OPTIMIZED LIGHTING DISTRIBUTION FOR TUNNELS

GOLEDO-T is HEPER's true engineering masterpiece in tunnel lighting. It rises above years of experience in the field and R&D work. Combining high-quality materials with exceptional optics, GOLEDO-T is a product that can meet the needs of a wide range of tunnel projects.

IT'S TECHNICALLY SUPERIOR!
Tunnel Lighting is the most technical and fundamentally broad one of all lighting applications. Beam directions, lux levels, luminance and illuminance levels, thresholds, etc. become exceptionally important when it comes to tunnels. Due to the fact that optimum tunnel lighting is directly related to driver's safety, from project to product design, many criteria have to be handled carefully to light up tunnels in the most adequate way.

WE'RE EXPERIENCED!
At HEPER, we have a proud history of over a decade of working in tunnel lighting applications. In the course of time, we have completed many significant tunnel projects successfully all around the world.

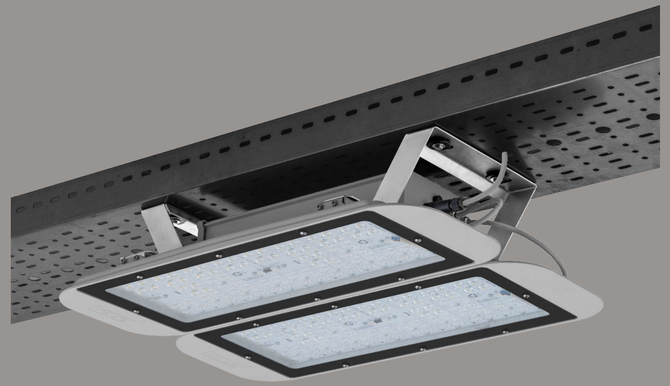
DESIGNED TO RESIST TOUGH CONDITIONS!
It is a fact that tunnels host corrosive atmospheric conditions and limited access. Therefore, high quality, low copper die-cast aluminium is used and all the developments have been made to make the product with the longest life possible. GOLEDO-T is a robust and corrosion-free luminaire with outstanding thermal management. Also; installation, dismantling, and maintenance processes are as easy as it gets.

IT'S ALL ABOUT SAFETY!
GOLEDO-T is a product that meets the latest technology requirements and fundamentals in tunnel lighting for which the objective is to allow traffic to safely enter, pass through and exit the tunnel and do so without needing to reduce speed to identify objects and obstacles. It can also meet the different illumination needs for different zones in tunnels. Finally, it can be easily implemented with different types of control options to make sure the safety requirements are met for different times of the day.

HIGH-QUALITY AND FLEXIBLE LENSES!
Equipped with lenses specially designed for tunnels and underpasses with the latest technology LEDs and its modern architecture combined with modular design, GOLEDO-T promises to provide driver comfort and a safe journey thanks to its optimised light distribution. These high-quality and flexible lenses are also nature friendly with no use of chemicals.

GOLEDO-T

Dynamic and Powerful
Tunnel Lighting Family



heper

A true engineering masterpiece with outstanding thermal management and dozens of optical distribution options, GOLEDO has different lens options flexible to match any tunnel lighting project.

- Advanced optical technology allowing case-specific lighting design for turnkey tunnel projects
- Durable material and component selection for harsh working conditions within tunnels and underpasses
- Adaptable performance for global and country specific tunnel and underpass lighting regulations and requirements
- Easy installation and maintenance with direct cable-tray or ceiling mount bracket design
- Flexible power and light distribution options for various tunnel zones

IK08 IP66

ZONES TYPES

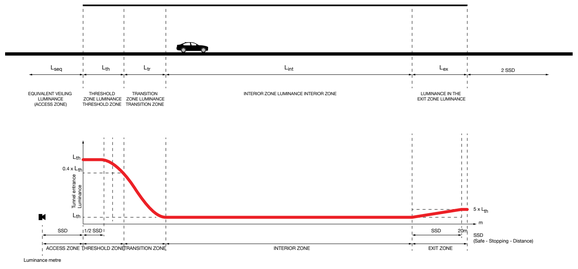
1 - Access zone
The part of the open road in front of the tunnel portal in the approach direction, covering the distance over which an approaching driver is able to see tunnel entrance. The access zone begins at the stopping distance before of the entrance portal and it ends at the tunnel entrance portal.

