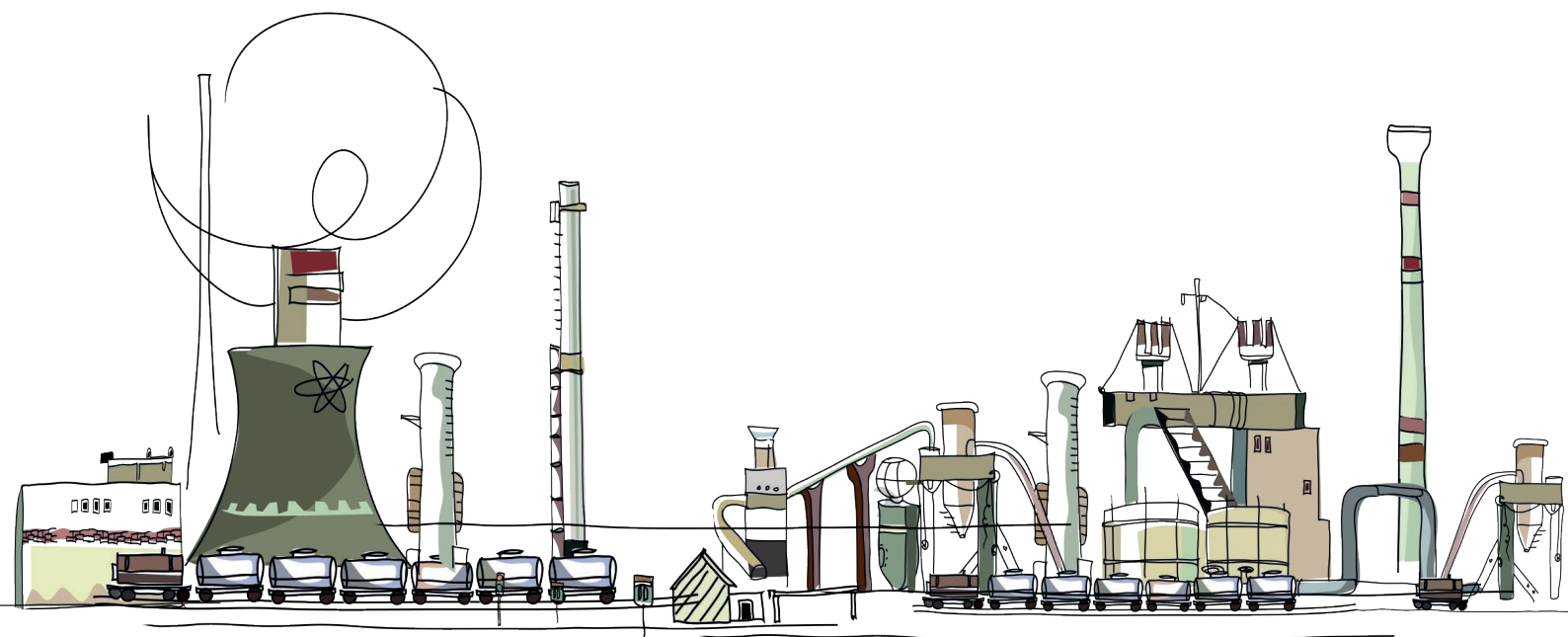
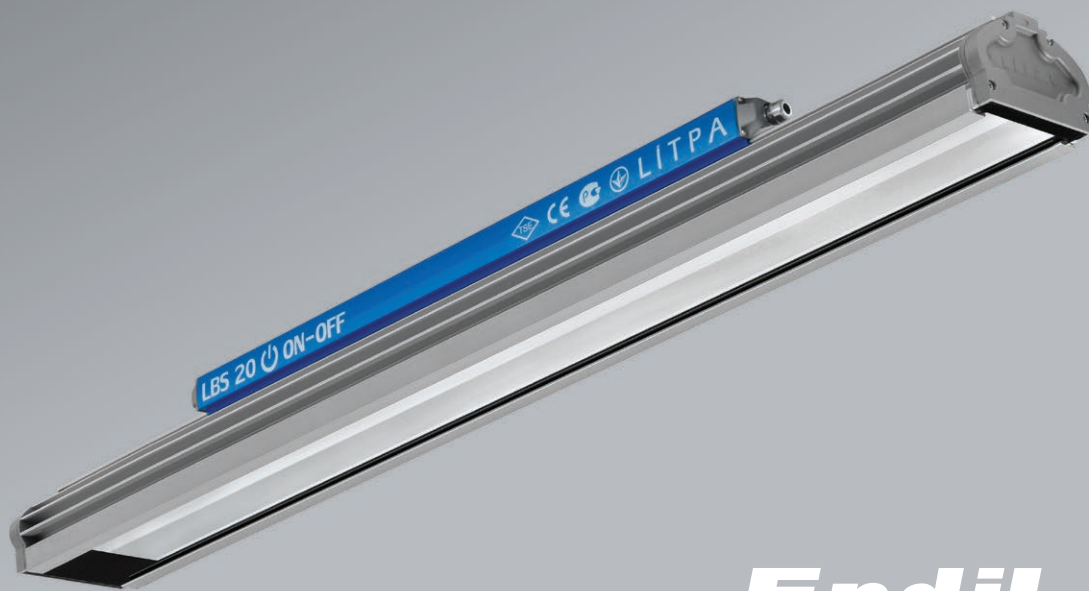


