, which is why the chemistry row is there.

PROCEDURE

- 1 **Pre-rinse.** Rinse the luminaire with clean water to remove loose soiling. Use a broad jet and do not hold it on the gland or a box cover.
- 2 **Manual cleaning.** Clean the surface with a soft sponge or microfibre cloth and clean lukewarm water only.
- 3 **High pressure cleaning.** Maximum 80 bar, maximum plus 40 degrees Celsius, minimum distance 50 cm. Do not spray at right angles onto the front seal for any length of time.
- 4 **Rinse.** Rinse the luminaire with clean water.
- 5 **Inspect.** Check the front, the seals, the fixings and for any sign of moisture inside.

PREVENTING DAMAGE

WARNING, THERMAL SHOCK

Never clean hot glass with cold water. **Do not apply water at all to a luminaire warmer than plus 60 degrees Celsius.** A glass front can break, towards whoever is holding the lance.

Cleaning outside these limits can damage the front, cause leakage, attack the seals and void both the ingress classification and the warranty.

FREQUENCY

Normal production environment	Weekly
Heavy soiling	Daily
High fat load	After every production run

Source: JEL Products document B5.17, version 1.0, 27 May 2026. Ask us for the full protocol if you need it for a HACCP file.

11 Fault finding

Work through this table before reporting a fault. Isolate the supply before any action that involves opening a box. Most faults reported to us on this product turn out to be the supply voltage at the end of a DC run, a loose terminal, or a luminaire that was connected as the wrong version.

Symptom	Applies to	Probable cause	Action
No light at all	All	Supply off, breaker tripped, fuse blown, or a break in the run	Check the breaker or fuse and measure the supply at the joint or at connector 2
No light, supply present at the joint	DC	Reversed polarity, supply outside the range, or the on board driver failed	Check red to plus and black to minus and the voltage against the label. Otherwise the luminaire is exchanged, section 12.2
No light, supply present at the driver	AC	Driver failed, wrong driver for the supply, or the temperature pair not connected so the driver reads an open circuit	Check the driver label against the supply and all four cores of the tail through to connector 2, then replace the driver at ground level, section 12.3
Goes out when the machine works, comes back at idle	DC	Supply below 20 V or below 35 V at the luminaire under load: long run, thin cable, weak battery	Measure at the luminaire under load. Increase the cross section, shorten the run, or go to 48 V, section 7.7
Luminaire destroyed on switch on	DC, AC tail	Mains on a DC luminaire or on the tail, or 48 V on a 24 V luminaire	Not a warranty case. Read the label, section 2.5, and replace the luminaire
Breaker trips on switch on	AC	Too many drivers on one breaker for the inrush	Reduce the number per breaker or change the characteristic, section 7.3
Residual current device trips	AC	Combined leakage current of the circuit	Split the circuit or size the device for 0.7 mA per luminaire
Warm or discoloured terminal in the box	DC 24 V	Loose terminal at 13.4 A	Isolate, cut back the damaged conductor, re-terminate with an end sleeve and torque. Check every other terminal in the box
Dims back by itself	All	Thermal foldback: ambient above plus 50, fins packed with mud, or mounted against an exhaust or a canopy outlet	Check the ambient, clear the fins, move the luminaire
Flicker or unstable output	All	Loose terminal, a corroded joint, or a dimming signal picking up interference	Retighten, replace a corroded joint, separate the dimming conductors from the mains conductors
Luminaire stays at partial output	AC	Dimming input at a low level, or an NFC setting from a previous project	Check the control signal and the driver setting, section 9.2
Changes colour on its own	Bi-colour	The supply is being interrupted for less than 5 seconds: a chattering relay or a dip at cranking	Feed it from a clean switched circuit, section 9.3
Output visibly lower than the design	All	Dirty or scratched front, or blocked fins	Clean per section 10.4 or 10.5, then measure again. A sandblasted polycarbonate front is a return
Glare to other operators, or light in the sky	All	Wrong optic in that position, or the luminaire has rolled upward	Compare the article code with the design, re-aim, seat both index bolts
Moisture inside the luminaire	All	Chipped glass edge, a luminaire rested on its front, a lance held on the seal, or water drawn in along a wet tail end	Do not open it. Return to JEL Products, section 12.4
Moisture inside the box	All	Gland not tightened to dimension L, gasket out of its groove, no drip loop	Isolate, dry, refit the gasket, retighten to dimension L, section 7.6, add the drip loop
Luminaire has rolled out of aim	All	Index bolts not seated, or pivots loosened by shock	Re-aim, seat both index bolts in the same hole and retighten to torque
Luminaire came loose	All	One bolt, a cracked weld under the foot, or no secondary retention	Refit per chapter 6 on at least two bolts with a rated safety cable and a plate under the foot
Early driver failure, repeated	AC	The driver ambient is above plus 50 degrees Celsius, or the driver is in the canopy	Measure the ambient at the driver. Relocate it, section 7.5

If the fault is not in this table, or if the action does not resolve it, contact JEL Products with the article code and the internal production code from the type label, the position on the site or the machine, the date of installation and what you have already checked. See section 2.5 for the two codes.