2 - Threshold zone
The first part of the tunnel, just after the entrance portal. The threshold zone starts either at the beginning of the tunnel or at the beginning of the daylight sunscreens when occurring. The length of the threshold zone is at least equal to the stopping distance.

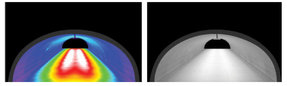
3 - Transition zone
The part of the tunnel starts from just after the threshold zone and ends at the beginning of interior zone. The lighting level in the transition zone is decreasing from the level at the end of the threshold zone to the level of the interior zone. Interior zone: the part of the tunnel after the transition zone till to the beginning of the exit zone.

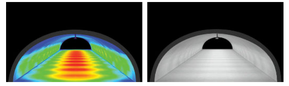
4 - Interior zone
The part of the tunnel after the transition zone till to the beginning of the exit zone.

5 - Exit zone
The exit zone begins at the end of the interior zone, ends at the exit portal of the tunnel.



DESIGN CRITERIA





Tunnel
Tunnel is the structure over a roadway that restricts the normal daytime natural illumination of a roadway section such that the driver's visual sensation is diminished. In order to classify changing lighting requirements along with the tunnel length, tunnel is evaluated in the form of sub interior zones: the access zone, the threshold zone, the transition zone, the interior zone, the exit zone and parting zone.

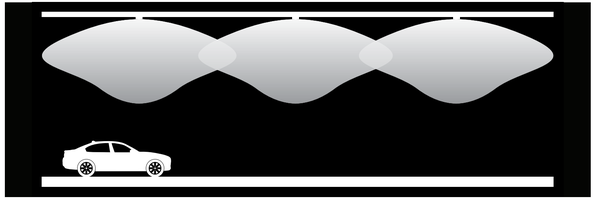
Traffic Flow
The number of vehicles passing a specific point in a stated time in stated direction(s). In tunnel design, peak hour traffic, vehicles per hour per lane, will be used.

Design Speed
The design speed is the speed for which the tunnel is laid out. It is generally accepted that this speed is the maximum speed allowed on the access roads to the tunnel.

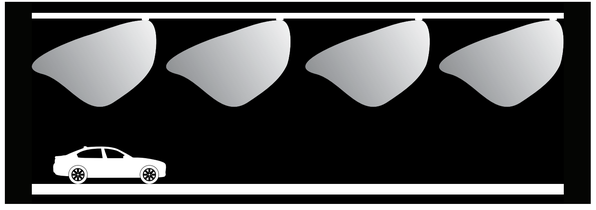
Reference Point
The reference point is in principle the point located in the centre of the approaching lanes, at a height of 1,5 m and at a distance from the entrance of the tunnel equal to the stopping distance (SD) at the design speed.

Stopping Distance
Stopping distance is the distance necessary to stop the vehicle moving at the speed in question in total safety. It comprises the distance covered during the reaction time and during the braking time.

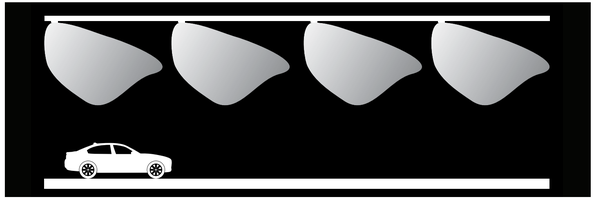
TUNNEL LIGHTING DISTRIBUTION TYPES



Symmetric lighting
The lighting where the light equally falls on objects in directions with and against the traffic. Symmetric lighting is characterized by using luminaries that show a luminous intensity distribution that is symmetric in relation to the plane normal to the direction of the traffic.

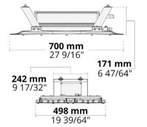


Counter-beam lighting
The lighting where the light falls on objects from an opposite direction to the traffic. Counter-beam lighting is characterized by using luminaries that show a luminous intensity distribution that is asymmetric in relation to the plane normal to the direction of the traffic, where the maximum luminous intensity is aimed against the direction of the traffic. The term refers only to the direction of normal travel.