**EndiLED**

L I T P A





# EndiLED

## LBS

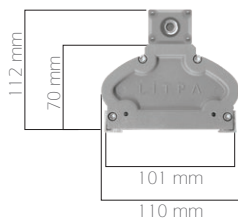


Body : Aluminum injection body and aluminum end caps.  
 Reflector : Alanod Miro-Silver 4 (Narrow and Medium models)  
 Diffuser : Tempered glass, or tempered break-resistant glass with a layer of film  
 LED Type : High efficient Mid-Power LED

IP66

Type	Length (mm)	System Luminous Flux (lm)	System Power (W)	LED Type
LBS6	796	6.000	40	High efficient Mid-Power
LBS9	796	8.800	60	High efficient Mid-Power
LBS12	1.396	11.900	80	High efficient Mid-Power
LBS20	1.396	20.000	130	High efficient Mid-Power

- The luminous flux values (lm) of the system given in the table illustrate the total luminous flux from the luminaire.
- Electric power values (W) of the system given in the table show the total power drawn from the system including the power drawn by the driver.
- The system efficiency of the luminaires is between 130-150lm/W in accordance with power, color temperature and optical structure.
- Luminaire working temperature (driver included) is -20°C ~ +50°C



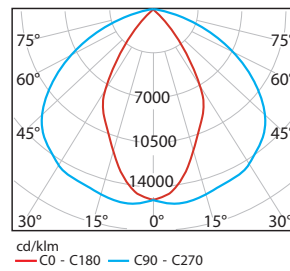
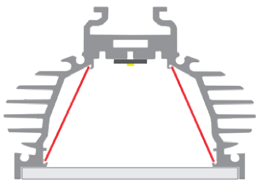
Code	Length (a)	Weight	Box Dimensions
LBS 6	796 mm	4 kg	85x12x12 cm
LBS 9	796 mm	4 kg	85x12x12 cm
LBS 12	1.396 mm	8 kg	145x12x12 cm
LBS 20	1.396 mm	8 kg	145x12x12 cm



Optical system: To achieve optimal efficiency from the lighting luminaire, EndiLED utilises reflectors with Alanod Miro-Silver technology that achieve 98% optical light reflectivity. Three beam angle options are available to suit the application suspension height. These are narrow, for areas of 10 meters or higher, medium, for areas between 6 and 10 meters, wide, for use in areas lower than 6 meters.