12 Repair and spare parts

The Shark is built so that nothing needs to be reached in service, and that cuts both ways. On the AC version the driver sits outside the housing and is replaced at ground level: the LEDs outlive three drivers, and that is the whole point of the arrangement. On the DC versions the driver is on the board: there, a driver fault is a luminaire exchange.

12.1 What is replaceable on site

Part	Reference	Note
Remote driver, AC, 90 to 305 V	BLD320	225 × 68 × 38.5 mm, 1,120 g. Replaced without opening the luminaire. Quote the wattage setting
Remote driver, AC, 180 to 528 V	TLD320	225 × 68 × 38.5 mm, 1,150 g. Not interchangeable with the BLD320 on the supply side
Driver box	DRB-1	276 × 194 × 86.5 mm, 4.2 kg, IP66 and IP67. One driver up to 320 W
Driver box, systems	DRB-2	441 × 290 × 145 mm, 10.4 kg, IP66 and IP67. Systems up to 2,000 W
Standard bracket	On request	316L, complete with pivot bolts and index bolts, shock rated to 200 G
Swing bracket	DCB-SH-66-SB	316L arm and mounting plate, section 3.2
Pivot bolts and index bolts	On request	Supplied as a set per luminaire, 316L
Safety cable	On request	1 m, rated to the luminaire weight and the configuration. Not supplied as standard, see section 6.5
Cable gland	M20 × 1.5	Factory fitted; replaced by JEL Products, because it seals the housing

Brackets, safety cables and glands are supplied against a specification rather than a shelf article number, because they follow the version and the configuration. State both codes from the type label and we issue the right part.



DRB-1 driver box. One driver up to 320 W, the BLD320 or the TLD320 of a Shark



The Shark in the swing bracket. The arm and the plate are supplied as one assembly

Quote the article code and the internal production code from the type label in any spare part order, see section 2.5. A driver programmed for a lower wattage runs the luminaire at that wattage, and a BLD320 does not run on a 400 V supply.

12.2 What is not replaceable on site

DANGER

Do not open the housing, do not remove the front or the front frame, and do not cut the tail at the luminaire. Opening the luminaire ends its ingress protection, its electrical safety, its warranty and its declaration of conformity.

- The light source is not replaceable in the field. At the end of its life the complete luminaire is returned or replaced.
- The lenses are fitted at the factory behind the front. A change of beam angle is a change of luminaire.
- **On a DC luminaire the driver is on the board** and is not a field part. A driver fault means the luminaire is exchanged. That is the trade for having nothing outside the housing on a machine.
- The front and its seal are not replaceable in the field. A cracked, sandblasted or chipped front returns to JEL Products.
- The gland and the tail are part of the sealed housing. A damaged tail is a return, not a splice at the luminaire; a joint further along the tail, in a box, is fine.
- Repair, overhaul and modification are carried out by JEL Products or by a company it appoints. In case of doubt, return the luminaire for inspection.

12.3 Driver replacement, AC

- 1 Isolate the supply and secure it. Verify the circuit is dead. Let the driver cool.
- 2 Open the driver box or the junction box the bare driver sits in, and photograph the wiring before you disconnect anything. Note the ambient: if it is above plus 50 degrees Celsius, the position is the fault and the new driver will fail as well.
- 3 Disconnect the driver at CON 1 and CON 2, following the table in section 7.2.
- 4 Fit the replacement driver of the same type, BLD320 or TLD320, and programmed for the same wattage, and reconnect according to section 7.2, one conductor per terminal. A different driver is not permitted.
- 5 Close the box, check the seal, restore the supply and run the checks in section 8.1. Record the replacement, with the date and both codes from the label, in the site or machine documentation.

NOTE

The internal production code tells us which board is in the luminaire the driver has to work with. Quote both codes.

