HIGH TEMPERATURE LED FLOODLIGHT

Orca HT

Shown: Orca HT, Titanium Light Grey, chemically hardened glass front.

CE | IP69K | IK09 | Class II | Ta −45 … +120 °C | C5 ISO 9223 | 90–305 / 180–528 VAC | silicone cable to 150 m | remote driver | borosilicate option | Vibration 6 G | 5-year warranty to +120 °C

65,000 lumens at an ambient temperature of +120 °C, continuously. The driver sits outside the hot zone and the luminaire is connected to it with heat resistant silicone cable, so the only part in the heat is the part that can take it.

LUMINOUS FLUX	POWER	AMBIENT
65,000 lm	320 W	+120 °C
INGRESS	**IMPACT**	**CABLE RUN**
IP69K	IK09	150 m

Values apply to the version without optics at 6500 K, at the stated ambient temperature, including driver consumption. Bi-colour is not available on the high temperature versions.

WHY IT IS SPECIFIED

The driver leaves the hot zone. Electrolytic capacitors are what fail in heat. Placing the driver outside the zone and connecting it with silicone cable removes the failure mode instead of derating around it.

Up to 150 m between luminaire and driver. The driver box can sit in the control room or on a cool wall, which is also where a technician can reach it without a shutdown.

Two output options. Without optics for close range over a wide field, or with 20, 40 and 60 degree HT optics where the light has to be thrown at a target.

WHERE IT IS USED

- Steel plant bays and casting floors
- Rolling mills and reheat furnace fronts
- Foundries and melt shops
- Coke plant and sinter lines
- Glass works and annealing lehrs
- Cement kilns and clinker coolers
- Aluminium smelters and potrooms
- Drying ovens and paint lines
- Paper machines and drying sections
- Asphalt and bitumen plant
- Waste incineration and boiler halls
- Heat treatment and forging shops

VERSIONS

	ORHT01, no optics	ORHT02, with optics
Luminous flux at 320 W	65,000 lm	52,000 lm
Luminous flux at 240 W	51,000 lm	39,000 lm
Beam	120° very wide	20°, 40° or 60° HT optic
Front	Chemically hardened glass, or borosilicate	Chemically hardened glass, or borosilicate
Ambient	−45 to +120 °C	−45 to +120 °C
Weight incl. bracket	22.7 kg	22.7 kg

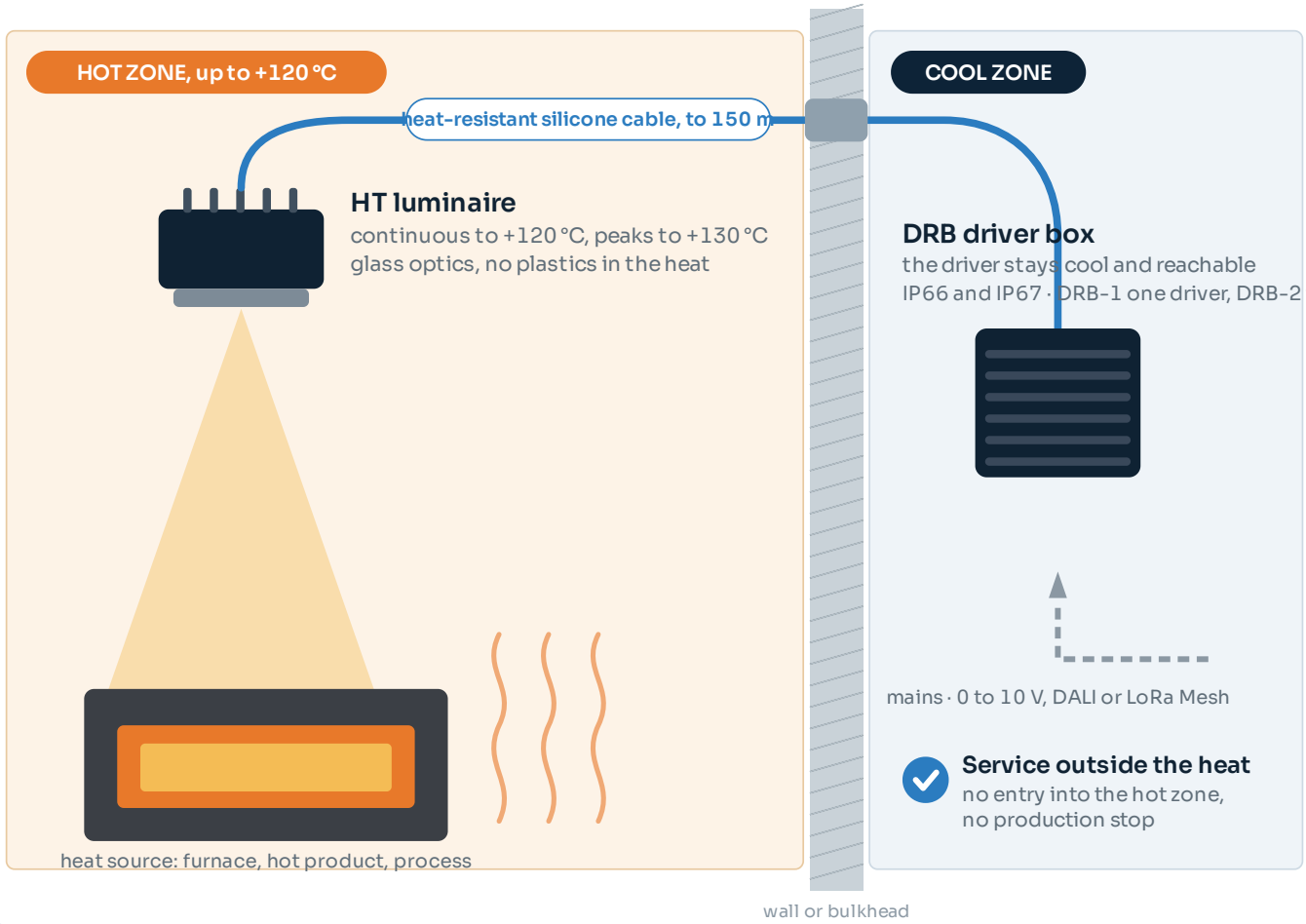
A 316L stainless steel high temperature version is available on request. The HT versions do not carry the bi-colour option.