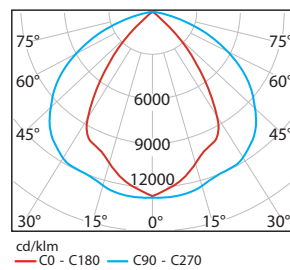
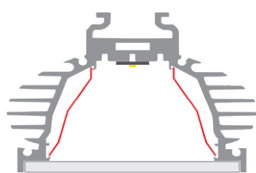
### Narrow Angle

(ceiling height in excess of 10 meters)



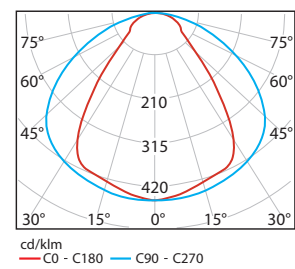
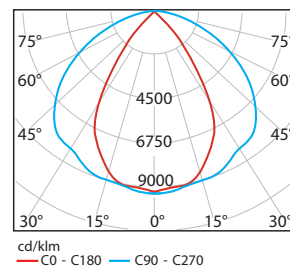
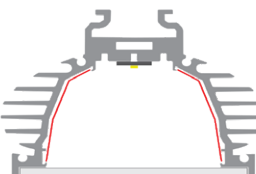
### Medium Angle

(ceiling height between 6 - 10 m)



### Wide Angle

(ceiling height lower than 6 m)



Existing busbar trunking.

Busbar assembly bracket.

Cable tray and ceiling mounting bracket.

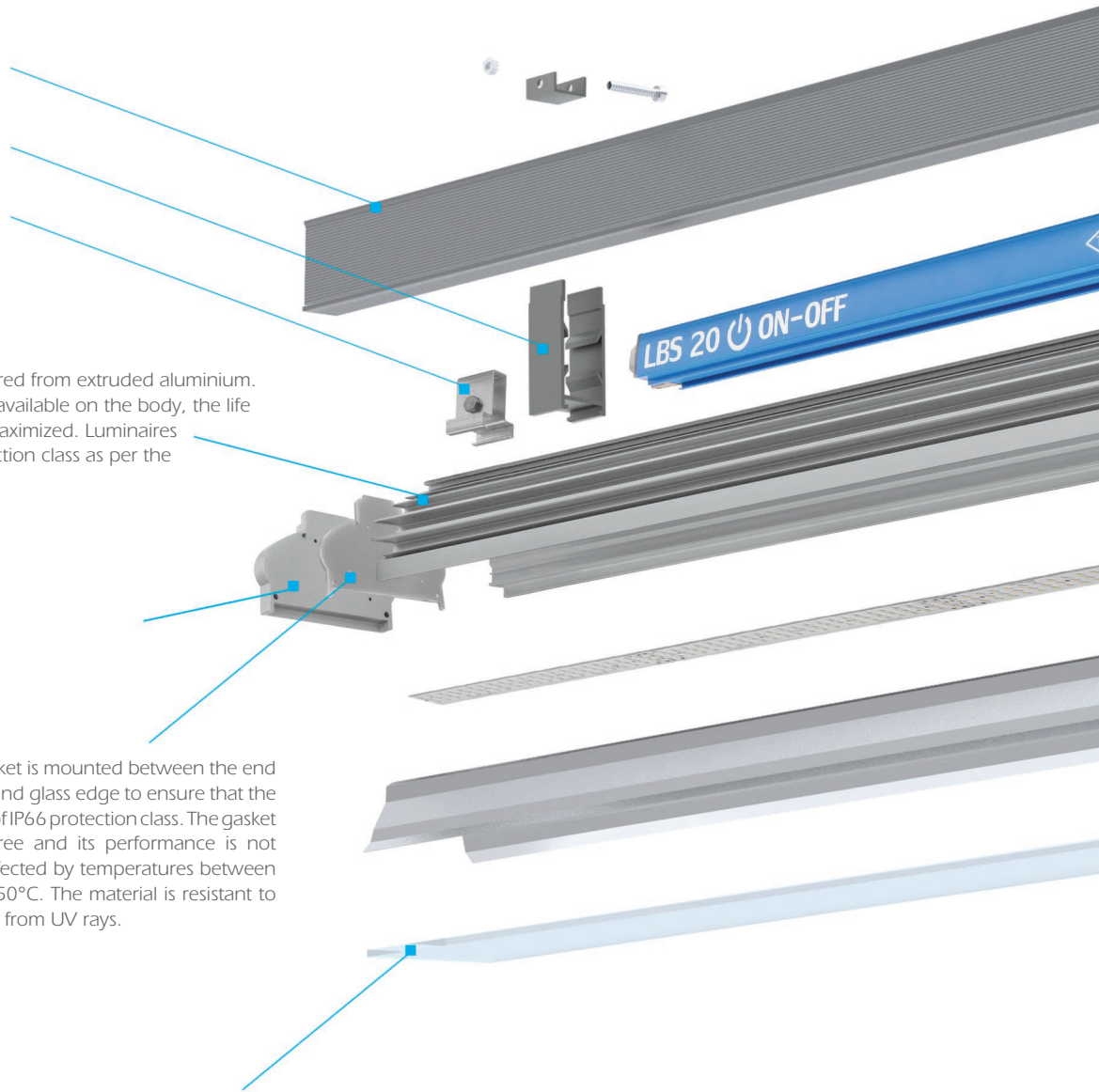
The EndiLED body is manufactured from extruded aluminium. Thanks to the cooling channels available on the body, the life and efficiency of the LEDs are maximized. Luminaires are manufactured to IP66 protection class as per the industrial application.

