HIGH TEMPERATURE LINEAR LED LUMINAIRE

Linear HT



LIN30 HT
300 mm
6,400 lm · 30 W



LIN60 HT
600 mm
12,800 lm · 60 W



LIN90 HT
900 mm
19,200 lm · 90 W



LIN120 HT
1,200 mm
25,600 lm · 120 W

Shown: Linear LIN120 HT, 1,200 mm, diffuse borosilicate front, remote driver box.

CE · IP69K · IK09 · Class II · Ta −45 … +120 °C · C5 ISO 9223 · 90–305 VAC · 24 VDC · HT optics 20 · 40 · 60° · silicone cable · external driver · diffuse borosilicate front

The Linear at an ambient temperature of +120 °C, in four lengths and with HT optics of 20, 40 and 60 degrees. One of only three luminaires in the range that can carry an optic at high temperature, for drying tunnels, climate chambers and paper machines where the run has to be lit along its length.

LUMINOUS FLUX	POWER	EFFICACY
6,400–25,600 lm	30–120 W	213 lm/W
AMBIENT	**INGRESS**	**HT OPTICS**
+120 °C	IP69K	20–120°

Values apply to the HT-AC version 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

One of three types that can carry an HT optic. HT optics of 20, 40 and 60 degrees exist for the Orca, the Barracuda and the Linear only. On the other high temperature luminaires the housing is too small.

The driver leaves the hot zone. Electrolytic capacitors are what fail in heat. The HT versions use an external driver connected with heat resistant silicone cable.

The full AC output at +120 °C. The HT-AC versions deliver the same 6,400 to 25,600 lumens as the standard AC versions. What changes with temperature is the LED service life, not the output.

WHERE IT IS USED

- Drying tunnels and curing ovens
- Paper machine drying sections
- Climate and test chambers
- Paint lines and powder coating booths
- Bakery and food process ovens
- Heat treatment and annealing lines
- Textile and coating lines
- Asphalt and bitumen plant
- Boiler houses and flue gas ducts
- Sterilisation and autoclave rooms
- Foundry and melt shop walkways
- Kiln service galleries

VERSIONS

	LIN30 HT	LIN60 HT	LIN90 HT	LIN120 HT
Length	300 mm	600 mm	900 mm	1,200 mm
Flux HT-AC	6,400 lm	12,800 lm	19,200 lm	25,600 lm
Flux HT-DC	3,900 lm	7,800 lm	11,700 lm	15,600 lm
Power AC	30 W	60 W	90 W	120 W
Power DC	22 W	44 W	66 W	88 W

HT-AC runs to +120 °C and HT-DC to +110 °C, and the warranty follows the operating temperature. Optics of 20°, 40°, 60° and 120° are available; the standard build is 120° very wide.