12.4 Returning a luminaire

- 1 Contact JEL Products before you send anything. We will tell you whether the fault is a field repair, a driver exchange or a return.
- 2 Have both codes from the type label ready, plus the position on the site or the machine, the date of installation and what you have already checked from chapter 11.
- 3 Pack the luminaire in its original box, standing on its foot, front protected, never resting on the front. Leave the bracket on it and cap the tail ends.
- 4 State what the luminaire was doing when it failed: the machine, the supply voltage measured at the luminaire, and whether it was washed that day.

NOTE

Do not open a luminaire before returning it, not even to look. An opened housing changes a warranty assessment into a discussion, and the evidence we need is usually inside the seal you would break.

WHAT WE LOOK AT ON A RETURN

The internal code	Which board, which batch, which production date
The front seal and the gland	Whether water got in, and from where
The board	Overvoltage, reverse polarity or mains on a DC luminaire leave a signature
The front	Impact, sandblasting, thermal shock or a chipped edge
The bracket	How many bolts were used, and whether a retention was fitted
The driver	Case temperature history and failure mode, on the AC version



The Shark returns on its bracket, with the tail capped

13 Removal and disposal

13.1 Taking the luminaire out of service

- 1 Isolate the supply and secure it, and lock out the machine. Verify the circuit is dead, then disconnect the tail in its junction box, at the driver box on an AC version, or at the DC distribution.
- 2 Cap the tail ends, so the conductors stay dry in storage.
- 3 Two people on a mast or a boom. Release the secondary retention last, not first.
- 4 Undo the foot bolts with the housing held level throughout. Leave the bracket on the luminaire.
- 5 Label the luminaire with its position and article code before it leaves the site or the machine. If it is to be reinstalled, pack it in its original box, standing on its foot and never resting on its front.

WARNING, WORKING AT HEIGHT

Removal is the moment a luminaire falls. Have the second person on the platform before you loosen anything, and keep the area below clear. 9.2 kg that comes off two of its three bolts swings before it drops.

13.2 Disposal



Electrical equipment does not belong in household or unsorted municipal waste. Under European Directive 2012/19/EU it must be collected separately and processed by an approved recycling facility. Observe the national and regional rules at the place of disposal.

The cast aluminium housing and the 316L bracket are recyclable materials; the LED board, the driver of an AC version, the front and the cable go to electronic waste, glass or plastics. Separate the housing from the electronics at the recycler rather than in the field. The Shark contains no mercury and no lead above the RoHS limits.

Glossary

Beam angle	Full angle between the directions where the intensity has fallen to 50 per cent of the peak. The field angle uses 10 per cent
BIC	Bi-colour build, 4000 K with amber, switched from the supply
BLD320, TLD320	The remote drivers of the AC version, for 90 to 305 and for 180 to 528 VAC
C5	Corrosivity category per ISO 9223, industrial and marine
Cd · A	Drag coefficient times frontal area, the figure used for wind load
Crane Light Stabilizer	Boom lighting system that holds the aim while the boom moves
CRI, Ra	Colour rendering index
DALI-2	Addressable digital lighting control protocol, on the AC driver
DRB-1, DRB-2	The JEL driver boxes for one driver and for systems
Flare	The 14 × 46 degree asymmetric optic
Hazard distance	The distance beyond which the luminaire is Risk Group 1 per IEC/TR 62778
IK	Impact rating per IEC 62262
Index ring	The twelve hole ring on the bracket arm that locks the tilt in 30 degree steps
L90B05	90 per cent of initial output retained by 95 per cent of the units
Marine White	Housing colour option, not a separate version
MCB	Miniature circuit breaker
NFC	Near field communication, used to set the driver without power
.NOP	The version supplied without optics, 120 degrees
NTC	Negative temperature coefficient, the temperature sensor in the luminaire
PWM	Pulse width modulation, a dimming method
Swing bracket	The 316L arm and plate of section 3.2, for structures that move
Tail	The factory fitted cable on the luminaire, 2.0 m
Ta, Tc	Ambient temperature, and the case temperature of the driver
ULOR	Upward light output ratio
WEEE	Waste electrical and electronic equipment

Specifications are subject to change. This manual describes the standard configurations. Where a project specification differs, the project documentation takes precedence.

14 Appendix

14.1 Declaration of conformity

EU Declaration of Conformity, 9 December 2025

JEL Products B.V., Ampèrestraat 19e, 3861 NC Nijkerk, The Netherlands, declares under its sole responsibility that the products it covers are in conformity with the essential requirements of the directives below. The Shark Series is named in its product scope as **Shark Series, SH-66 in AC and DC**, with all electrical, optical and mechanical variants within the defined type codes, wattages, voltages and colour temperatures.