The HT system

Engineered as a system for heat, not as a luminaire that tolerates it.

Standard industrial LED luminaires are specified to roughly +50 °C ambient. Above that the driver electronics fail first: in virtually every failure of LED lighting in a hot environment, the driver is the weak link. Every installation in the HT line therefore consists of two parts. The heat resistant luminaire sits in the hot zone and the driver sits outside it, supplied bare as standard or built into a DRB driver box, joined by heat resistant silicone cable. Nothing that fails at temperature is left in the heat.

+120 °C continuous, with full warranty	**+130 °C** short peaks permitted	**150 m** heat-resistant silicone cable	**130,000 h** driver life at Tc 50 °C	**IP67** remote driver and DRB box



The HT system: the luminaire in the heat, the driver outside it.

BUILT-IN SELF-PROTECTION

The luminaire protects itself with internal temperature feedback. As the internal temperature rises it dims back automatically, and on overheating it switches itself off. That feedback runs through the four core supply of every luminaire: two cores of 2.5 mm² for power and two of 0.5 mm² for temperature control. It is the reason the cable specification has four cores rather than two.

Above +130 °C, or unsure about the thermal load? Our engineers calculate the thermal load per mounting position and design the complete system, including the driver location, cable route and DRB selection. Photometric values are measured at a +50 °C reference ambient. HT luminaires are not ATEX certified.

Light output and optics

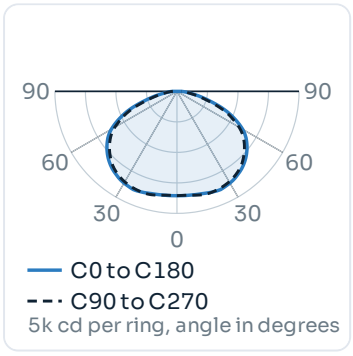
Values apply to the version without optics at Ta 25 °C, including driver consumption. The luminous flux is maintained across the full ambient range; what changes with temperature is the LED service life, stated as a ladder in the colour table.

BEAM CHARACTERISTICS

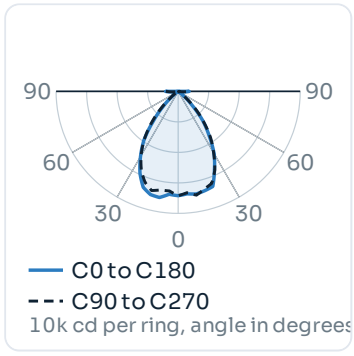
Version	Distribution	Beam angle 50 % of peak	Field angle 10 % of peak	Typical use
ORHT01	No optics, very wide	136°	168°	Close range over a wide field: furnace fronts, casting bays, oven zones
ORHT02, 20°	HT optic, narrow	20°	–	Long throw onto a specific target through a hot atmosphere
ORHT02, 40°	HT optic, medium	40°	–	Bay and aisle lighting from a hot roof structure
ORHT02, 60°	HT optic, wide	60°	–	General cover at moderate mounting height in the hot zone

The beam angle is the full angle between the two directions where the intensity has fallen to 50 % of the peak. HT optics are available on the Orca, the Barracuda and the Linear only; on the other high temperature luminaires the housing is too small to carry one and those versions are 120° very wide.

