HIGH TEMPERATURE CANOPY LUMINAIRE

Manta HT



Shown: Manta HT Surface, 7,500 lm, diffuse borosilicate front.

CE | IP69K | IK08 | Class II | Ta −45 … +120 °C | C5 ISO 9223 | 90–305 VAC | silicone cable 2 m | borosilicate option | 150 lm/W | recess and surface | 5-year warranty to +120 °C

7,500 lumens at 50 watts and an ambient temperature of +120 °C, in the same 380 × 380 mm panel. The ceiling luminaire for hot covered spaces: oven roofs, drying chambers and process canopies.

LUMINOUS FLUX	POWER	EFFICACY
7,500 lm	50 W	150 lm/W
AMBIENT	**INGRESS**	**PANEL**
+120 °C	IP69K	380 × 380 mm

Values apply at 6500 K, at the stated ambient temperature, including driver consumption. Bi-colour and amber are not available on the high temperature versions.

WHY IT IS SPECIFIED

150 lm per watt at +120 °C. A high temperature luminaire normally costs efficacy because the usual approach is to derate a standard product. The Manta HT is designed for the condition and still delivers 150 lumens per watt in the heat.

A flat panel in a hot ceiling. In an oven roof there is no depth available and no access from above. The recessed version is 20 mm deep and the panel is the whole luminaire.

Silicone cable to the driver. The driver sits outside the hot zone and is connected with 2 m of heat resistant silicone cable as standard, longer on request, so the only component in the heat is the one that can take it.

WHERE IT IS USED

- Oven and kiln roofs
- Drying chambers and curing tunnels
- Bakery and food process ovens
- Paint lines and powder coating booths
- Heat treatment and annealing chambers
- Climate and test chambers
- Sterilisation and autoclave rooms
- Process canopies and extraction hoods
- Foundry and melt shop covered walkways
- Boiler house ceilings
- Covered areas above hot process equipment

VERSIONS

	Recess HT	Surface HT
Article base code	MNHT02	MNHT01
Luminous flux	7,500 lm	7,500 lm
Power	50 W	50 W
Efficacy	150 lm/W	150 lm/W
Depth	20 mm	95 mm
Weight	3.9 kg	4.9 kg
Ambient	−45 to +120 °C	−45 to +120 °C

HT optics are not possible on the Manta: the housing is too shallow to carry one, so both high temperature versions are 120° very wide. For high temperature with optics, see the **Linear HT**, the **Barracuda HT** or the **Orca HT**.