Aluminum injection end caps.

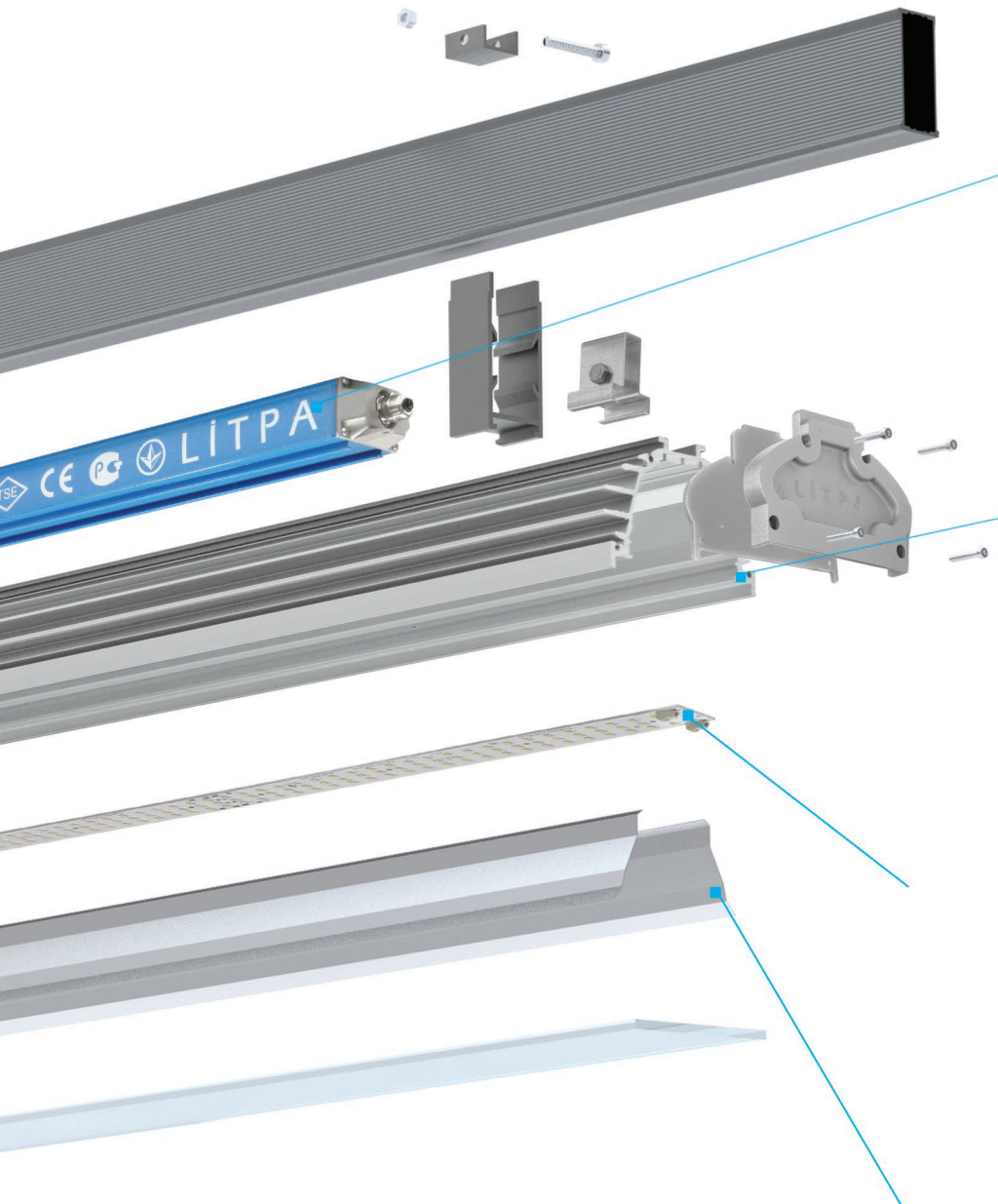


A silicon gasket is mounted between the end cap / body and glass edge to ensure that the luminaire is of IP66 protection class. The gasket is halogen-free and its performance is not adversely affected by temperatures between  $-60^{\circ}\text{C}$  to  $+250^{\circ}\text{C}$ . The material is resistant to degradation from UV rays.

In front of the luminaire, tempered glass or film overlaid by break-resistant tempered glass can be used in line with the industrial requirements.

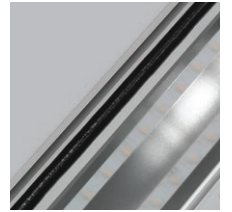




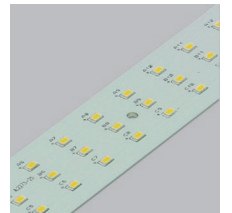


The driver unit is firmly fixed in the luminaire by entering the the channel on the luminaire. Gaskets and fittings used in the driver are designed to meet the requirements of the IP66 protection class. On-Off and Dimmable high efficiency drivers are used within the luminaires. If the luminaire is required with safety kit, it is served in the same unit with the driver.

A polyurethane liquid cast gasket applied by robot provides equal load bearing thickness at each and every point ensuring uniform compression force between the glass and the body and for maximum assurance of ingress protection.



Superior LED technology: The LEDs are driven with 65 mA current and the characteristics of the LEDs are @25°C, @4000K, 190-210 lumen. The system efficiency is increased by selecting a lower driving current of the luminaire. Aluminium based PCBs are used within EndiLED units to ensure efficient thermal distribution and cooling. The flexibility of design incorporated into the EndiLED range provides many luminaire model options with lengths (68-128 cm) and luminous flux light output choices ranging from 6,800 to 20,000 lumens.

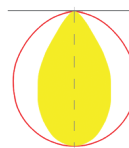


Optics: To obtain the optimal efficiency from the EndiLED luminaire, reflectors are used that are manufactured by using Alanod Miro-Silver technology with 98% optical efficiency or with super efficient WhiteOptics reflectors. Depending on the application area, there are narrow angle reflectors available for areas of 10 meters or higher, wide-angle reflectors for use in areas lower than 6m.