LIGHT DISTRIBUTION



ORHT01, no optics



ORHT02, 60° HT optic

OBTRUSIVE LIGHT

ULOR at 0° tilt	**0 %**
Colour temperatures	6500 K, 4000 K and 2700 K
Bi-colour	Not available on the high temperature versions

Nothing is emitted above the horizontal at 0° tilt. That is the figure a permitting authority asks for when a site borders a residential area or a protected zone, and it is the starting point for any assessment against NEN-EN 12464-2 and the NSVV guidance on obtrusive light. Where the site condition demands a cut off optic rather than a controlled floodlight, see the DarkLicht range.

COLOUR AND CONSISTENCY

Colour temperatures	6500 K, 4000 K, 2700 K
Bi-colour	Not available on the high temperature versions
Colour rendering	Ra > 70 standard, optionally 80 or 90
Colour consistency	MacAdam step 3 or better
LED service life	TM-21 L90B05, see the temperature ladder below
Ladder	> 360,000 h at 50 °C · 103,000 h at 85 °C · 71,700 h at 105 °C · 51,400 h at 120 °C

Full specification

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

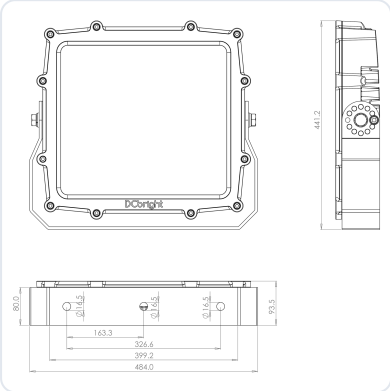
	Orca HT
PERFORMANCE	
Luminous flux, no optics	65,000 lm at 320 W · 51,000 lm at 240 W
Luminous flux, with optics	52,000 lm at 320 W · 39,000 lm at 240 W
Power consumption	320 W or 240 W
Beam	120° very wide, or 20°, 40° or 60° HT optic
ELECTRICAL AND DRIVER	
Supply voltage range	90–305 VAC or 180–528 VAC, 50/60 Hz
Current draw	1.5 A at 220 V and 0.8 A at 380 V at 320 W · 1.1 A at 220 V and 0.6 A at 380 V at 240 W
Power factor at full load	> 0.9 at 60 to 100 % load
THD at full load	< 15 % at 60 to 100 % load
Surge protection	6 kV line to line, 10 kV line to earth (IEC 61000-4-5)
Dimming	0–10 V, PWM, DALI-2, or over NFC
Driver	Remote 800 W driver, mounted outside the hot zone, bare or in the DRB-2
Driver ambient	The driver box must sit in an ambient of at most +50 °C
Driver life	≥ 100,000 h at Tc 75 °C. Replaced without opening the luminaire
CONSTRUCTION	
Housing	Cast aluminium, less than 0.08 % copper
Surface finish	Conversion layer plus 2-layer titanium-based e-coating
Colour	Titanium Light Grey
Bracket	High tensile 316L stainless steel, adjustable through ±240° in 30° steps
Front	Chemically hardened glass IK09, or borosilicate glass
Protection class	Class II
Ingress protection	IP66, IP67, IP68 and IP69K, resistant to steam and high pressure cleaning
Impact resistance	IK09, set by the front cover (IEC 62262)
Corrosion class	C5 industrial and marine (ISO 9223)
Vibration and shock	6 G at resonant frequency (IEC 60068-2-6), shock tested to IEC 60068-2-27
DURABILITY AND DIMENSIONS	
Ambient temperature	−45 to +120 °C continuous
LED service life	TM-21 L90B05: > 360,000 h at 50 °C · 103,000 h at 85 °C · 71,700 h at 105 °C · 51,400 h at 120 °C
Cable and termination	SiHF-OB heat resistant silicone, 4 cores (2 × 2.5 mm² + 2 × 0.5 mm²), 15.0 m as standard, up to 150 m
Dimensions	Luminaire with bracket 515 × 440 × 95 mm · housing without bracket 484.0 × 441.2 × 93.5 mm
Weight	22.7 kg incl. bracket, driver box separate
Warranty	5 years on the complete luminaire up to +120 °C

The driver box is mounted outside the hot zone and is connected with heat resistant silicone cable. The LED life ladder applies to every high temperature luminaire in the range and is stated in the colour table rather than as a footnote.