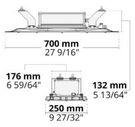


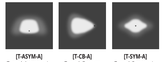
Pro-beam lighting
The lighting where the light falls on objects in the same direction as the traffic. Pro-beam lighting is characterized by using luminaries that show a luminous intensity distribution that is asymmetric in relation to the where the maximum luminous intensity is aimed in the same direction as the direction of the traffic.

LT2037.760 / LT2037.768



LT2037.761 / LT2037.765
LT2037.766 / LT2037.767





[T-ASYM-A]
Tunnel, Asymmetric, Type A

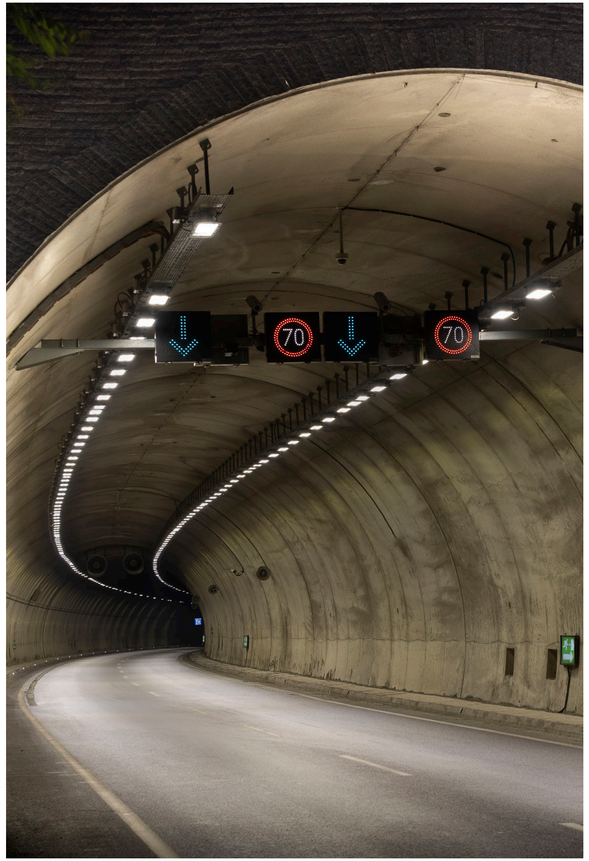
[T-CB-A]
Tunnel, Counter beam, Type A

[T-SYM-A]
Tunnel, Symmetric, Type A

Product code	Product name	Delivered lumens flux	Rated input power	Colour temperature	Control	Weight
LT2037.761-EN	GOLEDO-T 32 LED	4881 - 9490 lm	50 - 70 W	2200 K CRI 70, 3000 K CRI 70, 4000 K CRI 70	On/Off, DALI, StepDIM	8.86 kg
LT2037.765-EN	GOLEDO-T 40 LED	5579 - 12560 lm	64 - 90 W	2200 K CRI 70, 3000 K CRI 70, 4000 K CRI 70	On/Off, DALI, StepDIM	9.01 kg
LT2037.767-EN	GOLEDO-T 64 LED	8927 - 19700 lm	116 - 136 W	2200 K CRI 70, 3000 K CRI 70, 4000 K CRI 70	On/Off, DALI, AstroDIM(3-Step), StepDIM	9.4 kg
LT2037.766-EN	GOLEDO-T 80 LED	11159 - 23630 lm	121 - 170 W	2200 K CRI 70, 3000 K CRI 70, 4000 K CRI 70	On/Off, DALI, AstroDIM(3-Step), StepDIM	10.06 kg
LT2037.768-EN	GOLEDO-T 128 LED	22095 - 39410 lm	193 - 272 W	3000 K CRI 70, 4000 K CRI 70	On/Off, DALI, AstroDIM(3-Step), StepDIM	18.75 kg
LT2037.760-EN	GOLEDO-T 160 LED	28568 - 47260 lm	242 - 340 W	3000 K CRI 70, 4000 K CRI 70	On/Off, DALI, AstroDIM(3-Step), StepDIM	18.75 kg

Extras

External surge protection	Connectivity	Finishing options	Light output
10 kV		MG	CLO
[SP10] 10 kV	**[NM7]** NEMA 7 Socket	**[MG]** Marine grade coating	**[CLO]** Constant light output

[CC]
Custom Colour (Please specify RAL code)

[7035]
Light grey (RAL 7035)