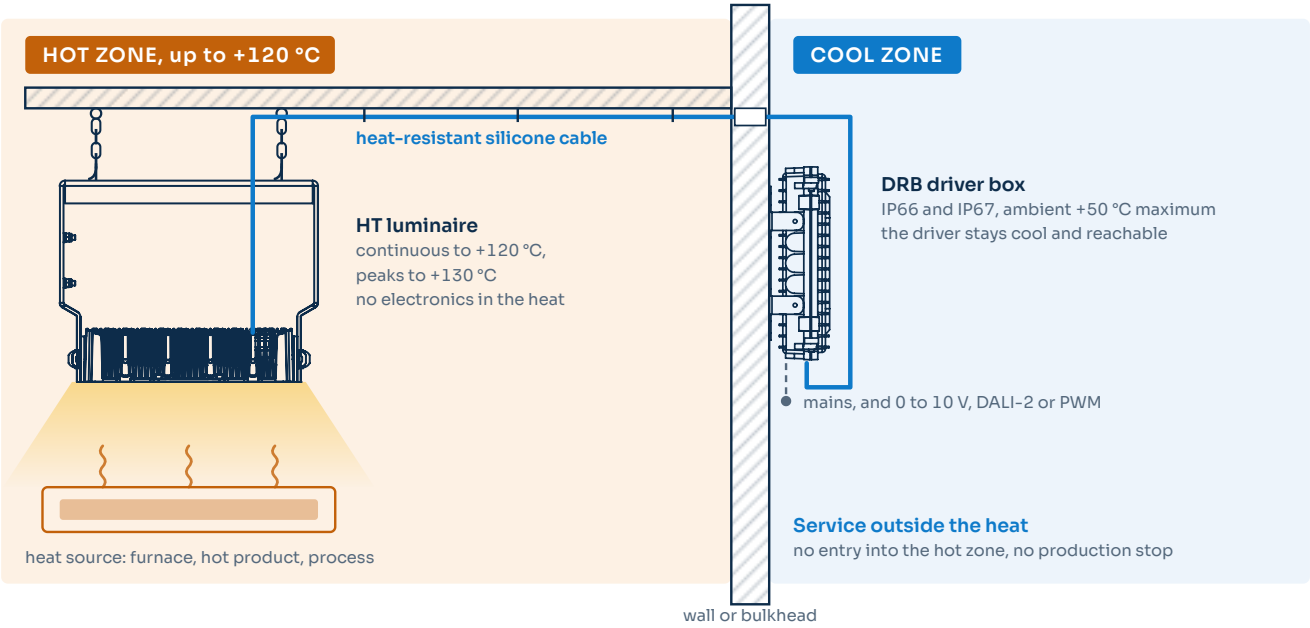
The HT system

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	**on request** 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 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

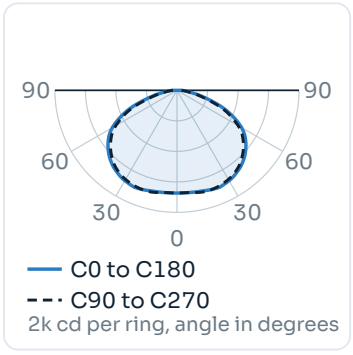
Values apply to the LIN120 HT-AC at Ta 25 °C, including driver consumption. The luminous flux is maintained across the full ambient range; what changes with temperature is the LED service life, stated as a ladder in the colour table.

BEAM CHARACTERISTICS

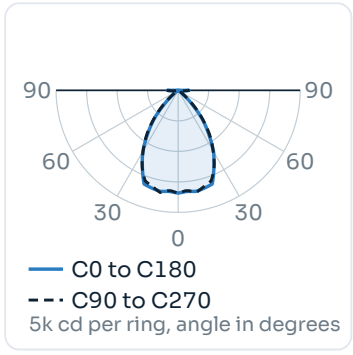
Optic	Distribution	Beam angle 50 % of peak	Field angle 10 % of peak	Typical use
120°, no optic	Very wide, diffuse	136°	168°	The standard build. Tunnels, chambers, ducts at close range
20° HT optic	Narrow, symmetric	–	–	Long throw down a tunnel or a duct from one end
40° HT optic	Medium, symmetric	–	–	Bay and gallery lighting from a hot roof structure
60° HT optic	Wide, symmetric	71°	97°	The general purpose HT optic for a run along a machine

HT optics of 20°, 40° and 60° exist for the Orca, the Barracuda and the Linear only. On the Snapper, the Goby and the Manta the housing is too small to carry one and those versions are 120° very wide. Being able to choose an optic at +120 °C is what makes the Linear HT usable along a tunnel rather than only inside one.

LIGHT DISTRIBUTION



120°, no optic



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.

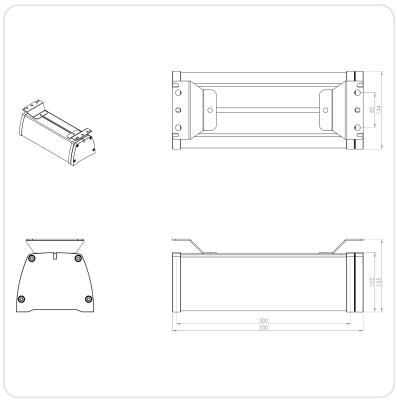
	LIN30 HT	LIN60 HT	LIN90 HT	LIN120 HT
PERFORMANCE				
Luminous flux HT-AC	6,400 lm	12,800 lm	19,200 lm	25,600 lm
Luminous flux HT-DC	3,900 lm	7,800 lm	11,700 lm	15,600 lm
Power consumption AC	30 W	60 W	90 W	120 W
Power consumption DC	22 W	44 W	66 W	88 W
Optics	120° very wide as standard, or 20°, 40° or 60° HT optic			
ELECTRICAL AND DRIVER				
Supply voltage range	90–305 VAC, or 9–32 VDC			
Current draw AC	0.13 to 0.11 A at 220 to 277 V	0.26 to 0.22 A	0.41 to 0.32 A	0.52 to 0.44 A
Current draw DC	0.92 A at 24 V	1.83 A at 24 V	2.8 A at 24 V	3.7 A at 24 V
Driver	AC: external BLD075	AC: external BLD075	AC: external BLD120	AC: external BLD120
Driver ambient	The driver box must sit in an ambient of at most +50 °C			
CONSTRUCTION				
Housing	Cast aluminium, less than 0.08 % copper. One piece, no end caps			
Surface finish	Conversion layer plus 2-layer titanium-based e-coating			
Bracket	Aluminium, less than 0.08 % copper, 0° to 45° in seven locked positions			
Front	Diffuse chemically hardened glass, or diffuse borosilicate, IK09			
Protection class	Class II			
Ingress protection	IP66, IP67, IP68 and IP69K, resistant to steam and high pressure cleaning			
Impact resistance	IK09 (IEC 62262)			
Corrosion class	C5 industrial and marine (ISO 9223)			
DURABILITY AND DIMENSIONS				
Ambient temperature	−45 to +120 °C on AC, −45 to +110 °C on DC			
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 × 1.0 mm² + 2 × 0.5 mm²) to 600 mm, 2 × 2.5 mm² above			
Dimensions	134 × 102 × 350 mm	134 × 102 × 650 mm	134 × 102 × 950 mm	134 × 102 × 1250 mm
Weight	2.8 kg	4.4 kg	6.0 kg	7.6 kg
Warranty	5 years to +120 °C on AC, to +110 °C on DC			