Mechanics, mounting and driver

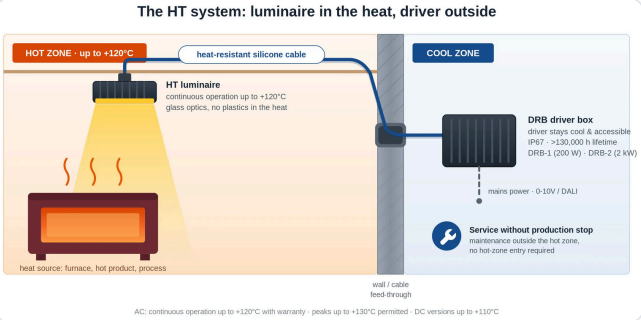
All drawings are to scale and dimensioned in millimetres. The driver box is a separate item and is mounted outside the hot zone.

STANDARD BRACKET



Housing	484.0 × 441.2 × 93.5 mm
Incl. bracket	515 × 440 × 95 mm
Mounting foot	399.2 mm wide, 80.0 mm deep
Fixing holes	3 × Ø 16.5 mm
Hole centres	326.6 mm, 163.3 mm pitch
Adjustment	±240° in 30° steps

LUMINAIRE AND DRIVER BOX



In the hot zone	The luminaire only
Outside the hot zone	The driver, in the DRB-2 or on a tray
Between them	Heat resistant silicone cable, 15.0 m standard, up to 150 m
Driver ambient	+50 °C maximum
Longer runs	Beyond 150 m is a custom build

MOUNTING AND ACCESSORIES

Standard bracket	High tensile 316L, supplied as standard
DRB-2 driver box	Housing for the remote driver, outside the hot zone
Borosilicate front	Option where the glass sees direct radiant heat
Safety cable	Optional, supplied with the luminaire
Silicone cable	15.0 m as standard, up to 150 m. Beyond that is a custom build
316L high temperature version	On request

REMOTE DRIVER

Type	800 W remote driver, 90–305 or 180–528 VAC
Position	Outside the hot zone, ambient +50 °C maximum
Case temperature	Tc −40 to +90 °C
Lifetime	≥ 100,000 h at Tc 75 °C
Size and weight	237 × 125 × 49 mm, 2,600 g
Enclosure	Bare, or in the DRB-2

Heat is what kills a driver, not the LED. Electrolytic capacitors dry out. Moving the driver out of the hot zone is the single change that turns a high temperature installation from a yearly job into a ten year one.

DRB-2 DRIVER BOX

Use	Housing for the remote driver, outside the hot zone
DRB-2	Systems up to 2,000 W. 441 × 290 × 145 mm, 10.4 kg, IP66 and IP67
Ingress protection	IP66 and IP67
Ambient	+50 °C maximum

Ordering, standards and documents

ORDER CODE

Example **ORHT01-65K**

Orca HT, no optics, 6500 K

ORHT01	High temperature, without optics, 120° very wide
ORHT02	High temperature, with 20°, 40° or 60° HT optic
65K · 40K · 27K	6500 K · 4000 K · 2700 K
.20 · .40 · .60	HT optic suffix on ORHT02
240W	Suffix for the 240 W build

Bi-colour and amber are not available on the high temperature versions. Cable length beyond 15.0 m, the diffuse borosilicate front and the 316L housing are confirmed at order.

COMBINATIONS

HT optics with 2700 K	Possible
Borosilicate front	Any version
316L housing	On request
Bi-colour	Not available
Cable to 150 m	Standard option
DC supply	Not available on the Orca HT

STANDARDS AND VERIFICATION

Subject	Standard	Verification
Luminaire safety	IEC/EN 60598-1, -2-5	In-house test
EMC emission and immunity	EN 55015, EN 61547 · IEC 60533 marine, bridge and open deck	TÜV
Ingress	IEC 60529 and ISO 20653. IP66, IP67, IP68, IP69K	In-house test
Impact and vibration	IEC 62262 IK09, set by the front cover · IEC 60068-2-6 at 6 G	In-house test
Shock and corrosion	IEC 60068-2-27 · ISO 9223 class C5, industrial and marine	In-house test
Photometry	IES LM-79, IES files per optic	In-house test
Substances	RoHS, REACH	Self-declaration

BEFORE YOU ORDER

A sample luminaire to hang before you commit to a project quantity.

Five years warranty on the complete luminaire.

A DIALux calculation from our engineers, on your site drawing.

PRODUCT PAGE

IES files and revision history, DXF and STEP on request, and project references.
jelproducts.nl/en/products/orca

WHERE IT EARNS ITS PLACE

Above +50 °C a normal floodlight is not a lighting problem, it is a maintenance contract. The Orca HT is specified where the hot zone cannot be reached during production and where the alternative is replacing drivers every year on a platform above a casting floor.

Notes. Values are for the standard configuration. The warranty follows the operating temperature: five years to +120 °C on AC and to +110 °C on DC. The LED life ladder in the colour table is the same for every high temperature luminaire in the range. North American models on request. The JEL range is not ATEX or Ex certified.