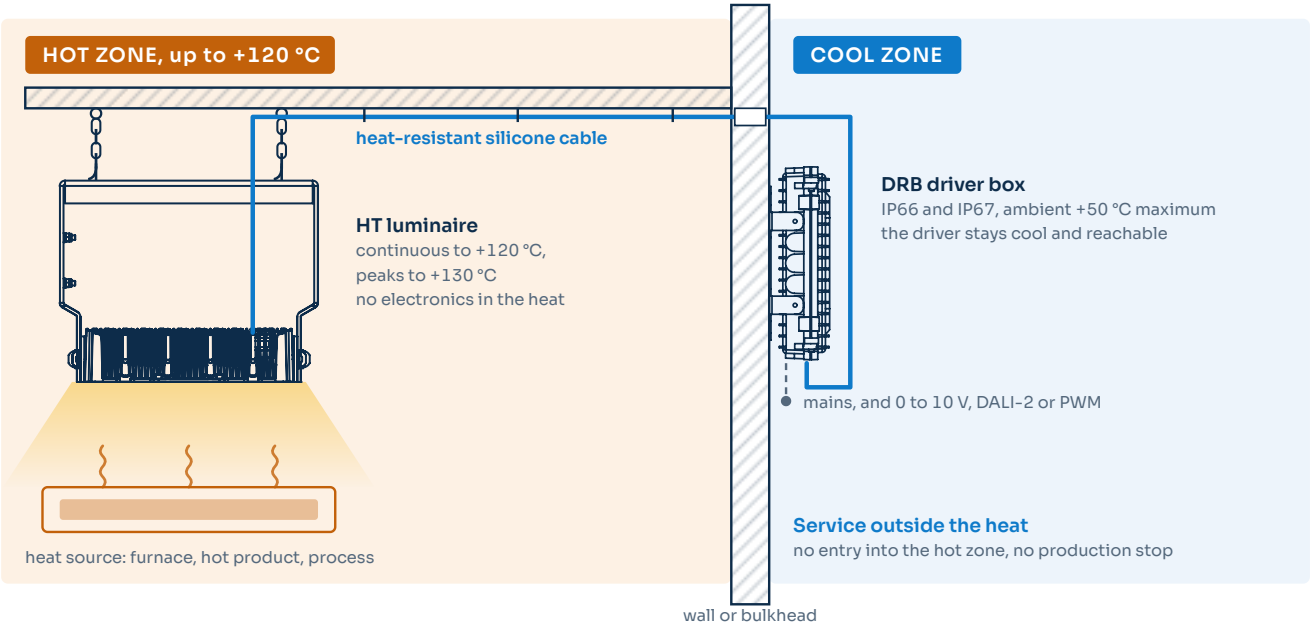
The HT system

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	**2 m** heat-resistant silicone cable	**130,000 h** driver life at Tc 50 °C	**IP67** remote driver and DRB box

THE HIGH TEMPERATURE SYSTEM



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

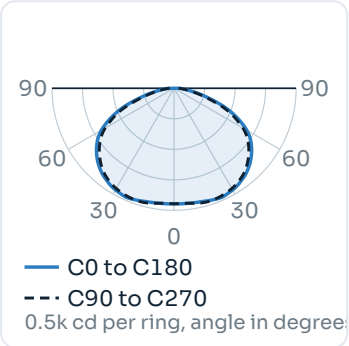
Values apply at Ta 25 °C, including driver consumption. The luminous flux is maintained across the full ambient range; what changes with temperature is the LED service life, stated as a ladder in the colour table.

BEAM CHARACTERISTICS

Version	Distribution	Beam angle 50 % of peak	Field angle 10 % of peak	Typical use
Both versions	No optics, very wide	120°	–	A hot ceiling directly above the work: oven roofs, chambers, hoods
HT optics	Not available on the Manta	–	–	See the Linear HT, the Barracuda HT or the Orca HT

HT optics of 20°, 40° and 60° exist for the Orca, the Barracuda and the Linear only. On the Manta, the Snapper and the Goby the housing is too small or too shallow to carry one, so those versions are supplied as 120° very wide. In a chamber or under a hood that is what is wanted anyway, because the luminaire sits directly above the work.

LIGHT DISTRIBUTION



120° very wide, both versions

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.

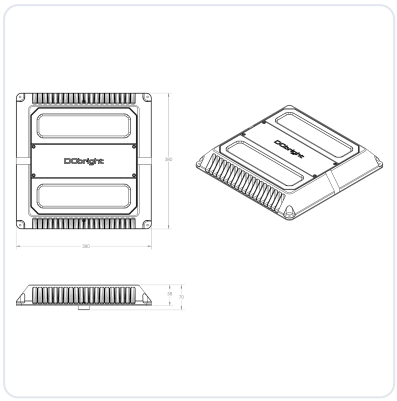
	Recess HT	Surface HT
PERFORMANCE		
Luminous flux	7,500 lm	7,500 lm
Power consumption	50 W	50 W
Efficacy	150 lm/W	150 lm/W
Beam	120° very wide	
ELECTRICAL AND DRIVER		
Supply voltage range	90–305 VAC, 50/60 Hz	
Current draw	0.42 A at 120 V · 0.23 to 0.18 A at 220 to 277 V	
Power factor at full load	> 0.9 at 70 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	BLD120, mounted outside the hot zone	
Driver ambient	The driver box must sit in an ambient of at most +50 °C	
Driver life	≥ 100,000 h at Tc 75 °C, MTBF ≥ 320,000 h	
CONSTRUCTION		
Housing	Cast aluminium, less than 0.08 % copper	
Surface finish	Conversion layer plus 2-layer titanium-based e-coating	
Bracket	Fixed bracket, aluminium, less than 0.08 % copper	
Front	Diffuse chemically hardened glass, or diffuse borosilicate, IK08	
Protection class	Class II	
Ingress protection	IP66, IP67, IP68 and IP69K, resistant to steam and high pressure cleaning	
Impact resistance	IK08 (IEC 62262)	
Corrosion class	C5 industrial and marine (ISO 9223)	
DURABILITY AND DIMENSIONS		
Ambient temperature	−45 to +120 °C	
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 silicone, 4 cores (2 × 2.5 mm² + 2 × 0.5 mm²), 2.0 m	
Dimensions	380 × 380 × 20 mm	380 × 380 × 95 mm
Weight	3.9 kg	4.9 kg
Colour temperatures	6500 K, 4000 K, 2700 K	
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