DIRECTIVES

Low Voltage	2014/35/EU
EMC	2014/30/EU
RoHS	2011/65/EU and (EU) 2015/863
WEEE	2012/19/EU

DECLARATION

Date	9 December 2025
Place of issue	Nijkerk
Signed by	L. de Graaf, Technical Director
Serial number	See product marking
Year of manufacture	2024 to 2026

APPLIED HARMONISED STANDARDS

EN IEC 60598-1 luminaires, general requirements. EN IEC 60598-2-5 floodlights. EN IEC 61347-1 lamp controlgear, general. EN IEC 61347-2-13 LED controlgear. EN IEC 62384 LED driver performance. EN IEC 60529 IP classification. EN IEC 61000-6-2 EMC immunity, industrial. EN IEC 61000-6-4 EMC emission, industrial. EN ISO 12100 risk assessment, where applicable.

The technical file is compiled and maintained by JEL Products B.V. at the address above. The signed declaration is available on request and is supplied with the project documentation. Document: EU DECLARATION OF CONFORMITY_DCbright_EU_09122025. On a machine, the luminaire is a component and the machine builder's declaration under the Machinery Directive covers the installation.

14.2 Warranty

Version	Housing	Electrical and seals
Shark AC	5 years on the complete luminaire	
Shark DC 24 V and 48 V	5 years on the complete luminaire	
Remote driver, AC	5 years, within the driver ambient of section 7.5	
Brackets	5 years	
Warranty runs from the date of delivery under the JEL Products warranty terms and covers material and manufacturing defects.		

It does not apply where the luminaire has been installed, operated or maintained contrary to this manual, where the housing has been opened or the tail cut at the luminaire, where mains has been connected to a DC version or to a tail, where the supply was outside the range on the type label, where the temperature pair of an AC version has been disconnected, where the driver has been installed in the wash zone, the engine canopy or above plus 50 degrees Celsius ambient, where the luminaire has been mounted on one bolt, where it has been cleaned outside the limits in section 10.5, or where it has been used outside the intended use in section 2.2.

NOTE

Improper installation, operation or maintenance may also invalidate the certificate and the declaration of conformity, not only the warranty.

14.3 Related documents

Document	Where
Shark datasheet, Rev. 1, 20 August 2026	Product page
Photometric files per optic, EULUMDAT and IES	Product page
Dimensioned drawings DCB-SH-66 and DCB-SH-66-SB, DXF and STEP	On request
Crane Light Stabilizer datasheet and instruction	Product page, on request
Power supply scheme for a 60 V DC boom installation, JEL-60V-2L-320W-PAR-V2	On request, per project
Driver box manual, DRB-1 and DRB-2	On request
Signed declaration of conformity	On request, and with the project documentation
Test and inspection reports, see section 3.4	On request

14.4 What this manual replaces

This edition supersedes the DCbright Operating Instruction Shark Series of 22 April 2024. Where the older document and this manual disagree, this manual applies.

Five points are corrected against that document: the ambient range is **minus 45 to plus 50 degrees Celsius**, not minus 40; the expected life is stated as **TM-21 L90B05 above 360,000 h at 50 degrees Celsius**, not as the LM80 figure of 60,500 h printed there; the wide optic is **69 degrees**, as measured, not 70; the hazard distance is given **per optic in section 4.3**, from 2.0 to 12.7 m, instead of one figure for the series; and the driver box is an **ordered item**, not part of every AC delivery. The 2024 instruction also lists a Construction Crane Bracket and a Rear Drivermount Bracket as accessories; these are supplied on request and their dimensions come with the quotation. The 48 V DC version and its code SHDC02 were not in that document at all.

NOTE

If you hold a printed copy, check the revision on the cover against the version on the product page before you rely on a figure. A manual in a site file can be several years old.

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To verify the authenticity of a test or inspection report and certificate, contact us on the number above. Quote both codes from the type label.



Product page

Photometric files, drawings, the datasheet and the current version of this manual.

jelproducts.nl/en/products/shark

DOCUMENT

Number	MAN-SHS-EN
Revision	1
Date	7 September 2026
Language	English
Applies to	SHAC01, SHDC01 and SHDC02, in Titanium Black and Marine White, on the standard bracket, in the swing bracket and on the Crane Light Stabilizer
Pages	See the footer