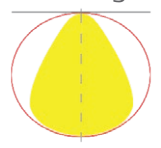
Narrow Angle



Medium Angle



Wide Angle





On-Off and dimmable drivers can be used within the luminaires in accordance with the purpose of the usage. The driver units and cable fasteners meet the requirements of protection class IP65. If required, safety kit functioning during power outages can be installed in the luminaire.

## Driver



ON - OFF

- 198V- 264VAC operating range
- Power Factor  $\cos \varphi > 0,95$
- Efficiency  $> 92\%$
- (THD)  $< 12\%$
- Short circuit, open circuit, overload, over-heating protected
- RI suppression EN 55015
- Mains harmonics EN 61000-3-2



DIMMABLE



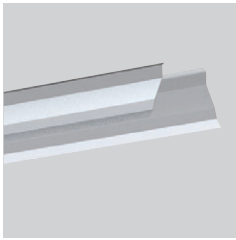
EMERGENCY UNIT

## LED



- Minimum heating with special design (1.25 °C/W)
- Different colour temperatures ( 4.000 K - 5.000 K - 6.500 K )
- High color rendering (70 - 80 – 90 CRI )
- @ 85 °C LM 80-08 test report
- $\geq 50.000$ hrs economical life as IESNA TM-21
- 3-step MacAdam Ellipse
- Exceeds ENERGY STAR® lumen maintenance requirements

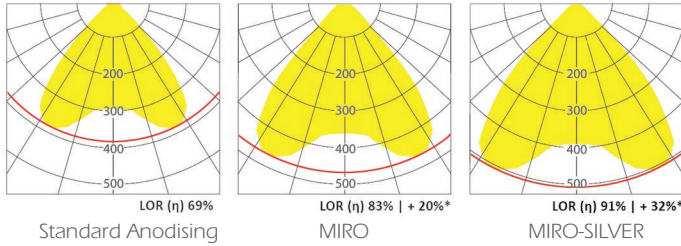
## Reflector (Narrow Angle)



Two types of reflectors are available for different ceiling heights. Narrow angle utilise Miro-Silver 4 reflectors that are manufactured by the German Alanod company. For areas of 10m or higher, narrow-angle reflectors are used.



### Anodised Reflector Comparison

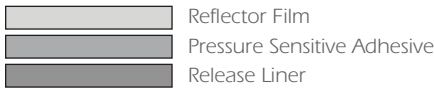


The left diagram shows the comparison of reflectors with the same shape and beam spread and shows the variation in aluminium types. Although the optical diffusion differences between the standard anodized aluminium (3506), Miro-Aluminium and Miro-Silver aluminium that are manufactured by Alanod show similar characteristics, there are major light efficiency differences. The improved efficiency of Miro-Silver is 32% higher than of standard anodising. For purposes of maximizing the efficiency of LITPA LED luminaires we use Miro-Silver aluminium.

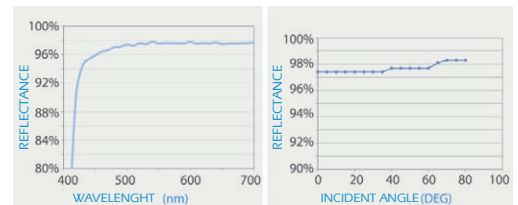
Product	Code	Total Reflection %	Diffuse Reflection%	Brightness 60° along ISO 7668	Brightness 60° across ISO 7668	Reflector material efficiency class
MIRO-Silver 4	4400 AG	≥98	≤12	91	90	<b>A+</b>

## Reflector (Wide-Angle)

Wide-Angle EndiLED reflectors are recommended for suspension heights of less than 6m, With this option reflective panels used of high dispersion quality and efficiency of 98%, these reflectors are manufactured by the American White Optics Company.



Product	Type	Diffuse %	Gloss 60° %	Gloss 85° %
White Optics	F16	98	<3	<5



## Diffuser



In front of the luminaires, either tempered glass or a film coated break-resistant tempered glass is used dependant on the industrial requirements.

L I T P A

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