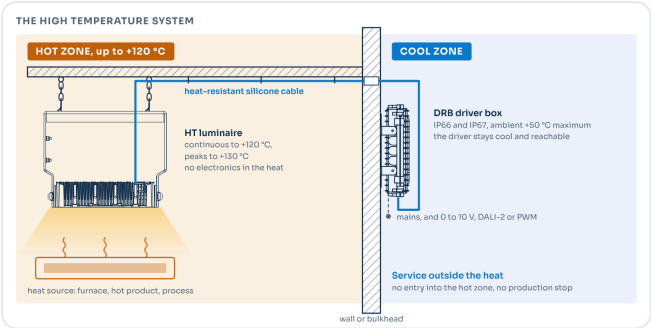
All drawings are to scale and dimensioned in millimetres. The driver is a separate item and is mounted outside the hot zone.

PANEL AND MOUNTING DEPTHS



Panel	380 × 380 mm, both versions
Recess HT	20 mm deep, 3.9 kg
Surface HT	95 mm deep, 4.9 kg
Bracket	Fixed, aluminium
Front	Diffuse diffuse borosilicate for food industry applications
Optics	Not possible on this housing

LUMINAIRE AND DRIVER



In the hot zone	The panel only
Outside the hot zone	The BLD120 driver
Between them	Heat resistant silicone cable, 2.0 m
Driver ambient	+50 °C maximum
Longer runs	On request

MOUNTING AND ACCESSORIES

Fixed bracket	Aluminium, supplied as standard
DRB-1 driver box	Housing for the driver, outside the hot zone
Borosilicate front	Diffuse, where the glass sees radiant heat
Silicone cable	2.0 m as standard, longer on request
Linear alternative	Linear HT, for a run along a tunnel rather than a panel above it
Point source alternative	Goby HT, Snapper HT, Barracuda HT or Orca HT

REMOTE DRIVER

Type	BLD120, 90–305 VAC or 127–420 VDC
Position	Outside the hot zone, ambient +50 °C maximum
Case temperature	Tc −40 to +90 °C
Lifetime	≥ 100,000 h at Tc 75 °C
MTBF	≥ 320,000 h at 75 °C case
Size and weight	161 × 68 × 33.5 mm, 800 g

Heat is what kills a driver, not the LED. On the standard Manta the driver sits inside the panel; on the HT version it moves out of the hot zone entirely. That is the whole difference between the two.

DRB-1 DRIVER BOX



Use	Housing for the driver, outside the hot zone
DRB-1	One driver up to 320 W. 276 × 194 × 86.5 mm, 4.2 kg, IP66 and IP67
Ingress protection	IP66 and IP67
Ambient	+50 °C maximum

Ordering, standards and documents

ORDER CODE

Example **MNHT01-65K**

Manta HT Surface, 6500 K

MNHT02 · MNHT01	Recess HT · Surface HT
65K · 40K · 27K	6500 K · 4000 K · 2700 K
BORO	Diffuse borosilicate front instead of chemically hardened glass
Beam	120° very wide, no optic suffix
Cable	2.0 m silicone as standard, longer on request

Bi-colour and amber are not available on the high temperature versions. Cable length beyond 2.0 m, driver placement and the diffuse borosilicate front are confirmed at order.

COMBINATIONS

Borosilicate front	Both versions
Recess in a hot ceiling	Standard
DALI-2 and NFC	Standard
Bi-colour or amber	Not available
HT optics	Not possible on this housing
Surface Extended in HT	Not available

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	Third party test
Ingress	IEC 60529 and ISO 20653. IP66, IP67, IP68, IP69K	In-house test
Impact and vibration	IEC 62262 IK08 · 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/manta-canopy-light

WHERE IT EARNS ITS PLACE

In an oven roof, a drying chamber or an extraction hood there is no depth for a luminaire and no access from above once the plant is running. The Manta HT is a 20 mm panel that sits in that ceiling permanently, at 150 lumens per watt, with the only heat sensitive component mounted where a technician can reach it.

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.