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

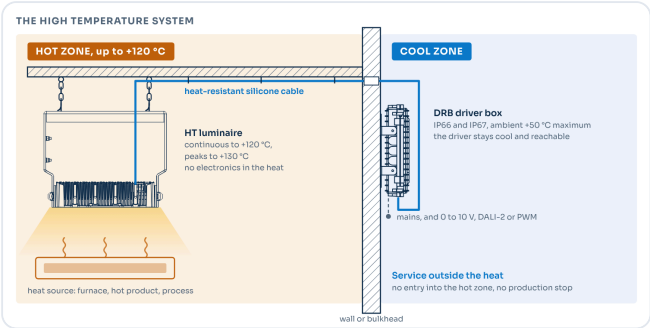
All drawings are to scale and dimensioned in millimetres. The driver box is a separate item and is mounted outside the hot zone.

HOUSING AND BRACKET



LIN30 HT	134 × 102 × 350 mm, 2.8 kg
LIN60 HT	134 × 102 × 650 mm, 4.4 kg
LIN90 HT	134 × 102 × 950 mm, 6.0 kg
LIN120 HT	134 × 102 × 1250 mm, 7.6 kg
Bracket	Aluminium, 0° to 45° in seven locked positions
Front	Diffuse diffuse borosilicate for food industry applications

LUMINAIRE AND DRIVER BOX



In the hot zone	The luminaire only
Outside the hot zone	The BLD075 or BLD120 driver
Between them	Heat resistant silicone cable
Driver ambient	+50 °C maximum
Optics	20°, 40° or 60° HT optic, or 120° very wide

MOUNTING AND ACCESSORIES

Bracket	Aluminium, supplied as standard, 0° to 45° in seven locked positions
DRB-1 driver box	Housing for the external driver, outside the hot zone
HT optics	20°, 40° or 60°, ordered as a suffix
Borosilicate front	Diffuse, where the glass sees radiant heat
Silicone cable	SiHF-OB, length on request
Point source alternative	Goby HT, Snapper HT, Barracuda HT or Orca HT

EXTERNAL DRIVER

LIN30 and LIN60	BLD075, outside the hot zone
LIN90 and LIN120	BLD120, outside the hot zone
Position	Ambient +50 °C maximum
Case temperature	Tc −40 to +90 °C
Lifetime	≥ 100,000 h at Tc 75 °C
Enclosure	Bare, or in the DRB-1

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

DRB-1 DRIVER BOX



Use	Housing for the external 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 **LVHT04-65K.60**

Linear LIN120 HT, AC, 1,200 mm, 6500 K, 60° HT optic

LVHT01 … LVHT04	HT-AC, 300, 600, 900 and 1,200 mm
HT-DC	DC versions, four lengths, to +110 °C
65K · 40K · 27K	6500 K · 4000 K · 2700 K
.20 · .40 · .60 · .120	HT optic suffix. 120° is the standard build
BORO	Diffuse borosilicate front instead of chemically hardened glass

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

COMBINATIONS

HT optic with any length	Possible
Borosilicate front	Any version
DC to +110 °C	Standard
Bi-colour or amber	Not available
Internal driver	Not on the HT versions
Linking	On request

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 IK09 · 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/linear-industriele-led-verlichting

WHERE IT EARNS ITS PLACE

A drying tunnel, a climate chamber or a paper machine is a long narrow hot space, and it is normally lit by whatever survives rather than by what fits. The Linear HT is the only luminaire in the range that is both linear and capable of carrying an optic at +120 °C, which is what lets the light run along the machine instead of pooling under 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.